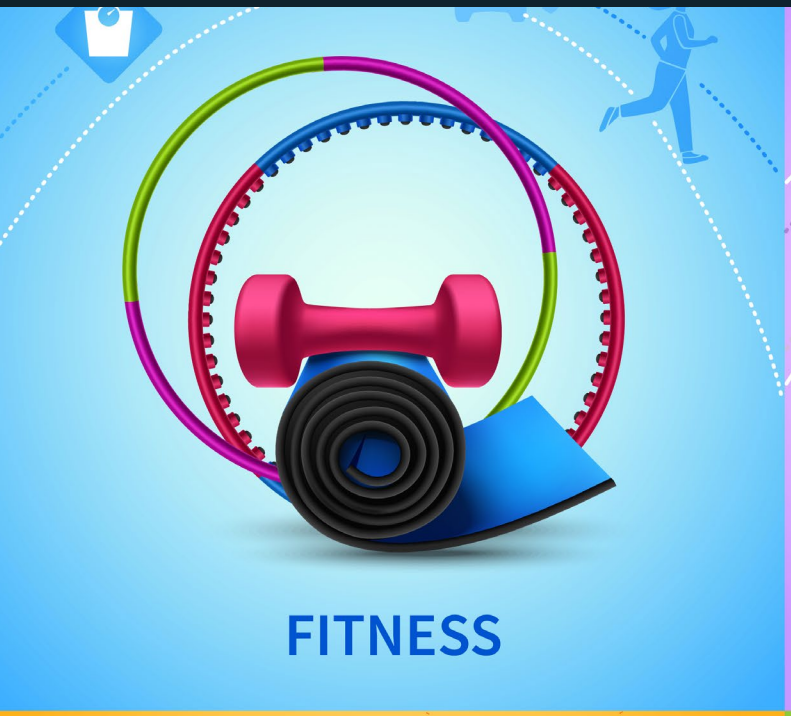
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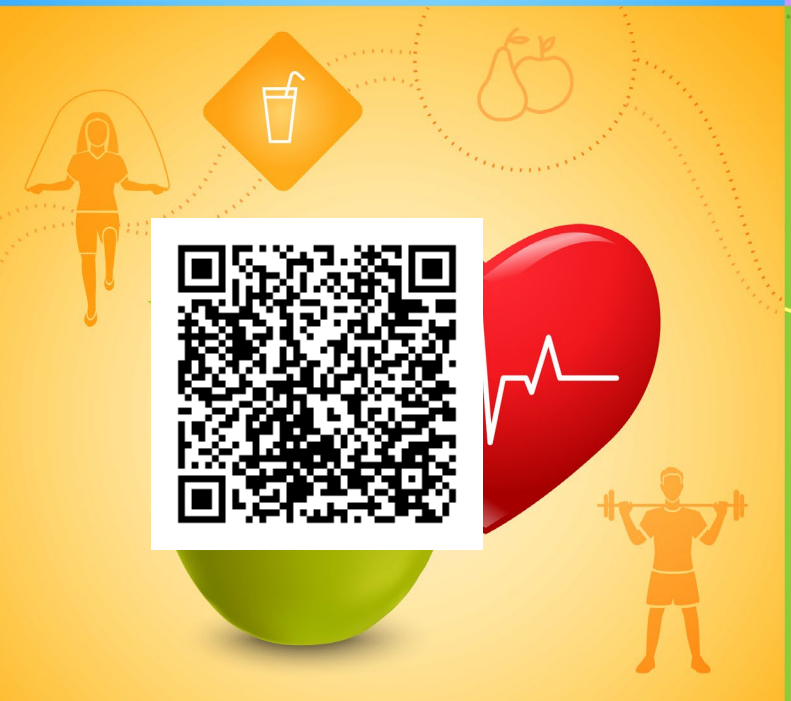
Physical Education and Health (Elective)

For Senior High Schools

TEACHER MANUAL







YEAR THREE

NATIONAL COUNCIL FOR CURRICULUM & ASSESSMENT OF MINISTRY OF EDUCATION

MINISTRY OF EDUCATION

REPUBLIC OF GHANA

Physical Education and Health (Elective)

For Senior High Schools

Teacher Manual

Year Three

NATIONAL COUNCIL FOR CURRICULUM & ASSESSMENT OF MINISTRY OF EDUCATION

PHYSICAL EDUCATION AND HEALTH (ELECTIVE) TEACHER MANUAL

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Introduction for the Year Three Teacher Manual

The National Council for Curriculum and Assessment (NaCCA) has developed the third and final set of curriculum materials to support the implementation of the new Senior High School curriculum.

This Year Three Teacher Manual for covers all aspects of the content, pedagogy, teaching and learning resources and assessment required to effectively support learners in their final year of Senior High School. All the necessary information for the Student Assessment Portal has been included in the Year Three Teacher Manual to simplify the development of weekly learning plans, meaning that teachers have a single reference document.

The Year Three Teacher Manual has two main objectives:

- To support learners to consolidate and deepen their understanding of the content, pedagogy, and assessment across all three years of the new Senior High School curriculum in preparation for the West Africa Senior Secondary Certificate Examination (WASSCE).
- To equip teachers with the tools and resources needed to deliver revision-focused, assessment-led lessons that build on the knowledge learners have acquired from Year One to Year Three.

In this third year, teachers will be supporting learners to prepare for the WASSCE. Each section of the Teacher Manual is therefore structured around the highest Depth of Knowledge (DoK) levels, allowing learners to build progressively on knowledge acquired from Year One to Year Three. For each week, learning tasks and pedagogy are built around the assessment, ensuring that classroom activities directly prepare learners for the demands of the examination. Two sets of sample examination papers are also provided; one administered by Week 12 as a first semester practice examination, and one by Week 20 as a mock examination, to gauge learners' competencies and identify areas requiring remediation.

To further support teachers in delivering Year Three, NaCCA, working with the Ghana Education Service, has developed a subject specific App for each subject.

The Year Three PLC sessions have been revised in response to findings from the 2025 annual evaluation survey. The survey confirmed that teachers have made strong progress in lesson planning, use of varied instructional methods, ICT integration and modes of assessment. To address the identified gap in explaining concepts clearly using examples familiar to learners, each PLC session now includes a dedicated Content Exploration segment. This ten-minute segment brings the subject group together to work through one challenging problem or concept from the week's Teacher Manual content, not to plan how to teach it, but to ensure that every teacher in the group fully understands it.

The PLC sessions in Year Three also place particular emphasis on connecting the week's content to equivalent topics taught in Years One and Two. Teachers are encouraged to note the recap weeks signposted throughout the Teacher Manual and to use the App to explore how content across all three years links together.

As in previous years, teachers are expected to integrate National Values, Gender Equality and Social Inclusion (GESI), Social and Emotional Learning (SEL), and 21st-century skills into their learning activities, assessment tasks, and rubrics and mark schemes. The subject-specific App will support teachers in doing this throughout the year.

Ghana Education Service acknowledges the dedication of the teachers who have implemented the new curriculum across Years One and Two and recognises that Year Three represents both the culmination of that effort and a critical moment for learners. The Year Three Teacher Manual and its accompanying resources have been developed to ensure that every learner, regardless of background, ability, or school context, is fully prepared to demonstrate what they know and can do in the WASSCE and to progress confidently to further studies, the world of work, and adult life.

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Special thanks to Professor Samuel Ofori Bekoe, Director-General of the National Council for Curriculum and Assessment (NaCCA) and all who contributed to the successful writing of the Teacher Manuals for the new Senior High School (SHS) curriculum.

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SECTION 1: MENTAL HEALTH AND THEIR COMMON FORM

STRAND: HEALTH EDUCATION

Sub-Strand: Health and Wellness

Learning Outcome: *Explain the concept of mental health and identify the common forms.*

Content Standard: *Demonstrate knowledge and understanding of mental health in adolescence*

INTRODUCTION AND SECTION SUMMARY

Mental health is a central component of overall well-being. This indispensable concept covers emotional, psychological, and social resilience. In this 21st century fast-paced, high-pressure world, understanding and addressing mental health challenges has become essential to fostering healthier individuals and communities. The growing prevalence of mental health challenges among individuals, especially in adolescents and young adults necessitates a comprehensive understanding of mental health issues, their manifestations, and strategies for effective management. Accordingly, this section explores three critical areas: the fundamentals of mental health and its common forms, inclusive practical strategies to managing stress and anxiety, and adaptable cultural and social approaches to coping with depression while prioritising suicide prevention. By examining these vital areas of health concerns, individuals will gain the requisite knowledge and understanding of these conditions, so as to enhance possible preventive measures, reduce stigma, and promote proactive mental health care.

The weeks covered in this section include the following:

***Week 1*:** Explain the concept of mental health and identify the common forms.

Week 2: Explain how to cope with stress and anxiety.

Week 3: Discuss how to cope with depression and prevention of suicide.

SUMMARY OF PEDAGOGICAL EXEMPLARS

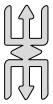
Effective teaching encompasses several approaches that engage learners meaningfully, making learning applicable to real-life situations with attention to inclusive engagement. To effectively achieve the learning outcome on mental health and its common forms, teachers are to employ learner-centred and participatory pedagogical approaches that encourage critical thinking and personal reflection with real-world relevance. Active learning approaches, such as case studies, role-playing, flipped classrooms, problem-based learning, and many more allow learners to explore scenarios on academic stress or social anxiety, fostering empathy and contextual understanding. Discussions about adolescent-specific challenges, identity formation, peer and social media influences, etc. can be harmonised with mindfulness exercises and cultural support systems to demonstrate practical coping skills. Integrating technology, such as audios, audio-visuals, infographics, etc. featuring youth mental health advocacies and interactive debates, promote conversations while catering for learners with

special needs. Collaborative approaches, like peer-led presentations and guest speaker's engagement by counsellors, clarifies disorders such as, depression, anxiety, eating disorders, etc. and highlight help-seeking as a strength, with the creation of a safe, inclusive environment**.**

ASSESSMENT SUMMARY

To evaluate learners' understanding of mental health in adolescents and their ability to identify common disorders, teachers are encouraged to leverage on both formative and summative assessments approaches. These approaches at this stage should focus on level 3 assessment modes where learners' ability to demonstrate both strategic reasoning and extended critical thinking and reasoning skills, are brought to bear.

The use of appropriate pedagogical strategies such as case study, individual and group projects, etc. where learners evaluate real-world scenarios involving individuals experiencing social anxiety linked to academic, family, work, etc. pressure, are examples that could address a level 3 assessment need, as learners identify disorders, assess contributing factors and propose evidence-based coping strategies. Both levels require learners to move beyond mere identification toward application, analysis, and creation of solutions that demonstrate deep understanding of adolescent mental health concepts.



Note

Teachers are encouraged to also employ appropriate assessment strategies and modes that best suit their lessons and learning environments to achieve the required learning outcome.

Recap the following weeks from Year 1 and 2

Year 1	Week 1: Explain the concepts of health and wellness. Week 3: Discuss the various components of health and wellness.
Year 2	Week 6: Explain the various mental health conditions. Week 7: Discuss the factors that promote positive mental and emotional health.

RECAP

Year 1

This section laid the groundwork for understanding the fundamental concepts of health and wellness, distinguishing the two and investigating their interdependence. Learners began by defining health and healthy living, which provided a foundation for their understanding of physical, mental, and social well-being. We then looked at the broader concept of wellness, highlighting its dynamic and holistic nature, which includes growth and the pursuit of optimal well-being across multiple dimensions.

A key focus was on identifying risk factors that affect health and wellness, as well as highlighting elements that can have a negative impact on our overall state. In contrast, learners investigated behaviours that do not promote good health and those that impede wellness, emphasising the importance of making choices that affect our well-being.

Furthermore, learners explored the critical role of health and wellness in sports performance, demonstrating the critical link between overall well-being and athletic success.

Year 2

This year, learners were introduced to important aspects of mental health, such as different mental health conditions and factors that promote positive mental and emotional well-being. They investigated common mental health conditions, their characteristics, and how they affect daily life, raising awareness about the importance of mental health as part of overall wellness.

In addition, discussions focused on the role of emotional resilience, support systems, and self-care practices in promoting mental health. Learners gained a basic understanding of mental health conditions, including identifying symptoms and potential effects on individuals. They investigated ways to promote positive mental and emotional health, such as cultivating supportive relationships, living a balanced lifestyle, and managing stress effectively.

Final Year

In their final year, learners will study three areas: the fundamentals of mental health and its various forms, practical stress and anxiety management strategies, and culturally adaptable approaches to dealing with depression while prioritising suicide prevention. Examining these critical health concerns will provide individuals with the knowledge and understanding needed to improve preventive measures, reduce stigma, and promote proactive mental health care.

WEEK 1

Learning Indicator: *Explain the concept of mental health and identify the common forms*

FOCAL AREA: CONCEPT OF MENTAL HEALTH AND IDENTIFY THE COMMON FORMS

1. Understanding Mental Health

Mental health, in essence, refers to our emotional, psychological, and social well-being. It influences how we think, feel, and act, and it plays a significant role in how we handle stress, relate to others, and make choices. It's not simply the absence of mental illness; rather, it's a state of overall well-being that allows us to thrive and cope with the normal stresses of life.

The World Health Organisation (WHO) describe mental health as a state of mental well-being that enables people to cope with the stresses of life, realise their abilities, learn well and work well, and contribute to their community. It has intrinsic and instrumental value and is integral to our well-being



Figure 1.1: *A person being given psycho-social support for their mental health*

a. Causes of Mental Health Disorders

The exact causes of individual mental health disorders are unknown, but years of research reveal a combination of biological as well as psychological and environmental factors as significant contributors. What do these factors mean?

i. **Biological factors**: Some disorders are linked to abnormal functioning of nerve cell circuits or pathways that connect specific brain regions. Injury or defects in particular brain areas also cause a few disorders. Other biological factors leading to mental illness include genetics, infections, prenatal damage, and substance abuse.

ii. **Psychological factors**: These contributors relate to how an individual connects with others. Attitudes and behaviour often aggravate mental disorders or symptoms, with some instances resulting in hospitalisation or a visit to an emergency room. Psychological factors that may contribute to mental illness include neglect, loss of a loved one, dysfunctional family life, inability to relate to peers, and social or cultural expectations.

iii. **Environmental factors:** This can also affect our mental health in how they impact us psychologically. Your environment might raise or lower your stress levels, for instance. Factors like noise, natural light, air quality, and social surroundings can all shape your thoughts and emotions. This can change your mental wellness overall, either serving to protect your psychological health or opening the door for mental illness to set in.

b. Common Mental Health Disorders

Mental health disorders are conditions that affect a person's thinking, feeling, behaviour, or a combination of these. There are many different types of mental health disorders, each with its own set of symptoms and characteristics. Here are some of the more common categories:



Figure 1.2: *Common forms/types of mental illness*

i. **Anxiety disorders**

Anxiety disorders involve excessive fear, worry, or apprehension that is strong enough to interfere with daily life. These feelings can be difficult to control and may lead to avoidance behaviours.



Figure 1.3: *A person suffering from anxiety disorders*

- **Signs and Symptoms:** These can vary depending on the specific anxiety disorder but often include:
  - Persistent worrying or fear
  - Feeling restless, on edge, or irritable
  - Difficulty concentrating
  - Sleep disturbances
  - Physical symptoms such as a racing heart, sweating, trembling, or shortness of breath.

- **Risk Factors:** Factors that may increase the risk of developing an anxiety disorder include:
  - Family history of anxiety
  - Traumatic experiences
  - Chronic illness
  - Stressful life events
  - Certain personality traits, such as high levels of neuroticism.
- **Impact on Daily Life:** Anxiety can significantly impact various aspects of life, including:
  - **Relationships:** Difficulty forming or maintaining close relationships due to fear of judgment or social situations.
  - **Work/Studies:** Reduced productivity, difficulty concentrating, absenteeism.
  - **Physical Health:** Long-term anxiety can contribute to other health problems.
  - **Overall Well-being:** Reduced enjoyment of life and feelings of constant unease.
- **Treatment and Support:** Effective treatments and support are available, including:
  - **Therapy:** Cognitive Behavioural Therapy (CBT), Exposure Therapy, and Acceptance and Commitment Therapy (ACT) are often used.
  - **Medication:** Antidepressants and anti-anxiety medications can help manage symptoms.
  - **Lifestyle Changes:** Regular exercise, mindfulness techniques, and a healthy diet can be beneficial.
  - **Support Groups:** Connecting with others who have similar experiences can provide valuable support.

ii. Mood Disorders

Mood disorders, also called affective disorders, involve persistent feelings of sadness or periods of feeling overly happy, or fluctuations from extreme happiness to extreme sadness.



Figure 1.4: *A woman suffering from mood disorders*

- **Signs and Symptoms:** These depend on the specific mood disorder but can include:
  - **Depression:** Persistent sadness, loss of interest or pleasure, changes in appetite or sleep, fatigue, feelings of worthlessness, difficulty concentrating, thoughts of death or suicide.

- **Bipolar Disorder:** Extreme shifts in mood, from periods of intense highs (mania or hypomania) with increased energy, racing thoughts, and impulsivity, to periods of low mood (depression).

- **Risk Factors:** Risk factors for mood disorders can include:
  - Family history of mood disorders
  - Major life changes or trauma
  - Hormonal changes
  - Substance misuse
  - Chronic stress.
- **Impact on Daily Life:** Mood disorders can have a profound impact on:
  - **Relationships:** Difficulty maintaining stable relationships due to mood swings or withdrawal.
  - **Work/Studies:** Significant fluctuations in productivity and ability to function.
  - **Financial Stability:** Impulsive behaviour during manic episodes can lead to financial difficulties.
  - **Personal Safety:** Increased risk of self-harm or suicide, particularly during depressive episodes.
- **Treatment and Support:** Treatment often involves a combination of:
  - **Medication:** Antidepressants, mood stabilisers, and antipsychotics may be prescribed.
  - **Therapy:** Psychotherapy, including CBT and Interpersonal Therapy (IPT), can help manage symptoms and develop coping strategies.
  - **Electroconvulsive Therapy (ECT):** In severe cases of depression or bipolar disorder, ECT may be considered.
  - **Support Networks:** Family, friends, and support groups play a vital role in recovery.

iii. Personality Disorders

Personality disorders involve having extreme and inflexible personality traits that are distressing to the person and/or cause problems in work, school, or social relationships.



Figure 1.5: *Person with personality disorders*

- **Signs and Symptoms:** These vary widely depending on the specific personality disorder but generally involve:
  - Distorted patterns of thinking about oneself, others, and events.
  - Problematic emotional responses.
  - Difficulties in interpersonal relationships.
  - Impulse control problems.
- **Risk Factors:** The exact causes are not fully understood, but risk factors may include:
  - Genetics
  - Childhood trauma or neglect
  - Unstable or abusive family relationships.
- **Impact on Daily Life:** Personality disorders can significantly affect:
  - **Relationships:** Difficulty forming and maintaining healthy, stable relationships.
  - **Work:** Challenges in maintaining employment due to interpersonal difficulties or behavioural issues.
  - **Social Functioning:** Isolation and difficulty participating in social activities.
  - **Self-Esteem:** Often associated with low self-esteem and a distorted self-image.
- **Treatment and Support:** Treatment can be challenging but often involves long-term:
  - **Psychotherapy:** Dialectical Behaviour Therapy (DBT) and Schema Therapy are often used.
  - **Medication:** While there's no medication specifically for personality disorders, medication may be used to treat co-occurring conditions like anxiety or depression.
  - **Support Groups:** Can provide a sense of community and shared experience.

iv. **Psychotic Disorders**

Psychotic disorders involve distorted awareness and thinking. Two of the most common symptoms of psychotic disorders are hallucinations, (the experience of images or sounds that are not real, such as hearing voices) and delusions, (which are false fixed beliefs that the ill person accepts as true, despite evidence to the contrary).



Figure 1.6: *A woman with psychotic disorders*

- **Signs and Symptoms:** The most well-known symptoms include:
  - **Hallucinations:** Experiencing things that aren't real, such as hearing voices or seeing things.
  - **Delusions:** False beliefs that are not based in reality.
  - **Disordered Thinking:** Difficulty organising thoughts and speaking coherently.
  - **Negative Symptoms:** A reduction in normal functioning, such as reduced emotional expression, lack of motivation, and social withdrawal.
- **Risk Factors:** Factors that may increase the risk of psychotic disorders include:
  - Family history of psychosis
  - Substance misuse
  - Stressful life events
  - Differences in brain structure and chemistry.
- **Impact on Daily Life:** Psychotic disorders can have a significant impact on:
  - **Social Functioning:** Difficulty maintaining relationships and social interactions.
  - **Work/Studies:** Often leading to inability to work or study.
  - **Self-Care:** Challenges with daily tasks such as hygiene and eating.
  - **Safety:** In some cases, delusions or hallucinations can lead to risky behaviours.
- **Treatment and Support:** Treatment typically involves:
  - **Medication:** Antipsychotic medications are crucial for managing symptoms.
  - **Therapy:** Individual and family therapy can help with coping strategies, social skills, and understanding the illness.
  - **Supported Employment and Housing:** Programmes that help individuals reintegrate into the community.

v. **Eating Disorders**

Eating disorders are characterised by persistent disturbances of eating or eating-related behaviour that result in the altered consumption or absorption of food and that significantly impair physical health or psychosocial functioning.



Figure 1.7: *A man with symptoms of an eating disorder*

- **Signs and Symptoms:** These vary depending on the specific eating disorder:
  - **Anorexia Nervosa:** Restricting food intake, intense fear of gaining weight, distorted body image.
  - **Bulimia Nervosa:** Cycles of binge eating followed by compensatory behaviours such as vomiting, excessive exercise, or misuse of laxatives.
  - **Binge-eating disorder:** Recurrent episodes of eating large amounts of food in a short period, with a sense of lack of control.
- **Risk Factors:** Risk factors can include:
  - Societal pressures regarding body image
  - Family history of eating disorders or mental health conditions
  - Perfectionistic tendencies
  - Traumatic experiences
  - Low self-esteem.
- **Impact on Daily Life:** Eating disorders can have severe consequences for:
  - **Physical Health:** Malnutrition, heart problems, bone loss, and other serious medical complications.
  - **Mental Health:** Often co-occurs with anxiety, depression, and obsessive-compulsive disorder.
  - **Relationships:** Strain on relationships due to secrecy and preoccupation with food and weight.
  - **Social Activities:** Avoidance of social situations involving food.
- **Treatment and Support:** Treatment usually involves a multidisciplinary approach:
  - **Therapy:** Cognitive Behavioural Therapy (CBT), Family-Based Therapy (FBT), and Interpersonal Therapy (IPT) are often used.
  - **Nutritional Counselling:** To help re-establish healthy eating patterns.
  - **Medical Monitoring:** To address physical health complications.
  - **Medication:** May be used to treat co-occurring conditions.

vi. **Post-Traumatic Stress Disorder (PTSD)**

Post-Traumatic Stress Disorder (PTSD) can develop after a person has experienced or witnessed a traumatic event, such as a serious accident, assault, or military combat.



Figure 1.8: *Post-traumatic stress disorder patient*

- **Signs and Symptoms:** Symptoms often emerge sometime after the traumatic event and can include:
  - **Intrusion Symptoms:** Flashbacks, nightmares, and intrusive thoughts or memories of the trauma.
  - **Avoidance Symptoms:** Efforts to avoid thoughts, feelings, places, people, or activities that are reminders of the trauma.
  - **Negative Alterations in Cognitions and Mood:** Negative beliefs about oneself or the world, feelings of detachment, difficulty experiencing positive emotions, and memory problems related to the trauma.
  - **Arousal and Reactivity Symptoms:** Irritability, hypervigilance (being constantly on guard), exaggerated startle response, difficulty sleeping, and problems concentrating.
- **Risk Factors:** Factors that can increase the likelihood of developing PTSD include:
  - Severity and duration of the trauma
  - Lack of social support after the trauma
  - Previous traumatic experiences
  - Pre-existing mental health conditions.
- **Impact on Daily Life:** PTSD can significantly disrupt:
  - **Relationships:** Difficulty trusting others and forming close bonds.
  - **Work/Studies:** Concentration problems, emotional distress, and avoidance behaviours can interfere with performance.
  - **Social Activities:** Withdrawal from social situations due to anxiety or fear.
  - **Overall Well-being:** Chronic anxiety, depression, and other mental health problems are common.
- **Treatment and Support:** Effective treatments are available:
  - **Therapy:** Trauma-focused Cognitive Behavioural Therapy (TF-CBT), Eye Movement Desensitisation and Reprocessing (EMDR), and Prolonged Exposure (PE) are often used.

- **Medication:** Antidepressants can help manage symptoms of anxiety and depression associated with PTSD.
- **Support Groups:** Connecting with others who have experienced trauma can be incredibly helpful.

c. Why mental health disorders are critical to overall health and wellness.

i. Inability to learn, concentrate, or complete work.
ii. Attributes to poor grades,
iii. Contributes to absenteeism.
iv. Affects brain and cognitive functioning.
v. Impairment of daily functioning and quality of life.
vi. Elevates suicide risk and mortality rates.
vii. Poses economic burden on individuals and societies.
viii. Impact on social and economic functioning.
ix. Brings about social exclusion and stigmatisation.

LEARNING TASKS

1. Recap the concept of health and wellness, and common mental health conditions through a reflective and information scanning activity.
2. Listen to a mental health professional (guest speaker) presentation on common forms of mental health, the symptoms, risk factors and impact on one's daily life and note down key points.
3. Analyse reasons why common mental health disorders are critical to overall health and wellness.
4. Prepare a power point presentation on the impact of mental health disorders, on students' academic work and overall wellbeing.

PEDAGOGICAL EXEMPLARS

Starter: Play a short, age-appropriate video on common mental health issues and ask thought-provoking questions.

Provide verbal descriptions for learners with visual impairment, captions and written questions for learners with hearing impairment, comfortable access for learners with mobility difficulties, and simplified instructions or extra time for learners with learning needs. Allow learners to respond through speaking, writing, recording or presenting.

A YouTube Video on the Basics of Mental Health

Source: https://www.youtube.com/watch?v=DxIDKZHW3-E

a. **Introduction**

Ask learners to express their thoughts on the concept of mental health. Invite learners to discuss some of the factors that influence their mental health.

b. **Think-Pair-Square**

Learners are engaged to individually recap the concept of health and wellness, and common mental health conditions from year 1 and 2 lessons, through reflections or scanning the related weeks lessons and note down their ideas. Learners then pair and discuss their outcomes and note down their synchronised ideas. Each pair joins with another pair to form a group of four (a "square") to discuss and consolidate their ideas further. Each group presents their outcome in a concept map and shares with the whole class.

c. **Guest Speaker**

Invite a mental health professional to speak about various common forms of mental health disorders and share their experiences. In the workshop, the health professional should provide audios, audio visuals, infographics, among other mode of presentation for all learners with diverse needs to benefit.

Learners should be engaged and supported to analyse reasons why common mental health disorders are critical to their overall health, wellness and academic work.

Note

- *Guest speaker should be prompted to handle the session in an interactive manner for learners to contribute their experiences.*
- *Learners should be encouraged to acknowledge each other's efforts, contributions, and limitations, assisting each other for a healthy teamwork.*

e. Flipped Classroom

Learners in mixed groupings, apply the information gathered from the guest speaker's presentation and also research from other relevant sources to prepare a presentation on the impact of mental health disorders, on their academic work and overall wellbeing, and present it during their next class session.

Note

- *Ensure that learners share roles for all to contribute to the presentation, acknowledging each other's efforts to develop team cohesion.*
- *Teacher could add or modify approaches to suit their lessons.*
- *Make room and give adequate support to special need learners.*

KEY ASSESSMENT Level 2: Individual Class Exercise

1. Compare two common mental health conditions. For each condition, include:
   a. A description of each condition.
   b. Two symptoms of each condition.
   c. Three potential impacts on daily life.
   d. Two general management approaches for each condition.
2. Study the information below about two different mental health conditions:

Condition A: Features distorted patterns of thinking about oneself, others, and events, problematic emotional responses and impulse control problems.

Condition B: Features excessive, uncontrollable worry about multiple topics, restlessness, difficulty concentrating, irritability, muscle tension, and sleep problems.

Condition C: Features hearing voices and false fixed beliefs that the ill person accepts as true, despite evidence to the contrary.

   a. Identify each condition.
   b. For each condition, explain two risk factors associated with the mental conditions identified.

PLC Session 1

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

Note

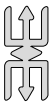
- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app

a. The key assessment for the week is ***individual class exercise***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the exercise (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 2

Learning Indicator: *Explain how to cope with stress and anxiety*

FOCAL AREA: COPING WITH STRESS AND ANXIETY.

CONCEPT OF STRESS AND ANXIETY

a. Definition

Stress is the body's reaction to a perceived threat or demand. It's a natural physiological and psychological response that can be triggered by a wide array of factors, often referred to as stressors. These stressors can be external, such as work pressures, financial difficulties, or relationship problems, or internal, like worries about performance or health.



Figure 2.1: *A woman going through stress*

b. Types

Both stress and anxiety manifest in various forms:

Table 2.1: *Types of Stress*

Type	Characteristics	Symptoms	Examples	Disabilities context
Acute Stress	Short-term, immediate response to a specific challenge	Anger, irritability, sweating, restlessness	A surprise quiz or presentation	May be triggered by unexpected changes in routine or sensory overload

Episodic Acute Stress	Frequent occurrences of acute stress	Pessimism, constant worry, hypertension, persistent irritability	Recurring deadline pressures or weekly evaluations	May result from ongoing accessibility challenges or repeated accommodation failures
Chronic Stress	Persistent, long-term stress without relief	Social withdrawal, insomnia / hypersomnia, attention deficits	Ongoing academic pressure or bullying	May develop from continuous adaptation efforts required in non-inclusive environments
Traumatic Stress	Stress resulting from exposure to traumatic events	Flashbacks, Nightmares, avoidance behaviours, detachment,	Accidents, violence, or disasters.	Increased behavioural incidents
Academic / Performance Stress	Specifically related to academic demands	Inability to focus, fear of failure, procrastination, nausea	Exam preparation, project completion	Often intensified by concerns about accommodations or differentiated assessment

c. Symptoms

Stress and anxiety can manifest through a wide range of symptoms affecting our physical, emotional, cognitive, and behavioural well-being.

i. **Symptoms of Stress**

- **Physical:** Headaches, muscle tension, fatigue, changes in appetite, sleep disturbances, digestive problems, increased heart rate, elevated blood pressure.
- **Emotional:** Irritability, anxiety, feeling overwhelmed, sadness, restlessness, lack of motivation.
- **Cognitive:** Difficulty concentrating, memory problems, negative thinking, poor judgment, racing thoughts.
- **Behavioural:** Changes in eating habits, social withdrawal, procrastination, increased use of alcohol or drugs, nervous habits (e.g., nail-biting).

d. Causes

People react differently to stressful situations. What is stressful for one person may not be stressful for another, and almost any event can potentially cause stress. For some people, just thinking about a trigger or several smaller triggers can cause stress.

Causes of Stress

Common major life events that can trigger stress include:

i. Job issues or retirement

ii. Lack of time or money
iii. Bereavement
iv. Family problems
v. Illness
vi. Moving home
vii. Relationships, marriage, and divorce

e. Anxiety

Anxiety, on the other hand, is characterised by feelings of worry, nervousness, or unease, typically about an event or something with an uncertain outcome. It's a future-oriented emotion, often involving apprehension and a sense of threat, even when no immediate danger is present. While anxiety is a normal human emotion, anxiety disorders involve excessive and persistent worry that is difficult to control and interferes with daily life.

It's important to recognise that stress and anxiety are closely intertwined. Stressful situations can often lead to feelings of anxiety, and conversely, persistent anxiety can be a significant source of stress.



Figure 2.2: *Feeling of worry*

f. Types of Anxiety

Table 2.2: *Types of Anxiety*

Types	Characteristics	Symptoms	Examples	Disabilities context
Generalised Anxiety	Persistent, excessive worry about various aspects of life	Restlessness, fatigue, muscle tension, restlessness, lack of concentration	Difficulty concentrating, fatigue, restlessness	May manifest as heightened vigilance about potential barriers

Social Anxiety	Fear of social situations and negative evaluation	Sweating, trembling, avoidance of speaking in class, isolation or withdrawal	Reluctance to participate, answer questions, or work in groups	Often compounded by concerns about peer perception of disability
Separation Anxiety	Excessive fear about separation from attachment figures	School refusal, extreme distress, persistent worry, headaches	Difficulty transitioning to school, distress during school day	Sometimes intensified for those who rely on caregivers for support
Specific Phobias in Educational Settings	Intense fear of specific objects or situations	Panic when exposed to the phobia, dizziness, avoidance of certain classes / activities	Fear of public speaking, writing on the board	May include anxiety about using assistive technology in front of peers
Test / Performance Anxiety	Extreme fear about evaluation situations	Rapid heartbeat, diarrhoea during tests, mental blocks, procrastination	Poor test performance despite content knowledge	May be exacerbated when standardised testing lacks appropriate accommodations

g. Symptoms of Anxiety

i. **Physical:** Rapid heartbeat, sweating, trembling, shortness of breath, dizziness, nausea, muscle tension, fatigue.

ii. **Emotional:** Excessive worry, fearfulness, irritability, restlessness, feeling on edge, panic.

iii. **Cognitive:** Difficulty concentrating, racing thoughts, catastrophic thinking, fear of losing control, preoccupation with worries.

Behavioural: Avoidance of feared situations, seeking reassurance, fidgeting, difficulty relaxing.

h. Causes of Anxiety

Occasional anxiety is often a response to uncertainty about the future or worry about something that happened in the past. The causes of anxiety disorder are more complex and can involve several factors. They include:

i. Current situation

ii. Past trauma

iii. Substance use

iv. Brain structure or function

v. Genetics

vi. Medical factors

i. Considering Lifestyle Changes

Adopting healthy lifestyle habits can significantly enhance our resilience to stress and anxiety and promote overall well-being.

i. **Regular Exercise:** Engaging in regular physical activity is a powerful tool for managing stress and anxiety. Exercise releases endorphins, which have mood-boosting and pain-relieving effects. It can also improve sleep quality, reduce muscle tension, and provide a healthy outlet for pent-up energy. Aim for a mix of cardiovascular exercises (like brisk walking, running, or swimming) and strength training activities. Even moderate exercise, such as a 30-minute walk most days of the week, can make a noticeable difference.



Figure 2.3: *Groups performing aerobic exercise*

ii. **Eating a Healthy Diet:** Nutrition plays a crucial role in our mental and physical health. A balanced diet rich in fruits, vegetables, whole grains, and lean protein provides the necessary nutrients for optimal brain function and can help stabilise mood. Limiting processed foods, sugary drinks, and excessive caffeine and alcohol can also be beneficial. Staying well-hydrated by drinking enough water throughout the day is also important.



Figure 2.4: *People enjoying healthy meal*

iii. **Having Adequate Sleep:** Sufficient and good-quality sleep is essential for both physical and mental restoration. Lack of sleep can impair cognitive function, increase irritability, and make us more vulnerable to stress and anxiety. Aim for 7-9 hours of quality sleep each night. Establishing a regular sleep schedule, creating a relaxing bedtime routine, and ensuring a comfortable sleep environment can significantly improve sleep quality.



Figure 2.5: *Having adequate sleep*

j. Cultural Practices that Support Students in Managing Stress

Engaging in cultural practices and activities that support self-care may help reduce stress and anxiety. These can include the following:

Examples of Cultural Practices

i. Indigenous Dance Therapy: Traditional music, drumming and dance therapy like Adowa, Borborbor, Nyoung, Kpanlogo, etc. are used to release tension and foster joy. The rhythmic patterns serve as a soothing medium in synchronising the mind and body.



Figure 2.6: *Dance therapy for managing stress and anxiety*

ii. **Communal and Family Support Systems:** Family and Community gatherings provide emotional support through shared responsibilities, storytelling, and collective problem-solving. Regular family reunions or ancestral remembrance ceremonies foster belonging and reduce isolation. This help relieves family members experiencing stress and anxiety.



Figure 2.7: *Family support for managing stress*

iii. **Peer Support and Education:** Engaging in supportive peer discussions helps individuals share experiences and coping strategies, reducing feelings of isolation. Additionally, peer support through education initiatives aim to reduce stigma and promote understanding of mental health issues provides relieve for their peers experiencing stress and anxiety.



Figure 2.8: *Peer support and education help to manage stress.*

iv. **Physical Activity and Exercise:** Exercise releases endorphins, which are natural mood lifters, and reduces levels of stress hormones in the body. Whether it is going for a brisk walk, practicing yoga, or hitting the gym, finding an activity that you enjoy and can incorporate into your routine can help alleviate stress anxiety and improve mood.

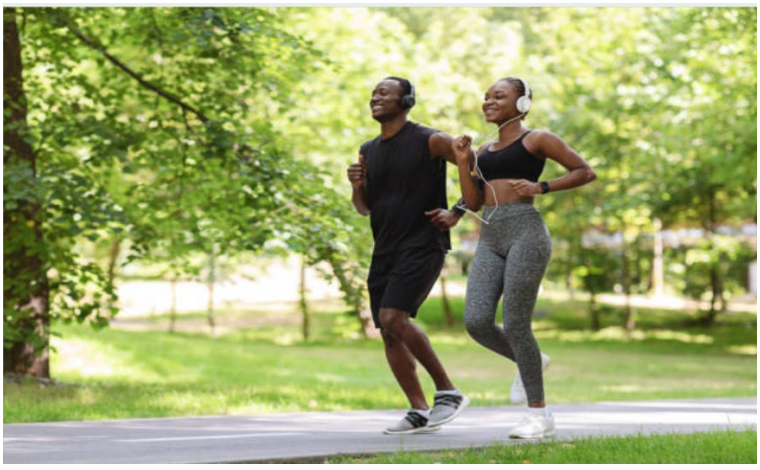


Figure 2.9: *People engaging in physical activity*



Figure 2.10: *Meditation practice to reduce stress and anxiety*

v. **Mindfulness and Meditation:** Mindfulness involves paying attention to the present moment without judgment, while meditation focuses on cultivating a sense of calm and relaxation through deep breathing and focused attention. Regular mindfulness and meditation practice can reduce stress, lower anxiety levels, and improve overall mental well-being. Incorporate mindfulness and meditation into your daily routine, even if it's just for a few minutes each day.

k. Guidelines for preventing stress and anxiety

Try relaxation activities, like meditation, yoga, breathing exercises and muscle relaxation. Note: programs are available online, in smartphone apps, and many others for use, and consider mobility aids or low-impact exercises.

i. Take good care of the body each day. Eating right, participating in physical activity and getting enough sleep can help the body handle stress much better.

ii. Stay positive and practice gratitude, acknowledging the good parts of the day or life, always appreciating who and how you are as a blessing from God.

iii. Accept that you cannot control everything. Find ways to let go of worry about situations you cannot change.

iv. Learn to say "no" to additional responsibilities when you are too busy or stressed.

v. Stay connected with people who keep you calm, make you happy, provide emotional support and help you with practical things.

vi. A friend, family member or neighbour can be a good listener. This helps to share responsibilities so that stress does not become overwhelming.

LEARNING TASKS

1. Identify the types, symptoms, characteristics and causes of stress and anxiety.
2. Examine how the various types of stress and anxiety affect people.
3. Demonstrate the how various inclusive cultural practices are applied in managing stress and anxiety.
4. Design culturally inclusive guidelines for preventing stress and anxiety.

PEDAGOGICAL EXEMPLARS

a. Starter

How do you cope with stress and anxiety?

Allow learners to take a moment to reflect on their own experiences.

Do you:

- Talk to friends or family?
- Exercise or engage in any physical activity?
- Practice meditation?
- Engage in hobbies or creative activities**?**

Share your thoughts.

b. Introduction

Coping with Stress and Anxiety.

Stress and anxiety are common experiences that can harm our mental and physical health.

Allow learners to investigate effective coping strategies for managing stress, building resilience, and improving overall quality of life.

c. Collaborative Learning

- Learners in mixed groupings research from relevant sources to identify various types, symptoms and sources of stress and anxiety. They discuss their findings and classify them under the context of; academic, family, social, and learners with special needs.
- Learners discuss challenges individuals from diverse backgrounds could face in managing stress, (e.g., limited access to coping resources, lack of self-awareness, discrimination / social exclusion, etc.)

d. Problem – Based Learning

- Learners in mixed groupings engage with audio, audio visuals, pictures, infographics, etc. of persons experiencing panic attacks for them to watch, listen and have guided discussions on the nature, signs, and potential triggers of the situations. Learners design a concept map on how to recognise the onset of these situations.
- Learners use a problem-solving approach to develop practical support strategies such as (peer support, mental health education, calm communication, etc.) for managing the situation.
- Learners work in mixed groups to research relevant cultural practices that support adolescents in managing stress and anxiety. Learners watch videos, listen to audios, and share their findings through demonstrating their own diverse cultural practices such as indigenous dances, storytelling, family support, etc. in managing stress and anxiety.

e. Group – Based Learning

- Learners in groups research from relevant sources to create suitable culturally inclusive guidelines for the prevention of stress and anxiety. Groups to share and discuss with the class.
- Learners prepare a guideline table taking into consideration, the universal principles (e.g., self-care, social connection) and adapt them to diverse contexts.

f. Project-Based Learning

- Learners in small groups embark on a community project to interview community members on how they cope with stress and anxiety.
- Learners prepare a report of their experiences and findings for presentation to whole class.

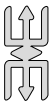
KEY ASSESSMENT – Individual Class Exercise

1. Analyse the relationship between stress, anxiety and academic performance in educational settings.
2. Evaluate evidence-based approaches for supporting students' wellbeing while maintaining academic standards.
3. Discuss how educational institutions might effectively balance these priorities.

PLC Session 2

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***individual class exercise***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the exercise (NTS 3k-3q).

10 minutes | **Content Exploration**

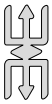
5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

b. all teachers in the group work through a similar problem individually for 3–4 minutes

c. the group then works through the problem together step by step

d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).

   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.

   b. After the enactment, ask for structured feedback from the group

      i. was the concept explained in a way that a learner with no prior knowledge could follow?

      ii. were the examples grounded in contexts familiar to Ghanaian learners?

      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).

8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).

9. Remember to

   a. transfer your chats into your learning planner template.

   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).

   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 3

Learning Indicator: *Discuss how to cope with depression and prevention of suicide*

FOCAL AREA: COPING WITH DEPRESSION AND PREVENTION OF SUICIDE

COPING WITH DEPRESSION AND PREVENTION OF SUICIDE

Feeling down from time to time is a normal part of life, but when emotions such as hopelessness and despair take hold and just will not go away, we may have depression.

More than just sadness in response to life's struggles and setbacks, depression changes how you think, feel, and function in daily activities. Depression symptoms can interfere with your ability to work, study, eat, sleep, and enjoy life. Just trying to get through the day can be overwhelming.

Depression is more than a feeling of being sad or irritable for a few days. It is serious mood disorder. As one of the most common mental disorders in the world, depression often needs long-term treatment but getting help at the earliest sign of a problem can help manage your symptoms.

Approximately two million Ghanaians suffer from mental disorders including depression. The WHO defines it as an illness characterised by constant sadness and loss of interest in activities that a person usually enjoys doing and this condition is the leading cause of mental disorders; however, the burden of depression on the aged population is unknown.



Figure 3.1: *A person suffering from depression receiving support from friends*

a. Meaning of Depression

Depression, also known as major depressive disorder or clinical depression, is a common and serious mood disorder that negatively affects how you feel, the way you think, and how you act. It is characterised by persistent sadness, loss of interest or pleasure in activities, and can lead to a variety of emotional and physical problems. It is more than just a passing feeling of sadness; it is a persistent condition that can significantly impair daily functioning, affecting work, school, sleep, appetite, and overall well-being. Depression is a treatable medical condition, not a sign of weakness or a character flaw.



Figure 3.2: *A person suffering from depression*

b. Types of Depression

Depression manifests in various forms, each with its own specific characteristics and diagnostic criteria. Some of the main types include:

i. **Major Depressive Disorder:** Characterised by persistent sadness, loss of interest or pleasure, and other physical and cognitive symptoms that significantly impair daily functioning for at least two weeks.

ii. **Persistent Depressive Disorder (Dysthymia):** A chronic form of depression where a low mood lasts for at least two years (one year in children and adolescents), along with at least two other symptoms of depression. While the symptoms may be less severe than in major depression, they are long-lasting and can still significantly impact quality of life.

iii. **Bipolar Disorder:** This condition involves shifts in mood, energy, activity levels, concentration, and the ability to carry out day-to-day tasks. These shifts include periods of intense highs (mania or a less severe form called hypomania) and lows depression.

iv. **Seasonal Affective Disorder (SAD):** A type of depression that is related to changes in seasons, typically beginning and ending around the same times each year. Most people with SAD experience symptoms during the late fall and winter months and feel better during spring and summer.

v. **Perinatal Depression (PoSAPartum Depression):** This occurs during pregnancy (antenatal depression) or after childbirth (poSAPartum depression). It is more than just the "baby blues," which are mild mood changes that many women experience after giving birth. Perinatal depression is a more severe and longer-lasting form of depression.

vi. **Premenstrual Dysphoric Disorder (PMDD):** A severe form of premenstrual syndrome (PMS) that includes mood-related symptoms such as irritability, sadness, anxiety, and mood swings that are severe enough to interfere with daily life.

vii. **Disruptive Mood Dysregulation Disorder (DMDD):** A condition in children and adolescents characterised by severe and recurrent temper outbursts that are grossly out of proportion in intensity or duration to the situation. Between outbursts, the child or adolescent has a persistently irritable or angry mood most of the day, every day.

c. Symptoms of Depression

The symptoms of depression can vary from person to person in terms of severity and presentation. Common symptoms include:

i. Emotional Symptoms

- Persistent sadness, emptiness, or hopelessness.
- Loss of interest or pleasure in most or all usual activities (anhedonia).
- Irritability, anxiety, or agitation.
- Feelings of worthlessness, excessive guilt, or helplessness.
- Difficulty concentrating, remembering details, and making decisions.
- Thoughts of death or suicide, or suicide attempts.



Figure 3.3: *A person suffering from emotional symptoms of depression*

ii. Physical Symptoms

- Fatigue, decreased energy, or feeling slowed down.
- Changes in appetite, significant weight loss or gain not due to dieting.
- Sleep disturbances, such as insomnia (difficulty falling or staying asleep), hypersomnia (sleeping too much), or early-morning awakening.
- Psychomotor agitation (e.g., restlessness, pacing) or retardation (e.g., slowed movements and speech) noticeable by others.
- Unexplained physical pains, such as headaches, stomach aches, or back pain.



Figure 3.4: *A person suffering from physical symptoms of sleeping disturbances (insomnia)*



Figure 3.5: *Person with depression receiving counselling*

It is important to note that not everyone experiencing depression will have all these symptoms. The severity, frequency, and duration of symptoms can vary.



Figure 3.6: *Symptoms of depression*

d. Common Causes of Depression

There are many factors that play a role in increasing the risk that a person will develop the condition. Women experience depression at higher rates than men (10.5% of women vs. 6.2% of men), which experts suggest may be due to hormonal factors. Researchers suspect there are many different causes of depression and that it is not always preventable. Factors that can contribute to depression include:

i. **Genetics:** A family history of depression may increase your risk of developing the condition. You are more likely to experience symptoms of depression if others in your family also have depression or another type of mood disorder. Estimates suggest that depression is 40% determined by genetics.



Figure 3.7: *A family in a happy mood*

ii. **Brain chemistry:** One potential biological cause of depression is an imbalance in the neurotransmitters which are involved in mood regulation. Certain neurotransmitters, including dopamine, serotonin, and norepinephrine, play an important role in mood.



Figure 3.8: *Brain chemistry*

Certain medical conditions: You may be more likely to experience symptoms of depression if you have a chronic illness, sleep disorder, or thyroid condition. Depression rates also tend to be higher among people who have chronic pain, diabetes, multiple sclerosis, and cancer

i. **Substance use:** Drug and alcohol use can contribute to depressive disorders. But even some prescription drugs have been linked to depression. Some drugs that have been found to be associated with depression include anticonvulsants, statins, stimulants, benzodiazepines, corticosteroids, and beta-blockers. It is important to review any medications that you have been prescribed and to speak with your physician if you are feeling depressed.



Figure 3.9: *Drug and alcohol use*

ii. **Stress:** Stressful life events, which overwhelm a person's ability to cope, can also be a cause of depression. Researchers suspect high levels of the hormone cortisol, which are secreted during periods of stress, may affect the neurotransmitter serotonin and contribute to depression.

iii. **Poor nutrition:** A poor diet can contribute to depression in several ways. A variety of vitamin and mineral deficiencies are known to cause symptoms of depression. In addition, diets high in sugar have been associated with depression.

e. Considering Lifestyle Changes to Address Depression

Addressing depression involves a multifaceted approach, and making positive lifestyle changes can significantly complement professional treatment and support overall mental health. Lifestyle modifications can help manage symptoms, improve mood, and enhance resilience against depressive episodes.

i **Key Lifestyle Changes for Managing Depression**

Healthy Nutrition: A balanced diet rich in omega-3 fatty acids, essential amino acids, vitamins, and minerals supports brain function and mood regulation. Limiting refined sugars and saturated fats while focusing on whole foods such as fruits, vegetables, lean proteins, and whole grains is beneficial.

Regular Physical Activity: Exercise stimulates the production of natural antidepressants in the brain, such as endorphins and serotonin. Engaging in moderate aerobic exercise, such as walking, jogging, or cycling, for at least 30 minutes most days of the week can boost self-esteem, reduce anxiety, and promote restful sleep.

Sleep Hygiene: Poor sleep often worsens depression symptoms. Establishing a consistent sleep schedule, creating a calming bedtime routine, and addressing sleep disturbances through good sleep hygiene practices can improve both sleep quality and mood.

Stress Management: Reducing chronic stress is vital for mental health. Techniques like meditation, deep breathing, mindfulness, and engaging in hobbies or relaxing activities can alleviate stress and reduce depressive symptoms.

Social Connection: Building and maintaining supportive relationships with friends, family, or support groups provides emotional support, reduces feelings of isolation, and helps individuals cope with depression.

Limiting Alcohol and Substance Use: Avoiding or reducing alcohol and recreational drug use is important, as these substances can exacerbate depression and interfere with medications.

f. Difference Between Sadness and Depression

Sometimes it can be hard to tell the difference between sadness and depression. They can share similar symptoms, and, in some cases, sadness can turn into depression. Sadness and depression are distinct emotional states, though they share some similarities. Understanding their differences is crucial for recognising when professional help might be necessary.



Figure 3.10: *A person in a sad mood*

i. **Sadness:** Is a normal human emotion that everyone experiences at some point. It is typically a temporary reaction to specific events or situations, such as:

- Loss of a loved one
- Disappointment
- Setbacks or failures
- Difficult life events (e.g., job loss, relationship issues)

ii. **Depression** also known as major depressive disorder or clinical depression, is a mood disorder that significantly affects how a person feels, thinks, and behaves. It is more than just a passing feeling of sadness and can have a profound impact on daily life.

Summary of Key Differences

Table 3.1: *Key difference between sadness and depression*

Feature	Sadness	Depression
Cause	Often linked to a specific event or loss	May occur without a clear trigger or be disproportionate to the trigger
Duration	Temporary, fades with time	Persistent, lasting for at least two weeks and often much longer
Intensity	Fluctuates, comes in waves	Pervasive and consistent feelings of sadness, emptiness, or hopelessness
Impact on life	Generally able to continue daily activities	Significantly impairs daily functioning, work, school, and relationships

Self-esteem	Usually maintained	Feelings of worthlessness and guilt are common
Suicidal thoughts	Rare	Possible, especially in moderate to severe depression

g. Common Misconceptions About Depression

Many inaccurate beliefs contribute to the stigma associated with depression. Some of the most prevalent misconceptions include:

Table 3.2: *Common misconception about depression*

Depression is just sadness	This trivialises the complex nature of depression, which involves persistent low mood, loss of interest, changes in sleep and appetite, fatigue, feelings of worthlessness, and difficulty concentrating. Sadness is a normal emotion, while depression is a debilitating mental health disorder.
Depression is a sign of weakness or a character flaw	This harmful belief suggests that individuals with depression could simply "snap out of it" if they tried harder. Depression is not a matter of willpower, but a medical condition influenced by biological, psychological, and social factors.
Depression is not a real illness	Dismissing depression as "all in your head" or not a legitimate medical condition prevents individuals from seeking necessary treatment and support. Depression has biological underpinnings and significantly impacts a person's functioning.
Antidepressants are a "happy pill" and the only solution	This oversimplifies treatment options. While medication can be effective for many, it is often used in conjunction with therapy and lifestyle changes. Antidepressants work to regulate brain chemistry and are not a quick fix for all individuals.
Talking about depression makes it worse	This misconception, often fuelled by stigma, prevents open conversations about mental health. Talking about depression and seeking support is a crucial step in recovery.

h. The Impact of Stigma Associated with Depression

The stigma associated with depression has numerous negative consequences:

i. **Reduced help-seeking:** Fear of judgment, discrimination, and being labelled can deter individuals from seeking professional help. This delay in treatment can lead to worsening symptoms and prolonged suffering.

ii. **Social isolation:** Stigma can lead to social exclusion, as individuals with depression may withdraw from social activities due to fear of misunderstanding or negative reactions from others. This isolation can exacerbate feelings of loneliness and worsen depression.

iii. **Self-stigma:** Internalising negative societal beliefs can lead to feelings of shame, guilt, and low self-esteem. Individuals may believe the negative stereotypes and feel unworthy of help or recovery.

iv. **Discrimination**: People with depression may face discrimination in various areas of life, including employment, education, and relationships, due to negative perceptions associated with their condition.

v. **Worsening symptoms**: The stress of dealing with stigma can worsen depressive symptoms and hinder recovery.

vi. **Reluctance to disclose:** Individuals may be hesitant to disclose their diagnosis to friends, family, or employers due to fear of negative consequences. This lack of openness can limit their support network.

i. Addressing Stigma and Misconceptions

Combating stigma requires a multi-faceted approach.

i. **Education and awareness:** Providing accurate information about depression can dispel myths and increase understanding of the condition.

ii. **Promoting empathy and compassion:** Encouraging people to understand the lived experiences of individuals with depression can foster supportive attitudes.

iii. **Challenging negative stereotypes:** Actively speaking out against harmful representations of depression in the media and everyday conversations is crucial.

iv. **Encouraging open dialogue:** Creating safe spaces for people to share their experiences with mental health can reduce shame and isolation.

v. **Person-first language:** Using language that focuses on the individual rather than their condition (e.g., "person with depression" instead of "depressive") can help reduce labelling.

vi. **Sharing personal stories:** Individuals who openly share their experiences with depression can challenge stigma and inspire hope in others.

j. Coping with depression

i. **Self-Care Strategies:** Prioritising self-care is crucial for managing depressive symptoms. This includes:

- **Prioritise Sleep:** Aim for a consistent sleep schedule, even on weekends. Create a relaxing bedtime routine to improve sleep quality. Lack of sleep can worsen mood and energy levels.
- **Nourish Your Body**: Eat a balanced diet rich in fruits, vegetables, whole grains, and lean protein. Avoid excessive caffeine and alcohol, as they can negatively impact mood.
- **Engage in Physical Activity:** Regular exercise releases endorphins, which have mood-boosting effects. Aim for at least 30 minutes of moderate intensity exercise most days of the week. Even short walks can be beneficial.
- **Practice Relaxation Techniques**: Incorporate stress-reducing activities into your routine, such as deep breathing exercises, meditation, yoga, or progressive muscle relaxation.

ii. **Behavioural Strategies:** Making conscious changes in behaviour can also help manage depression.

- **Set Realistic Goals:** Break down large tasks into smaller, more manageable steps. Achieving small goals can build a sense of accomplishment and motivation.
- **Engage in Enjoyable Activities:** Even when you do not feel like it, try to participate in hobbies or activities you used to enjoy. This can gradually improve your mood and reconnect you with sources of pleasure.

- **Structure Your Day**: Create a daily routine to provide a sense of predictability and purpose. This can be particularly helpful when motivation is low.
- **Limit Social Isolation:** Make cautious effort to connect with friends and family, even if you only feel up to brief interactions. Social support is vital for managing depression.

iii. **Cognitive Strategies:** Addressing negative thought patterns is a key component of coping with depression,

- **Identify Negative Thoughts:** Become aware of the negative or self-critical thoughts that often accompany depression.
- **Challenge Negative Thoughts:** Question the validity of these thoughts. Ask yourself if there's evidence to support them or if there are alternative perspectives.
- **Reframe Negative Thoughts:** Try to replace negative thoughts with more balanced and realistic ones.
- **Practice Self-Compassion:** Treat yourself with the same kindness and understanding you would offer a friend who is struggling.

k. Seeking Support

It is essential to remember that you do not have to cope with depression alone.

- **Talk to Someone You Trust:** Share your feelings with a supportive friend, family member, or spiritual advisor. Talking about your experiences can be validating and reduce feelings of isolation.
- **Join a Support Group:** Connecting with others who are experiencing similar challenges can provide a sense of community and shared understanding.
- **Seek Professional Help:** Consult a mental health professional, such as a therapist, counsellor, or psychiatrist. They can provide a diagnosis, develop a personalised treatment plan, and teach you effective coping strategies.

l. Understanding Suicide

Suicide is when someone sadly takes their own life. It is a complex thing, and there is usually not just one single reason it happens. Often, it is a mix of things going on in someone's life and how they are feeling inside. It is important to remember that someone considering suicide is going through a great deal of pain and might feel like there is no other way out.

In Ghana, about 1500 suicide cases are reported annually, and in each reported case of suicide are four unreported cases, summing the number of unreported cases to almost 6000 yearly.

According to WHO, "suicides are preventable with timely, evidence-based and often low-cost interventions".

Source:https://pmc.ncbi.nlm.nih.gov/articles/PMC6961178/#:~:text=In%20Ghana%2C%20about%201500%20suicide,often%20low%2Dcost%20interventions%E2%80%9D.

m. Risk Factors for Suicide

There are certain things that can make someone more vulnerable to thinking about or attempting suicide. These are often called risk factors. It is worth noting that having one or more of these does not mean someone will attempt suicide, but it does not mean they might need extra support. Some of these risk factors include:

Table 3.3 Risks factors for suicide

Mental health problems	Things like depression, anxiety, bipolar disorder, and schizophrenia can really increase the risk.
Previous suicide attempts	Sadly, if someone has tried to take their own life before, they are at a higher risk of trying again.
Substance misuse	Problems with alcohol or drugs can make things worse and increase impulsive behaviour.
Difficult life events	Things like losing a loved one, losing a job, relationship problems, or serious financial worries can be incredibly tough.
Social isolation and loneliness	Feeling cut off from others and not having support can make things feel overwhelming.
Physical health problems	Long-term or serious illnesses can sometimes contribute to feelings of hopelessness.
Access to means	Having easy access to things that can be used for suicide can increase the immediate risk, especially when someone is feeling distressed.

n. Suicide Prevention Strategies

The good news is that there are things we can do to help prevent suicide. It is about looking out for each other and making sure people get the support they need. Some important strategies include:

i. **Improving mental health services:** Making sure that excellent quality mental health care is available and easy to access for everyone is crucial. This includes early intervention to help people before things get too bad.

ii. **Raising awareness and reducing stigma**: Talking openly about mental health and suicide can help to break down the stigma that stops people from seeking help.

iii. **Training and support for professionals:** Making sure that doctors, nurses, teachers, and other people who encounter those at risk are trained to recognise the signs and know how to help.

iv. **Providing support in schools and communities:** Educating young people about mental health and providing support networks can build resilience.

v. **Responsible media reporting:** Encouraging the media to report on suicide in a way that does not glorify it or provide specific details of methods can help to prevent copycat suicides.

vi. **Reducing access to means:** Where possible, making it harder for people to access common methods of suicide can buy valuable time and save lives.



Figure 3.13: *Suicide Prevention*

Safeguarding Guidance

- Avoid forcing personal disclosure.
- Do not ask learners to reenact self-harm.
- Provide a clear referral pathway to school counsellors/health professionals.
- Establish a protocol for responding to an at-risk learner.

LEARNING TASKS

1. Research various aspects of depression and suicide.
2. Describe ideal support networks for at-risk individuals through the creation of visual representations showing who should be involved (family, school, professionals, peers) and the specific role each would play in prevention.
3. Learners demonstrate how to seek help for themselves or others.

PEDAGOGICAL EXEMPLARS

a. Starter

Begin the lesson by showing learners a short, age-appropriate video clip (e.g., a YouTube video) about coping with depression. After viewing, invite learners to share their thoughts and opinions through discussion, writing or presentation. Use questions such as:

How did the video improve your understanding of depression?

What are some types and common causes of depression?

Provide audio descriptions or verbal explanations for learners with visual impairment, captions and written questions for learners with hearing impairment, accessible seating for learners with mobility difficulties, and simplified questions or extra response time for learners with learning needs. Learners may participate as speakers, writers, recorders or presenters.

Avoid requiring learners to share personal experiences.

YouTube video on depression

https://www.youtube.com/watch?v=d7NPnvKFs2Y&t=6s



b. Introduction

Present key research findings on suicide, emphasising risk factors and warning signs. Immediately follow this with a video highlighting effective suicide prevention strategies. Provide learners with a structured opportunity to share their personal perspectives and reflections on the video content.

YouTube video on suicide prevention

https://www.youtube.com/watch?v=TokWrCfq_Cc



c. Digital Learning

Learners watch age-appropriate videos on coping with depression and seeking help. In mixed-ability groups, they discuss their observations and research the definitions, types and symptoms of depression and suicidal ideation. Learners may use digital devices or, where unavailable, printed materials, textbooks and the Teacher Manual. Groups prepare an expert-panel presentation using digital slides, charts, written notes or oral presentations.

Provide captions and written information for learners with hearing impairment, verbal descriptions for learners with visual impairment, accessible seating and suitable roles for learners with mobility difficulties, and simplified instructions or extra time for learners with learning needs. Learners may participate as presenters, researchers, analysts, recorders, questioners or panel members. Avoid distressing simulations and do not require learners to disclose personal experiences.

d. Case Studies

Divide learners into diverse mixed-ability and mixed-gender groups. Each group is to research real-world case studies related to suicide prevention, developing strategies for support and intervention. Encourage learners to support group members who may have difficulty finding relevant information online, respecting diverse social, economic, and technological backgrounds in the process.

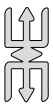
Ask groups to design and lead mini-workshops teaching specific skills for suicide prevention. Topics might include active listening, appropriate responses to concerning statements, and how to connect someone with professional help.

Workshops should include visual representations of support networks showing who should be involved (family, school, professionals, peers) and the specific role each would play in prevention.

e. Activity-Based Learning

Organise a role-playing session in which learners act out scenarios involving depression, such as responding to a depressed friend and supporting someone who is considering suicide. After each case, the audience discusses the lessons learnt from each scenario.

- **Non-Digital Alternative:** Utilise live teacher-led role-playing, printed case study scenarios, or guest speaker presentations from local school counsellors and mental health professionals to deliver the core concepts safely without relying on online video platforms.



Teacher Note

Always preview any mental health-related media in its entirety prior to classroom instruction to screen for potential triggers, distressing imagery, or age-inappropriate content that could overwhelm students, and ensure you have a designated support plan or quiet space ready if a student experiences emotional distress during the lesson.

KEY ASSESSMENT: Group Project

1. Research and create a comprehensive resource guide for adolescents on coping with depression and preventing suicide. Your guide should include:
   a. An explain of depression, including its symptoms, causes, and how it differs from temporary sadness.
   b. The identification of at least 3 evidence-based coping strategies for depression.
   c. Information on warning signs for suicide risk.
   d. Clear guidance on how to seek help for oneself or support a friend.
   e. Local and national resources (hotlines, websites, counselling services).
   f. A presented format that is accessible and appealing to adolescents.



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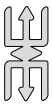
Assign Group Project to learners and give them reasonable time to complete it. Use the SS App to generate the project as well as the rubric. Learners' project should be marked immediately, and scores should be entered into the SAP.

PLC Session 3

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous session, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand.
   b. identify three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners (NTS 3a, 3g and 3m).

3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q).
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



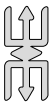
Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).
   a. The key assessment for the week is ***group project***. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the project (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through the problem individually for 3–4 minutes
   c. the group then works through it together the problem, step by step
   d. highlight the most common errors made at each step (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group

i. was the concept explained in a way that a learner with no prior knowledge could follow?

ii. were the examples grounded in contexts familiar to Ghanaian learners?

iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 1: Review

In Week 1, learners explore the concept of mental health and identify its common forms. Through discussions, demonstrations, and visual aids, they develop a clear understanding of prevalent mental health disorders, including anxiety disorders, mood disorders, personality disorders, psychotic disorders, eating disorders, and Post-Traumatic Stress Disorder (PTSD). Engaging in interactive activities, learners analyse the signs and symptoms, risk factors, impacts on daily life, and available treatment and support options for individuals affected by these disorders. This foundational knowledge fosters empathy and highlights the critical importance of mental health to overall well-being.

In Week 2, the focus shifts to coping with stress and anxiety as central aspects of mental health. Learners explore the definitions, types, symptoms, and causes of common stress- and anxiety-related conditions. Through group exercises and self-reflection, they identify healthy lifestyle habits that enhance resilience and support emotional wellness. The curriculum also emphasises culturally responsive strategies, recognising diverse cultural practices that assist students in managing stress. This inclusive approach helps create an environment where learners can leverage their cultural strengths to improve mental health outcomes and adopt practical, personalised coping mechanisms.

In Week 3, learners delve into coping strategies for depression and suicide prevention. They gain a nuanced understanding of several types of depression, their symptoms, and underlying causes, while distinguishing between normal sadness and clinical depression. Through interactive group activities, role-play scenarios, and case studies, learners deepen their awareness of suicide risk factors and preventive strategies. These experiences cultivate empathy and practical skills necessary for early intervention and effective support. This comprehensive approach empowers learners to recognise signs of depression and suicide risk, fostering timely and informed responses to mental health challenges.

MARKING SCHEMES FOR THE KEY ASSESSMENT

WEEK 1

MARKING SCHEME WITH MODEL ANSWERS – Question 1 (20 MARKS)

Identification and Description of Two Conditions (6 marks)	
• *Accurate identification of two common mental health conditions (1 mark per condition)* • *Clear and relevant description of both conditions* *(2 marks per condition)*	*Model Answer* • *Depression and Generalised Anxiety Disorder (GAD),* • *Depression is a mood disorder characterised by persistent sadness and loss of interest.* • *Generalised Anxiety Disorder (GAD) involves excessive worry about everyday situations. Both are prevalent and often co-occur.*
Symptoms (4 marks)	
• *Clear outline 2 symptoms for each condition.* *(1 mark for each symptom, 2 marks for each condition)*	*Model Answer* • *Depression symptoms include low mood, fatigue, and feelings of worthlessness.* • *GAD symptoms include excessive worry, restlessness, and difficulty concentrating.* • *Both involve cognitive impairments, but depression is more associated with low mood, while GAD is linked to hyper-arousal.*
Potential Impacts on Daily Life (6 marks)	
• *Explanation of how each condition impacts daily life.* *(1 mark for each impact, 3 marks per condition)*	*Model Answer* • *Depression may lead to social withdrawal, poor academic/work performance, and neglect of self-care, while GAD can result in irritability, constant worry affecting decision-making, and sleep disturbance.* • *Both interfere with concentration and productivity but in different affective contexts.*
General Management Approaches (4 marks)	
• *Description of general management approaches.* *(1 mark per each approach and 2 marks per condition)*	*Model Answer* • *Depression is often treated with medication, therapy (CBT/IPT/ECT) and support networks.* • *GAD is also managed through CBT, medication, lifestyle changes, and support groups.*

MARKING SCHEME WITH MODEL ANSWERS – Question 2 (15 MARKS)

Accurate Identification of Condition A (3 marks)	
• *Correct identification of Condition A personality disorder (1 mark)* • *Correct identification of Condition B as Anxiety Disorder (1 mark)* • *Correct identification of Condition C is Psychotic Disorder (1 mark)*	*Model Answer* • *Condition A is personality disorder.* • *Condition B is anxiety disorder.* • *Condition B is psychotic disorder.*
Explanation of risk factors	
• *Identification of two risk factors for each disorder.* *(6 marks – 1 mark per risk factor and 2 marks per disorder)* • *Clear explanation of risk factors.* *(6 marks – an additional 2 marks for an explanation for each disorder)*	*Model Answer* *Risk factors of personality disorder* • *Genetics* • *Childhood trauma or neglect* • *Unstable or abusive family relationships.* *Risk factors of anxiety disorder* • *Family history of anxiety* • *Traumatic experiences* • *Chronic illness* • *Stressful life events* • *Certain personality traits, such as important levels of neuroticism.* *Risk factors of psychotic disorder* • *Family history of psychosis* • *Substance misuse* • *Stressful life events* • *Differences in brain structure and chemistry.*

WEEK 2

MARKING SCHEME WITH MODEL ANSWERS

Criteria	*Marks*	*Description*
Understanding and Analysis of Stress, Anxiety, and Academic Performance	*5*	*Clear explanation of stress and anxiety definitions, their interrelationship, and impact on academic performance supported by relevant studies. Insightful analysis of physiological, psychological, and behavioural effects.*
Evaluation of Evidence-Based Approaches	*10*	*Thorough evaluation of evidence-based interventions to support student wellbeing (e.g., mindfulness, SEL, peer support). Identification of strengths, limitations, and effectiveness with supporting examples.*

Discussion on Balancing Wellbeing and Academic Standards	*5*	*Discussion on how educational institutions can integrate wellbeing strategies while upholding academic standards. Consideration of curriculum adjustments, assessment modalities, and institutional policies.*
TOTAL: 20 marks		

WEEK 3

ADOLESCENT MENTAL HEALTH RESOURCE GUIDE (LEVEL 3)

GROUP PROJECT Total Marks: 40

a) Explanation of depression (8 marks)

Depression, also known as major depressive disorder or clinical depression, is a common and serious mood disorder that negatively affects how you feel, the way you think, and how you act. It is characterised by persistent sadness, loss of interest or pleasure in activities, and can lead to a variety of emotional and physical problems.

Content accuracy and comprehensiveness (4 marks)
Clear, accurate definition of depression (1 mark)
Comprehensive description of symptoms (physical, emotional, cognitive, behavioural) (1 mark)
Well-explained causes/risk factors (biological, psychological, environmental) (1 mark)
Clear distinction between clinical depression and temporary sadness (1 mark)
Depth of understanding (4 marks)
Demonstrates advanced understanding beyond basic definitions (2 marks)
Uses appropriate terminology and concepts (1 mark)
Information is developmentally appropriate for adolescents (1 mark)

b) Evidence-based coping strategies (8 marks)

- Self-Care Strategies
- Behavioural Strategies
- Cognitive Strategies

Selection of strategies (4 marks)
Identifies 3+ evidence-based strategies (1 mark per strategy, maximum 3)
Strategies are appropriate for adolescents (1 mark)
Quality of explanation (4 marks)
Clear explanation of how each strategy works (1 mark)
Practical implementation guidance for adolescents (1 mark)
References to supporting evidence/research (1 mark)
Consideration of potential challenges or limitations (1 mark)

c) Warning signs for suicide risk (6 marks)

- Mental health problems

- Previous suicide attempts
- Substance misuse
- Difficult life events
- Social isolation and loneliness
- Physical health problems

Comprehensiveness (3 marks)
Identifies verbal Cues/statements (1 mark)
Identifies behavioural warning signs (1 mark)
Identifies emotional/psychological warning signs (1 mark)
Quality and usefulness (3 marks)
Information is accurate and based on current research (1 mark)
Signs are clearly explained for adolescent understanding (1 mark)
Distinction between warning signs requiring immediate intervention versus longer-term concern (1 mark)

d) Guidance on seeking help (6 marks)

- Improving mental health services
- Raising awareness and reducing stigma
- Training and support for professionals
- Providing support in schools and communities
- Responsible media reporting
- Reducing access to means

For self (3 marks)
Clear, actionable steps for seeking help (1 mark)
Addresses potential barriers/fears about seeking help (1 mark)
Includes range of help-seeking options (professional, trusted adults, etc.) (1 mark)
For supporting others (3 marks)
Appropriate guidelines for peer support (1 mark)
Clear guidance on when/how to involve adults/professionals (1 mark)
Communication strategies for approaching someone at risk (1 mark)

e) Local and national resources (6 marks)

- Primary care providers
- Psychiatric hospitals
- Local mental health professionals
- Online resources

Comprehensiveness (3 marks)
Includes national crisis resources/hotlines (1 mark)
Includes local school/community resources (1 mark)
Includes online/digital resources (1 mark)
Quality (3 marks)
Resources are current and accurate (1 mark)
Clear contact information and access guidelines (1 mark)
Diverse resources addressing different needs/preferences (1 mark)

f) Presentation format (6 marks)

Accessibility (3 marks)
Language level appropriate for adolescents (1 mark)
Well-organised with clear navigation/structure (1 mark)
Visually appealing and engaging (1 mark)
Creativity and engagement (3 marks)
Creative approach to presenting information (1 mark)
Interactive elements or engagement strategies (1 mark)
Culturally relevant and inclusive (1 mark)

2. Design a comprehensive school-based programme to prevent suicide and support students coping with depression.

Your project should include:

a. Analysis of specific needs and challenges in school environments.

b. Programme components addressing:

- Awareness and education
- Identification of at-risk students
- Support services and referral processes
- Crisis response protocols
- Post-intervention support

SCHOOL-BASED MENTAL HEALTH PROGRAMME DESIGN (LEVEL 3)

ASSESSMENT MODE: *INDIVIDUAL PROJECT* Total Marks: *48*

a) Analysis of specific needs and challenges in school environments (8 marks)

Situational analysis (4 marks)
Identification of risk factors specific to school settings (1 mark)
Analysis of adolescent developmental considerations (1 mark)
Discussion of academic pressure and its relationship to mental health (1 mark)

Consideration of social dynamics and peer influence (1 mark)
Identification of existing gaps in school mental health services (1 mark)
Contextual considerations (4 marks)
Analysis of cultural factors affecting help-seeking behaviour (1 mark)
Consideration of stigma and barriers to mental health support (1 mark)
Analysis of school resources and constraints (1 mark)
Integration of family and community factors (1 mark)
Evidence-based justification of identified needs (1 mark)

b) Awareness and education components (8 marks)

Programme design (4 marks)
Comprehensive curriculum outline with clear objectives (1 mark)
Age-appropriate content and delivery methods (1 mark)
Integration into existing school structures/curriculum (1 mark)
Timeline and implementation strategy (1 mark)
Content quality (4 marks)
Accuracy of mental health information (1 mark)
Destigmatising approach to depression and suicide (1 mark)
Inclusion of both prevention and intervention information (1 mark)
Stakeholder education (students, teachers, parents) (1 mark)

c) Identification of at-risk students (8 marks)

Screening approach (4 marks)
Evidence-based screening tools/methods (1 mark)
Implementation protocol with privacy considerations (1 mark)
Frequency and timing of screening (1 mark)
Training plan for implementers (1 mark)
Risk assessment process (4 marks)
Clear indicators of various risk levels (1 mark)
Documentation and communication protocols (1 mark)
Consent and confidentiality considerations (1 mark)
Follow-up procedures for identified students (1 mark)

d) Support services and referral processes (8 marks)

Service design (4 marks)

Range of appropriate school-based support services (1 mark)
Tiered intervention approach based on need severity (1 mark)
Integration of existing community resources (1 mark)
Accessibility considerations for all students (1 mark)
Referral system (4 marks)
Clear referral pathways and criteria (1 mark)
Documentation and tracking procedures (1 mark)
Parental involvement protocol (1 mark)
Follow-up and communication processes (1 mark)

e) Crisis response protocols (8 marks)

Response plan (4 marks)
Immediate response procedures for acute suicide risk (1 mark)
Clear staff roles and responsibilities (1 mark)
Communication protocols during crisis (1mark)
Documentation requirements (1 mark)
Implementation readiness (4 marks)
Staff training plan for crisis response (1 mark)
Resource allocation for crisis situations (1 mark)
Collaboration protocol with external services (1 mark)
Regular practice/drill procedures (1 mark)

f) Post-intervention support (8 marks)

Postvention plan (4 marks)
Comprehensive approach to supporting school community after crisis (1 mark)
Strategies to prevent contagion effect (1 mark)
Grief support components (1 mark)
Long-term monitoring and support plan (1 mark)
Implementation quality (4 marks)
Clear timeline and responsible parties (1 mark)
Communication templates and guidelines (1 mark)
Resource requirements and allocation (1 mark)
Evaluation methods for effectiveness (1 mark)

Model Answer

Introduction

The relationship between stress, anxiety, and academic performance within educational settings is complex and multifaceted. Stress and anxiety are psychological responses to academic demands that can either facilitate or impede learning outcomes depending on their intensity and duration. This essay analyses how these factors interact and affect student performance. It further evaluates evidence-based approaches designed to support student wellbeing without compromising academic standards and discusses how educational institutions can balance these sometimes-competing priorities effectively.

Relationship Between Stress, Anxiety, and Academic Performance

Stress is an adaptive response to perceived challenges, but excessive or chronic academic stress has been linked to negative outcomes such as impaired concentration, fatigue, and reduced motivation, all of which undermine academic achievement. Anxiety, often intertwined with stress, manifests cognitively and physiologically and can hamper executive functioning skills critical for learning and memory retention. Research shows a general negative correlation between high levels of stress and anxiety with academic performance, although mild stress can act as a motivator. Students' coping strategies and resilience play a crucial mediating role in this relationship.

Evidence-Based Approaches to Supporting Student Wellbeing

- Numerous interventions have proven effective in mitigating stress and anxiety to support student wellbeing:
- Mindfulness and Relaxation Techniques: Regular practice improves focus, emotional regulation, and reduces anxiety symptoms, contributing to better academic engagement.
- Social and Emotional Learning (SEL) Programmes: Systemic integration of SEL in curricula enhances students' self-awareness, resilience, and interpersonal skills, which positively affect both wellbeing and academic outcomes.
- Peer Support and Emotional Regulation Training: Programmes that build coping skills and provide peer networks aid students in managing stress related to academic pressures.
- Early Identification and Tiered Support Systems: Employing assessments and multitiered frameworks enables timely intervention tailored to students' needs.

Balancing Student Wellbeing with Academic Standards

Educational institutions face the challenge of upholding rigorous academic standards whilst nurturing student wellbeing. Strategies to balance these include:

- **Curriculum and Assessment Review**: Adjusting continuous assessment practices to reduce overload and incorporate flexible deadlines can alleviate stress without lowering standards.
- **Personalised Learning within Standardised Frameworks**: Allowing differentiated instruction and pacing supports individual student needs while maintaining consistent learning objectives.
- **Teacher and Staff Training in SEL and Wellbeing:** Equipping educators with skills to support student mental health can create a more empathetic and responsive learning environment.
- **Institutional Policies that Promote Resilience and Academic Support:** Combining rigorous expectations with accessible psychological resources and peer support fosters holistic student development.

2. a. Analyse the role of physical activity in managing stress and anxiety.

b. Evaluate the types of physical activity and their relative benefits.

c. Discuss the key mechanisms through which exercise influences psychological wellbeing and consider factors that might affect individual responses.

MARKING SCHEME WITH MODEL ANSWERS

Criteria	Marks	Description
Understanding of Physical Activity in Stress and Anxiety Management	*5*	*Thorough explanation of how physical activity helps manage stress and anxiety, referencing relevant studies and physiological effects.*
Evaluation of Different Types of Physical Activity	*10*	*Detailed evaluation of types of physical activities (e.g., aerobic, yoga, strength training), with discussion of relative benefits and suitability.*
Discussion of Mechanisms Influencing Psychological Wellbeing	*5*	*In-depth analysis of biochemical, neurobiological, and physiological mechanisms (e.g., endorphin release, neurotransmitters, inflammation reduction).*
TOTAL 20 Marks		

Model Answer

Introduction

Physical activity is recognised as an effective method for managing stress and anxiety, contributing significantly to psychological wellbeing. This essay analyses the role physical activity plays in alleviating these conditions, evaluates various forms of exercise and their specific benefits, examines the underlying mechanisms through which exercise exerts its effects, and considers factors affecting individual responses to physical activity.

Role of Physical Activity in Managing Stress and Anxiety

Physical activity improves stress and anxiety outcomes by engaging multiple physiological systems. Regular exercise elevates mood, reduces tension, and enhances resilience against stressors. It promotes the release of endorphins—natural chemicals that work as painkillers and mood enhancers—while also helping regulate stress hormones such as cortisol and adrenaline. Additionally, exercise provides distraction from worries and facilitates better sleep, which further contributes to reduced anxiety and stress levels.

Evaluation of Different Types of Physical Activity and Their Relative Benefit

There are many types of physical activity provide diverse benefits specific to stress and anxiety management:

- **Aerobic Exercise**: Activities like jogging, cycling, and swimming improve cardiovascular fitness and have been extensively linked to reductions in anxiety and depressive symptoms. Even moderate aerobic exercise, done regularly, can stabilise mood and reduce fatigue.
- **Yoga and Tai Chi:** These mind-body practices combine physical movement with breathing exercises and meditation, promoting relaxation, mindfulness, and reductions in stress and anxiety. Yoga has been found comparable to antidepressant therapy in some cases.

- **Strength Training:** Resistance exercises release endorphins and dopamine, improving self-esteem and emotional regulation. Strength training also provides a sense of empowerment and control, which is important for mental wellbeing.
- **Walking and Mindful Movement**: Simple walking, especially in natural environments, supports mental health by combining physical activity with exposure to nature, which itself reduces stress. Mindful walking enhances awareness and reduces anxiety through focused breathing and sensory engagement.
- **Dancing:** Combines aerobic activity and social interaction, promoting endorphin release and reducing depressive symptoms. Dancing also engages cognitive processes through learning rhythms, which can divert attention from worries.

Key Mechanisms Through Which Exercise Influences Psychological Wellbeing

Exercise impacts psychological wellbeing through multiple, interacting biological and behavioural mechanisms:

- **Neurochemical Changes**: Exercise increases production and release of endorphins, serotonin, dopamine, and noradrenaline—neurotransmitters associated with mood regulation and reduced anxiety.
- **Hormonal Regulation:** Physical activity lowers cortisol levels, helping to mitigate the body's stress response and reducing anxiety symptoms.
- **Neuroplasticity and Brain Structure:** Exercise stimulates brain-derived neurotrophic factor (BDNF) and promotes neurogenesis, especially in the hippocampus, improving cognitive function and emotional regulation.
- **Inflammation Modulation:** Exercise reduces systemic inflammation linked to depression and anxiety, influencing cytokine production and brain-gut interaction pathways.
- **Behavioural and Psychosocial Factors**: Exercise enhances self-efficacy, self-esteem, social interaction, and provides distraction from stressors, which collectively improve mental health.

Factors Affecting Individual Responses to Physical Activity

Individual variability in response to exercise arises from several factors:

- **Genetic and Biological Differences:** Genetic predispositions affect how mood-related neurotransmitter systems respond to exercise, contributing to variability in benefits.
- **Exercise Type, Intensity, and Volume:** Moderate-to-high intensity aerobic exercise tends to produce more significant mental health benefits compared to low intensity, but overtraining or intense competitive sports might exacerbate stress.
- **Personal Preferences and Enjoyment:** Adherence is higher when individuals engage in activities they enjoy; enjoyment increases motivation and consequent benefit.
- **Psychological Factors:** Levels of baseline anxiety, motivational states, and coping mechanisms influence how exercise impacts stress and anxiety management.
- **Environmental and Social Context:** Access to safe exercise environments, social support, and scheduling flexibility affect participation and outcomes.

SECTION 2: HEALTH AND WELLNESS

STRAND: HEALTH EDUCATION

Sub-Strand: Nutrition and Diet in Health

Learning Outcome: *Analyse nutrition and dietary practices and their effects on the human body.*

Content Standard: *Demonstrate knowledge and understanding of healthy nutrition and dietary practices and their effects on the human body.*

INTRODUCTION AND SECTION SUMMARY

This section introduces learners to energy balance and metabolism through nutrition and dietary habits. The section covers energy intake, which is how we fuel our bodies with food and drinks. Learners will discuss how the body burns calories through energy expenditure, encompassing all the activities that consume energy. The importance of energy balance for maintaining health is emphasised.

Learners progress from knowledge of energy balance to metabolism. This covers the fundamentals of metabolism, the factors that can speed it up or slow it down, and the significant role nutrition plays in metabolism. Emphasis is placed on good dietary habits that promote a healthy metabolism and balanced energy levels.

Learners will also discover how vital nutrition is for cognitive function. Using the knowledge gained, they will assess the impact of school feeding programmes (SFPs) and their potential benefits. Learners will evaluate how these programmes can enhance academic performance and suggest nutrient-rich foods that are particularly beneficial for brain health. Furthermore, they will identify challenges and opportunities in ensuring everyone has access to the right foods for optimal brain development.

Lastly, learners will delve into a more important topic: eating disorders. They will receive a general introduction to eating disorders before examining specific disorders such as anorexia nervosa, bulimia nervosa, and binge eating. A comparative analysis of these disorders will be conducted, highlighting overlapping effects.

The weeks covered by this section are:

- **Week 4:** Discuss how to acquire and maintain energy balance and metabolism through nutrition and dietary habits.
- **Week 5:** Discuss the role of nutrition (school feeding programmes - SFP) in the academic performance of learners.
- **Week 6:** Analyse eating disorders and their effects on the human body (anorexia nervosa, bulimia nervosa, and binge eating and drinking).

SUMMARY OF PEDAGOGICAL EXEMPLARS

To create an inclusive learning environment, engage learners in group discussions that promote collaboration, respect, and teamwork. Utilise real-life scenarios and relatable examples to connect the topics of energy balance, metabolism, SFPs and eating disorders to learners' everyday experiences, making them more relevant and accessible.

Encourage learners to research these topics using digital resources, fostering digital literacy and critical thinking skills. Special attention should be given to students with diverse needs, including gifted learners and those with Special Educational Needs (SEN), ensuring equitable participation and benefits for all.

Incorporate varied instructional strategies, such as active learning and case studies, to support different learning styles and enhance the overall educational experience.

ASSESSMENT SUMMARY

The assessment evaluates learners' understanding of nutrition and diet concepts and their ability to apply their knowledge in real-world scenarios. Evaluation is using both formative and summative assessments. Formative assessments include class discussions, class exercises, homework, and group presentations where learners share their knowledge and personal learning experiences. These activities will assess learners' ability to relate nutrition and diet concepts to their everyday life.

Summative assessments include mid semester exams and project-based assessments that test learners' understanding of healthy nutrition and dietary practices and their effects on the human body. The combination of these two forms of assessment will help learners retain and be able to apply their knowledge on nutrition and diet to enhance healthier lifestyles.

Assessment Summary

week	Indicator	DoK Level	Assessment Mode
Week 4	Discuss how to acquire and maintain energy balance and metabolism through nutrition and dietary habits.	Level 3	Project
Week 5	Discuss the role of nutrition (school feeding programmes – SFP) in the academic performance of learners.	Level 3	Project
Week 6	Analyse eating disorders and their effects on the human body (anorexia nervosa, bulimia nervosa, and binge eating and drinking).	Level 3	Project (homework)

Recap weeks

Year 1	Week 3: Explain healthy living behaviour and how that promotes physical health. Week 4: Discuss the role of nutrition in healthy living. Week 5: Discuss the role of diet in healthy living.
Year 2	Week 3: Explain the concept of food safety and wholesomeness. Week 4: Discuss the impact of organic, genetically modified, sugary and processed foods on health. Week 5: Analyse the factors that affect food choices.

WEEK 4

Learning Outcome: *Analyse nutrition and dietary practices and their effects on the human body*

FOCAL AREA: ENERGY BALANCE AND METABOLISM THROUGH NUTRITION AND DIETARY HABITS

Recap

Year 1 provided an in-depth look at healthy living habits, the role of nutrition, and the components of a balanced diet. Learners defined what constitutes a healthy diet and investigated the impact of healthy eating habits on physical health.

A sizeable portion of this section focused on the Food Pyramid and its structure as a guide for healthy eating. We talked about the goals of a healthy food pyramid, including a detailed look at the African Food Pyramid and the recommended food proportions for a balanced diet.

Next, learners learnt about nutrition, delving into nutrient categories and distinguishing between essential and non-essential nutrients. We addressed the critical issues of nutrient deficiency and malnutrition, along with the direct impact of nutrition on sports performance.

Finally, we defined a diet by breaking it down into its components, investigating different types of micronutrients, and discussing diseases caused by nutrient deficiencies and imbalances. The section provided learners with the knowledge they needed to make informed dietary decisions for optimal health and performance.

In Year 2, learners focused on food safety and wholesomeness, emphasising safe food handling practices and the importance of eating nutritious, uncontaminated foods. They learned about the impact of food safety on health and wellness through discussions, visual aids, and hands-on activities and participated in practical exercises such as analysing food labels to make informed decisions, as well as investigating the health effects of organic, genetically modified, sugary, and processed foods and their impact on physical activity. Several factors that influence individual food choices were investigated to improve learners' understanding of nutrition in daily life.

In their final year, students will study the complex concepts of energy balance and metabolism, establishing a clear link between nutrition, dietary habits, and even academic performance. A critical component of this section is the investigation of eating disorders and their profound effects on the human body, which fosters a thorough understanding of nutrition's critical role in overall health and well-being.

ENERGY BALANCE AND METABOLISM THROUGH NUTRITION AND DIETARY HABITS

Introduction

Energy, commonly known as "calories," plays a crucial role in our daily lives. It represents the balance between the calories we consume through food and drink (ENERGY IN) and those we expend through physical activity (ENERGY OUT).

Our bodies continuously burn calories through essential processes like breathing and digesting food. In addition to these natural functions, we also burn calories during our daily activities. For instance, children expend energy simply by attending school and carrying their books, while adults burn calories through routine tasks such as walking to the bus stop or shopping. Understanding this energy balance is key to determining whether we lose, gain, or maintain our weight.



Figure 4.1: *People exercising to burn some calories*

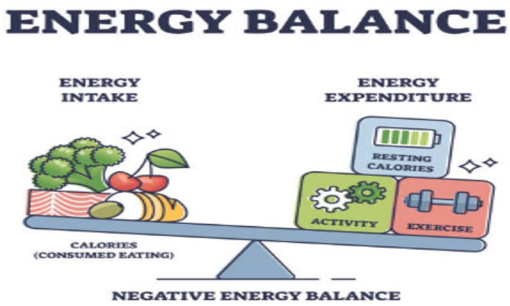


Figure 4.2: *Energy balance*

a. Meaning of Energy Balance

Energy balance is the relationship between the energy we take in through food and drink (energy intake) and the energy we expend through bodily functions and physical activity (energy expenditure).

Energy Balance is a dynamic process that changes according to a person's age, growth and development, body composition, physical activity, health status and other physiological factors. Therefore, body weight and body composition should not be understood as being determined by calories alone. Energy balance is influenced by several interacting factors, including nutrition, physical activity, metabolism, growth, development and overall health.

The goal of understanding energy balance is not to judge body size, but to help individuals develop healthy eating habits, participate in regular physical activity and make informed decisions that support their overall well-being. Maintaining this balance is crucial for overall health and well-being.

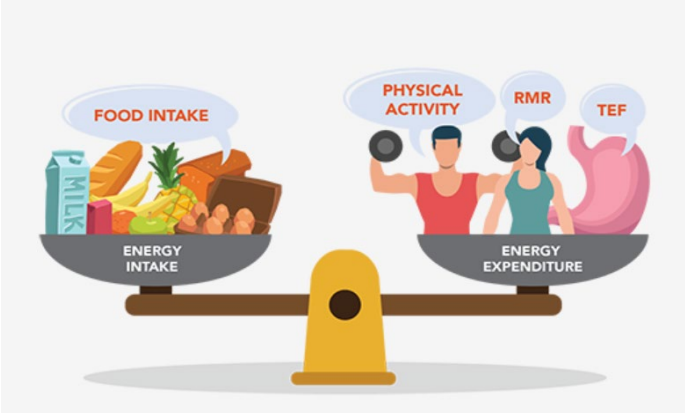


Figure 4.3: *Energy balance*

b. Energy Intake

Energy intake comes from the calories contained within the food and drinks we consume. The primary sources of this energy are the macronutrients: carbohydrates, fats, and proteins.

- Carbohydrates: These are the body's primary source of energy. They are broken down into glucose, which is used immediately for fuel or stored as glycogen in the liver and muscles for later use. Sources include bread, pasta, rice, fruits, and vegetables.



Figure 4.4: *Carbohydrates*

- Fats (Lipids): Fats are a concentrated source of energy and play vital roles in hormone production, cell structure, and the absorption of fat-soluble vitamins. Sources include oils, butter, nuts, seeds, and fatty fish.



Figure 4.5: *Fats and Oil*

- Proteins: Primarily used for building and repairing tissues, proteins can also be used as an energy source if carbohydrate and fat intake is insufficient. They are found in meat, poultry, fish, beans, lentils, and dairy products.

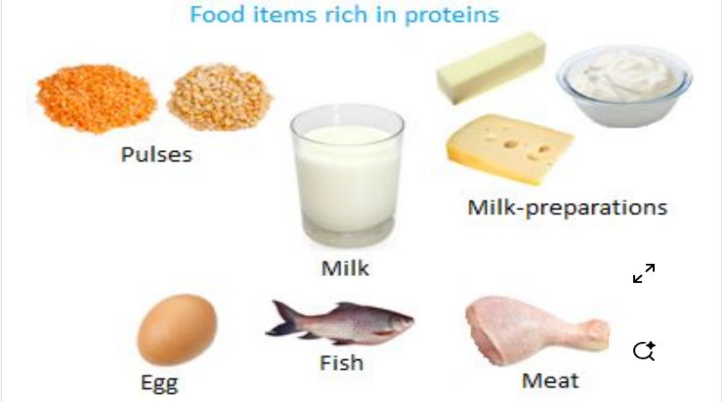


Figure 4.6: *Proteins*

- Micronutrients and Their Indirect Roles in Energy Production (Vitamins, Minerals): While micronutrients (vitamins and minerals) do not directly provide energy, they are essential for the metabolic processes that convert macronutrients into usable energy. For example, B vitamins are crucial coenzymes in many energy-releasing reactions. Iron is necessary for oxygen transport, which is vital for energy production.
- Energy Density of Foods: Energy density refers to the amount of energy (calories) per gram of food. Foods high in fat and low in water and fibre tend to have a higher energy density (e.g., processed snacks, fried foods). Foods high in water and fibre and low in fat have a lower energy density (e.g., fruits, vegetables). Choosing lower energy-dense foods can help manage calorie intake and promote satiety.
- Portion Sizes and Caloric Intake: The amount of food consumed (portion size) directly impacts caloric intake. Over time, consistently consuming larger portions than the body needs will lead to a positive energy balance and potential weight gain. Awareness of recommended portion sizes and mindful eating can help regulate calorie consumption.

c. Energy Expenditure

Energy expenditure is the total number of calories the body burns each day. It comprises several components: basal metabolic rate (BMR), the thermic effect of food (TEF), physical activity, and non-exercise activity thermogenesis (NEAT).

- Basal Metabolic Rate (BMR): BMR is the energy the body expends to maintain basic life functions while at complete rest in a neutral environment. These functions include breathing, circulation, and maintaining body temperature. BMR accounts for the largest portion of daily energy expenditure (around 60-75%) (Wang et al., 2023) and is influenced by factors like age, sex, body size, and body composition.
- Thermic Effect of Food (TEF): TEF is the increase in energy expenditure that occurs after eating due to the processes of digestion, absorption, and metabolism of food. Tzeravini et al. (2024) stated that protein has the highest TEF (around 20-30% of its energy content), followed by carbohydrates (5-10%), and then fats (0-3%). TEF typically accounts for about 10% of total daily energy expenditure.
- Physical Activity and Exercise: The energy expended during physical activity and exercise is the most variable component of energy expenditure. It depends on the intensity, duration, and frequency of the activity. Regular physical activity not only burns calories but also contributes to overall health and can influence body composition, potentially increasing BMR over time.



Figure 4.7: *Exercising to burn calories*

- Non-Exercise Activity Thermogenesis (NEAT): NEAT includes all the energy expended for physical activities other than purposeful exercise, such as fidgeting, walking, standing, and household chores. NEAT can vary significantly between individuals and can play a substantial role in overall energy expenditure.

d. Achieving Energy Balance

Achieving and maintaining energy balance is not a static state, but a continuous adjustment based on various internal and external factors.

i. Factors Influencing Energy Balance

- Age: BMR declines with age due to a decrease in lean muscle mass..
- Sex: Men typically have a higher BMR than women due to greater muscle mass.
- Genetics: Genetic factors can influence metabolic rate and body composition, making some individuals more prone to weight gain or loss.
- Activity Level: The amount and intensity of physical activity significantly impact energy expenditure, making it a key determinant of energy balance.

e. Consequences of Chronic Energy Imbalance

i. Weight Gain: Consistently consuming more energy than the body expends (positive energy balance) leads to the storage of excess energy as fat, resulting in weight gain.

ii. Weight Loss: Conversely, expending more energy than is consumed (negative energy balance) forces the body to use stored energy (fat and muscle), leading to weight loss.



Figure 4.8: *Electronic device for monitoring energy balance*

i. Activity Trackers: These devices can provide estimates of energy expenditure through physical activity, helping individuals understand their activity levels and make informed choices about exercise.

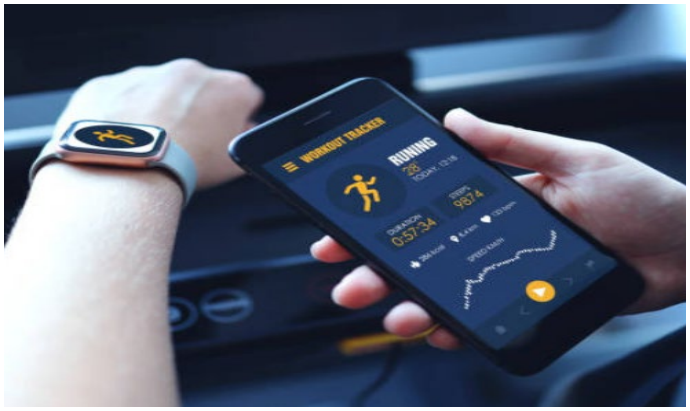


Figure 4.9: *Electronic tracker to monitor physical activity*

g. Importance

Maintaining energy balance is fundamental for a healthy weight, reducing the risk of chronic diseases such as type 2 diabetes, heart disease, and certain cancers. It also supports optimal energy levels and overall well-being.

h. The Role of Metabolism

Metabolism encompasses all the chemical processes that occur within a living organism to maintain life. These processes allow the body to break down nutrients for energy and to build and repair tissues.

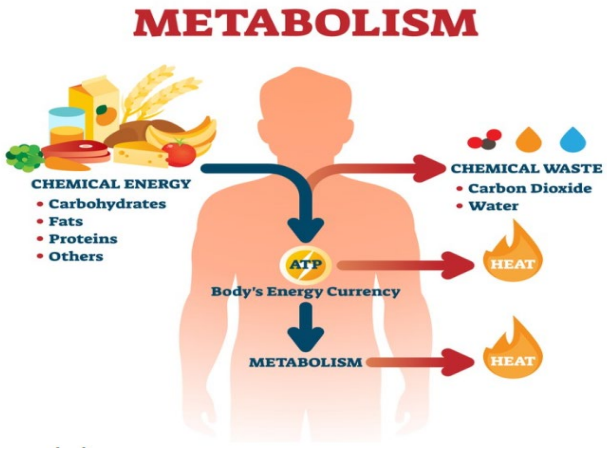


Figure 4.10: *Metabolism*

i. Fundamentals of Metabolism

Metabolism is broadly divided into two main categories: anabolism and catabolism.

i Anabolism (Building Up Tissues): Anabolic processes involve the synthesis of complex molecules from simpler ones. These reactions require energy and are essential for growth, repair, and the storage of energy (e.g., building muscle tissue, synthesising hormones).

ii Catabolism (Breaking Down Molecules) Catabolic processes involve the breakdown of complex molecules into simpler ones, releasing energy in the process. This energy is then used to fuel anabolic reactions and other bodily functions (e.g., digestion of food, breakdown of glucose for energy).

j. Factors Affecting Metabolic Rate

Metabolic rate, often measured as the rate of energy expenditure, varies between individuals and is influenced by several factors.

i. Genetics and Baseline Metabolism: Individual genetic makeup plays a role in determining baseline metabolic rate. Some people are naturally predisposed to a faster or slower metabolism.

ii. Body Composition (Muscle vs. Fat Mass): Muscle tissue is more metabolically active than fat tissue, meaning it burns more calories at rest. Individuals with a higher proportion of lean muscle mass tend to have a higher BMR.

iii. Age-Related Changes in Metabolism: As mentioned earlier, BMR typically decreases with age, primarily due to a loss of muscle mass (sarcopenia) and hormonal changes.

k. Nutrition's Impact on Metabolism

The food and drink we consume have a significant impact on our metabolic processes and rate.

i. Macronutrient Composition and Metabolic Responses: The proportions of carbohydrates, fats, and proteins in the diet can influence metabolic pathways and energy expenditure. For instance, a higher protein intake can increase TEF and promote satiety. The body also processes these macronutrients differently, affecting blood glucose levels and hormone release.

ii. The Role of Meal Timing and Frequency: The impact of meal timing and frequency on metabolism is a subject of ongoing research. Some studies suggest that more frequent, smaller meals may help stabilise blood sugar levels, while others indicate that overall calorie intake is the primary determinant of weight management. Intermittent fasting is another dietary pattern that can influence metabolic flexibility and energy utilisation.

iii. Impact of Specific Nutrients on Metabolic Pathways: Certain nutrients play specific roles in metabolic pathways. For example, chromium is involved in insulin action, and various B vitamins are essential cofactors for enzymes involved in energy production. Deficiencies in these nutrients can impair metabolic function.

iv. Metabolic Adaptations to Caloric Restriction and Overfeeding: As discussed under energy balance, the body can adapt its metabolic rate in response to prolonged periods of calorie restriction or overfeeding. This can make weight loss or maintenance more challenging.

l. Nutrition and Dietary Habits for Healthy Metabolism and Energy Balance

Adopting healthy nutrition and dietary habits is essential for maintaining a balanced energy state and supporting optimal metabolic function.

i. **Macronutrient Balance and Timing**

Consuming an appropriate balance of macronutrients and timing their intake strategically can support energy levels and metabolic health.

- Appropriate Carbohydrate Intake for Energy Needs Carbohydrate intake should be tailored to individual activity levels and metabolic needs. Choosing complex carbohydrates (whole grains, fruits, vegetables) over refined carbohydrates (white bread, sugary drinks) provides a more sustained release of energy and better blood glucose control.
- The Importance of Healthy Fats for Hormone Production and Energy Including sources of healthy fats, such as monounsaturated and polyunsaturated fats (found in avocados, nuts, olive oil, and oily fish), is crucial for hormone production, cell function, and providing a sustained source of energy. Limiting saturated and trans fats is important for cardiovascular health.
- Protein's Role in Satiety and Muscle Maintenance Adequate protein intake is vital for building and repairing tissues, promoting satiety (feeling full), and maintaining lean muscle mass, which is important for a healthy metabolic rate. Distributing protein intake throughout the day may be beneficial.
- Strategic Nutrient Timing Around Physical Activity Consuming carbohydrates and protein before and after exercise can optimise energy availability, enhance performance, and support muscle recovery and growth.

ii. Micronutrient Adequacy

Ensuring sufficient intake of vitamins and minerals is crucial for supporting the many metabolic processes in the body.

- Vitamins and Minerals Essential for Metabolic Processes (B Vitamins, Iron, Magnesium, etc.): Numerous micronutrients play key roles in energy metabolism. For example:
  - o B Vitamins: Involved in the breakdown of carbohydrates, fats, and proteins for energy.
  - o Iron: Essential for oxygen transport, which is vital for energy production.
  - o Magnesium: Involved in numerous enzymatic reactions, including those related to energy production. A deficiency in any of these can impair metabolic function and lead to fatigue. (Institute of Medicine, 2006)
- Consequences of Micronutrient Deficiencies on Energy and Metabolism: Micronutrient deficiencies can lead to various symptoms, including fatigue, weakness, and impaired cognitive function, all of which can be linked to disrupted energy production and metabolic processes.
- Obtaining Micronutrients Through a Diverse Diet: The best way to ensure adequate micronutrient intake is to consume a varied diet rich in fruits, vegetables, whole grains, lean proteins, and healthy fats. In some cases, supplementation may be necessary under the guidance of a healthcare professional.

m. The Significance of Dietary Patterns

The overall pattern of eating is as important as individual nutrients.

i. Whole Foods vs. Processed Foods and Their Metabolic Effects: Whole, unprocessed foods (fruits, vegetables, whole grains, lean proteins) tend to be more nutrient-dense and have a more favourable impact on blood sugar control and satiety compared to processed foods, which are often high in calories, unhealthy fats, and added sugars.

ii. The Role of Fibre in Glucose Control and Satiety: Dietary fibre, found in fruits, vegetables, and whole grains, slows down the absorption of glucose, helping to stabilise blood sugar levels. It also promotes satiety, which can aid in weight management and energy balance.

iii. Hydration and Metabolic Function: Water is essential for all metabolic processes in the body. Dehydration can impair energy production and overall metabolic efficiency. Adequate fluid intake is crucial for maintaining health.

iv. Mindful Eating and Sustainable Dietary Habits: Practising mindful eating, which involves paying attention to hunger and fullness cues and eating without distractions, can help prevent overeating and promote a healthier relationship with food. Sustainable dietary habits are those that can be maintained long-term and support overall health and well-being.

n. Avoiding Energy Imbalance and Metabolic Dysfunction

Adopting strategies to prevent chronic energy imbalances and metabolic dysfunction is key for long-term health.

i. Strategies for Preventing Overeating and Undereating: This includes being aware of portion sizes, eating regular meals, listening to hunger and fullness cues, and managing emotional eating.

ii. Managing Disordered Eating Patterns: Disordered eating patterns can severely disrupt energy balance and metabolic function. Seeking professional help is crucial for individuals struggling with these issues.

iii. The Impact of Fad Diets on Metabolism: Fad diets that involve extreme calorie restriction or elimination of entire food groups can lead to nutrient deficiencies, muscle loss, and metabolic adaptations that make long-term weight management difficult and can negatively impact overall health. A balanced and sustainable approach to eating is recommended.

LEARNING TASKS

1. Describe how to acquire and maintain good nutrition.
2. Track and analyse personal energy balance.
3. Research different factors that affect metabolism.
4. Analyse the challenges associated with energy balance.
5. Analyse your own metabolic rate and develop a personal nutrition plan.

PEDAGOGICAL EXEMPLARS

a. Starter

To spark learners' interest, show a short, age-appropriate video about energy balance and metabolism through nutrition and dietary habits. Provide captions or written information for learners with hearing impairment, verbal descriptions for learners with visual impairment, accessible seating for learners with mobility difficulties, and simplified explanations or extra time for learners with learning needs. Allow learners to respond through speaking, writing, drawing or presenting.

A YouTube Video on Energy balance

https://www.youtube.com/watch?v=k5Y9D37KmJo&t=6s

https://youtu.be/k5Y9D37KmJo?t=144

A YouTube Videos on Metabolism

https://youtu.be/nRq6N5NGD1U?t=165

https://www.youtube.com/watch?v=06LTNvITSH4

b. Introduction:

Invite learners to share their thoughts on the videos they watched and what they make out of them

c. Collaborative Learning

In mixed academic ability groupings, learners work on the concept of acquiring and maintaining good nutrition and dietary habits. Each group searches the internet using ICT tools to provide answers to the assignment or, in the absence of ICT tools or internet access, textbooks, printed nutrition charts, food labels and other available learning materials. Each group, with a leader, presents its findings and leads the discussion in class. Learners contribute their ideas freely to enrich the discussion.

d. Activity-Based Learning

Learners conduct a 3-day analysis of their personal energy balance by tracking:

- Food intake and estimated calories
- Physical activities and estimated energy expenditure
- Energy levels throughout the day (using a 1-10 scale)
- Sleep patterns and quality

Process

1. Introduce proper food and activity logging techniques
2. Provide digital or paper templates for tracking
3. Learners analyse their data to identify patterns
4. Learners reflect on how their nutrition choices affect their energy levels
5. Learners develop three specific strategies to improve their energy balance

Learners submit their completed journals and a reflection paper discussing their findings and proposed improvements.

e. Collaborative Learning

In mixed-ability groups, learners research different factors that affect metabolism including:

- Age and gender influences

- The thermic effect of food
- The impact of muscle mass
- Hormonal influences
- The role of physical activity

Process

1. Assign each group member a specific factor to research
2. Learners gather information using digital resources and textbooks
3. Groups create a visual representation (poster, digital presentation) of how these factors interact
4. Each group develops a set of practical recommendations for optimising metabolism
5. Groups present their findings through a gallery walk format

   Evaluate group presentations using a rubric that assesses accuracy of information, clarity of explanations, and practicality of recommendations.

f. Experiential Learning

Divide learners into mixed-ability groups. through scientific investigations of their own metabolic rates. Learners measure their resting heart rates, explore factors that increase their metabolism, and document how different activities affect their perceived energy levels throughout the day. Assist learners to summarise and share their information with other groups.

g. Project-Based Learning

In mixed-ability and mixed-gender groups, facilitate learner-led projects where learners design personalised nutrition and activity plans based on their unique metabolic needs, considering factors such as age, gender, activity level, and personal health goals. They research and provide their findings. Offer access to a range of resources and give specific areas for the research. Offer tips on public speaking and presentation skills and provide practice opportunities. Assign specific roles to bring out the strengths of learners to help shy and slow learners feel more confident and integral to the group.

h. Collaborative Problem-Solving

Learners in their mixed-ability groups, research and present real-world scenarios of athletes or individuals with energy imbalance issues. In groups, learners analyse detailed case studies of individuals with different energy balance challenges:

- A teenage athlete who needs to maintain energy for performance
- An adult with a sedentary job trying to prevent weight gain
- A person recovering from illness who needs to regain strength
- An individual with irregular eating patterns experiencing energy fluctuations

Process

1. Groups analyse their assigned case using guided questions
2. Students identify nutritional gaps and energy imbalances

3. Groups develop a one-week meal and activity plan to address the specific challenges
4. Students justify their recommendations with scientific principles
5. Groups present their solutions and receive peer feedback

Groups submit their case analysis, recommended plan, and scientific justifications for evaluation.

Guide learners to assist each other and be patient with one another working together as a team. Individuals are assigned roles such as leaders, secretaries, delivery persons, organisers etc across both genders and ability levels.

KEY ASSESSMENT Level 3: Discussion and Homework

1. a. Analyse the concept of energy balance in relation to weight management, discussing how metabolic adaptations can influence long-term weight maintenance following significant weight loss.

   b. Include specific physiological mechanisms and evaluate potential dietary strategies to address these adaptations.

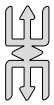
2. a. Explain the role of macronutrients (carbohydrates, protein, and fat) in energy production and overall health.

   b. How do different dietary habits affect the intake and utilisation of these macronutrients?

PLC Session 4

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

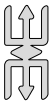
- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***discussion and homework***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the

homework (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 5

Learning Indicator: *Discuss the role of nutrition (school feeding programme – SFP) in the academic work of learners*

FOCAL AREA: ROLE OF NUTRITION IN THE ACADEMIC WORK OF LEARNERS

THE ROLE OF NUTRITION IN THE ACADEMIC WORK OF LEARNERS

Introduction

A learner's academic journey can be challenging, requiring good mental focus, concentration, and strong physical and mental health. Nutrition is the foundation of these important elements.

A well-nourished learner is more capable of understanding information, remembering what they learn, and achieving their best in studies. Proper nutrition provides the brain with essential nutrients that support cognitive function, helping learners think clearly and solve problems effectively. Foods rich in vitamins, minerals, and healthy fats, such as fruits, vegetables, whole grains, and fish, can boost brain power.

On the other hand, poor or inadequate nutrition can seriously affect a learner's ability to succeed academically. It can lead to lack of energy, poor concentration, and even mood swings, which can hinder performance in school. Encouraging healthy eating habits can make a significant difference in a learner's academic success and overall well-being.



Figure 5.1: *Some pupils happily eating their meals*

a. THE ROLE OF NUTRITION

Nutrition plays a vital role in supporting cognitive function, academic performance, and overall well-being among learners. Academic success is influenced by various factors including a student's environment, habits, and wellbeing. A well-balanced diet provides essential nutrients and energy for brain function, concentration, and learning while poor dietary habits can hinder academic potential of students.



Figure 5.2: *Pupils waiting to be served their meal.*

b. Importance of Nutrition for Cognitive Function

Adequate nutrition supports brain function, including attention, memory, and concentration. Key aspects of nutrition that impact cognitive function include:

i. Energy Supply: Nutrition provides energy for the brain, supporting cognitive processes and academic performance.

ii. Neurotransmitter Synthesis: Nutrients are essential for the synthesis of neurotransmitters, facilitating communication between brain cells.

iii. Brain Development: Certain nutrients, such as omega-3 fatty acids, support brain development and cognitive function.

c. Impact of Poor or Quality Diet on Academic Performance

A poor or low-quality diet can negatively impact academic performance in several ways:

i. Cognitive Impairment: Inadequate nutrition can lead to cognitive impairment, affecting attention, memory, and academic performance.

ii. Behavioural Problems: A diet high in sugar and unhealthy fats can contribute to behavioural problems, such as hyperactivity and aggression.

iii. Nutrient Deficiencies: Insufficient nutrition can lead to nutrient deficiencies, affecting cognitive function and academic performance.

iv. Increased Absenteeism due to Illness: A poor diet can weaken the immune system, making learners more susceptible to infections and illnesses, leading to increased absences from school and disrupted learning.

d. Nutrient-Rich Foods for Brain Function

Incorporating nutrient-rich foods into a learner's diet is essential for supporting optimal brain function and academic success. Examples of foods that support brain function and cognitive performance include:

i. Omega-3 Fatty Acids: Found in fatty fish, nuts, and seeds, these support brain health and cognitive development.



Figure 5.3: *Omega-3 rich foods*

ii. Antioxidants: Fruits, vegetables, and whole grains provide antioxidants, protecting against oxidative stress and cognitive decline.



Figure 5.4: *Antioxidant-rich fruits*

iii. **B Vitamins:** Whole grains, lean proteins, and leafy greens support energy production and neurotransmitter synthesis.



Figure 5.5: *Foods containing B Vitamins*

e. Benefits of School Meals

i. Increased School Enrolment: Schools meals can increase school enrolment and attendance particularly for girls.

ii. Improved Focus: Nutritious school meals can improve children's focus and academic performance.

iii. Reduced Financial Burden: School meals can reduce financial burdens on families, allowing them to allocate resources to other pressing needs.



Figure 5.6: *School children eating their meals under the School Feeding Programme*

f. Challenges and Opportunities

While nutrition plays a crucial role in academic performance, challenges exist:

i. **Food Insecurity:** Limited access to nutritious food can hinder academic potential.

ii. **Unhealthy Food Options:** Schools and communities often provide unhealthy food options, contributing to poor nutrition.

iii. **Nutrition Education:** Providing nutrition education and promoting healthy eating habits can support academic performance and overall health.

iv. **Socioeconomic disparities:** Access to nutritious food can be limited for learners from lower socioeconomic backgrounds.

v. **Time constraints:** Busy schedules of both learners and their families can lead to reliance on convenient but often less nutritious processed foods.

vi. Boarding school dining halls present unique challenges regarding mass-catering nutrition, portion control, and menu balance, whereas day students face entirely different hurdles related to food security, vending machine access, and street-vended snacks during the school day.

vii.

g. Opportunities to Address These Challenges Include:

i. School-based nutrition programmes: Implementing healthy school meal programmes and nutrition education initiatives can reach many learners.

ii. Parental education: Providing resources and guidance to parents on preparing nutritious meals and snacks.

iii. Community initiatives: Collaborating with local organisations to improve access to affordable and healthy food options.

iv. Integrating nutrition into the curriculum: Educating learners about the link between diet and academic success can empower them to make informed food choices.

v. Practicable Educational Design: Teachers across all school categories can practically apply nutritional science concepts to their students' actual daily eating experiences, whether they dine communally on campus or source meals independently.

LEARNING TASKS

1. Discuss the importance of nutrition for cognitive function.
2. Identify Ghanaian food rich in nutrients and their nutritional values for brain function.
3. Analyse the impact of School Feeding on learners' academic work.
4. Defend an advocacy for inclusive considerations in nutrition and learning.

PEDAGOGICAL EXEMPLARS

a. **Starter**

In mixed academic ability groupings, learners work on the concept of acquiring and maintaining good nutrition and dietary habits. Each group searches the internet using ICT tools to provide answers to the assignment or, in the absence of ICT tools or internet access, textbooks, printed nutrition charts, food labels and other available learning materials. Each group, with a leader, presents its findings and leads the discussion in class. Learners contribute their ideas freely to enrich the discussion.



b. **Introduction**

Ask learners to write their favourite food. Allow learners to share their perspectives on how their favourite food affects brain function and academic performance.

c. **Case Study**

Learners in mixed groupings read a short case about two students: one who eats a balanced diet and one who often comes to school hungry.

Learners analyse the scenario and identify key differences in classroom behaviour and performance, and link these to nutrition.

Learners use these analyses to discuss the importance of nutrition for cognitive function.

d. **Collaborative Learning**

Leaners are shown audio visuals, infographics, audios, etc. to watch or listen to on variety of Ghanaian foods. In mixed groupings, they research from relevant sources to identify the nutrients contained in those foods and classify them.

Set up and display these Ghanaian foods for a gallery walk, with the following stations:

- Station 1: Omega-3 sources (mackerel, tilapia, agushie)
- Station 2: Iron-rich foods (kontomire, turkey berries, bean leaves)
- Station 3: Vitamin B sources (groundnuts, beans, brown rice)
- Station 4: Antioxidant-rich foods (tiger nuts, dawadawa, garden eggs)

Learners rotate through stations, documenting observations and individually completing a classification chart, connecting foods to their brain-boosting properties.

e. **Activity-Based Learning**

In mixed groups, learners research from relevant sources and gather information on the nutritional value of the school feeding programme.

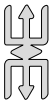
In their groups, learners simulate key stakeholders in an education meeting, involving the ministry of education, school heads, caterers, and parents, to discuss challenges and benefits of the school feeding programme in relation to its impact on learners' academic work.

Each group represents a stakeholder and defends its position.

Learners in their groups design a school feeding programme that provides learners with the right nutrients to enhance their academic work.

f. **Inquiry-Based Learning**

Learners in mixed groups, plan and carry out a field visit to nearby basic schools with and without a school feeding programme. Learners investigate how the school feeding programmes influence learners' concentration and performance in various subject areas. Collect data through structured interviews with classmates and teachers, and present findings through posters or digital slides.



Inclusivity Note

Offer text in multiple formats (large print, audio, audio visuals, infographics, etc.) to meet the diverse need of learners.

KEY ASSESSMENT Level 3: Homework

1. a. Discuss four benefits of a well-planned school feeding programme for learners' health and academic achievement.

   b. Identify and explain four key components of an effective programme.

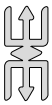
2. a. Design a school feeding programme that promotes healthy eating habits and supports learners' academic achievement.

b. Outline three key considerations and three strategies for implementation.

PLC Session 5

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***homework***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the homework (NTS 3k-3q).

10 minutes | **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step

d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).

Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 6

Learning Indicator: *Analyse eating disorders and their effects on the human body (anorexia nervosa, bulimia nervosa and binge eating and drinking)*

FOCAL AREA: EATING DISORDERS AND THEIR EFFECTS ON THE HUMAN BODY

EATING DISORDERS AND THEIR EFFECTS ON THE HUMAN BODY

Introduction

Eating disorders are complex and multifaceted mental health conditions that can have severe physical and emotional consequences. These disorders are characterised by abnormal eating habits, distorted body image, and an unhealthy preoccupation with food, weight, and shape.

The effects of eating disorders such as malnutrition and dehydration, etc. on the human body can be profound and far-reaching. Eating disorders can have a significant impact on mental health, contributing to depression, anxiety, and low self-esteem. By gaining a deeper understanding of eating disorders and their effects on the human body, we can better support individuals affected by these conditions and promote healthier relationships with food and body image.

It is important to provide a comprehensive overview of eating disorders, highlighting the need for early intervention, comprehensive treatment, and ongoing support for individuals affected by these conditions. By shedding light on the complexities of eating disorders, we hope to promote greater awareness, understanding, and empathy for those struggling with these challenging mental health conditions.



Figure 6.1: *A picture depicting someone with a potential eating disorder*

a. Meaning of Eating Disorders

Eating disorders are defined as the disruption in the eating behaviour with excessive concern about body weight that impairs physical health or psychosocial functioning.

Eating disorders are serious mental illnesses characterised by persistent disturbances in eating behaviours and related thoughts and emotions that negatively impact physical and psychological health.

Eating disorders can have severe physical and emotional consequences.

b. Types of Eating Disorders

The following are examples of eating disorders:

i. Anorexia Nervosa
ii. Bulimia Nervosa
iii. Binge-eating disorder
iv. Avoidant or restrictive food intake disorder
v. Pica
vi. Rumination Disorder

The three most common eating disorders are Anorexia Nervosa, Bulimia Nervosa and Binge-eating disorder.

i. Anorexia Nervosa



Figure 6.2: *A woman showing signs of anorexia nervosa*

Anorexia nervosa is characterised by a distorted body image and excessive weight loss due to inadequate caloric intake. It can be a life-threatening eating disorder. Anorexia nervosa is the most familiar and well-studied eating disorder. Anorexia nervosa usually develops during adolescence and occurs more in women than men.

The characteristics features of anorexia nervosa are as follows:

Table 6.1: *Characteristics features of Anorexia Nervosa*

Extremely underweight.
Intense fear of gaining weight.
A distorted body image, including denial of being seriously underweight.
Persistent compensatory behaviours to avoid gaining weight, despite being underweight.
Preoccupation with food and weight.
Individuals with anorexia nervosa might have obsessive-compulsive symptoms like using the same cutlery or breaking the food into small pieces.
In women, anorexia nervosa could manifest as amenorrhea, which is defined as the absence of at least three consecutive menstrual cycles.

There are two subtypes of anorexia nervosa:

- **Restricting Type**

  In the restricting type, individuals lose weight through fasting or excessive exercise.

- **Bing Eating/Purging Type**

  Individuals engage in or binge on large amounts of food and purge after that. They purge by self-induced vomiting, laxative/diuretic usage.

  The mortality rate in Anorexia nervosa is the highest of any psychiatric disorders. Most die from medical complications, whereas some die due to suicide. Individuals with anorexia nervosa, can also develop:

  - osteopenia
  - brittle hair/nails
  - dry skin
  - constipation
  - hypotension
  - bradycardia
  - hypothermia
  - lanugo hair
  - amenorrhea
  - infertility
  - muscle wasting

  Anorexia nervosa is complicated by dysregulation of the hypothalamic-pituitary axis causing hypothalamic amenorrhea and dysregulation of hypothalamic-pituitary-adrenal axis causing hypercortisolaemia and growth hormone resistance.

ii. Bulimia Nervosa

Bulimia nervosa is a serious, sometimes life-threatening eating disorder. Individuals with bulimia nervosa typically alternate dieting or eating only low calorie "safe foods" with binge eating on "forbidden" high calorie foods. Binge eating is defined as eating a large amount of food in a short period of time associated with a sense of loss of control over what, or how much one is eating. Binge behaviour is usually secretive and associated with feelings of shame or embarrassment. Bulimia includes episodes of bingeing, commonly followed by episodes of purging.

Bingeing involves eating food, sometimes an extremely large amount in a short period of time. During bingeing, people feel like they have no control over their eating and that they can't stop. After eating, due to guilt, shame or an intense fear of weight gain, purging is done to get rid of calories.



Figure 6.3: *Signs of Bulimia Nervosa*

Purging can include vomiting, exercising too much, not eating for a period of time, or using other methods, such as taking laxatives. Some people change medicine doses, such as changing insulin amounts, to try to lose weight. Bulimia also involves being preoccupied with weight and body shape, with severe and harsh self-judgment of personal appearance.

Binges occur at least weekly and are typically followed by what are called "compensatory behaviours" to prevent weight gain. These can include fasting, vomiting, laxative misuse or compulsive exercise. As in anorexia nervosa, persons with bulimia nervosa are excessively preoccupied with thoughts of food, weight or shape which negatively affect, and disproportionately impact, their self-worth.

Possible signs that someone may have bulimia nervosa include:

Table 6.2: *Signs of bulimia nervosa*

Frequent trips to the bathroom right after meals.
Laxative or diet pill misuse.
Recurrent unexplained diarrhoea.
Large amounts of food disappearing or unexplained empty wrappers and food containers.
Misuse of diuretics (water pills).
Chronic sore throat.
Swelling of the salivary glands in the cheeks.
Heartburn and gastroesophageal reflux.
Dental decay resulting from erosion of tooth enamel by stomach acid.
Feeling dizzy or fainting from excessive purging behaviours resulting in dehydration.

Though symptoms of Bulimia nervosa are very similar to binge eating/purging subtypes of anorexia nervosa, persons with bulimia nervosa maintain near normal weight instead of being underweight.

iii. Binge-eating disorder (BED)



Figure 6.4: *Signs of Binge-eating disorder*

Binge-eating disorder is the most common eating disorder. It involves eating large amount of food in a short period accompanied by loss of control. BED usually begins in adolescence and one-third of BED patients are male. When bingeing, it feels like there is no control overeating. But binge eating is not followed by purging. During a binge, people may eat food faster or eat more food than planned. Even when not hungry, eating may continue long past feeling uncomfortably full.

After a binge, people often feel a great deal of guilt, disgust or shame. They may fear gaining weight. They may try to severely limit eating for periods of time. This leads to increased urges to binge, setting up an unhealthy cycle. Embarrassment can lead to eating alone to hide bingeing. A new round of bingeing commonly occurs at least once a week.

The characteristic features of binge eating disorders are as follows:

Table 6.3: Characteristic features of binge eating disorders

Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances.
Eating much more rapidly than normal.
Loss of control during binge eating.
Eating until feeling uncomfortably full.
Eating large amounts of food when not feeling physically hungry.
Eating alone because of feeling embarrassed by how much one is eating.
The binge eating occurs, on average, at least once a week for 3 months.
Feeling guilt about binge eating.
Poses a risk of obesity and complications associated with obesity like diabetes, heart disease, or stroke.

iv. Avoidant or Restrictive Food Intake Disorder (ARFID)



Figure 6.5: *Sign of Avoidant or restrictive food intake disorder (ARFID)*

Avoidant or restrictive food intake disorder is new terminology for "feeding disorder of infancy, toddlers and childhood." ARFID is a defined eating disorder that involves a disturbance in eating resulting in persistent failure to meet nutritional needs and extreme picky eating. ARFID usually occurs during the first seven years of life. Sometimes it can persist into adulthood.

ARFID can be due to loss of interest in eating, intense dislike for specific tastes, smells, texture, or colours and concern about consequences of eating, such as fear of choking, nausea, vomiting, constipation, an allergic reaction, etc.

The impact on physical and psychological health and degree of malnutrition can be like that seen in people with anorexia nervosa. However, people with ARFID do not have excessive concerns about their body weight or shape and the disorder is distinct from anorexia nervosa or bulimia nervosa. Also, while individuals with autism spectrum disorder often have rigid eating behaviours and sensory sensitivities, these do not necessarily lead to the level of impairment required for a diagnosis of avoidant/restrictive food intake disorder.

ARFID does not include food restriction related to lack of availability of food; normal dieting; cultural practices, such as religious fasting; or developmentally normal behaviours, such as toddlers who are precise eaters.

v. Pica

Pica is an eating disorder in which a person repeatedly eats things that are not food with no nutritional value. The behaviour persists over at least one month and is severe enough to warrant clinical attention. Pica is common among pregnant women, children, and intellectually disabled persons.

Typical substances ingested vary with age and availability and might include paper, paint chips, soap, cloth, chalk, hair, string, chalk, metal, pebbles, charcoal or coal, or clay. Individuals with pica do not typically have an aversion to food in general. A person diagnosed with pica is at risk for potential intestinal blockages or toxic effects of substances consumed, parasitic infections, micronutrient deficiency, and heavy metal poisoning. The treatment strategy for pica includes decreasing the exposure to the craved items, micronutrient supplementation, and behavioural/aversive treatment, particularly among mentally disabled individuals.



Figure 6.6: *Person with symptoms of pica*

vii. **Rumination Disorder**

Rumination disorder involves the repeated regurgitation and re-chewing of food after eating whereby swallowed food is brought back up into the mouth voluntarily and is re-chewed and re-swallowed or spat out. Rumination can occur in other mental disorders (e.g., intellectual disability) however the degree must be severe enough to warrant separate clinical attention for the diagnosis to be made.

Rumination disorder can occur in infancy, childhood, and adolescence or in adulthood. Rumination is a voluntary action that usually happens within 30 minutes after having the food. Rumination developed in infancy usually resolves by 12 months. Rumination disorder in children and adults can lead to weight loss or malnutrition.

Note

However, individuals of any body size, shape, or weight can struggle with eating disorders.

c. Early Warning Signals of Eating Disorders



Figure. 6.7: *Warning signs of eating disorders*

The following early warning signals may suggest an eating disorder:

Table 6.4: *Early warning signals of eating disorder*

Skipping meals or snacks or making excuses for not eating.
Having a very limited diet that hasn't been prescribed by a trained medical professional.
Too much focus on food or healthy eating, especially if it means not participating in usual events, such as sports, banquets, eating birthday cake or dining out.
Making own meals rather than eating what the family eats.
Withdrawing from usual social activities.
Frequent and ongoing worry or complaints about being unhealthy or overweight and talk of losing weight.
Frequent checking in the mirror for what are thought to be flaws.
Repeatedly eating large amounts of foods.
Using dietary supplements, laxatives or herbal products for weight loss.
Exercising much more than the average person.
Calluses on the knuckles from reaching fingers into the mouth to cause vomiting.
Problems with loss of tooth enamel that may be a sign of repeated vomiting.
Leaving during meals or right after a meal to use the toilet.
Talk of depression, disgust, shame or guilt about eating habits.
Eating in secret.

d. Causes of Eating Disorders

The exact cause of eating disorders is not known. As with other mental health conditions, there may be different causes, such as genetics, biological, psychological, developmental, and socio-cultural factors.

i. **Genetics**

- Family history: Individuals with a family history of eating disorders are more likely to develop one.
- Genetic predisposition: Research suggests that genetic factors can contribute to the development of eating disorders.

ii. **Biological**

- Brain chemistry: Imbalances in neurotransmitters like serotonin and dopamine can contribute to eating disorders.
- Hormonal influences: Hormonal changes during puberty, menstruation, or menopause can affect eating behaviours.

- Nutritional deficiencies: Deficiencies in certain nutrients can impact mood and eating behaviours.

iii. **Psychological**

- Mental health conditions: Co-occurring conditions like depression, anxiety, or obsessive-compulsive disorder can increase the risk.
- Trauma: Experiencing trauma, such as emotional or physical abuse, can contribute to eating disorders.
- Low self-esteem: Negative self-image and low self-esteem can increase vulnerability.

iv. **Developmental**

- Puberty and adolescence: Significant physical and emotional changes during puberty can increase risk.
- Parent-child relationships: Dysfunctional relationships or unrealistic expectations can contribute.
- Peer influences: Peer pressure and social comparison can impact body image.

v. **Socio-Cultural**

- Media representation: Unrealistic beauty standards and media portrayal can contribute to body dissatisfaction.
- Cultural pressures: Societal expectations around weight, shape, and appearance can increase risk.
- Social media: Exposure to idealised images and comparisons can exacerbate body image concerns.

e. Effects of Eating Disorders

Eating disorders cause a wide variety of complications, some of them life-threatening. The more severe or long lasting the eating disorder, the more likely it is that serious complications may occur. These may include:

Table 6.5: *Effects of eating disorders*

Serious health problems.
Depression and anxiety.
Suicidal thoughts or behaviour.
Problems with growth and development.
Social and relationship problems.
Substance use disorders.
Work and school issues.
Death.

f. Prevention of Eating Disorders

There is no sure way to prevent eating disorders, but you can take steps to develop healthy eating habits.

To develop healthy eating habits and lifestyle behaviours among adults:

i. Choose a healthy diet rich in whole grains, fruits, and vegetables.

ii. Limit salt, sugar, alcohol, saturated fat, and trans fats.

iii. Avoid extreme dieting. If you need to lose weight, talk to your health care provider or a dietitian to create a plan that meets your needs.

iv. Do not use dietary supplements, laxatives, or herbal products for weight loss.

v. Get enough physical activity. Each week, get at least 150 minutes of aerobic activity, such as brisk walking. Choose activities that you enjoy, so you are more likely to do them.

vi. Seek help for mental health issues, such as depression, anxiety, or issues with self-esteem and body image.

vii. Talk to a certified school counsellor, healthcare professionals, and mental health specialists for clinical evaluation if you have concerns about eating behaviours.

LEARNING TASKS

1. Research and present the meaning and types of eating disorders using multimedia tools.
2. Create a diagram showing the causes of eating disorders.
3. Identify the possible effects of eating disorders.
4. Develop a group presentation on the warning signals of eating disorders.
5. Roleplay scenarios on prevention of eating disorders.

PEDAGOGICAL EXEMPLARS

a. **Starter**

Show a short, age-appropriate video on eating disorders to capture learners' attention and introduce the lesson. Provide captions and written information for learners with hearing impairment, verbal descriptions for learners with visual impairment, accessible viewing arrangements for learners with mobility difficulties, and simplified explanations or extra response time for learners with learning needs. Avoid distressing images or content and allow learners to respond orally, in writing or through drawing.

https://youtu.be/ddf-PQ9t4W0

https://youtu.be/sim7_yQwsyg?t=87

b. **Introduction:**

Invite learners to share their thoughts about the video they watched and what they understood or took away from it.

c. **Group Based Learning**

With the aid of digital devices, learners work in groups to research the meaning and types of eating disorders. Where digital devices or internet access are unavailable, learners may use the PEH Curriculum, Teacher's Manual, textbooks, printed materials, charts, case studies and other available learning resources.

d. **Collaborative Learning**

In groups, learners collaborate to create a diagram showing the causes of eating disorders. Learners appoint two members in each group to join another group to share their causes of eating disorders. Learners return to their original groups to finalise their causes.

e. **Research Project**

In mixed-ability, gender-responsive and all-inclusive tasked-based groups, research from textbooks and related resources, to create a presentation on the effects of anorexia nervosa, bulimia nervosa, or binge eating disorder on physical and mental health.

f. **Collaborative Learning**

Divide students into small groups to discuss the early warning signals associated with eating disorders. Groups present their findings to the class for discussion and feedback.

g. **Role-playing**

Have learners participate in role-playing exercises to simulate the prevention of eating disorders.

KEY ASSESSMENT: Mid-Semester Examination

1. a. Describe the characteristics and symptoms of anorexia nervosa, bulimia nervosa, and binge eating disorder.

   b. How do these disorders affect physical and mental health?

2. a. Develop a plan to promote healthy eating habits and body image in a school or community setting.

In your plan include the following:

- A plan to promote healthy eating habits.
- A plan to promote positive body image.
- Strategies to prevent eating disorders.
- Strategies to support recovery from eating disorders.

HINT

*Conduct **Mid-semester Examination**. It should cover the contents taught from Week 1 to 5. Refer to the **Table of Specification and Structure of the Paper**. Learners' papers should be marked immediately and scores entered into the SAP.*

PLC Session 6

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous session, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand.
   b. identify three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q).
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).
   a. The key assessment for the week is ***mid-semester examination***. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the mid-semester examination (NTS 3k-3q).

10 minutes | **Content Exploration**

5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through the problem individually for 3–4 minutes
   c. the group then works through it together the problem, step by step
   d. highlight the most common errors made at each step (NTS 1c, 1e, 2c, 2e, 3e-3j).

Note

- *This part is not 'How do I teach this?' but how do I teach it for learners to understand?*

- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Structure

Section A: 25 Multiple-choice questions

Section B: 2 Essay Questions

Table of specification for item construction for section A and B

Week	Learning Indicator	Types of questions	Dok Levels				Total
			1	2	3	4	
1	Explain the concept of mental health and identify the common forms	MCQs	2	2	-		4
		ESSAY	-	-	-		-
2	Explain how to cope with stress and anxiety	MCQs	2	2	2		6
		ESSAY	-	-	1		1

3	Discuss how to cope with depression and prevention of suicide	MCQs	–	2	1		3
		ESSAY	–	–	–		
4	Analyse nutrition and dietary practices and their effects on the human body	MCQs	3	2	1		6
		ESSAY					
5	Discuss the role of nutrition (school feeding programme – SFP) in the academic work of learners	MCQs	1	3	2		6
		ESSAY			1		1
		Total	8	11	8		27

Section 2 Review

Week 4 focused on how to acquire and maintain energy balance and metabolism through nutrition and dietary habits. Achieving and maintaining energy balance and a healthy metabolism requires a combination of proper nutrition and dietary habits which includes a balanced diet, appropriate caloric intake, macronutrient balance, hydration, and physical activity and, a limit on the intake of processed foods. Through the adoption of these strategies, learners can support their energy needs, maintain a healthy weight, and promote overall metabolic health.

In Week 5, the learner discussed the role of nutrition (School Feeding Programme- SFP) in the academic work of learners. The School Feeding Programme plays a vital role in supporting the academic performance of learners by providing nutritious meals that enhance cognitive function, concentration, and overall well-being. The provision of nutritious meals through the School Feeding Programme helps create a supportive learning environment, promoting academic success and overall development of learners.

During Week 6, learners analysed eating disorders and their effects on the human body. They explored the meaning, causes, effects, early warning signals, and prevention of eating disorders. Understanding the effects of eating disorders on the human body highlights the importance of early detection, treatment, and prevention. A comprehensive approach addressing physical, emotional, and psychological aspects is crucial for recovery and overall well-being. Learners actively participated in class discussions and collaborated with peers to develop preventive measures.

Following this section, learners should be encouraged to apply their knowledge to their everyday lives.

MARKING SCHEMES AND MODEL ANSWERS FOR THE KEY ASSESSMENTS

WEEK 4

Question 1

MARKS: 30

Criterion	Marks	Description
Understanding of energy balance concept	*5*	*Clear and accurate explanation of energy balance, including energy intake and expenditure, and implications for weight maintenance.*
Discussion of metabolic adaptations after weight loss	*5*	*Comprehensive analysis of metabolic adaptations (e.g., changes in resting metabolic rate, hormonal changes), their impact on weight maintenance.*
Explanation of physiological mechanisms	*5*	*Detailed description of specific physiological mechanisms influencing energy balance and weight management (hormonal, neurological, metabolic processes).*
Evaluation of dietary strategies addressing metabolic adaptations	*8*	*Critical evaluation of dietary strategies (e.g., increased protein intake, low-glycemic diets, intermittent fasting) and their effectiveness in supporting long-term weight maintenance.*
Use of relevant evidence and examples	*2*	*Incorporation of credible studies, examples, or data to support explanations and evaluations.*
Critical analysis and synthesis	*5*	*Demonstrates critical insight, integrates knowledge across concepts, identifies complexities and limitations.*
Total	*30*	

Model Answer

Energy Balance in Relation to Weight Management

Energy balance refers to the relationship between energy intake through food and drink and energy expenditure through basal metabolic rate (BMR), physical activity, and the thermic effect of food. Maintaining a healthy body weight requires that energy intake equals energy expenditure over time; a positive energy balance results in weight gain due to energy storage as fat, whereas a negative balance leads to weight loss. This balance does not have to be perfectly matched daily but over longer periods to maintain weight stability.

Metabolic Adaptations and Their Influence on Long-Term Weight Maintenance

Following significant weight loss, the body undergoes metabolic adaptations aimed at restoring energy balance, which often favour weight regain. One major adaptation is a reduction in resting metabolic rate (RMR) or basal metabolic rate (BMR) that is disproportionate to the loss of body mass, termed metabolic adaptation or adaptive thermogenesis. This decrease means fewer calories are burned at rest, making weight maintenance more challenging.

Hormonal changes also contribute to increased hunger and reduced satiety, influencing energy intake. Notably, leptin levels decline following fat mass reduction, signalling energy deficiency to the brain

and stimulating appetite. Ghrelin concentrations typically increase, further promoting hunger. Other hormones involved include thyroid hormones (T3 and T4) that influence metabolic rate, with their concentrations often declining after weight loss, exacerbating the reduction in energy expenditure. Changes in gut-derived hormones affecting appetite regulation, such as peptide YY and GLP-1, also occur and influence long-term weight regulation.

Neurological adaptations take place in hypothalamic pathways that regulate hunger and energy expenditure, contributing to the body's drive to regain lost weight. These physiological and hormonal changes create a biological environment that favours restoring previous body weight, presenting a significant barrier to maintaining weight loss.

Physiological Mechanisms Involved

The regulation of energy balance involves complex interactions between:

- **Basal Metabolic Rate (BMR):** Energy expended at rest, influenced by lean body mass and organ metabolic activity; decreases after weight loss.
- **Hormonal Regulation:** Leptin decreases signal low fat stores; ghrelin increases promote hunger; thyroid hormones modulate metabolic rate; gut hormones influence satiety and hunger.
- **Neural Control:** Brain regions such as the hypothalamus integrate signals to regulate food intake and energy expenditure below conscious awareness.
- **Energy Expenditure Components:** Includes physical activity-related energy expenditure and the thermic effect of food, both may adapt downwards post-weight loss.

Evaluation of Dietary Strategies to Address Metabolic Adaptations

Evidence suggests several dietary strategies can mitigate metabolic adaptations and support sustained weight maintenance:

- **Increased Protein Intake:** Higher protein diets promote satiety, preserve lean mass, and have a higher thermic effect, contributing to a modest but significant reduction in weight regain.
- **Low-Glycaemic Index Diets:** These diets may help maintain insulin sensitivity and reduce hunger, though evidence for effectiveness in weight maintenance is mixed and requires further research.
- **Intermittent Fasting and Time-Restricted Feeding:** These approaches show potential in improving metabolic flexibility and enhancing adipose tissue health, reducing weight regain, though long-term benefits need confirmation.
- **Diet Composition and Quality:** Emphasis on diets rich in fibre, healthy fats, and micronutrients, while low in ultra-processed and high-energy-dense foods, supports weight regulation by improving satiety and metabolism.
- **Combination Approaches:** Combining dietary modifications with increased physical activity and behavioural support is recommended as the most effective approach for long-term success.

Question 2

MARKS: 60

Criterion	Marks	Description
Explanation of macronutrients and their role in energy production	*20*	*Detailed and accurate explanation of carbohydrates, proteins, and fats as energy sources and their biochemical roles in energy metabolism.*
Discussion of macronutrients' contribution to overall health	*20*	*Comprehensive coverage of how each macronutrient supports bodily functions beyond energy provision (e.g., structural, regulatory, and protective roles).*
Analysis of the impact of different dietary habits on macronutrient intake	*10*	*Clear discussion of how varied dietary patterns influence the quantity and quality of macronutrient intake.*
Explanation of the impact of dietary habits on macronutrient utilisation	*5*	*Insightful explanation of how metabolism and utilisation of macronutrients vary with different diets and lifestyle factors.*
Use of evidence and examples	*2*	*Inclusion of relevant studies, examples, or data to support points made.*
Critical analysis and synthesis	*3*	*Integration of concepts and critical evaluation of issues related to macronutrient intake and utilisation.*
Total	*60*	

Model Answer

Role of Macronutrients in Energy Production

Macronutrients—carbohydrates, proteins, and fats—are essential nutrients required in a large quantity to provide the energy necessary for the body's physiological functions and activities. Carbohydrates and proteins provide approximately 4 kilocalories (kcal) per gram, while fats are the most energy-dense, providing about 9 kcal per gram.

Carbohydrates are the body's primary and preferred energy source. They are broken down into glucose, which fuels muscle contractions during exercise and supports vital functions such as brain activity and maintaining body temperature. Through glycolysis and the Krebs cycle, carbohydrates are metabolised efficiently to release adenosine triphosphate (ATP), the cellular energy currency.

Proteins contribute minimally to immediate energy production under normal conditions but become important energy sources during prolonged fasting or starvation. Their primary role is structural and functional, supplying amino acids for muscle repair, enzyme, and hormone synthesis, and maintaining nitrogen balance.

Fats serve as a highly concentrated energy reserve, utilised especially during resting states and prolonged low to moderate-intensity activity. Fatty acids undergo beta-oxidation to generate acetyl-CoA, which enters the Krebs cycle for ATP production. Fats also play critical structural and regulatory roles, such as forming cell membranes and serving as precursors for hormones.

Contribution of Macronutrients to Overall Health

Beyond energy provision, macronutrients have unique and indispensable roles in health maintenance. Carbohydrates, particularly dietary fibre, contribute to gut health, enhance satiety, and regulate blood lipid levels. Proteins are fundamental for tissue growth, immune function, enzymatic activities, and repairing physiological damage. Fats support cell membrane integrity, aid absorption of fat-soluble vitamins (A, D, E, K), regulate inflammation via eicosanoid production, and protect organs.

An imbalance or inadequate intake of any macronutrient can impair these functions. For example, protein deficiency can cause muscle wasting and immunodeficiency, while excessive saturated fat intake is linked with cardiovascular disease risk.

Impact of Different Dietary Habits on Macronutrient Intake

Dietary habits influence both the quantity and quality of macronutrient intake. Traditional diets rich in whole grains, fruits, and legumes tend to provide balanced carbohydrates and fibre, promoting metabolic health. Conversely, Western diets typically high in processed foods and added sugars may lead to excessive intake of refined carbohydrates and unhealthy fats.

High-protein diets, including those emphasising animal sources, increase protein intake but may also raise saturated fat consumption if not carefully managed. Plant-based diets alter protein sources, often relying on combinations of various plant proteins to meet essential amino acid requirements.

Low-carbohydrate diets such as ketogenic diets drastically reduce carbohydrate intake while increasing fat, shifting metabolism towards fat utilisation and production of ketone bodies as an alternative fuel. These diets can affect macronutrient utilisation patterns and have been employed for weight loss and metabolic improvements.

How Dietary Habits Affect Macronutrient Utilisation

The body's utilisation of macronutrients adapts to habitual dietary patterns. For example, on a high-fat, low-carbohydrate diet, metabolic pathways shift to rely more on fatty acid oxidation and ketone bodies for energy, reducing dependence on glucose. Similarly, increased protein intake can enhance muscle protein synthesis and preserve lean mass, particularly when combined with resistance exercise.

Poor dietary quality with excessive processed carbohydrates and fats can impair metabolic flexibility and promote insulin resistance, affecting the efficiency of energy utilisation and increasing the risk of chronic diseases

WEEK 5

Question 1

MARKS: (20marks)

Criteria	Marks	Description
Identification and Explanation of Benefits of School Feeding Programmes	*12*	*Clear, accurate discussion on how well-planned programmes improve learners' nutritional status, health, and academic outcomes with supporting evidence.*
Description of Key Components of an Effective Programme	*8*	*Detailed and relevant explanation of essential components such as nutritional quality, accessibility, monitoring, and community involvement.*
TOTAL: 20 Marks		

Model Answer

Benefits of a Well-Planned School Feeding Programme

A well-planned school feeding programme offers a range of significant benefits for learners' health and academic achievement. Firstly, it provides essential nutrients that improve children's overall nutritional status, reducing food insecurity and preventing malnutrition, which are known barriers to effective learning. Improved nutrition supports physical growth, cognitive development, and immune function, decreasing illness-related absences from school. Consequently, learners exhibit better concentration, memory, and energy levels during lessons, resulting in enhanced academic performance. Additionally, school feeding can alleviate behavioural problems linked to hunger, such as irritability and reduced attention span, fostering a more positive learning environment. The programme also promotes social equity by ensuring that children from low-income families receive at least one nutritious meal daily, reducing disparities in health and education outcomes.

Key Components of an Effective School Feeding Programme

Effective school feeding programmes integrate several key components to maximise benefits:

- **Nutritional Quality:** Meals must meet dietary guidelines, providing balanced portions of macronutrients and micronutrients essential for growth and cognitive function.
- **Accessibility and Inclusivity**: All children, especially those from disadvantaged backgrounds, should have equitable access without stigma or barriers.
- **Consistent Implementation:** Reliable meal provision during the school year, with good coverage and participation rates, is crucial for sustained impact.
- **Monitoring and Evaluation:** Regular assessment of programme effectiveness, including nutritional outcomes and academic indicators, facilitates continuous improvement.
- **Community and Stakeholder Engagement:** Collaboration with parents, local farmers, and governments ensures programme relevance, resource support, and sustainability.
- **Complementary Activities:** Nutritional education and hygiene promotion integrated with feeding programmes enhance health knowledge and develop lifelong healthy habits.

Question 2

MARKS: (30marks)

Criterion	Marks	Description
Programme design addressing healthy eating promotion	*10*	*Clear, comprehensive design including nutritious meal provision aligned with dietary guidelines.*
Incorporation of support for learners' academic achievement	*6*	*Explanation of how the programme benefits cognitive function, concentration, attendance, and learning outcomes.*
Identification of key considerations for implementation	*6*	*Analysis of factors such as food quality, cultural relevance, food safety, budget, stakeholder engagement, and logistics.*
Strategies for effective implementation	*6*	*Discussion of practical approaches, including monitoring and evaluation, education integration, staff training, and community involvement.*

Criterion	Marks	Description
Use of relevant evidence and examples	*2*	*Inclusion of credible examples or evidence supporting design choices and strategies.*
Total	*30*	

Model Answers

Programme Design to Promote Healthy Eating

A well-designed school feeding programme should provide nutritionally balanced meals that adhere to established dietary guidelines, ensuring adequate portions of carbohydrates, proteins, healthy fats, vitamins, and minerals. Incorporating fresh fruits, vegetables, whole grains, and limiting added sugars and saturated fats supports optimal nutrition. The programme may include breakfast and lunch options to address energy needs throughout the school day and prevent cognitive decline due to hunger.

Offering culturally appropriate foods increases acceptance and reduces waste. Menu planning should consider seasonal and local food availability to maintain freshness and sustainability. Additionally, incorporating snacks rich in nutrients can help maintain students' attention and mental alertness between meals.

Supporting Learners' Academic Achievement

Nutrition significantly impacts cognitive function, concentration, and behaviour conducive to learning. Providing regular, balanced meals helps improve attendance and reduces disciplinary issues linked with hunger. School meals rich in key nutrients such as omega-3 fatty acids, iron, and vitamins B and D support brain development and memory. Engaging students during meals and ensuring adequate time to eat fosters a positive environment enhancing social interaction and mental well-being.

Key Considerations for Implementation (any 3 of the following)

Successful implementation requires addressing multiple factors:

- **Food Quality and Safety:** Ensuring meals meet hygiene standards and are prepared safely to prevent foodborne illnesses.
- **Budget and Resources:** Securing sustainable funding that balances cost with nutrition quality, including sourcing from local producers when possible.
- **Cultural Relevance:** Tailoring menus to reflect students' cultural preferences and dietary restrictions, including allergies and religious considerations.
- **Stakeholder Engagement:** Involving school staff, parents, students, and community members in planning and feedback.
- **Infrastructure and Logistics:** Adequate kitchen facilities, storage, and distribution mechanisms to maintain meal quality.
- **Scheduling:** Providing sufficient time for students to eat, avoiding rushed meals that reduce intake and enjoyment.

Strategies for Effective Implementation (any 3 of the following)

To ensure programme success:

- **Nutrition Education:** Integrate education into the curriculum to teach the importance of healthy eating, encouraging positive attitudes toward school meals.
- **Staff Training:** Equip kitchen and teaching staff with knowledge and skills on nutrition, hygiene, and student engagement during meals.

- **Monitoring and Evaluation:** Establish indicators to track meal quality, student participation, acceptance, and impacts on health and academic outcomes.
- **Community and Parental Involvement:** Foster partnerships that support programme sustainability and reinforce healthy eating habits at home.
- **Flexible Menu Planning:** Periodically review and adapt menus to reflect seasonal availability and student feedback.
- **Inclusive Access:** Provide meals universally or ensure no student is excluded due to economic status to reduce stigma and improve participation.

WEEK 6

Question 1

MARKS: 50

Criteria	Marks	Description
Description of Anorexia Nervosa Characteristics and Symptoms	*10*	*Accurate, clear description of anorexia nervosa's features including* • *low body weight,* • *fear of weight gain,* • *distorted body image,* • *restrictive eating or purging behaviours, with relevant examples.*
Description of Bulimia Nervosa Characteristics and Symptoms	*10*	*Detailed explanation of bulimia nervosa including recurrent bingeing episodes, compensatory purging, normal or fluctuating weight, and psychological traits such as fear of weight gain and secrecy around eating.*
Description of Binge Eating Disorder Characteristics and Symptoms	*10*	*Clear outline of binge eating disorder behaviours including frequent binge episodes without purging, feelings of loss of control, distress, and typical body weight status.*
Impact on Physical and Mental Health	*10*	*Insightful discussion on the impacts on mental health such as depression, anxiety, low self-esteem, suicidal thoughts, and comorbid conditions across the three disorders.* *Insightful discussion on the impacts on physical health such as malnutrition and nutrient deficiencies, heart problems, digestive issues, bone health, hormonal imbalance, muscle weakness and wasting, organ damage, dental and mouth problems, skin, and hair changes.*
Use of Academic References and Critical Engagement	*10*	*Integration of credible sources; critical analysis where applicable, showing understanding of complexities.*
TOTAL: 50 Marks		

Model Answer

Introduction

Anorexia nervosa, bulimia nervosa, and binge eating disorder are serious eating disorders characterised by distinct patterns in eating behaviour and psychological distress. These disorders not only manifest through varied symptoms but also engender serious physical and mental health problems. This essay describes each disorder's characteristics and symptoms before discussing their multifaceted impacts on health.

Characteristics and Symptoms of Anorexia Nervosa

Anorexia nervosa is primarily characterised by an intense fear of gaining weight and a distorted body image, often leading to severe restriction of food intake and significant weight loss. Individuals with anorexia may see themselves as overweight despite being dangerously underweight. Symptoms include restrictive eating, obsessive calorie counting, excessive exercise, denial of hunger, and in some cases, bingeing and purging behaviours known as the binge-purge subtype. Physical symptoms include lethargy, intolerance to cold, fine downy hair (lanugo), dry skin, and loss of menstruation in females.

Characteristics and Symptoms of Bulimia Nervosa

Bulimia nervosa involves recurrent episodes of binge eating followed by compensatory behaviours like self-induced vomiting, misuse of laxatives, fasting, or excessive exercise to prevent weight gain. Unlike anorexia, individuals with bulimia typically maintain a normal or fluctuating body weight and often conceal their symptoms due to shame. Behavioural characteristics include secretive eating, abnormal eating rituals, and frequent visits to the bathroom after meals. Physical signs include dental erosion, calluses on knuckles, and swollen salivary glands.

Characteristics and Symptoms of Binge Eating Disorder

Binge eating disorder is characterised by episodes of consuming of large quantities of food in a short time, accompanied by a sense of loss of control and distress without subsequent purging. People with this disorder often eat rapidly, continue eating beyond fullness, and feel guilt or shame afterward. Unlike anorexia or bulimia, individuals with binge eating disorder may be overweight or obese, though body size varies.

Effects on Physical Health

Each disorder adversely affects physical health in specific ways. Anorexia leads to malnutrition, organ damage, osteoporosis, electrolyte imbalances, cardiovascular complications, and hormonal disturbances such as amenorrhea. Bulimia causes electrolyte imbalances, gastrointestinal problems, dehydration, dental decay, and heart irregularities due to purging behaviours. Binge eating disorder contributes to obesity-related complications like hypertension, diabetes, cardiovascular disease, and metabolic syndrome. Severe cases across these disorders may result in multi-organ failure.

Effects on Mental Health

Mental health impacts include depression, anxiety, obsessive-compulsive behaviours, social withdrawal, and high rates of suicidal ideation and attempts. Anorexia is associated with rigid perfectionism and low self-esteem, while bulimia includes shame and secrecy that exacerbate anxiety and depression. Binge eating disorder also shares strong links with emotional distress, lower self-worth, and comorbid mood disorders. These disorders often coexist with other psychiatric conditions, complicating treatment.

Question 2

MARKS: 50

Criteria	Marks	Description
Development of a Clear, Feasible Plan	*25*	*Well-structured, realistic plan addressing key areas: education, environment, policy, community involvement, and support services, tailored to the chosen setting.*
Strategies to Promote Healthy Eating Habits	*5*	*Detailed, evidence-based strategies promoting balanced nutrition, food literacy, accessibility, and positive attitudes toward food.*
Strategies to Promote Positive Body Image	*5*	*Inclusion of approaches encouraging self-acceptance, media literacy, diversity appreciation, and reduction of appearance pressures.*
Prevention of Eating Disorders	*5*	*Identification and evaluation of effective prevention strategies, including education, early identification, stigma reduction, and fostering resilience.*
Support for Recovery from Eating Disorders	*5*	*Discussion of support mechanisms, such as counselling, peer support, referral pathways, and family involvement to facilitate recovery.*
Use of Academic Evidence and Practical Examples	*5*	*Integration of credible sources and practical examples demonstrating understanding and applicability.*
TOTAL: 50 Marks		

Model Answer

Introduction

Promoting healthy eating habits and positive body image in schools or communities is vital for fostering lifelong wellbeing and preventing eating disorders. This plan outlines effective strategies tailored to a school or community setting, incorporating health promotion, education, and support interventions. It addresses prevention of eating disorders and mechanisms to support recovery, ensuring a holistic approach.

Plan to Promote Healthy Eating Habits

Nutrition Education: Implement curricula and workshops to develop food and nutrition literacy, focusing on balanced diets, portion control, and recognising hunger and satiety cues. Engage parents and caregivers through seminars and informational materials to reinforce messages at home.

- Healthy Food Environment: Collaborate with school canteens or community centres to provide accessible, affordable, and appealing healthy food options. Establish policies restricting availability of foods high in sugar, saturated fats, and salt.
- Role Modelling and Staff Training: Train teachers and community leaders to model healthy eating behaviours and positive attitudes toward food, reducing stigma and promoting enjoyment of diverse foods.
- Community Engagement: Partner with local organisations to provide cooking classes, community gardens, and food-sharing initiatives to increase engagement and access to healthy foods.

Plan to Promote Positive Body Image

- Media Literacy Programmes: Educate students or community members to critically evaluate media messages about body ideals, discouraging comparison and promoting acceptance of diverse body shapes and sizes.
- Inclusive Activities: Develop physical, social, and cultural activities that celebrate different abilities and appearances, fostering self-esteem and reducing body dissatisfaction.
- Supportive Environment: Create safe spaces for open discussion about body image concerns, encouraging peer support and staff responsiveness.
- Positive Messaging Campaigns: Use posters, social media, and events to emphasise strengths beyond appearance and reinforce body functionality over aesthetics.

Strategies to Prevent Eating Disorders

- Early Identification and Screening: Train staff to recognise early signs of disordered eating and body dissatisfaction; utilise confidential screening tools and provide relevant referrals.
- Resilience Building: Incorporate social-emotional learning to enhance coping skills, body confidence, and media resistance.
- Anti-Stigma Education: Promote understanding and empathy regarding mental health and eating disorders to reduce fear and discrimination, encouraging help-seeking behaviour.

Strategies to Support Recovery

- Access to Professional Support: Establish clear referral pathways to dietitians, psychologists, and medical professionals specialising in eating disorders.
- Peer Support Groups: Facilitate peer-led support groups allowing individuals to share experiences and recovery strategies in a confidential environment.
- Family Involvement: Engage families through education and counselling to support recovery efforts and create a nurturing home environment.
- Ongoing Monitoring and Follow-up: Maintain regular check-ins by trained staff to support sustained recovery and prevent relapse.

SECTION 3: INJURY PREVENTION, MANAGEMENT AND REHABILITATION

STRAND: HEALTH EDUCATION

Sub-Strand: Injury Prevention and Management

Learning Outcome: *Discuss common types of injuries and appropriate measures for their care, prevention and rehabilitation.*

Content Standard: *Demonstrate knowledge and understanding of the types, causes, care, prevention and rehabilitation of common injuries.*

INTRODUCTION AND SECTION SUMMARY

Injuries are inevitable experiences in physical activities and sports participation. Hence, injury prevention, management, and rehabilitation are critical aspects of sports and physical education. These aim to reduce the risk of injury, ensure effective response when injuries occur, and support full recovery. This learning area equips learners with the knowledge and skills to identify risk factors, apply appropriate first aid measures, and implement rehabilitation strategies that promote safe return to activity.

In this section, an overview of strategies to prevent injuries, approaches for managing injuries when they occur, and rehabilitation methods to restore function and prevent recurrence are carefully examined. Emphasis is placed on early intervention, structured recovery plans, and the importance of multidisciplinary support in ensuring athlete safety and long-term participation.

The weeks covered in this section include the following:

Week 7:

- Identify types of injuries.
- Describe the methods of preventing injuries.

Week 8: Applying the modalities of injury prevention and management in a practical lesson.

SUMMARY OF PEDAGOGICAL EXEMPLARS

Effective pedagogical approaches for teaching injury prevention, management, and rehabilitation integrate inclusive, learner-centred, and 21st-century methodologies that promote active participation, critical thinking, and practical application. Exemplars include concept mapping used to help learners visually organise and interrelate key ideas from the previous years related content, to new learning areas such as injury types, causes, and rehabilitation phases, promoting deeper understanding and retention, case-based learning using diverse real-life injury scenarios to accommodate varied learning needs and contexts, collaborative group projects where learners design injury prevention plans, enhancing communication and teamwork skills, and simulation-based activities for first aid

and rehabilitation techniques, fostering problem-solving and hands-on competence. The use of digital tools such as injury tracking apps or virtual anatomy platforms supports ICT literacy and accessibility for all learners. These approaches ensure that learning is meaningful, differentiated, and aligned with the holistic development of learners in both physical education and broader life contexts.

ASSESSMENT SUMMARY

Assessment in the learning area of injury prevention, management, and rehabilitation focuses on higher-order cognitive engagement aligned with Depth of Knowledge (DoK) Level 3. Learners are evaluated through tasks that require strategic thinking, such as analysing injury scenarios, evaluating rehabilitation protocols, and designing prevention plans tailored to specific contexts. Assessments include extended response questions, case study analysis, and practical demonstrations where students justify decisions, apply multi-step reasoning, and reflect on outcomes. These assessments emphasise the integration of knowledge, critical thinking, and real-world application, ensuring that learners can independently transfer skills and concepts to varied physical activity and health settings.

Assessment Summary

Week	Indicator	DoK Level	Assessment Mode
7	Identify types of injuries and, Describe the methods of preventing injuries.	Level 3	Class Exercise
8	Applying the modalities of injury prevention and management in a practical lesson.	Level 3	Practical

Recap week

Year 2	Week 9: Injury prevention before, during and after physical activity

RECAP

In Year 2, learners were introduced to the fundamental principles of injury prevention within the context of physical activity. This established a solid foundation by highlighting the significance of preparation, situational awareness, and recovery in promoting physical well-being.

Learners examined key preventive measures to be taken prior to physical activity, including effective warm-up routines, adequate hydration, appropriate clothing and footwear, and conducting environmental risk assessments. They also explored methods to reduce the risk of injury during activity, such as employing correct techniques, adhering to safety protocols, and recognising early indicators of physical strain or fatigue.

Building on this foundation, Year 3 focuses on the study of the types of injuries, enabling learners to gain a deeper understanding of their characteristics and causes. They will investigate various approaches to injury prevention and management, enhancing their ability to respond appropriately in different scenarios.

In addition to theoretical learning, pupils will engage in practical sessions where they will apply injury prevention and management strategies in realistic settings. These hands-on experiences aim to consolidate their knowledge and equip them with practical skills for maintaining safety and well-being during physical activities.

WEEK 7

Learning Indicators: *Identify types of injuries and, Describe the methods of preventing injuries*

FOCAL AREA: TYPES OF INJURIES AND THE METHODS OF PREVENTING INJURIES

CONCEPT OF INJURIES

a. Definition

Injury is a physiological damage to the living tissue of any organism, whether in humans, in other animals, or in plants. In humans, it encompasses any harm or damage sustained by the body due to external forces, whether from accidents, falls, or prolonged exposure to hazards. Injuries directly impact well-being and daily life. Injuries, whether acute or chronic, can significantly impact an individual's quality of life, productivity, and overall well-being. From sports-related incidents to workplace accidents and daily activities**.** Understanding the types of injuries and implementing effective prevention methods can significantly reduce the risk of harm.

b. Types of Injuries

Injuries can be broadly categorised based on their onset and duration:

i. **Acute Injuries**

These injuries occur suddenly and are usually associated with a specific event, such as a fall, collision, or sudden twist. Examples include sprains, strains, fractures, and dislocations. The symptoms (pain, swelling, bruising) typically appear immediately or shortly after the event.

- **Types of Acute Injuries:** Individuals can sustain injuries anywhere, and at any time. Whether you are an athlete, a worker, or even stay at home, injuries can occur unexpectedly and can have a significant impact on your daily life. The common types of acute injuries include the following:
    - **Sprains:** A sprain occurs when ligaments are stretched or torn, often due to a sudden or violent twist or wrench of a joint beyond its normal range of motion. This injury affects the soft tissues that stabilise joints by connecting bones together.

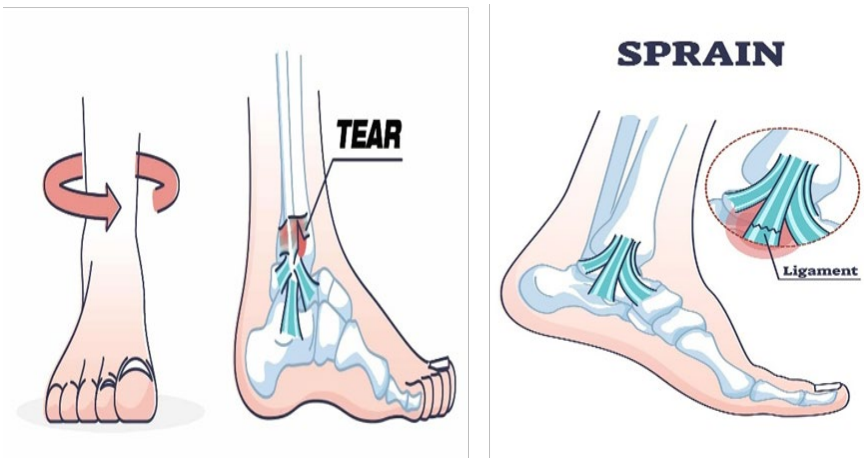


Figure 7.1: *Sprain*

- **Affected Structures:** The primary structures involved in a sprain are ligaments, which are strong, flexible tissues responsible for holding bones within a joint securely. Unlike strains, which affect muscles or tendons, sprains specifically involve ligaments.
- **Causes:** Sprains typically result from sudden movements that force joints to move in an unnatural way, surpassing their functional limits and causing ligament damage. This can happen during physical activities, accidents, or falls.
- **Symptoms Associated with Sprains:** Symptoms of a sprain usually include pain at the affected joint, swelling, bruising (ecchymosis), tenderness, and a reduced range of motion, all of which indicate ligament injury and joint instability.
- **Initial Treatment Procedure – RICE**
  - **Rest** the affected joint immediately to prevent further damage.
  - **Ice** the area using a cold pack wrapped in a cloth for 15–20 minutes every 2–3 hours for the first 48 hours.
  - **Compression** with an elastic bandage can help reduce swelling. Ensure the bandage is firm but not restrictive.
  - **Elevation** of the injured limb above heart level to minimise swelling.
- **Follow-up Care**
  - Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, may be used to relieve pain and inflammation.
  - Gentle mobilisation exercises should begin within a few days, as advised by a physiotherapist, to restore range of motion and prevent stiffness.
  - Severe sprains may require immobilisation using a brace or splint, and referral to a specialist if ligament rupture is suspected.

Strains: A strain is characterised by the overstretching or tearing of muscles or tendons, the tissues connecting muscles to bones. It involves deformation resulting from excessive tension or force applied to these soft tissues, leading to damage and dysfunction.

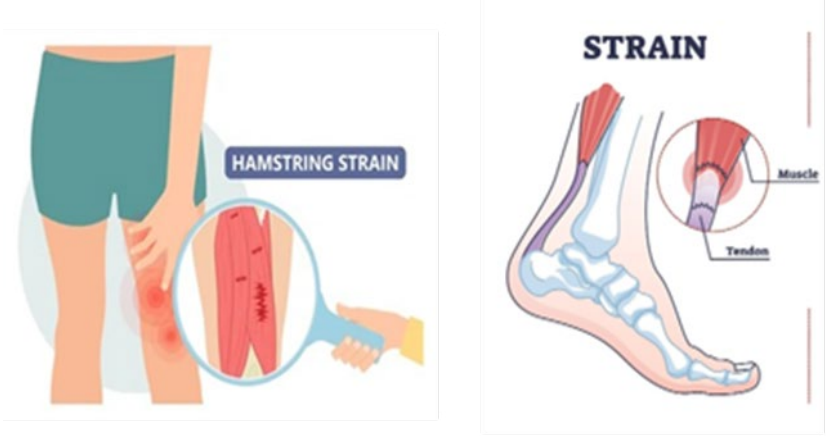


Figure 7.2: *Strain*

- **Affected Structures:** Strains primarily affect muscles and tendons. Muscles are responsible for body movement, while tendons attach muscles to bones, transmitting the force necessary for movement. When either structure is overstretched or torn, it results in a strain injury. This injury can range from mild overstretching to severe tears in the muscle fibres or tendons.

- **Causes**

Strains commonly result from:

- Excessive physical activity or overuse of muscles beyond their capacity.
- Sudden, forceful movements such as sprinting, twisting, or jumping.
- Inadequate warm-up before exercise or physical exertion.
- Poor flexibility or muscle imbalance.
- Using muscles improperly or in incorrect ways during activities.
- Repetitive motions leading to chronic muscle fatigue and strain.

- **Symptoms**

Symptoms indicating a muscle or tendon strain include:

- Sudden, localised pain in the affected muscle.
- Swelling and bruising around the injury site.
- Muscle weakness or spasms.
- Difficulty moving or using the injured muscle.
- Tenderness and stiffness in the affected area.

- **Immediate Management – Similar to Sprains**

- Apply the RICE protocol for the first 48–72 hours.
- Avoid heat, alcohol, and massage during the acute phase as these may increase bleeding and swelling.

- **Ongoing Treatment**

- Pain relief using paracetamol or NSAIDs.
- After acute symptoms subside, introduce gentle stretching and strengthening exercises under professional guidance.
- Return to normal activity should be gradual, ensuring the muscle group is fully rehabilitated to avoid re-injury.

Fractures: A fracture is a partial or complete break in a bone's continuity. It can range from a thin crack to a full break that may involve one or multiple parts of the bone.

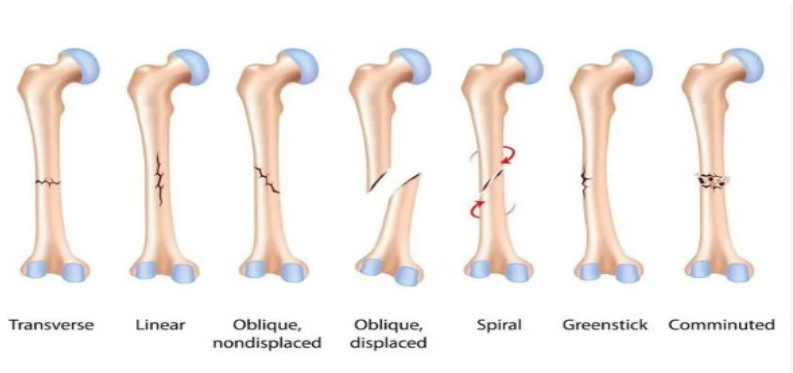


Figure 7.3: *Types of fractures*

- **Affected Structures:** Fractures primarily affect bones but can also damage surrounding tissues, including skin, muscles, ligaments, nerves, and blood vessels near the fracture site.

- **Causes**
  - Traumatic incidents such as falls, motor vehicle accidents, or direct blows.
  - Overuse or repetitive stress causing stress fractures, common in athletes and military recruits.
  - Medical conditions weakening bones, such as osteoporosis, bone cancer, Paget's disease, or other metabolic bone diseases leading to pathological fractures.
  - Age-related bone weakening, especially after menopause or in older adults.
- **Symptoms**
  - Sudden, severe pain at the injury site.
  - Swelling, bruising, or tenderness around the fracture.
  - Deformity or abnormal positioning of the affected limb or bone.
  - Inability or difficulty using or bearing weight on the injured limb.
  - Numbness or loss of sensation if nerves are affected.
  - In open fractures, bone may protrude through the skin.
- **Initial Response**
  - Immobilise the affected area using a splint or sling. Do not attempt to realign the bone.
  - Apply ice to reduce swelling, avoiding direct contact with the skin.
  - If there is an open fracture (where the bone has pierced the skin), cover the wound with a sterile dressing.
  - Seek immediate medical attention or arrange transport to accident and emergency.
- **Definitive Treatment**
  - X-rays to confirm the type and location of the fracture.
  - Treatment may involve:
    - Closed reduction and casting for simple fractures.
    - Surgical intervention (open reduction and internal fixation) for complex or unstable fractures.

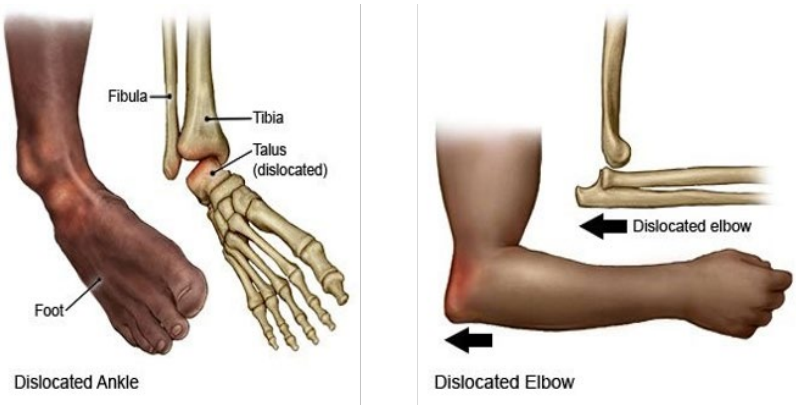


Figure 7.4: *Dislocation*

- **Affected Structures**
  - The bones forming the joint.
  - Surrounding ligaments, which hold bones together.
  - Tendons, muscles, nerves, blood vessels, and cartilage around the joint are often affected during dislocation.
- **Causes**
  - Sudden impact or trauma such as falls, sports injuries, or vehicle accidents.
  - Joint instability due to prior injuries, genetic factors, or repetitive overuse that weaken ligament support.
  - High-energy forces applied to the joint, including dislocations from motor vehicle accidents or contact sports.
  - Age-related factors increasing risk due to reduced bone and joint stability.
- **Symptoms**
  - Severe pain at the site of injury.
  - Visible deformity or abnormal positioning of the joint.
  - Swelling, bruising, and tenderness around the joint.
  - Limited or inability to move or use the affected joint.
  - Numbness, tingling, or loss of sensation if nerves are affected.
  - Sometimes visible bone protrusion if severe.
- **Emergency Management:**
  - Do not attempt to relocate the joint as this may cause further damage.
  - Immobilise the joint in the position found using a splint or sling.
  - Apply ice packs to reduce swelling and pain.
  - Transport the patient to A&E without delay.
- **Medical Treatment:**
  - Reduction (repositioning of the joint) by a trained clinician, often under sedation or anaesthesia.
  - Post-reduction imaging to confirm alignment.
  - Sling or brace to rest the joint for a prescribed period.



Figure 7.5: *Contusion (Bruise)*

- **Causes:** Bruises are incredibly common and can result from a variety of everyday incidents:
  - **Bumps and Falls:** Tripping, falling, or bumping into objects.
  - **Sports Injuries:** Collisions, impacts, or direct hits during athletic activities.
  - **Accidents:** Car accidents, workplace incidents, or other traumatic events.
  - **Medical Procedures:** Injections, blood draws, or surgery can sometimes cause bruising.
  - **Certain Medications:** Anticoagulants (blood thinners) can increase susceptibility to bruising.
  - **Aging:** As we age, our skin becomes thinner and our blood vessels more fragile, making us more prone to bruising.
- **Symptoms**

  The primary symptoms of a contusion include:
  - **Pain:** The bruised area is often tender and painful to the touch, especially in the initial stages.
  - **Discoloration:** The characteristic skin discoloration that changes over time.
  - **Swelling:** Fluid can accumulate around the injured area, leading to localised swelling.
  - **Limited Range of Motion:** If the bruise is over a joint or a muscle, movement might be painful or restricted.
  - **Lump:** Sometimes, a firm lump (hematoma) can form under the skin if a significant amount of blood collects.

Concussion: A concussion is a mild traumatic brain injury characterised by a transient disturbance of brain function resulting from a bump, blow, or jolt to the head or body that causes rapid movement of the brain inside the skull.

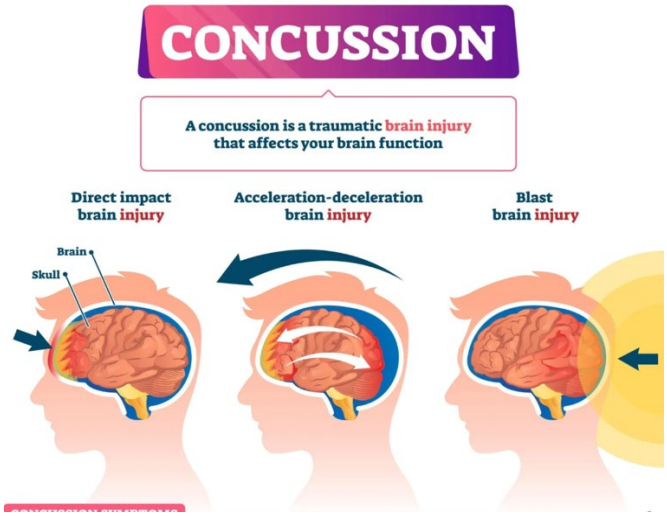


Figure 7.6: *Concussion*

- **Affected Structures:** Concussions primarily affect the brain, especially areas vulnerable due to their location and anatomy:

- **Frontal lobes:** Responsible for executive functions such as planning, organising, focus, and emotional regulation.
- **Temporal lobes:** Involved in auditory processing, short-term memory, mood, and temper control.
- **Hippocampus:** Critical for memory, learning, and executive function.
- **Amygdala:** Governs emotional processing.
- **Corpus callosum:** The fibre tract connecting the brain hemispheres, often injured due to shearing forces.
- **Cerebellum and brainstem:** Involved in coordination, balance, and vital body functions.
- **White matter tracts**: Shearing damage to white matter is common in concussions, affecting communication between brain regions.

o **Causes**

The most frequent causes of concussion include:

- Falls, especially in young children and older adults.
- Sports injuries in contact sports such as football, soccer, hockey, and boxing.
- Motor vehicle accidents.
- Assaults and physical abuse.
- Other impacts like playground injuries and fights.

o **Symptoms**

Symptoms of concussion can vary and may appear immediately or after hours or days. They fall into physical, cognitive, emotional, and sleep-related categories:

- **Physical symptoms:** Headache, dizziness, nausea, vomiting, balance problems, sensitivity to light and noise, fatigue, blurry vision, ringing in the ears.
- **Cognitive symptoms:** Confusion, feeling "slow" or "foggy," trouble concentrating and remembering, amnesia around the injury event, repetitive questions.
- **Emotional symptoms:** Irritability, sadness, nervousness, anxiety, mood changes, feeling more emotional.
- **Sleep disturbances:** Trouble falling asleep, sleeping more or less than usual, drowsiness.
- **Other signs:** Temporary loss of consciousness (not common), slurred speech, delayed responses, dazed appearance, forgetfulness.

Lacerations: A laceration is a tear in the skin or body tissue. It is often described as a deep cut with jagged or irregular edges, typically caused by a blunt impact or sharp object. Doctors sometimes use the word 'laceration' to mean a deep tear of the skin with jagged or irregular edges, usually caused by a blunt impact such as a fall. The word 'cut' can be used to mean a skin wound caused by a sharp object, with clean, straight edges. Often, though, people just use 'cut' and 'laceration' interchangeably to describe any wound that breaks the skin.

o **Affected Structures:** Lacerations can affect the skin, subcutaneous tissues, muscles, tendons, ligaments, and even internal organs.

- **Causes**
  - Sharp objects (knives, glass).
  - Blunt force trauma (falls, impacts).
  - Surgical procedures.
- **Symptoms**
  - Pain at the site of injury.
  - Bleeding.
  - Swelling.
  - Visible tear in the skin.
- **Treatment**
  - **First Aid:** Apply direct pressure to stop bleeding.
  - **Cleaning:** Wash the wound with tap water to reduce the risk of infection.
- **Closure**

  Small lacerations may heal on their own. Larger lacerations may require closure with stitches, skin glue, or adhesive tape.

  Medical Attention: Seek medical attention for large, deep, or dirty wounds, or if there is damage to underlying structures.

  Antibiotics: May be necessary for heavily contaminated wounds or those at high risk of infection.

  Tetanus Booster: Ensure tetanus immunisation is up to date.

  Tendon Rupture: A tendon rupture is a complete tear of a tendon, the strong band of tissue that connects muscle to bone.
- **Affected Structures:** Tendons throughout the body, including:
  - Achilles tendon (back of the heel).
  - Quadriceps tendon (knee).
  - Rotator cuff tendons (shoulder).
  - Biceps tendon (elbow).
- **Causes**

  Sudden, forceful movements.

  Direct trauma.

  Age-related degeneration.

  Certain medical conditions (gout, hyperparathyroidism).

  Eccentric loading (muscle contraction while stretching).

  Use of quinolone antibiotics.
- **Symptoms**
  - Sudden, severe pain.
  - A popping or snapping sound.

- Rapid bruising.
- Weakness or inability to move the affected area.
- Deformity.

- **Treatment**

  Medical Evaluation: Prompt assessment by a doctor.

  Immobilisation: Splinting or casting to protect the tendon.

  Pain Relief: Medications such as paracetamol or ibuprofen.

  Physiotherapy: Exercises to restore strength and range of motion.

  Surgery: May be required to repair the torn tendon, especially in complete ruptures.

  Abrasions: An abrasion is a scraping injury to the superficial layers of the skin, caused by friction against a rough surface. It is a type of open wound where the outer protective layer of skin is damaged.

- **Affected Structures:** The epidermis (outer layer of skin) and dermis (underlying layer).

  Causes

  - Falls onto rough surfaces.
  - Sliding or scraping against abrasive materials.
  - Friction from clothing or equipment.

- **Symptoms**

  - Pain.
  - Superficial bleeding
  - Scraping away of the outer skin layers.
  - Presence of dirt or debris in the wound.

- **Treatment**

  Cleaning: Wash the abrasion thoroughly with mild soap and water to remove dirt.

  Dressing: Apply a sterile, non-stick dressing to protect the area.

  Topical Antibiotic Ointment: May be used to prevent infection.

  Monitoring: Watch for signs of infection (increased pain, redness, swelling, pus).

  Medical Attention: Seek medical help if the abrasion is large, deep, or heavily contaminated.

ii. Chronic injuries

Chronic injuries are long-lasting conditions that develop gradually over time, usually resulting from repetitive strain, overuse, or insufficient recovery between activities, and they often cause persistent pain or discomfort. Unlike acute injuries, which occur suddenly due to a specific trauma, chronic injuries build up slowly and may persist for months or even years if not properly managed.



Figure 7.7: *Chronic injuries*

- **Types of Chronic Injuries**

  Chronic injuries are those that develop gradually over time, usually due to repetitive stress, overuse, or improper technique in physical activities. These injuries commonly affect the musculoskeletal system, including muscles, tendons, ligaments, and bones. Here are some of the most prevalent types of chronic injuries:

  Tennis Elbow (Lateral Epicondylitis): This is an overuse injury affecting the tendons on the outer part of the elbow, causing pain and tenderness. It is common in racket sports but also affects individuals performing repetitive wrist and arm motions in their work or hobbies.

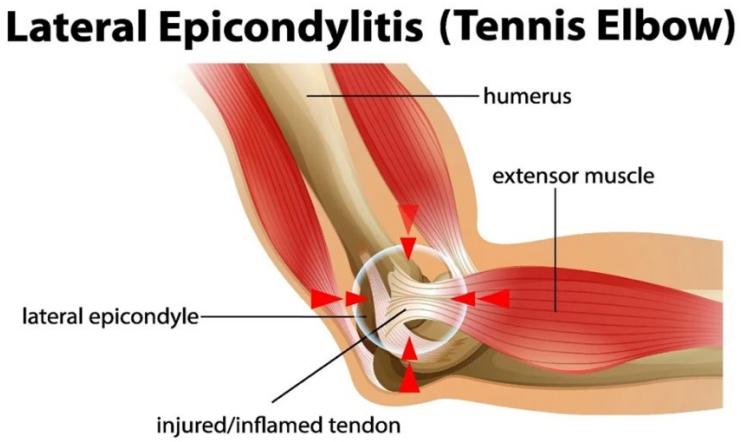


Figure 7.8: *Tennis Elbow*

  - **Management Strategy**
    - **Activity Modification:** Avoid repetitive wrist extension and gripping tasks. Ergonomic adjustments at workstations are recommended.
    - **Pain Control:** Use of ice packs for 15 minutes, 3–4 times daily; topical or oral NSAIDs may be prescribed.
    - **Physiotherapy:** Eccentric strengthening exercises for the extensor carpiradialis brevis and forearm muscles. Stretching of the wrist extensors is also beneficial.
    - **Bracing:** Use of a counterforce strap or forearm brace to offload the extensor tendon origin.

- **Advanced Interventions:** Consider corticosteroid injections for persistent cases; platelet-rich plasma (PRP) or extracorporeal shockwave therapy (ESWT) may be used in refractory cases.
- **Surgical Referral:** Indicated only if symptoms persist beyond 6–12 months despite conservative treatment.

Golfer's Elbow (Medial Epicondylitis): Similar to tennis elbow but affecting the inner elbow, golfer's elbow causes pain and inflammation due to repetitive wrist and finger movements. It is common in golf but also seen in activities requiring wrist flexion.

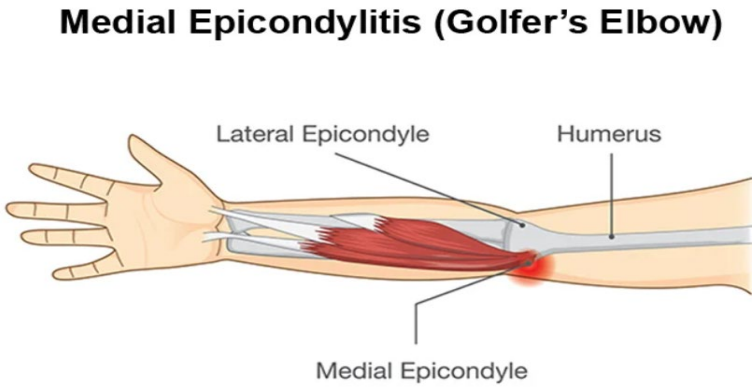


Figure 7.9: *Golfer's Elbow*

o **Treatment Protocol**

- **Rest and Activity Avoidance:** Cease or modify activities involving repetitive wrist flexion or forearm pronation.
- **Ice Therapy and NSAIDs:** To manage pain and inflammation in the acute phase.
- **Rehabilitation:** Focused physiotherapy involving eccentric loading of wrist flexors, forearm stretching, and grip strengthening.
- **Bracing:** Medial epicondyle straps or wrist supports may reduce strain on the tendon origin.
- **Injections:** Corticosteroid injections may be used judiciously in chronic cases.
- **Surgical Consideration:** For symptoms persisting longer than 6–12 months with failed conservative management.

Achilles Tendinitis: Inflammation of the Achilles tendon due to repetitive stress from running or jumping, causing pain and stiffness at the back of the heel.

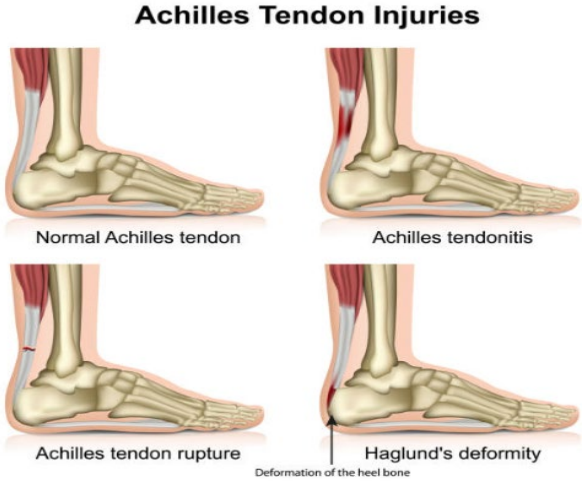


Figure 7.10: *Achilles Tendinitis*

- **Conservative Management**
  - **Relative Rest:** Avoid high-impact activities such as running and jumping.
  - **Ice and NSAIDs:** As needed to control symptoms.
  - **Heel Lifts:** Temporary use of orthotic inserts to reduce strain on the tendon.
  - **Physiotherapy:** Eccentric heels drop exercises are the cornerstone of conservative treatment. Calf muscle stretching and load management are essential.
  - **Footwear Evaluation:** Ensure appropriate footwear with adequate heel cushioning and arch support.
  - **Advanced Therapies:** Consider ESWT or PRP in non-responsive cases.
  - **Surgical Referral:** Considered if symptoms persist beyond 6 months despite comprehensive conservative therapy.

Runner's Knee (Patellofemoral Pain Syndrome): Pain around or behind the kneecap caused by repetitive bending and stress on the knee joint, common among runners and active individuals.



Figure 7.11: *Runner's Knee*

- **Treatment Approach**
  - **Activity Modification:** Reduce running volume and intensity. Avoid stairs and squatting.
  - **Physiotherapy:** Emphasise quadriceps strengthening, particularly the vastus medialis oblique (VMO); hip abductor and core strengthening are also beneficial.
  - **Biomechanical Assessment:** Correction of foot overpronation with orthotics if required.
  - **Pain Management:** Ice and short-term NSAIDs.
  - **Taping or Bracing:** Patellar taping (e.g., McConnell technique) may provide symptomatic relief.
  - **Gradual Return to Running:** With gait retraining and load progression under supervision.

Shin Splints: Also known as medial tibial stress syndrome, shin splints refer to pain along the inner edge of the shinbone (tibia) caused by inflammation of the muscles, tendons, and bone tissue. This injury is common among runners and athletes who intensify their training too quickly or run on hard surfaces.



Figure 7.12: *Shin splints*

- **Initial Management**
  - **Rest and Load Reduction:** Cease high-impact activities for 2–4 weeks.
  - **Ice and NSAIDs:** Applied post-activity to manage inflammation.
  - **Rehabilitation:** Progressive strengthening of calf muscles, flexibility exercises, and neuromuscular control.
  - **Footwear Review:** Ensure shock-absorbing, supportive footwear.
  - **Orthotics:** For correcting biomechanical contributors such as flat feet or overpronation.
  - **Gradual Return to Sport:** Under physiotherapy guidance with appropriate load management.

Stress Fractures: These are tiny cracks in bones caused by repetitive force or overloading, often seen in weight-bearing bones such as the tibia, femur, and metatarsals. Sports like long-distance running, gymnastics, and basketball are frequently associated with stress fractures. Pain usually worsens gradually during activity.

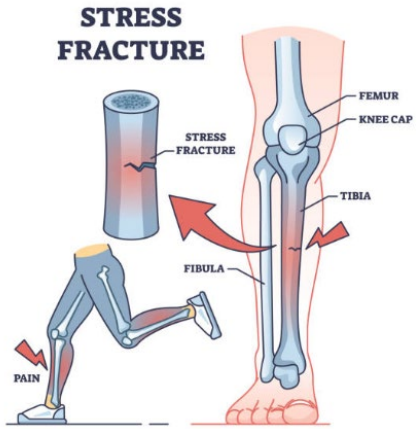


Figure 7.13: *Stress Fracture*

- **Clinical Management**
  - **Immediate Activity Cessation:** Complete rest from weight-bearing activities in the affected limb.
  - **Imaging Confirmation:** MRI or bone scan if X-ray is inconclusive.
  - **Immobilisation:** May include walking boot or crutches depending on severity and site.
  - **Nutritional Support:** Assess for and address any vitamin D or calcium deficiencies; ensure adequate caloric intake.
  - **Graduated Rehabilitation:** Begin low-impact activities such as swimming before progressing to walking and gentle running.
  - **Monitoring:** Regular follow-up imaging may be required in high-risk locations (e.g., femoral neck, navicular).

Rotator Cuff Tendinitis/Tears: The rotator cuff is a group of muscles and tendons stabilising the shoulder joint. Chronic injuries here are generally due to repetitive overhead movements causing tendon inflammation or degeneration. These injuries can limit shoulder mobility and cause pain during arm elevation.

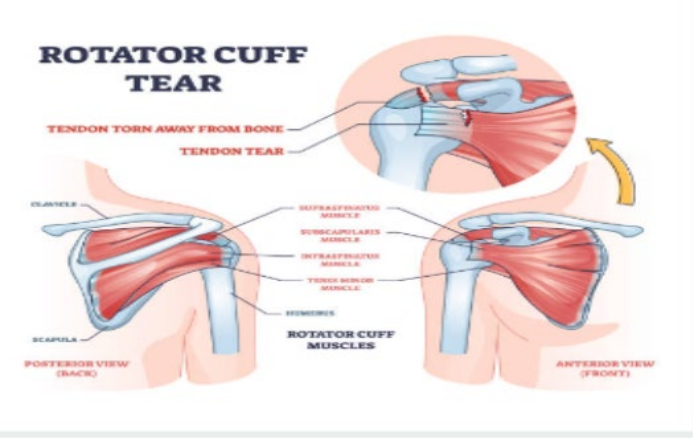


Figure 7.14: *Rotator Cuff Tendinitis/Tears*

- **Treatment Pathway**
  - **Initial Rest and NSAIDs:** Reduce overhead activity and inflammation.
  - **Physiotherapy:** Focus on scapular stabilisation, rotator cuff strengthening, and postural correction. Stretching of the posterior capsule may be required.
  - **Corticosteroid Injections:** May be used judiciously for persistent tendinopathy not responding to physiotherapy.
  - **Imaging:** Ultrasound or MRI to assess for tear severity.
  - **Surgical Referral:** Indicated for full-thickness tears, significant functional loss, or failure of conservative management over 3–6 months.

Bursitis: Bursitis involves the inflammation of the bursae, which are small, fluid-filled sacs that cushion and reduce friction between bones, tendons, and muscles around joints.

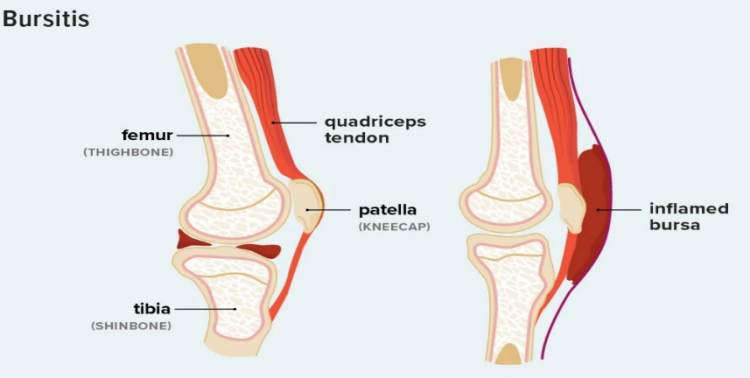


Figure 7.15: *Bursitis*

- **Affected Structures**
  - Shoulders (subacromial bursitis).
  - Elbows (olecranon bursitis).
  - Hips (trochanteric bursitis).
  - Knees (prepatellar bursitis).
- **Causes**

  Bursitis can result from various factors, including:
  - **Repetitive Motion:** Engaging in repetitive activities or motions, particularly in sports or occupations that require prolonged joint use.
  - **Injury:** A direct blow or trauma to a joint can irritate the bursa.
  - **Age:** As people age, the bursae may become less flexible and more prone to inflammation.
  - **Medical Conditions:** Conditions such as arthritis, gout, or diabetes can increase the risk of developing bursitis.
  - **Infection:** Septic bursitis occurs when the bursa becomes infected, often due to bacteria entering through a cut or wound.
- **Symptoms**

  Common symptoms of bursitis include:
  - **Pain:** Localised pain around the affected joint, which may worsen with movement or pressure.
  - **Swelling:** Visible swelling in the inflamed bursa.
  - **Stiffness:** Reduced range of motion in the affected joint.
  - **Tenderness:** Sensitivity when pressure is applied to the affected area.
  - **Warmth:** The skin over the bursae may feel warm to the touch, especially in cases of infection.
- **Treatment**

  Treatment for bursitis typically involves:
  - **Rest:** Avoiding activities that exacerbate the pain.
  - **Ice Therapy:** Applying ice packs to reduce swelling and pain.
  - **Medications:** Over-the-counter pain relievers such as ibuprofen or naproxen can help

alleviate discomfort and inflammation.

- **Physical Therapy:** A physical therapist may recommend exercises to strengthen the muscles around the joint and improve flexibility.

c. Classification

Injuries can also be classified based on the type of tissue or body part affected:

- **Soft Tissue Injuries:** These are the most common type of injuries and involve damage to muscles, ligaments, tendons, fascia, and bursae. Examples include sprains (ligaments), strains (muscles/tendons), contusions (bruises), and tendinitis (inflammation of tendons).
- **Head and Spinal Injuries:** These are serious injuries that can have severe and long-lasting consequences. Head injuries range from concussions to traumatic brain injuries (TBIs), while spinal injuries can involve damage to the vertebrae, spinal cord, and surrounding nerves, potentially leading to paralysis.



Figure 7.16: *Abrasion and Lacerated wounds*

- **Bone Injuries:** These primarily refer to fractures, which are breaks or cracks in a bone. They can range from hairline fractures to complete breaks and can be open (compound) or closed (simple).

  Joint Injuries: These involve damage to the joints, which are the connections between bones. Examples include dislocations (bones forced out of alignment), subluxations (partial dislocations), and damage to articular cartilage.

d. Causes of Injuries

Injuries can result from a variety of factors, often acting in combination:

- **Physical Trauma:** This is a direct external force acting on the body. Examples include falls, motor vehicle accidents, sports collisions, direct blows, and penetrating wounds (e.g., from sharp objects or projectiles. The magnitude and direction of the force determine the type and severity of the injury.
- **Overuse:** This cause is particularly relevant for chronic injuries. Repetitive movements

or sustained stress on a particular body part without adequate rest and recovery can lead to microscopic damage that accumulates over time, resulting in inflammation and injury. Common in athletes, industrial workers, and individuals with repetitive hobbies.

- **Human Error:** Mistakes, negligence, lack of attention, or poor judgment can significantly contribute to injuries. This can include driving under the influence, improper lifting techniques, failing to use safety equipment, or misjudging risks in various activities.
- **Environmental Factors:** Unsafe environments can predispose individuals to injury. Examples include slippery surfaces, poor lighting, cluttered walkways, inadequate safety barriers, or exposure to hazardous chemicals or extreme temperatures.
- **Biomechanical Factors:** Imbalances, weaknesses, or poor movement patterns within the body can increase susceptibility to injury, especially during physical activity. Examples include muscle imbalances, poor posture, incorrect athletic technique, or improper footwear.

2. Methods of Injury Prevention

Injury prevention is typically categorised into three main levels, each focusing on different timing and strategies to reduce injury risk.

a. Primary Level (Pre-event)

Primary prevention aims to prevent injury before it ever occurs. This is done by preventing exposures to hazards that cause disease or injury, altering unhealthy or unsafe behaviours that can lead to disease or injury, and increasing resistance to disease or injury should exposure occur.

Examples

i. Legislation and enforcement to ban or control the use of hazardous products, and to mandate safe and healthy practices.

ii. Education about healthy and safe habits (e.g., eating well, exercising regularly, not smoking).

iii. Immunisation against infectious diseases.

b. Secondary Level (During the Event)

Secondary prevention aims to reduce the impact of an injury that has already occurred. This is done by detecting and treating injuries as soon as possible to halt or slow its progress, encouraging personal strategies to prevent re-injury or recurrence, and implementing programmes to return people to their original health and function to prevent long-term problems.

Examples

i. Screening and early diagnosis such as conducting concussion assessments after a head injury.

ii. Administering first aid immediately after an accident.

iii. Using immobilisation techniques (e.g., neck braces or splints) at the scene of trauma to prevent further injury.

iv. Rehabilitation and therapy such as initiating physical therapy soon after a musculoskeletal injury to restore function.

v. Use of assistive devices such as crutches or braces to reduce strain and facilitate safe healing.

c. Tertiary Level (Post-event)

Tertiary prevention aims to soften the impact of an ongoing injury that has lasting effects. This is done by helping people manage long-term, often-complex injuries (e.g., osteoarthritis, chronic tendinopathies, etc.) in order to improve as much as possible their ability to function, their quality of life and their life expectancy.

Examples

i. Cardiac or stroke rehabilitation programmes, chronic disease management programmes (e.g., for diabetes, arthritis, depression, etc.).

ii. Support groups that allow members to share strategies for living well.

iii. Vocational rehabilitation programmes to retrain workers for new jobs when they have recovered as much as possible.

3. Proper Training and Conditioning

Physical preparedness plays a significant role in preventing injuries, particularly in sports and physically demanding occupations. A well-rounded training programme can enhance the body's resilience and reduce susceptibility to injury.

a. Strength Training

Developing muscular strength provides stability to joints, improves bone density, and enhances the body's ability to withstand external forces. Targeted strength training can address muscle imbalances that often contribute to injuries.

- **Resistance Exercises:** Incorporating exercises that use weights, resistance bands, or bodyweight can build muscle mass and strength throughout the body.
- **Core Strength:** A strong core (abdominal and back muscles) is fundamental for maintaining proper posture and stability, reducing the risk of lower back pain and other injuries.

b. Flexibility Exercises

Adequate flexibility allows for a full range of motion around joints, reducing muscle stiffness and improving overall movement efficiency.

- **Stretching:** Regular stretching, including static, dynamic, and proprioceptive neuromuscular facilitation (PNF) stretching, can improve muscle elasticity and joint mobility.
- **Yoga and Pilates:** These disciplines combine flexibility with strength and balance, offering a holistic approach to injury prevention.

c. Cardiorespiratory Conditioning

While primarily associated with cardiovascular health, good cardiorespiratory fitness contributes to injury prevention by improving endurance and reducing fatigue. Fatigue can lead to compromised technique and increased risk of errors, particularly during prolonged physical activity.

- **Aerobic Exercise:** Activities such as running, swimming, cycling, or brisk walking improve the efficiency of the heart and lungs, enhancing stamina and reducing fatigue-related injuries.

4. Use of Appropriate Equipment

The right equipment, used correctly and maintained properly, acts as a crucial barrier against injury.

a. Protective Gear

Depending on the activity, specific protective gear is designed to absorb impact, provide support, or shield vulnerable body parts.

- **Helmets:** Essential in activities like cycling, motorcycling, and contact sports to protect against head injuries.

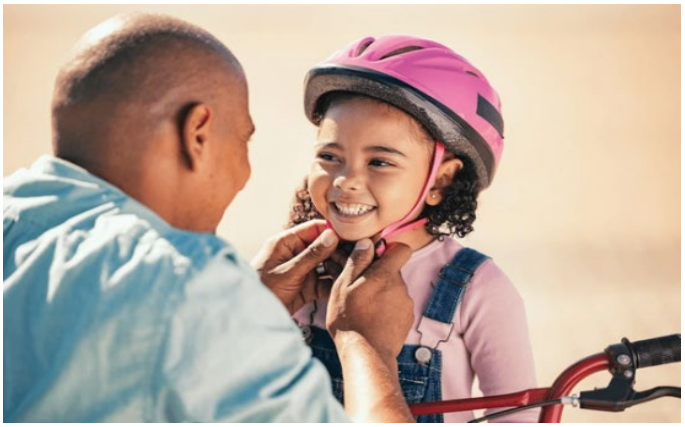


Figure 7.17: *Cycling helmets*

- **Pads and Guards:** Knee pads, elbow pads, shin guards, and mouthguards offer protection in sports and occupational settings.
- **Eye Protection:** Safety glasses or goggles are vital in environments with airborne debris or potential chemical splashes.

b. Proper Footwear

Footwear plays a critical role in supporting the feet, absorbing shock, and providing adequate grip, particularly during physical activity.



Figure 7.18: *Types of Footwear*

- **Activity-Specific Footwear:** Running shoes for runners, hiking boots for hikers, and work boots for manual labourers are designed to provide appropriate support and cushioning for the demands of the specific activity.
- **Good Fit:** Ill-fitting shoes can lead to blisters, sprains, and other foot-related injuries.

c. Use of Undamaged Equipment

Regular inspection and maintenance of equipment is paramount. Damaged or faulty equipment can fail during use, leading to severe injuries.

- **Pre-use Checks:** Before engaging in any activity, visually inspect equipment for wear and tear, cracks, loose parts, or other damage.
- **Regular Maintenance:** Follow manufacturer guidelines for cleaning, lubricating, and servicing equipment to ensure its longevity and safety.

Do not attempt to repair severely damaged equipment; replace it to avoid potential hazards.

5. Environmental Considerations

The environment in which activities take place significantly influences injury risk. Assessing and modifying the environment can create safer conditions.

a. Safe Playing Surfaces

The surface on which an activity is performed can affect the likelihood and severity of injuries.

- **Even and Non-Slippery Surfaces:** Uneven or slippery surfaces increase the risk of trips, falls, and sprains. Regular inspection and maintenance of sports fields, playgrounds, and walking paths are essential.
- **Appropriate Surface Material:** For high-impact activities, surfaces with shock-absorbing properties (e.g., sprung floors in dance studios, rubberised tracks) can reduce stress on joints.
- **Clear of Obstacles:** Removing debris, obstacles, and other hazards from pathways and activity areas prevents collisions and falls.

b. Weather Conditions

Adverse weather conditions can significantly increase injury risk, particularly for outdoor activities.

- **Temperature Extremes**
    - **Heat:** High temperatures can lead to heat exhaustion, heatstroke, and dehydration. Adequate hydration, appropriate clothing, and avoiding peak sun hours are crucial.
    - **Cold:** Cold weather increases the risk of hypothermia, frostbite, and muscle strains. Proper layering of clothing and warming up thoroughly are important.
- **Rain and Ice:** Wet or icy surfaces reduce traction, increasing the risk of slips and falls. Caution and appropriate footwear are necessary.
- **Wind:** Strong winds can affect balance, especially for activities like cycling or climbing, and can also bring down debris.
- **Lightning:** During thunderstorms, seeking shelter indoors is paramount to avoid lightning strikes.

6. Education and Awareness

Knowledge and understanding are powerful tools in injury prevention, empowering individuals to make informed decisions and take proactive steps to protect themselves and others.

Athlete and Coach Training

In sports, comprehensive education for both athletes and coaches is fundamental.

- **Technique and Biomechanics:** Training on proper technique and efficient biomechanics for specific movements reduces stress on joints and muscles, preventing overuse injuries.
- **Rules and Fair Play:** Understanding and adhering to the rules of a sport, as well as principles

of fair play, reduces the incidence of injuries caused by dangerous tackles or aggressive behaviour.

Injury Prevention Programmes: Coaches should be trained to implement evidence-based injury prevention programmes that incorporate specific exercises, warm-ups, and training load management.

7. Injury Recognition and Early Reporting

Promoting awareness of injury signs and symptoms and encouraging prompt reporting are crucial for preventing minor issues from escalating into chronic problems.

- **Symptom Education:** Educating athletes, employees, and the general public about the early signs of common injuries (e.g., pain, swelling, reduced function) enables timely intervention.
- **Culture of Reporting:** Fostering an environment where individuals feel comfortable and encouraged to report injuries, even minor ones, without fear of repercussions is vital. This allows for early assessment, treatment, and modification of activities.
- **"Listen to Your Body":** Emphasising the importance of not "playing through" significant pain, which can lead to more severe and prolonged injuries.

8. Nutrition and Hydration

Optimal nutrition and hydration are often overlooked but critical components of injury prevention, supporting tissue health, recovery, and overall bodily function.

Balanced Diet for Injury Prevention

A diet rich in essential nutrients supports tissue repair, bone health, and immune function, all of which contribute to injury resilience.

- **Protein:** Essential for muscle repair and growth, which is crucial for recovery and adaptation to training.
- **Vitamins and Minerals**
  - **Calcium and Vitamin D:** Vital for bone health and density, reducing the risk of stress fractures.
  - **Vitamin C:** Important for collagen synthesis, which is key for connective tissue health (ligaments, tendons).
  - **Antioxidants:** Found in fruits and vegetables, they help combat oxidative stress from physical activity, aiding recovery.
- **Healthy Fats:** Provide essential fatty acids for joint health and inflammation modulation.

9. Recovery and Rest

Adequate recovery and rest are as important as training itself. Overtraining and insufficient rest are major contributors to overuse injuries and burnout.

Managing Fatigue

Chronic fatigue significantly increases the risk of both acute and overuse injuries by impairing physical performance, concentration, and reaction time.

- **Monitoring Training Load:** Coaches and individuals should monitor total training volume, intensity, and frequency to ensure adequate recovery periods. Tools like training diaries or wearable technology can assist (Gabbett, 2016).
- **Sleep Hygiene:** Prioritising 7-9 hours of quality sleep per night is crucial for physical and mental recovery, hormone regulation, and tissue repair.

- **Active Recovery:** Light activities like walking or gentle stretching can promote blood flow and aid recovery between more intense sessions.

10. Warm-Up and Cool-Down Techniques

Appropriate warm-up and cool-down routines are integral to preparing the body for activity and facilitating recovery, thereby reducing injury risk.

Dynamic and Static Stretching

- **Warm-Up (Dynamic Stretching):** Before activity, dynamic stretches (e.g., leg swings, arm circles, torso twists) increase blood flow to muscles, raise core body temperature, improve joint mobility, and activate the nervous system, preparing the body for the specific movements of the activity.
- **Cool-Down (Static Stretching):** After activity, static stretches (holding a stretch for 20-30 seconds) can help to restore muscle length, improve flexibility over time, and potentially

LEARNING TASKS

1. Identify and scrutinise common injuries from a given case / scenario in a sports game or multiple incidents or pictures.
2. Analyse the causes of the injuries identified from the case / scenarios, with justification from the case description.
3. Classify the injuries with evidence-based justification directly referencing details from the case description.
4. Research on injury prevention and discuss the general guidelines and methods of prevention.
5. Develop an injury prevention plan for specific sports injuries.
6. Choose specific sports injuries and role-play their management approaches.

PEDAGOGICAL EXEMPLARS

a. Starter

In pairs or small groups, learners brainstorm on the different types of injuries and methods of preventing injuries. Learners categorise them (e.g., acute injury or chronic injury, by body part affected, causes, symptoms and prevention methods).

b. Introduction

Learners brainstorm and list types of injuries (e.g., sprains, strains, fractures) and methods of prevention (e.g., warm-up exercises, proper equipment use). Pair learners to share and refine their lists. Conduct a brief whole-class discussion to share refined results. Summarise learners' contributions and link it to the concept of injury prevention and management. Recap year 2 by providing the class with a presentation outlining the two types of injury prevention covered.

c. Inquiry-Based Learning

In small groups, learners investigate injury prevention, covering general guidelines and methods. Guide learners to:

i. Research using digital resources, textbooks, and pre-curated articles.

ii. Compile findings using charts, slides, or posters.

iii. Conduct a class-wide guided discussion to synthesise key themes.

d. Project-Based Learning

Learners design a real, practical injury prevention plan, applying knowledge of injury types, causes, and prevention strategies. Learners:

i. Conduct structured research on assigned injuries.

ii. Organise findings using charts, slides, posters, or infographics.

iii. Present prevention plans to the class for discussion and critical analysis.

e. Role-Play

Learners participate in realistic scenarios, such as managing sports injuries. Learners:

i. Plan a real-world scenario with clear role options.

ii. Rehearse roles with correct immediate management approaches.

iii. Perform/role-play scenarios before the class.

iv. Class observes and provides feedback.

Learners discuss their findings as a class and see how many different types they can identify together.

KEY ASSESSMENT: Essay

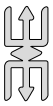
1. Provide a definition of acute and chronic injuries in sport and analyse the relationship between the two.
2. Identify and describe two acute and two chronic injuries.
3. Compare the possible causes of acute vs chronic injuries.
4. Describe the symptoms and side effects of acute and chronic injury on sports performance.
5. Justify which type poses more significant challenges to athletes' participation in competitions.

PLC Session 7

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)

c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



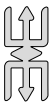
Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***essay***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the essay (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
    a. transfer your chats into your learning planner template.
    b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
    c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 8

Learning Indicator: *Applying the modalities of injury prevention and management in a practical lesson*

FOCAL AREA: MODALITIES OF INJURY PREVENTION AND MANAGEMENT IN A PRACTICAL LESSON

MODALITIES OF INJURY MANAGEMENT

Introduction

Modalities of injury management encompass a wide spectrum of therapeutic techniques and physical agents designed to support the recovery and healing of musculoskeletal and soft tissue injuries. These modalities leverage various forms of energy including thermal, mechanical, electrical, electromagnetic, and photonic to achieve targeted clinical outcomes. Specifically, they help reduce pain, control inflammation, stimulate tissue repair, and restore functional mobility. Often integrated with exercise therapy and manual techniques, these interventions serve as essential components of both acute and chronic injury rehabilitation. By optimising the physiological environment for healing, these modalities play a critical role in accelerating recovery timelines and enhancing patient outcomes.



Figure 8.1: *Injury management*

a. Modalities of Injury Management

Injury management involves techniques and therapies aimed at managing pain, reducing inflammation, speeding up recovery, and preventing re-injury. A comprehensive approach includes initial first aid, therapeutic modalities, and rehabilitation.

i. **Immediate Management (First Aid)**

Despite the best prevention strategies, injuries can still occur. Knowing how to provide immediate first aid for common injuries is critical for minimising damage and facilitating recovery.

ii. **General Principles of First Aid**

- **Assessment**: Quickly assess the injury's severity to determine if professional medical attention is required.
- **PRICE/RICER Method**: For sprains, strains, and minor bruises, apply the PRICE (Protection, Rest, Ice, Compression, Elevation) or RICER (Rest, Ice, Compression, Elevation, Referral) method immediately.

- **Protection and Rest**: Stop activity and protect the injured area from further harm. Avoid using the injured limb for 48-72 hours.
- **Ice**: Apply ice for 15-20 minutes every 1-2 hours for the first 48 hours, using a towel to prevent skin burns.
- **Compression**: Use a wrap to stabilise the injury and help reduce swelling.
- **Elevation**: Raise the injured limb above heart level to decrease swelling.
- **Referral**: Seek professional medical advice if necessary.

iii. **Specific Injury Management**

- **Sprains and Strains**: Apply the PRICE/RICER method promptly. Over-the-counter pain relief can assist with pain and inflammation.
- **Fractures and Dislocations**: These require immediate medical attention. Immobilise the affected area and do not attempt to straighten it. Seek emergency care and monitor the individual for signs of shock.

b. Therapeutic Modalities

These are tools used in physical therapy to help patients recover from injury, surgery, or conditions causing pain and dysfunction. They often involve thermal, mechanical, electrical, or electromagnetic energies.

- **Cryotherapy (Cold Therapy):** Application of cold packs reduces pain, inflammation, and swelling, particularly for acute injuries.
- **Thermotherapy (Heat Therapy):** Used to relax muscles, increase blood flow, and alleviate pain in chronic conditions, but avoided in acute injuries.
- **Ultrasound Therapy:** Uses high-frequency sound waves to promote healing by increasing blood flow and reducing swelling and pain.
- **Electrical Stimulation**: Involves applying electrical currents to the injured area to reduce pain, improve muscle function, and stimulate healing.
- **Laser Therapy (Photo biomodulation**): Uses light energy to reduce pain and inflammation and accelerate tissue repair.
- **Iontophoresis:** Delivers medication through the skin using an electrical current.
- **Manual Therapy:** Techniques applied by therapists, including massage therapy, dry needling, myofascial release, joint and peripheral mobilisation, and instrument-assisted soft tissue mobilisation. These techniques help manage pain, reduce inflammation, improve range of motion, and promote healing.
- **Hydrotherapy:** Involves exercises performed in water to reduce weight-bearing stress on injured joints while allowing movement and strengthening.
- **Cupping:** A traditional method that involves placing cups on the skin to create suction, believed to enhance circulation and promote healing.

c. Rehabilitation and Recovery

- **Exercise Therapy:** A cornerstone of rehabilitation, exercises are tailored to the injury type and stage (acute, post-acute, chronic). They aim to improve muscle strength, flexibility, balance, and proprioception. This includes strengthening exercises, stretching, and proprioception exercises.

- **Movement (MEAT Protocol):** For certain injuries, active movement as early as possible can be beneficial, often part of the MEAT protocol (Movement, Exercise, Analgesics, Treatment).
- **Pharmacological Management:** Painkillers, such as paracetamol or ibuprofen, may be used to manage pain and inflammation. However, the use of anti-inflammatory drugs in the early stages of healing is debated.
- **Progressive Loading**: Gradually increasing the load on the injured tissue helps it adapt and regain strength without risking re-injury.
- **Sport-Specific Drills:** Incorporating exercises that mimic movements from the athlete's specific sport helps prepare them for return to play.
- **Psychological Support:** Addressing the psychological aspects of injury, such as fear of re-injury, is crucial for successful return to sport.

d. Classification of Modalities of Injury Management

Injury management focus on diverse therapeutic techniques to promote healing, reducing pain, promoting healing, restoring function, and preventing recurrence following an injury. These modalities can be broadly classified based on their primary mechanism of action and application. Here are some common classifications based on therapeutic approaches:

i. Physical Therapy

Physical therapy plays a crucial role in injury management, utilising a variety of techniques to address impairments and improve physical function. Exercise is a cornerstone of physical therapy interventions.



Figure 8.2: *Athlete undergoing physical therapy*

- **Exercise:** Therapeutic exercise involves the systematic and planned performance of bodily movements, postures, or physical activities intended to provide a patient/client with the means to: remediate or prevent impairments of body functions and structures; improve, restore, or enhance activities and participation; prevent or reduce health-related risk factors; and optimise overall health, fitness, or sense of well-being. Exercise can be further classified based on the level of patient involvement:
    - **Passive Exercise:** This involves movement of a body segment by an external force, such as a therapist or a mechanical device, without any active muscle contraction by the patient.

      Passive exercise is often used in the early stages of injury to maintain joint range of motion, minimise stiffness, and promote circulation when active movement is painful or contraindicated.



Figure 8.3: *Athlete having an injury and receiving external support from a machine*

- **Active Exercise:** This involves movement of a body segment produced by the patient's own voluntary muscle contractions. As healing progresses and pain subsides, active exercises are introduced to improve muscle strength, endurance, coordination, and proprioception. Active exercise can range from simple movements against gravity to more challenging exercises using resistance bands or weights.

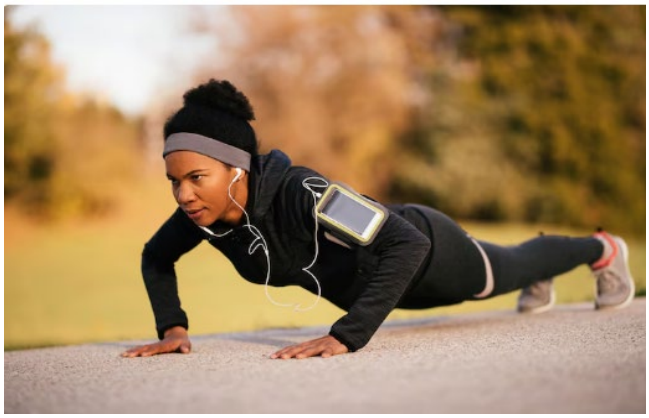


Figure 8.4: *Active exercise*

iii. Massage

Massage therapy involves the manipulation of soft tissues in the body, including muscles, connective tissue, tendons, ligaments, and joints. It can be used for various purposes in injury management. Several types of massage modalities are commonly employed.



Figure 8.5: *Athlete receiving massaging after day workout.*

- **Swedish Massage**

  Swedish massage is a gentle form of massage that uses long strokes, kneading, deep circular movements, vibration, and tapping to help relax and energise you. It can increase circulation, reduce muscle tension, and promote relaxation, which can be beneficial in the sub-acute and chronic phases of injury recovery. It incorporates five basic strokes:

  - **Petrissage:** Kneading movements that lift and roll muscles to release tension.
  - **Friction:** Deep circular movements targeting adhesions and scar tissue.
  - **Tapotement:** Rhythmic tapping to stimulate muscles.
  - **Vibration:** Fine shaking strokes to relax muscles and nerves.

  These techniques work synergistically to reduce muscle tension, improve range of motion, and enhance relaxation.

  Swedish massage is especially suitable for stress relief, tension reduction, and mild muscle soreness. It involves the use of massage oils or lotions for skin protection and can be tailored in pressure and technique to the individual's needs.

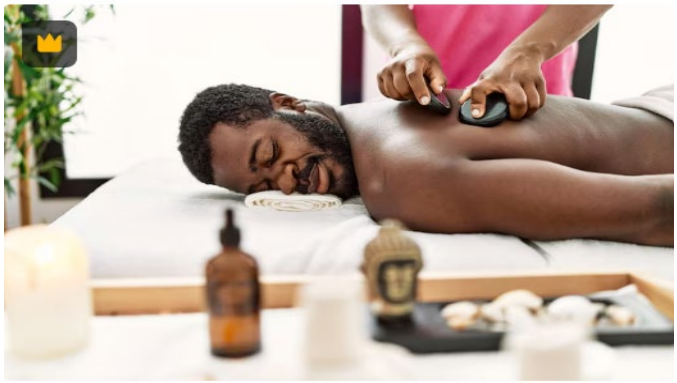


Figure 8.6: *Person receiving Swedish massaging*

- **Sports Massage**

  Sports massage is specifically designed to address the needs of athletes. It often incorporates techniques from Swedish massage but also includes more vigorous strokes, friction, and pressure to target specific muscle groups used in sports. Sports massage is a deep tissue massage modality designed to prepare athletes for performance, aid recovery, and manage injuries. It combines techniques such as:

  - Effleurage (both superficial and deep to warm and flush tissues).
  - Kneading to mobilise tissues and improve circulation.
  - Wringing to stretch and release tight fascia and muscles.
  - Hacking and tapping to stimulate muscle tone.
  - Trigger point therapy to deactivate muscular trigger points causing pain.

  Sports massage is effective for reducing delayed onset muscle soreness (DOMS), minimising muscle tightness, enhancing flexibility, and promoting tissue healing post-injury or exercise.



Figure 8.7: *Athlete receiving calf massage*

iii.. Ice Application (Cryotherapy)

Cryotherapy involves the therapeutic use of cold. Applying cold to an injured area can help reduce pain, swelling, muscle spasms, and inflammation by decreasing tissue temperature and metabolic activity.



Figure 8.8: *Athletes undergoing cryotherapy session*

- **Ice Packs**

  Ice packs are one of the simplest and most accessible forms of cryotherapy. They involve applying frozen gel packs, ice bags, or even frozen vegetables wrapped in a cloth to the injury site. Ice packs help lower skin temperature, reduce nerve activity, and alleviate both pain and swelling. They are typically applied for 10 to 20 minutes at a time, with caution to avoid skin damage or frostbite by using a barrier such as a thin towel.



Figure 8.9: *Application of ice packs at injury site to reduce swelling*

- **Cold Water Immersion**

  Cold water immersion (CWI) involves submerging the injured or affected body part into cold water, usually at temperatures typically between 10-15°C (50-59°F). CWI is beneficial for reducing muscle soreness and inflammation following exercise or injury. It is especially popular among athletes for post-exercise recovery and has been found effective in reducing muscle soreness for up to 96 hours post-activity.



Figure 8.10: *Athletes undergoing cold water immersion to reduce muscle soreness.*



Figure 8.11: *Cold gel and spray for pain relief*

LEARNING TASKS

1. Research the different modalities of injury managements like physical therapy, massage, and ice application.
2. Explain the primary goals of injury management and why each is important in the recovery process.
3. Describe the benefits and typical applications of Swedish massage in injury management.
4. Describe how sports massage techniques help in both injury prevention and recovery.

PEDAGOGICAL EXEMPLARS

a. Starter

Ask learners to take a moment to reflect on any sports or physical activities they participate in and consider how injuries might occur. Then, have learners pair up to discuss some modalities of injury management they have encountered or experienced.

b. Introduction

Invite pairs (as the time allows) to share their insights with the class, highlighting the different modalities they discussed. This will help set the stage for exploration of modalities of injury management.

c. Digital Learning

- Show videos or pictures of various methods of managing injuries for learners to watch and identifying them.
- Leaners classify the various management methods to physical therapy, massaging, ice application/therapy, etc.

d. Exploratory Learning

- Learners in groups research from relevant sources and discuss how the various management methods of injuries are applied.
- Learners in their groups prepare a presentation and present to the whole class.

e. Demonstrative Learning

Learners work collaboratively in small groups to explore and demonstrate the identification and management of common injuries such as sprains, strains, and fractures. Preparation may be undertaken individually, in pairs, or as a group. Each group stages realistic injury scenarios, with some members acting as injured victims while others assume the role of first aiders. Roles are rotated to ensure that all learners actively engage with both the assessment and response aspects of injury management. This approach encourages hands-on learning, peer collaboration, and the development of practical first aid competencies in a supportive environment.

KEY ASSESSMENT: Group Discussion and Presentation

1. Describe two (2) different theraputic modalities used in managing musculoskeletal injuries. (4 marks)
2. Analyse the role of each therapeutic modality in managing musculoskeletal injuries. (6 marks)
3. Discuss how the selection of theraputic modalities varies depending on the stage of injury (acute, sub-acute and chronic stages). (6 marks)
4. Describe how patient specific factors influence treatment choice. (4 marks)

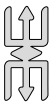
PLC Session 8

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
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Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app

   a. The key assessment for the week is ***group discussion and presentation***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the presentation (NTS 3k-3q).

10 minutes **Content Exploration**

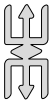
5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

   b. all teachers in the group work through a similar problem individually for 3–4 minutes

   c. the group then works through the problem together step by step

   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).

   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.

   b. After the enactment, ask for structured feedback from the group

      i. was the concept explained in a way that a learner with no prior knowledge could follow?

      ii. were the examples grounded in contexts familiar to Ghanaian learners?

iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 3 Review

In Week 7, the lessons focused on identifying types of injuries and methods of preventing injuries. Learners explored the characteristics, causes, symptoms and preventive methods of injuries commonly encountered in physical activity and sport.

Week 8 centred on applying injury prevention and management modalities. This involved practical applications of theoretical approaches, including warm-ups, cool-downs, protective equipment, and first aid principles aimed at reducing injury risk and providing initial care when injuries occur.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 7

Marks: 20

Marks	Model Answer
Explanation of Acute and Chronic Injuries (4 marks)	
Correct definition of acute injuries *(1 mark)* • *Correct definition of chronic injuries* *(1 mark)* • *Analysis of the relationship between the two types* *(2 marks)*	• *Acute injuries occur suddenly due to trauma, while* • *Chronic injuries develop gradually over time due to overuse or repetitive stress.* • *Both types are interrelated in that poorly managed acute injuries can become chronic, and chronic injuries may predispose athletes to acute flare-ups.*
Examples and Comparison (2 Acute & 2 Chronic) – (10 marks)	
Mentioning and description of 2 acute injuries (3 marks) • *Mentioning and description of 2 chronic injuries* *(3 marks)* • *Comparison of causes (acute vs chronic)* *(2 marks)* • *Comparison of symptoms and effects on performance* *(2 marks)*	*Acute Injuries:* *Fractured wrist, ankle sprain, hamstring strain, thumb dislocation, etc.* • *A fractured wrist is an injury where one or more of the wrist bones are broken,* • *An ankle sprain is an injury caused by the stretching or tearing of ligaments in the ankle* *Chronic Injuries:* *Tendinitis, stress fractures, bursitis, osteoarthritis, etc.* • *Tendinitis is the inflammation or irritation of a tendon near a joint, typically caused by repetitive motion or overuse.* • *Stress fractures are small cracks in a bone caused by repetitive force or overuse, often occurring in weight-bearing bones like the shin, foot, or hip.* *Comparison of causes* • *Acute injuries are caused by direct blows, falls, collisions, twisting, etc.* • *Chronic injuries are caused by overtraining, repetitive strain, poor technique, etc.* *Comparison of symptoms* • *Acute injuries present sudden, intense symptoms such as sharp pain, swelling, and immediate loss of function, often causing an abrupt halt in performance.* • *Chronic injuries develop gradually, with persistent, dull pain and stiffness that worsen over time, leading to a slow decline in performance.*

Justification of Which Type Poses Greater Challenge (6 marks)	
• *Stated position (acute or chronic) (2 marks)* • *Justification using performance-related reasoning* *(2 marks)* • *Reference to long-term impact, recurrence, or rehabilitation* *(2 marks)*	• *Chronic injuries pose more significant challenges to athlete participation.* • *Because it often requires extended rehabilitation, modification of technique, and long-term load management. Longer recovery periods, activity modification, or even cessation of sport if unresolved are likely.* • *Their recurrence can lead to loss of form, psychological stress, and withdrawal from competition, which often require lifestyle adjustments and continuous physiotherapy, limiting peak performance consistency.*

WEEK 8

Marks: 20

Criterion	Marks	Description
Explanation of two therapeutic modalities and their functions	*4*	*Clear description of two key modalities such as physical therapy, massage and ice application (Cryotherapy). (2 marks for each modality).*
Analysis of how modalities aid musculoskeletal injury management	*6*	*Insightful analysis on physiological effects such as pain relief, inflammation reduction, muscle relaxation, and tissue healing. (3 marks for each modality).*
Discussion on variation in modality selection by injury stage	*6*	*Accurate explanation of acute, sub-acute, and chronic stages and how modalities are chosen accordingly. (2 marks for each stage).*
Consideration of individual patient factors in modality selection	*4*	*Evaluation of how patient-specific factors (e.g., age, comorbidities, injury severity, and goals) influence treatment choice.*
Total	*20*	

Model Answer

Therapeutic modalities are specialised physical treatments that utilise various forms of energy—thermal, mechanical, electrical, or electromagnetic—to assist in injury management. Common modalities include cryotherapy (cold therapy), thermotherapy (heat therapy), ultrasound, electrical stimulation.

In managing musculoskeletal injuries, these modalities serve specific functions such as reducing pain and inflammation, promoting muscle relaxation, enhancing circulation, and accelerating tissue repair. For example, cryotherapy causes vasoconstriction to decrease swelling in the acute injury phase, whereas thermotherapy induces vasodilation, improving blood flow and muscle flexibility during later rehabilitation.

The selection of modalities varies with the injury stage. In the acute phase (first 48-72 hours), treatments like ice packs and electrical stimulation for pain modulation are typically favoured. In the

sub-acute and chronic phases, heat application, therapeutic ultrasound, and manual traction are often used to improve mobility and promote healing.

Individual patient considerations also inform modality selection. Factors such as patient age, tissue tolerance, comorbidities, and specific injury characteristics affect which modalities are appropriate. For instance, electrical stimulation may be contraindicated in patients with pacemakers, while heat therapy should be used cautiously in those with circulatory disorders.

SECTION 4: PHYSICAL EDUCATION

STRAND: PHYSICAL EDUCATION

Sub-Strand: Physical Activity for healthy living

Learning Outcome: *Discuss physical fitness and develop activities for health-related fitness components.*

Content Standard: *Demonstrate knowledge and understanding of physical fitness and how to develop the health-related components.*

INTRODUCTION AND SECTION SUMMARY

In this section, learners will explore the concept of physical fitness, including its definition and the various types, namely health-related and skill-related fitness. The importance of physical fitness will be emphasised, highlighting its benefits for health, mental well-being, and overall quality of life. Additionally, learners will examine strategies for achieving physical fitness, including goal setting and maintaining consistency through a variety of activities.

The focus will then shift to the health-related components of fitness, which include cardiovascular endurance, muscular endurance, muscular strength, flexibility, and body composition. Learners will brainstorm examples of these components and discuss their associated benefits.

Finally, learners will be guided in designing activities aimed at improving health-related fitness components. By incorporating these activities into their daily fitness routines, participants can enhance their overall health-related fitness and reduce the risk of chronic diseases.

The weeks covered by this section are:

Week 9

- Explain the concept of physical fitness.
- Discuss its health-related components.

Week 10: Design activities to improve health-related fitness components.

SUMMARY OF PEDAGOGICAL EXEMPLARS

Engage learners in an inclusive manner that promotes the cross-sharing of knowledge and understanding among groups and individuals. Utilise daily life scenarios and relevant examples to connect the concepts of physical fitness, health-related components of fitness, and activities aimed at improving these components, making them more applicable and practical.

Encourage learners to research these topics using digital resources, thereby fostering digital literacy and critical thinking skills. Special attention should be given to students with diverse needs, including gifted learners and those with Special Educational Needs (SEN), ensuring equitable participation and benefits for all.

Incorporate varied instructional strategies, such as active learning and case studies, to support different learning styles and enhance the overall educational experience.

ASSESSMENT SUMMARY

The assessment will evaluate learners' understanding of the concept of physical fitness, the health-related components of fitness, and their ability to design activities that improve these components. Evaluation will take the form of both formative and summative assessments.

Formative assessments will include class discussions, exercises, homework, practical sessions, and group presentations, where learners will share their knowledge and personal learning experiences. These activities will assess learners' ability to connect the concepts of physical fitness and health-related components, as well as their capacity to design relevant activities.

Summative assessments will consist of an end-of-semester examination and practical tests aimed at evaluating students' grasp of the concept of physical fitness, the health-related components of fitness, and the design of activities to enhance these components. The combination of these two assessment forms will support learners in retaining and applying their knowledge of physical fitness and its related components effectively.

Assessment Summary

Week	Indicator	DoK Level	Assessment Mode
9.	Explain the concept of physical fitness. Discuss its health-related components.	Level 2 Level 3	Class Exercise
10.	Design activities to improve health-related fitness components	Level 3	Practical

WEEK 9

Learning Indicators

1. *Explain the concept of physical fitness*
2. *Discuss its health-related components*

FOCAL AREA: CONCEPT OF PHYSICAL FITNESS AND ITS HEALTH-RELATED COMPONENTS

Recap weeks

Year 2	Week 11: Discuss the principles of training for sports performance

Recap

In Year 2, learners explored the principles of training, discussing the components of fitness relevant to training, with each fitness component briefly explained.

In Year 3, the focus will shift to the concept of physical fitness, the health-related components of fitness, and the design of activities aimed at improving these health-related components.

Introduction

Physical fitness refers to the ability of our body systems to work together efficiently to allow us to be healthy and perform activities of daily living. Being efficient means doing daily activities with the least effort possible. A fit person can perform schoolwork, meet home responsibilities, and still have enough energy to enjoy sport and other leisure activities. A fit person can respond effectively to normal life situations, such as raking leaves at home, stocking shelves at a part-time job, and marching in the band at school. A fit person can also respond to emergency situations for example, by running to get help or aiding a friend in distress.



Figure 9.1: *Fitness groups exercising*

CONCEPT OF PHYSICAL FITNESS

a. Definition

Physical fitness refers to the state of health and well-being that enables an individual to perform daily activities with vigour, without undue fatigue, and with sufficient energy to enjoy leisure pursuits and respond to emergencies. It encompasses multiple components, including cardiovascular endurance, muscular endurance, muscular strength, flexibility, and body composition, all of which contribute to overall health and functional ability.

According to the Centres for Disease Control and Prevention (CDC), physical fitness is the ability to carry out daily tasks with vigour and alertness, without undue fatigue, and with ample energy to enjoy leisure-time pursuits and respond to emergencies (CDC, 2020).

b. Types of Physical Fitness

Physical fitness is broadly categorised into two key types: health-related and skill-related fitness.

i. Health-Related Physical Fitness

Health-related fitness components are essential for overall well-being and disease prevention. These include:

- **Cardiorespiratory endurance**: The ability of the heart and lungs to supply oxygen during sustained physical activity.
- **Muscular strength**: The amount of force a muscle can produce.
- **Muscular endurance**: The ability of muscles to perform repeated contractions over time.
- **Flexibility**: The range of motion available at a joint.
- **Body composition**: The relative amount of muscle, fat, bone, and other vital parts of the body.

These components are directly associated with reduced risk of chronic diseases such as obesity, diabetes, and cardiovascular conditions.

ii. Skill-Related Physical Fitness

Skill-related fitness involves abilities that enhance performance in athletic or sports events. These include:

- **Agility**: The ability to change direction quickly and accurately.
- **Balance**: Maintaining stability while stationary or moving.
- **Coordination**: The ability to use senses and body parts in harmony.
- **Power**: The ability to exert maximum force quickly.
- **Reaction time**: How fast an individual responds to stimuli.
- **Speed**: The ability to move quickly.

These components are more relevant for athletes and individuals engaged in high-performance physical activities.

c. Importance of Physical Fitness

i. **Health Benefits:** Regular physical activity significantly reduces the risk of chronic diseases such as hypertension, type 2 diabetes, cardiovascular diseases, and certain cancers. It also strengthens the immune system, improves respiratory function, and promotes healthy aging.

ii. **Mental Wellbeing:** Physical fitness has profound effects on mental health. Engaging in regular exercise helps reduce symptoms of depression and anxiety, improves mood through the release of endorphins, and enhances cognitive function. It also aids in managing stress and improving sleep quality.

iii. **Improving Quality of Life:** Maintaining physical fitness enhances the ability to perform everyday tasks efficiently, promotes independence in older adults, and fosters a sense of accomplishment and confidence. It contributes to overall life satisfaction and well-being by improving mobility, energy levels, and social interaction opportunities.

d. Achieving Physical Fitness

i. **Goal Setting:** Effective physical fitness begins with clear, realistic, and measurable goals. Using the SMART criteria Specific, Measurable, Achievable, Relevant, and Time-bound can help individuals stay focused and motivated. For instance, a goal such as "walking 30 minutes daily for five days a week for the next two months" provides clarity and structure.

ii. **Maintaining Consistency**: Consistency is vital in achieving and maintaining physical fitness. Creating a structured schedule, tracking progress, and integrating physical activity into daily routines (e.g., taking stairs, walking to meetings) can sustain long-term engagement. Overcoming barriers such as lack of time or motivation requires developing habits and resilience.

e. Using a Variety of Activities

Incorporating diverse physical activities such as strength training, cardio, flexibility exercises, and recreational sports not only prevents boredom but also ensures all components of physical fitness are addressed. Cross-training and varying intensity levels also reduce the risk of injury and improve overall performance.

Types of Health-Related Components of Fitness

Physical fitness is a multifaceted concept that encompasses various aspects of physical performance, health, and well-being. It is a vital component of overall health and well-being. Regular physical activity and exercise can improve cardiovascular health, increase strength and flexibility, boost mental well-being, and enhance overall quality of life.

It encompasses various aspects of physical performance, including cardiovascular endurance, muscular strength and endurance, flexibility, and body composition. Understanding the concept of physical fitness is essential for individuals to develop effective exercise programmes, improve their health, maintain a healthy lifestyle and enhance their quality of life.

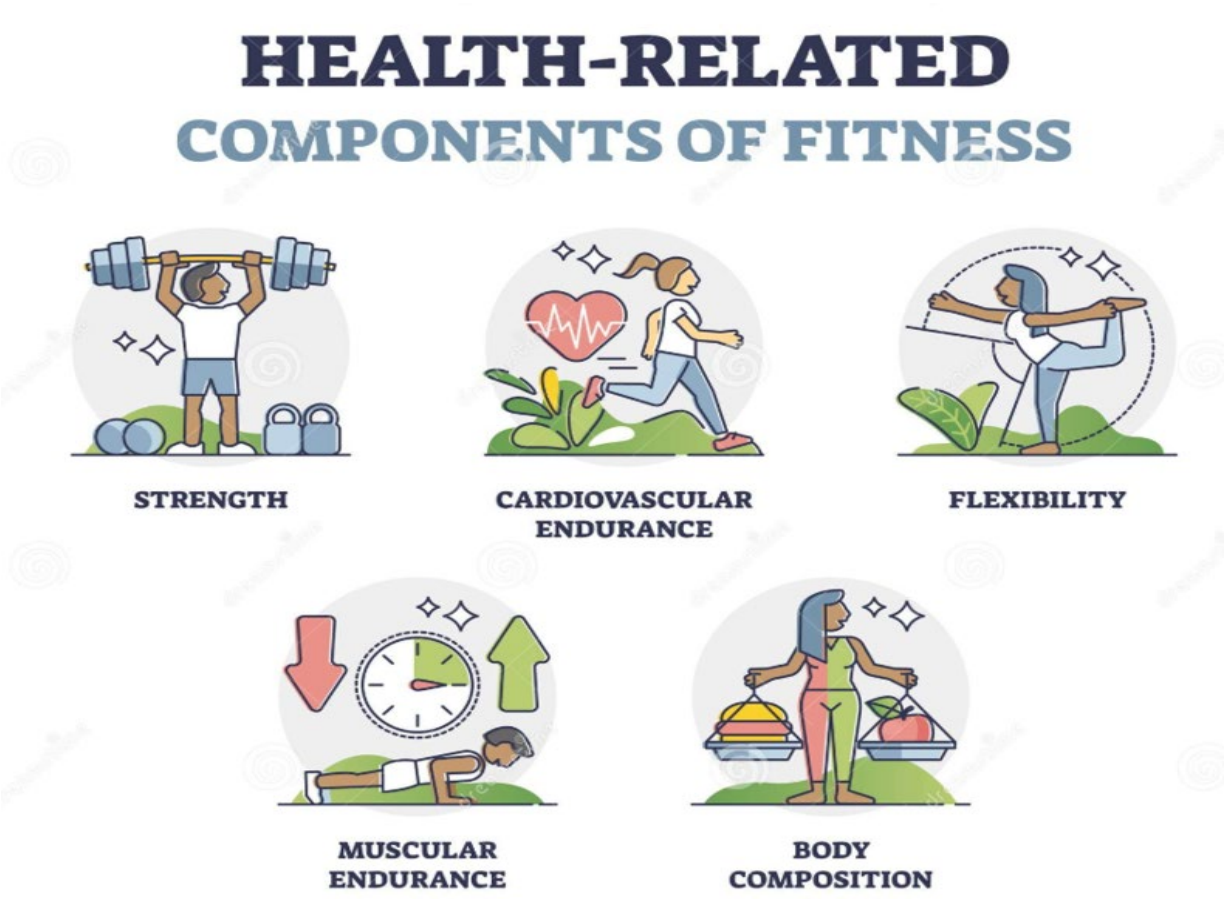


Figure 9.2: *Health-related components of fitness*

a. Cardiovascular Endurance

It is the ability to perform prolonged exercise, improving heart and lung function. Cardiovascular endurance, also known as cardiorespiratory fitness, measures the efficiency of your heart, lungs, and blood vessels in delivering oxygen to your working muscles during prolonged physical activity. Think of it as your body's ability to sustain effort over time. Imagine a vibrant river, its current strong and steady, effortlessly carrying oxygen to every part of your body.



Figure 9.3: *Examples of cardiovascular endurance activities*

b. Muscular Endurance

Muscular endurance refers to the ability of your muscles to repeatedly exert force over a prolonged period. Picture your muscles as tireless warriors, enduring countless repetitions without faltering.

This is distinct from muscular strength, which focuses on the maximal force a muscle can produce in a single effort.



Figure 9.4: *People performing muscular endurance activities*

c. Muscular Strength

Muscular strength is the maximal force a muscle or group of muscles can exert in a single effort. Visualise your muscles as powerful engines, capable of generating immense force for a short burst of activity. This is different from endurance, which focuses on sustained effort.



Figure 9.5: *Muscular strength*

d. Flexibility

Flexibility refers to the range of motion in joints and muscles. Imagine your body as a supple willow tree, bending gracefully without breaking. Good flexibility is crucial for injury prevention and optimal movement.



Figure 9.6: *Examples of flexibility exercises*

e. Body Composition

Body composition refers to the relative proportion of fat mass (adipose tissue) and fat-free mass (muscle, bone, water) in your body. It is not just about the number on the scale, but the overall makeup of your body. It is the building blocks of your physique – the ratio of lean tissue to fat. More muscle, less fat is generally a healthier composition.

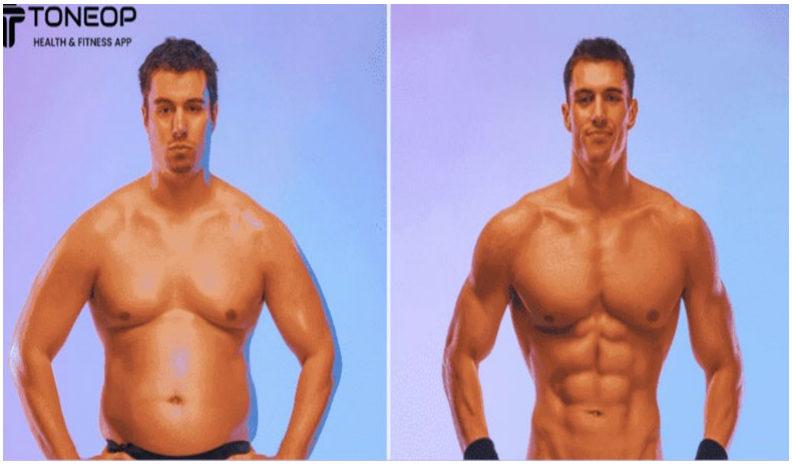


Figure 9.7: *Body composition*

f. Examples of Health-Related Components of Fitness

i. **Cardiovascular Endurance**: Running, swimming, cycling, brisk walking, dancing, jumping rope. Each activity demands sustained effort, strengthening the heart and improving oxygen uptake.

ii. **Muscular Endurance:** Performing multiple repetitions of bodyweight exercises like push-ups, squats, lunges, planks, leg presses, weight training with lighter weights and higher repetitions, activities like hiking or rowing that involve sustained muscle activity.

iii. **Muscular Strength:** Weightlifting using heavier weights and lower repetitions, isometric exercises (holding a static position against resistance), plyometrics (explosive movements like jumping), deadlifts, bench press, resistance training, and bodyweight exercises like push-ups.

iv. **Flexibility:** Stretching exercises like (static, dynamic), yoga, hamstring stretches, hip flexor stretches, shoulder rolls and Pilates. These practices improve joint mobility and muscle elasticity.

v. **Body Composition:** Healthy eating habits, regular exercise (cardiovascular and strength training), sufficient sleep, monitoring body fat percentage and weight management. These lifestyle choices contribute to a favourable body composition.

g. Benefits of Health-Related Components of Fitness

The benefits of improving one's health-related fitness components are:

i. Reduces risk of chronic diseases (heart disease, type 2 diabetes, etc.)
ii. Improves mood and mental health
iii. Increases energy levels
iv. Better sleep
v. Stronger bones and muscles
vi. Longer lifespan
vii. Improves overall cardiovascular health
viii. Enhances athletic performance
ix. Improves mobility
x. Reduces injury risk
xi. Improves self-esteem
xii. Increases bone density reducing the risk of osteoporosis
xiii. Improves metabolism
xiv. Improves body composition
xv. Increases strength for daily activities
xvi. Improves posture

LEARNING TASKS

1. What are the main components of physical fitness, and how does each contribute to overall health?
2. Discuss the five health-related components of physical fitness.
3. Research and discuss the benefits of each health-related component

PEDAGOGICAL EXEMPLARS

a. Starter

Ask students to reflect on their current levels of physical activity and fitness habits. Invite them to rate themselves on a scale of 1 to 5 for the following components:

Cardiovascular endurance (heart health)

Flexibility (range of motion)

b. Introduction

Ask learners to share their understanding of the health-related components of physical fitness. Facilitate a brief discussion to gather different perspectives and clarify key concepts.

c. Digital Learning

In groups, learners use digital devices to research physical fitness, its types, and its importance. Each group appoints two members to join another group to exchange and discuss their findings. Learners then return to their original groups to finalise their findings based on the shared information.

d. Talk for Learning

In pairs, learners discuss and share ideas about the various types and benefits of the health-related components of fitness. Afterwards, two pairs join to form a group of four, where they further explore and discuss these components.

e. Collaborative Learning

In mixed-ability or mixed-gender groups, learners discuss the components and provide examples of health-related physical fitness. The group leader or secretary will then present their findings to the class.

KEY ASSESSMENT Level 2: Class Exercise

1. Create a concept map that explains physical fitness and its health-related components. Your concept map should:

   a. Place "Physical Fitness" at the centre.

   b. Include all five health-related components of fitness.

   c. Provide a clear definition of each component.

   d. Show how each component contributes to overall wellness.

   e. Include at least one example of an activity that develops each component.

Level 3

2. Create a comprehensive comparison chart analysing three health-related fitness components of your choice. For each component:

   a. Explain the physiological systems involved and how these systems function during exercise.

   b. Analyse how the component specifically contributes to health and disease prevention.

   c. Compare and contrast methods of measuring/assessing this component including the advantages and limitations of each identified method.

   d. Evaluate different training approaches for developing each component.

   e. Analyse how each component interacts with or influences the other components.

PLC Session 9

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to

a. explain the week's concepts in a practical way that will make it easier for learners to understand

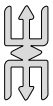
b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).

3. Use your subject specific app to plan your lesson. Ask the app to

a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.

b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)

c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app

a. The key assessment for the week is ***class exercise***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the exercise (NTS 3k-3q).

10 minutes **Content Exploration**

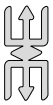
5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

b. all teachers in the group work through a similar problem individually for 3–4 minutes

c. the group then works through the problem together step by step

d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes	Enactment

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 10

Learning Indicator: *Design activities to improve health-related fitness components*

FOCAL AREA: ACTIVITIES TO IMPROVE HEALTH-RELATED FITNESS COMPONENTS

Introduction

Improving health-related fitness is essential for maintaining overall well-being and enhancing quality of life. Activities that specifically target key fitness components such as cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition play a vital role in achieving these outcomes. By engaging in a variety of structured exercises aimed at developing these areas, individuals can enhance physical health, reduce the risk of chronic diseases, and increase energy levels.

A clear understanding of the different components of health-related fitness facilitates the creation of a balanced and effective exercise routine. Each component contributes uniquely to physical performance and the ability to carry out daily tasks, underscoring the importance of incorporating diverse activities that address all dimensions of fitness. Whether through aerobic training, resistance exercises, flexibility routines, or a holistic combination of these methods, the benefits extend beyond physical improvements to include mental and emotional well-being.

Regular participation in such activities can lead to long-term health advantages, such as improved posture, greater mobility, and a reduced risk of injury.



Figure 10.1: *People participating in cardiovascular exercise*

ACTIVITIES TO IMPROVE HEALTH-RELATED COMPONENTS OF PHYSICAL FITNESS

The following are recommended activities designed to improve each component of health-related physical fitness, accompanied by general guidelines:

General Physical Activity Guidelines (World Health Organization Recommendations.2020)

For adults aged 18 to 64, the World Health Organization (WHO 2020) advises the following:

- A minimum of 150 to 300 minutes of moderate-intensity aerobic physical activity per week, or
- At least 75 to 150 minutes of vigorous-intensity aerobic physical activity per week, or

- An equivalent combination of moderate- and vigorous-intensity activity spread throughout the week.

  In addition, muscle-strengthening activities involving all major muscle groups should be performed on two or more days per week, at moderate or greater intensity. Adults should also aim to reduce sedentary behaviour as much as possible, as decreased physical inactivity contributes significantly to improved health and well-being.

a. Cardiovascular Endurance

Activities: These activities should be rhythmic, continuous, and involve large muscle groups. Aim for moderate intensity or vigorous intensity.

Table 11.1: *Cardiovascular endurance activities*

Brisk Walking	A great starting point for all fitness levels. Gradually increase duration and intensity.
Jogging/Running	Progress from walking to light jogging, then to running.
Cycling	Road cycling, stationary bikes, or mountain biking.
Swimming	A full-body, low-impact exercise excellent for cardiovascular health.
Dancing	Various forms of dance (aerobic dance, Zumba, salsa) can be highly effective.
Stair Climbing	Use a stair climber machine or find a set of stairs.
High-Intensity Interval Training (HIIT)	Short bursts of vigorous exercise followed by brief recovery periods (e.g., sprinting for 30 seconds, walking for 60 seconds, repeat).
Team Sports	Soccer, basketball, tennis, netball, etc., provide intermittent bursts of activity.
Rowing	Engages both upper and lower body muscles while providing a strong cardiovascular workout.
Jumping Rope	An inexpensive and highly effective way to elevate heart rate.
Sample Activity Plan (Progressive) **Beginner:** 30 minutes of brisk walking, 3-4 times per week. **Intermediate:** 30-45 minutes of jogging or cycling, 3-5 times per week. Incorporate one HIIT session. **Advanced:** 45-60 minutes of running, swimming, or vigorous cycling, 4-6 times per week. Include 1-2 HIIT sessions.	

b. Muscular Strength

Activities: Focus on lifting heavier weights for fewer repetitions

Table 11.2: *Muscular strength activities*

Bodyweight Exercises	
Push-ups	Chest, shoulders, triceps.

Squats	Quadriceps, hamstrings, glutes.
Lunges	Quadriceps, hamstrings, glutes.
Planks	Core strength.
Glute Bridges	Glutes, hamstrings.
Calf	Calves.
Free Weights Exercises (Dumbbells, Barbells)	
Bicep Curls	Triceps extensions, arm strength.
Overhead Press	Shoulders, triceps.
Bench Press	Chest, shoulders, triceps
Deadlifts	Full body, especially back, glutes, and hamstrings (requires proper form).
Rows	Back, biceps.
Resistance bands	Offer variable resistance and are great for home workouts.
Weight machines	Provide guided movements, good for beginners to learn proper form.
Sample Activity Plan Perform 2-3 sets of 6-12 repetitions for each exercise, 2-3 times per week, with at least one day of rest between sessions for the same muscle group. Choose a weight that challenges you to complete the target repetitions with good form	

c. Muscular Endurance

Activities: Focus on lighter weights/resistance for higher repetitions or holding positions for longer durations

Table 11.3: *Muscular endurance activities*

High Repetition Bodyweight Exercise	
Plank Holds	Increase the duration.
Wall Sits	Hold a seated position against a wall.
Circuit Training	Move from one exercise to the next with minimal rest, hitting different muscle groups.
Light Weight Training with High Reps	
Using dumbbells or resistance bands, perform 12-25 repetitions per set with shorter rest periods (e.g.,30 seconds).	
Pilates	Emphasises core strength, muscular control, and endurance.
Swimming	Continuous strokes build endurance in upper body and core.
Cycling	Longer rides at a moderate intensity.

Sample Activity Plan
Perform 3-5 sets of 15-25 repetitions (or hold for 30-60 seconds) for each exercise, 2-3 times per week.
For circuit training, aim for 2-3 rounds of a circuit with 1-2 minutes rest between rounds.

d. Flexibility

Activities: Incorporate both static and dynamic stretching

Table 11.4: *Flexibility activities*

Static Stretching (hold for 10-30 seconds, performed after warm-up or workout)	
Hamstring Stretch	Sit and reach for your toes or stand and touch your toes.
Quadriceps Stretch	Stand and pull your heel towards your glutes.
Calf Stretch	Lean against a wall with one leg back.
Shoulder Stretch	Cross arm across chest.
Triceps Stretch	Reach arm overhead and bend elbow, gently pulling elbow towards head.
Hip Flexor Stretch	Kneel on one knee and lean forward.
Dynamic Stretching (active movements, performed as part of a warm-up)	
Arm Circles	Forward and backward.
Leg Swings	Forward and backward, and side to side.
Torso Twists	Gently twist the upper body. Walking lunges with torso twist.
Yoga	Combines physical postures, breathing techniques, and meditation, excellent for improving flexibility, balance, and strength.
Pilates	Focuses on core strength, flexibility, and controlled movements.
Tai Chi	A gentle, low-impact exercise that improves balance, flexibility, and overall well-being.
Sample Activity Plan Stretch major muscle groups at least 2-3 times per week, ideally daily. Hold static stretches for 10-30 seconds. Perform dynamic stretches as part of a 5–10-minutes-arm-up before exercise.	

e. Body Composition

Activities: Improving body composition primarily involves a combination of regular physical activity, a balanced diet, portion control, and mindful eating.

Table 11.5: Body composition activities

Aerobic Exercise	Burns calories and helps reduce body fat.
Strength Training	Builds and maintains lean muscle mass, which boosts metabolism even at rest.

High-Intensity Interval Training (HIIT)	Highly effective for burning calories and improving body composition in a shorter time.
Compound Exercises	Exercises that involve multiple joints and muscle groups (e.g., squats, deadlifts, push-ups) burn more calories and build more muscle.
Sample Activity Plan Combine 3-5 days of cardiovascular exercise with 2-3 days of strength training per week. Focus on consistency and progressive overload (gradually increasing the intensity or duration of your workouts). Complement exercise with a balanced diet that includes plenty of fruits, vegetables, lean proteins, and whole grains, while limiting processed foods, unhealthy fats, and excessive sugars.	

f. Important Considerations

1. **Consult a Healthcare Professional:** Before starting any new exercise programme, especially if you have underlying health conditions or have been inactive for a long time.
2. **Warm-up and Cool-down:** Always begin workouts with a 5–10-minute warm-up (light cardio and dynamic stretching) and end with a 5–10-minute cool-down (static stretching).
3. **Progressive Overload:** To continue making improvements, gradually increase the intensity, duration, or resistance of your workouts over time.
4. **Listen to Your Body:** Rest when needed and avoid pushing through pain.
5. **Consistency:** Regularity is key to achieving and maintaining fitness improvements.
6. **Enjoyment:** Choose activities you enjoy making fitness a sustainable part of your lifestyle.

LEARNING TASKS

1. Research activities relating to cardiovascular endurance, strength training, muscular endurance and flexibility.
2. Design training programmes that enhance cardiovascular endurance, strength training, muscular endurance and flexibility.
3. Design physical activities and describe how each is used to develop the components of health-related fitness.
4. Analyse the role of aerobic exercise and strength training in improving body composition.

PEDAGOGICAL EXEMPLARS

a. Starter

"Fitness Charades"

Divide the class into two teams.

Write down different physical activities (e.g., running, swimming, cycling, weightlifting, yoga) on slips of paper.

Each team member takes a turn drawing a slip of paper and acting out the activity without speaking.

Their teammates have to guess the activity being acted out.

The team with the most correct guesses wins.

b. Introduction

Learners watch a video on health-related fitness

A YouTube Video on health-related components of fitness

Invite learners to share their thoughts on the video they watched and what they make out of it.

c. Collaborative Learning

i. In mixed ability/gender/ability groups, learners research activities that:

- Improve cardiovascular endurance.
- Target major muscle groups.
- Enhance muscular endurance.
- Enhance flexibility.

Groups should list at least five activities for each category.

ii. Assign groups one of the above categories.

Group 1: Design a 2-week cardiovascular endurance training programme for a beginner.

Group 2: Design a 2-week strength training programme for intermediate-level individuals.

Group 3: Design a circuit training programme to improve muscular endurance.

Group 4: Design a static stretching programme to improve flexibility in major muscle groups.

iii. Groups present their programmes to the class for discussion.

d. Project-Based Learning

Design physical activities and describe how each is used to develop health-related fitness component.

Take videos of physical activities organised in your communities to improve health-related fitness for class discussion.

Analyse the role of aerobic exercise and strength training in improving body composition.

KEY ASSESSMENT Level 3: Practical

1. Design a comprehensive circuit training programme that targets all five health-related fitness components. Your circuit training should:
   a. Include at least 5 stations with specific exercises.
   b. Clearly identify which health-related component(s) each station primarily develops.
   c. Create a visual representation of your circuit with detailed station descriptions and present it to the class.
2. Select a specific population (e.g., adolescent athletes, seniors, individuals with obesity, etc.) and design a four-week programme to improve their health-related fitness components.

Your programme should include:

a. Appropriate frequency, intensity, time, and type (FITT) principles for each component.

b. Explanation of how activities were specifically selected or modified for the population.

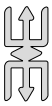
c. Safety considerations and precautions specific to the population.

d. Methods to evaluate improvement in each component.

PLC Session 10

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes | **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).

Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 4 Review

In Week 9, the focus was on the concept of physical fitness, types of fitness, and its importance. Learners studied how to achieve physical fitness, using a variety of activities as well exploring examples and benefits of the health-related components of fitness.

Week 10 centred on activities designed to improve the health-related component of fitness.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 9

Question 1

PHYSICAL FITNESS CONCEPT MAP

Total Marks: 24

1. Structure and Organisation (4 marks)
• Physical Fitness placed at the centre (1 mark)
• All five health-related components clearly connected to the centre (1 mark)
• Logical organisation and flow (1 mark)
• Appropriate connecting words/phrases between concepts (1 mark)
2. Component Identification (5 marks)
• Correct identification of all five health-related components (1 mark each):
• Cardiovascular endurance
• Muscular strength
• Muscular endurance
• Flexibility
• Body composition
3. Components Definition (5 marks)
• Clear and accurate definition for each component (1 mark each)
4. Wellness Contributions (5 marks)
• Clear explanation of how each component contributes to overall wellness
5. Activity Examples (5 marks)
• At least one appropriate activity for each component

MODEL ANSWER

Centre mode: PHYSICAL FITNESS The ability of the body to function efficiently and effectively in work and leisure activities
Component 1: CARDIOVASCULAR ENDURANCE
• *Definition: The ability of the heart, lungs, and blood vessels to supply oxygen to muscles during sustained physical activity.*
• *Contribution to Wellness: Reduces risk of heart disease, improves energy levels, enhances stamina for daily activities.*
• *Example Activities: Running, swimming, cycling, skipping rope.*
Component 2: MUSCULAR STRENGTH

• *Definition: The maximum amount of force a muscle or muscle group can exert in a single effort.*
• *Contribution to Wellness: Improves posture, reduces injury risk, enhances ability to perform daily tasks.*
• *Example Activities: Weight lifting, push-ups, squats, resistance training*
Component 3: MUSCULAR ENDURANCE
• *Definition: The ability of muscles to perform repeated contractions against a resistance for an extended period.*
• *Contribution to Wellness: Reduces fatigue, improves posture, increases stamina for repetitive tasks.*
• *Example Activities: Planks, sit-ups, high-repetition weight training, rowing.*
Component 4: FLEXIBILITY
• *Definition: The range of motion possible at a joint or group of joints.*
• *Contribution to Wellness: Reduces risk of injury, improves posture, enhances movement efficiency.*
• *Example Activities: Yoga, stretching exercises, Pilates, Tai Chi.*
Component 5: BODY COMPOSITION
• *Definition: The relative proportion of fat mass to fat-free mass in the body.*
• *Contribution to Wellness: Affects metabolism, disease risk, and overall health status.*
• *Example Activities: Combination of balanced nutrition with regular aerobic exercise and strength training.*

Question 2

2. HEALTH-RELATED FITNESS COMPONENTS COMPARISON CHART

Total Marks: 35

1. Selection and Structure (3 marks)
• *Selection of three appropriate health-related components (1 mark)*
• *Clear, well-organised chart format (1 mark)*
• *Comprehensive coverage of all required aspects (1 mark)*
2. Physiological Systems Analysis (65 marks)
• *Accurate identification of primary physiological systems for each component (3 marks)*
• *Detailed explanation of how these systems function during exercise (3 marks)*
3. Health and Disease Prevention (7 marks)
• *Clear explanation of health benefits for each component (3 marks)*
• *Specific disease prevention aspects identified for each component (3 marks)*
• *Evidence-based connections between component and health outcomes (1 mark)*
4. Measurement Methods (6 marks)
• *Valid assessment methods for each component (3 marks)*
• *Comparison of advantages/limitations of different methods (3 marks)*

5. Training Approaches (9 marks)
• *Detailed description of training principles for each component (3 marks)*
• *Critical evaluation of different training methods (3 marks)*
• *Appropriate progression considerations for each component (3 mark)*
6. Component Interactions (4 marks)
• *Clear analysis of how components influence each other (3 marks)*
• *Recognition of integrated nature of fitness components (1 mark)*

MODEL ANSWER: HEALTH-RELATED FITNESS COMPONENTS COMPARISON CHART

CARDIOVASCULAR ENDURANCE
Physiological Systems Involved
• *Cardiovascular system: Heart pumps oxygenated blood to working muscles.*
• *Respiratory system: Lungs facilitate oxygen uptake and carbon dioxide removal.*
• *Circulatory system: Blood vessels transport oxygen, nutrients, and waste products.*
• *Cellular respiration systems: Mitochondria produce ATP using oxygen.*
Health and Disease Prevention Contributions
• *Reduces risk of cardiovascular diseases (coronary heart disease, stroke).*
• *Lowers blood pressure and improves blood lipid profiles.*
• *Enhances insulin sensitivity, reducing Type 2 diabetes risk.*
• *Strengthens immune system function.*
• *Reduces systemic inflammation associated with chronic diseases.*
Measurement/Assessment Methods
• *Laboratory tests: VO2 max testing (gold standard) - measures maximum oxygen uptake.*
• *Field tests: 12-minute Cooper test, 1.5-mile run test, 20m multistage fitness test (beep test).*
• *Sub-maximal tests: Step tests, Rockport walking test.*
• *Comparison: Lab tests provide precise measurements but require expensive equipment; field tests are practical for school settings but less precise.*
Training Approaches
• *Continuous training: Sustained activity at moderate intensity (60-75% max HR).*
• *Interval training: Alternating high-intensity work with recovery periods.*
• *Fartlek training: Varied-pace continuous training.*
• *Evaluation: HIIT produces faster improvements but higher injury risk; continuous training better for beginners; all methods effective when properly applied.*
Interactions with Other Components
• *Improves muscular endurance through enhanced oxygen delivery.*

• *Can impact body composition by increasing calorie expenditure.*
• *May improve recovery time for strength training.*
• *Limited direct impact on flexibility but enhances overall exercise capacity.*
MUSCULAR STRENGTH
Physiological Systems Involved
• *Muscular system: Muscle fibres (particularly Type IIb fast-twitch) contract to produce force.*
• *Nervous system: Motor units recruit muscle fibres; neural adaptations improve force production.*
• *Skeletal system: Provides leverage and attachment points for muscles.*
• *Endocrine system: Hormones (testosterone, growth hormone) facilitate muscle development.*
Health and Disease Prevention Contributions
• *Prevents sarcopenia (age-related muscle loss).*
• *Maintains bone mineral density, reducing osteoporosis risk.*
• *Improves metabolic rate through increased lean muscle mass.*
• *Enhances functional ability, reducing fall risk in older adults.*
• *Improves glucose metabolism, reducing diabetes risk.*
Measurement/Assessment Methods
• *1-Repetition Maximum (1RM) tests: Direct measure of maximum force production.*
• *Isometric strength tests: Dynamometers measure force without joint movement.*
• *Field tests: Push-up tests, handgrip strength tests.*
• *Comparison: 1RM provides specific strength measurement but requires proper technique; isometric tests are safer but less specific to functional movements.*
Training Approaches
• *Progressive resistance training: Gradually increasing load over time.*
• *Variable resistance training: Accommodating resistance throughout range of motion.*
• *Isometric training: Tension without movement.*
• *Evaluation: Progressive overload is essential for all approaches; compound exercises generally more functional than isolation exercises; periodisation prevents plateaus.*
Interactions with Other Components
• *Enhances muscular endurance when developed in conjunction.*
• *Can improve cardiovascular capacity through circuit training approaches.*
• *May reduce flexibility if not combined with mobility work.*
• *Contributes to improved body composition by increasing lean mass.*
FLEXIBILITY

Physiological Systems Involved
• *Muscular system: Muscles and their fascia extend to allow movement.*
• *Skeletal system: Joint structure determines possible range of motion.*
• *Nervous system: Proprioceptors (muscle spindles, Golgi tendon organs) regulate stretch reflex.*
• *Connective tissue system: Tendons, ligaments, and joint capsules affect mobility.*
Health and Disease Prevention Contributions
• *Reduces risk of musculoskeletal injuries.*
• *Improves posture and reduces low back pain.*
• *Enhances functional movement efficiency.*
• *Decreases muscle soreness and improves recovery.*
• *Contributes to better balance and coordination, reducing fall risk.*
Measurement/Assessment Methods
• *Sit and reach test: Measures hamstring and lower back flexibility.*
• *Goniometry: Measures joint angles during movement.*
• *Functional movement screens: Assess mobility in movement patterns.*
• *Comparison: Direct joint measurement via goniometry most accurate but time-consuming; functional screens most relevant to performance but require trained observers.*
Training Approaches
• *Static stretching: Holding extended positions for 15-60 seconds.*
• *Dynamic stretching: Controlled movements through range of motion.*
• *PNF (Proprioceptive Neuromuscular Facilitation): Contract-relax techniques.*
• *Evaluation: Static most effective for long-term gains; dynamic better for pre-activity; PNF produces fastest gains but requires partner or trainer.*
Interactions with Other Components
• *Facilitates proper technique in strength training, potentially improving outcomes.*
• *Allows better movement economy, enhancing cardiovascular endurance.*
• *Reduces injury risk during other forms of training.*
• *Limited direct impact on body composition but enables participation in varied activities.*

WEEK 10

Question 1

Comprehensive Circuit Training Programme

Model Answer

Circuit Design

Station 1: Jumping Jacks **(Cardiovascular Endurance)**

- Exercise: Jumping jacks
- Duration: 30 seconds
- Rest: 15 seconds

Station 2: Squats **(Muscular Strength and Endurance)**

- Exercise: Bodyweight squats
- Repetitions: 12
- Rest: 30 seconds

Station 3: Plank **(Muscular Endurance and Core Strength)**

- Exercise: Plank hold
- Duration: 30 seconds
- Rest: 15 seconds

Station 4: Lunges **(Muscular Strength and Endurance)**

- Exercise: Alternating lunges
- Repetitions: 12 (per leg)
- Rest: 30 seconds

Station 5: Burpees **(Cardiovascular Endurance and Muscular Endurance)**

- Exercise: Burpees
- Duration: 30 seconds
- Rest: 30 seconds

Station 6: Push-ups **(Muscular Strength and Endurance)**

- Exercise: Modified push-ups (knee push-ups) or standard push-ups
- Repetitions: 12
- Rest: 30 seconds

Station 7: Mountain Climbers **(Cardiovascular Endurance)**

- Exercise: Mountain climbers
- Duration: 30 seconds
- Rest: 15 seconds

Station 8: Leg Press **(Muscular Strength)**

- Exercise: Bodyweight leg press or modified leg press
- Repetitions: 12
- Rest: 30 seconds

Station 9: Wall Sit **(Muscular Endurance)**

- Exercise: Wall sit

- Duration: 30 seconds

- Rest: 15 seconds

Station 10: Triceps Dips **(Muscular Strength and Endurance)**

- Exercise: Triceps dips (using a chair or bench)

- Repetitions: 12

- Rest: 30 seconds

Marking Scheme

- Circuit Design (10 marks)

- Stations and exercises (10 marks)

- Health-related components targeted (10 marks)

Question 2

MARKS: 30

Criteria	Marks	Description
a. FITT Principles	*15*	*- Frequency, Intensity, Time, Type clearly specified for each health-related fitness component (3 marks each)*
b. Activity Selection and Modification	*6*	*- Explanation of activity choices tailored to selected populations needs (3 marks)*
		- Specific modifications described to accommodate the needs of the selected population (e.g., mobility, strength, and endurance limitations for seniors) (3 marks)
c. Safety Considerations	*6*	*- Identification of safety issues relevant to selected population (e.g., seniors - joint protection, balance, cardiovascular) (3 marks)*
		- Inclusion of appropriate precautions and adaptations to prevent injury (3 marks)
d. Methods to Evaluate Improvement	*6*	*- Clear methods for measuring progress in each fitness component (e.g., strength tests, cardio assessments). (3 marks)*
		- Suitable, valid evaluation tools applicable to selected population (e.g., seniors - 6-minute walk test, chair sit-to-stand) (3 marks)
TOTAL	*33*	

Model Answer (Population = Seniors)

a. **FITT Principles for Health-Related Fitness Components**

Cardiovascular Endurance

Frequency: 3-5 times per week

Intensity: Low to moderate (e.g., 40-60% of maximum heart rate)

Time: 20-30 minutes per session

Type: Walking, swimming, water aerobics, or cycling (low impact)

Muscular Strength and Endurance

Frequency: 2-3 times per week

Intensity: Light to moderate resistance (e.g., resistance bands, light weights)

Time: 20-30 minutes per session

Type: Resistance band exercises, chair squats, wall push-ups

Flexibility

Frequency: Daily or at least 5 times per week

Intensity: Gentle stretching within comfortable range

Time: 10-15 minutes

Type: Static stretches, chair yoga

Balance and Coordination

Frequency: 3-4 times per week

Intensity: Moderate, focusing on controlled movements

Time: 15-20 minutes

Type: Chair stands, balance exercises with support (e.g., holding a chair), Tai Chi

b. Activity Selection and Modifications for Seniors

Activities were selected to address common age-related conditions such as reduced muscle mass (sarcopenia), joint stiffness, lower bone density, and balance decline. For instance, chair squats are included to strengthen lower body muscles safely while minimising fall risk by using a chair for support. Resistance bands are chosen because they allow adjustable intensity without heavy weights that may strain joints. Walking and water aerobics provide cardiovascular benefits with low joint impact, which is crucial for seniors with arthritis or osteoporosis. Exercises such as wall push-ups substitute floor push-ups to reduce upper body strain. Stretching and balance activities are adapted to individual flexibility and stability levels, offering modifications like seated stretches or support aids to manage mobility limitations effectively.

c. Safety Considerations and Precautions

Given seniors' increased risk of injury due to decreased bone density, joint issues, and cardiovascular changes, safety is paramount. Warm-ups and cool-downs are included to prepare muscles and prevent strains. Exercises are low-impact and done at a controlled pace to minimise joint stress and the risk of falls. Use of sturdy chairs and support bars helps maintain balance during exercises. Monitoring intensity using perceived exertion scales or heart rate ensures participants do not overexert themselves. Adequate hydration and rest intervals are emphasised, and sessions are scheduled during cooler times of the day to avoid heat stress. Participants are advised to wear appropriate footwear and non-restrictive clothing to ensure comfort and safety.

d. Methods to Evaluate Improvement

Progress is measured using simple, reliable tests suitable for seniors:

Cardiovascular Endurance: 6-minute walk test to assess distance walked, indicating aerobic capacity improvements.

Muscular Strength and Endurance: Chair sit-to-stand test to count repetitions in 30 seconds, measuring lower body strength.

Flexibility: Sit and reach test or shoulder flexibility test to monitor range of motion.

Balance: Timed up-and-go test or single-leg stand test to evaluate stability and fall risk reduction.

SECTION 5: PERIODISATION IN SPORTS TRAINING

STRAND: PHYSICAL EDUCATION

Sub-Strand: Training Principles for Sports Performance

Learning Outcome: *Discuss and apply the principles of periodisation for training programme planning.*

Content Standard: *Demonstrate knowledge and understanding of the principles of periodisation and its phases.*

INTRODUCTION AND SECTION SUMMARY

Periodisation is a fundamental concept in sports training that involves the systematic planning and organisation of training phases to achieve optimal performance and prevent overtraining. By alternating periods of intense training with periods of lighter training or rest, athletes can peak at the right time for competition, reduce the risk of injury, and maintain long-term physical and mental well-being. Effective periodisation requires a deep understanding of the athlete's needs, goals, and responses to training stimuli. This approach enables coaches and athletes to tailor training programmes that optimise performance, enhance recovery, and ultimately achieve competitive success.

This section will take a critical look at the principles of periodisation and applying the principles of periodisation for training programme planning. By applying periodisation principles, coaches and athletes can create effective training programmes that enhance performance, promote recovery, and reduce the risk of injury or burnout.

The weeks covered in this section include the following:

***Week 11*:** Discuss the principles of periodisation

Week 12: Apply the principles of periodisation for training programme planning.

SUMMARY OF PEDAGOGICAL EXEMPLARS

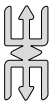
Pedagogical exemplars on periodisation in sports training provide practical examples and strategies for coaches and athletes to optimise performance and prevent overtraining. These exemplars demonstrate how to apply periodisation principles in various sports and contexts, including: how to design and implement structured training plans that alternate between intense training and recovery phases, how to design training programmes for different phases, including preparatory, competitive, and transition phases and highlighting the importance of individualising training programmes to meet the unique needs and goals of each athlete. To achieve the learning outcome on training principles on sports performance, teachers are to use learner-centred and participatory pedagogical approaches that encourage critical thinking and personal reflection with real-world relevance. The integration of technology, such as audios, audio-visuals, infographics, etc. features various phases of periodisation. Collaborative learning, activity-based learning and project-based approaches will help learners participate in the lesson and get a good understanding of the topic.

ASSESSMENT SUMMARY

In evaluating learners' understanding on periodisation in sports training, teachers are expected to use both formative and summative assessments. The level 3 assessment modes, where students can exhibit both strategic reasoning and extended critical thinking and reasoning skills, should be the focus of these approaches at this point.

Level 3 assessment could be addressed using appropriate pedagogical strategies such as case studies, in which learners evaluate real-world scenarios involving individuals experiencing social anxiety, linked to academic, family, and other factors.

To demonstrate a thorough grasp on periodisation in sports training, learners at both levels must go beyond simple identification and apply, analyse, and create solutions.



Note

Teachers are encouraged to also employ appropriate assessment strategies and modes that best suit their lessons and learning environments to achieve the required learning outcome.

Assessment Summary for the Indicator

Week	Indicator	DoK Level	Assessment Mode
11	Discuss the principles of periodisation	Level 3	Class exercise
12	Discuss and apply the principles of periodisation for training programme planning.	Level 3	Research

RECAP

Recap the following weeks from year 1 and 2

Year 1	Week 12: Explain the training principles for sports performance Week 13: Apply the training principles for sports performance
Year 2	Week 11: Discuss the training principles for sports performance Week 12: Apply the training principles for sports performance

RECAP

In Year 1, learners commenced with identifying and analysing the concept of sports training principles for sports performance. They also studied the types of sports training, methods of sports training and sports training principles.

Year 2 looked at the components of training for fitness. They further learnt the health-related components and skill related components. Again, they were taught the principle of periodisation training and the main types of periodisation models. The learners took a critical look at how to incorporate periodisation training into a fitness routine to enhance sports performance

Final Year

In their final year, students will study three areas: the definition of periodisation, purpose and benefits of periodisation, phases of training within a periodised plan, monitoring and evaluation in periodisation and special considerations in periodisation. A critical examination of these topics will help individuals acquire knowledge and understanding to plan training programmes.

WEEK 11

Learning Indicator: *Discuss the principles of periodisation*

FOCAL AREA: THE PRINCIPLES OF PERIODISATION

THE PRINCIPLES OF PERIODISATION

Introduction

Combat sports demand a unique blend of physical, technical, tactical, and psychological attributes. To consistently perform at a high level, prevent injury, and avoid overtraining, athletes and coaches rely on periodisation – a systematic approach to training.

Periodisation is a fundamental concept in sports training that involves the systematic planning and organisation of training phases to achieve optimal performance and prevent overtraining. By alternating periods of intense training with periods of lighter training or rest, athletes can peak at the right time for competition, reduce the risk of injury, and maintain long-term physical and mental well-being.

The principles of periodisation provide a framework for coaches and athletes to design training programmes that are tailored to their specific needs and goals, taking into account factors such as training experience, competition schedule, and individual variability. By applying the principles of periodisation, athletes can optimise their training, achieve peak performance, and gain a competitive edge in their respective sports.

Definition and Core Concepts

a. What is Periodisation?

Periodisation is a systematic approach to training that involves alternating periods of intense training with periods of lighter training or rest to optimise performance and prevent overtraining. It is a scientifically backed method that helps athletes train smarter, not harder, and achieve long-term success.

b. Purpose and Benefits of Periodisation

The primary purpose of periodisation is to peak performance at crucial competition times. Key benefits include:

i. **Optimising Performance (Peaking):** The primary aim is to ensure the athlete reaches their peak physical and mental condition at the most important competitions. By strategically varying training loads, the body undergoes adaptive processes, culminating in optimal performance.

ii. **Injury Prevention:** Gradual increases in training load and planned recovery periods reduce the risk of overuse injuries and acute trauma that can arise from sustained high-intensity or high-volume training.

iii. **Preventing Overtraining and Burnout:** Periodisation allows for structured rest and recovery, preventing the accumulation of fatigue that can lead to overtraining syndrome (characterised by decreased performance, mood disturbances, and increased susceptibility to illness). It also helps maintain an athlete's motivation and psychological well-being.

iv. **Maximising Adaptations:** By varying stimuli, periodisation ensures that the body continues to adapt and improve. For example, focusing on strength in one phase and power in another allows for specific physiological adaptations to occur.

v. **Skill Development:** It provides dedicated time within the training year to focus on technical and tactical refinement, without the constant pressure of competition readiness.

vi. **Long-Term Athletic Development (LTAD):** Especially crucial for developing athletes, periodisation supports a progressive and sustainable athletic journey, fostering continuous improvement rather than short-term gains at the expense of long-term health.

Phases of Training within a Periodised Plan



Figure 11.1: *Phases of training*

A typical annual periodised plan for a combat sport athlete is divided into several interconnected phases, often referred to as macrocycles (e.g., an entire year), mesocycles (e.g., 3-6 weeks), and micro cycles (e.g., 1 week).

The main phases are:

a. Preparatory Phase (Off-Season/Pre-Season)

This is the foundational phase, laying the groundwork for subsequent high-intensity training and competition. It is typically characterised by higher training volume and lower intensity, emphasising strength and conditioning, skill development, and general fitness.

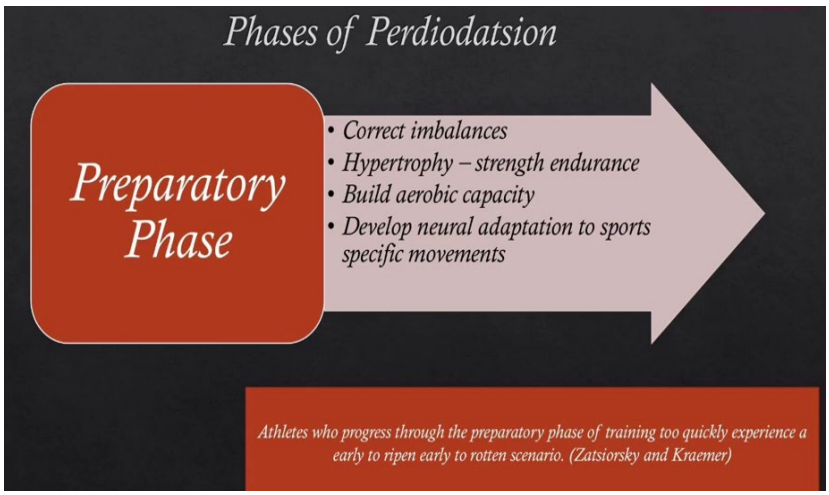


Figure 11.2: *Preparatory phase*

- **Objectives**
  i. To develop a broad base of physical fitness, including general endurance, strength, and fundamental movement skills.
  ii. Address any significant weaknesses or imbalances. Improve body composition.
  iii. To transition from general fitness to more sport-specific physical and technical demands.
  iv. Increase intensity and specificity, while volume may start to slightly decrease.
- **Typical Activities**
  - Aerobic conditioning (e.g., long-distance running, cycling, swimming).
  - General strength training (e.g., hypertrophy, basic strength exercises with moderate loads).
  - Corrective exercises and mobility work.
  - Skill drills with low intensity/resistance.
  - Combat-sport specific conditioning (e.g., interval training, wrestling drills with resistance, striking on pads with increasing power).
  - Strength training shifts towards maximal strength and power development (e.g., Olympic lifts, plyometrics).

b. Competitive Phase (In-Season)

This phase is characterised by higher intensity and lower volume training. The focus shifts to maintaining fitness levels, refining technique, and peaking performance for competitions. Training is tailored to the specific demands of upcoming events.

- **Objectives**
  i. To maintain and refine technical and tactical skills, optimise specific fitness levels, and ensure the athlete is mentally prepared for competition.
  ii. Manage fatigue to allow for peak performance.
- **Typical Activities**
  - High-intensity, sport-specific drilling and sparring (e.g., simulated fight scenarios, tactical sparring).
  - Maintenance of strength and power, often with lower volume but higher intensity.
  - Strategic rest and recovery days.
  - Pre-competition tapering (a systematic reduction in training volume and intensity leading up to a specific event to reduce accumulated fatigue and optimise performance).
  - Mental preparation (e.g., visualisation, fight strategy review).

c. Transition Phase (Off-Season/Active Rest)

This phase serves as a recovery period between the competitive and preparatory phases. It involves reduced training volume and intensity, allowing the body to recover from the demands of the competitive season. It may include activities that promote active recovery, such as light exercise and recreational activities.

- **Objectives**
  i. To recover from the physical and psychological demands of competition, reduce accumulated fatigue, and prevent burnout.

ii. Address any minor injuries and allow for mental decompression.

- **Typical Activities**

o Active rest (e.g., engaging in other sports or recreational activities, light cross-training).

o Minimal structured training.

o Focus on rehabilitation if needed.

o Mental break from intense training and competition.

Monitoring and Evaluation in Periodisation

Effective periodisation is not a rigid, pre-set plan; it requires continuous monitoring and evaluation to ensure the athlete is adapting positively and to make necessary adjustments.

a. To understand the athlete's physiological response to training.

b. To assess an athlete's mental state and readiness.

c. Track athlete progress and adjust training plans accordingly.

d. Use metrics such as heart rate, performance data, and athlete feedback.

e. Evaluate critical moments of the season to adjust training loads.

f. Performance Testing: Regular assessment of strength, speed, endurance, and skill levels.

g. Training Logs: Recording training volume, intensity, and perceived exertion.

h. Athlete Feedback: Regular communication with athletes to monitor their physical and mental state.

i. Injury Monitoring: Tracking any injuries or soreness to adjust training accordingly.

By integrating these monitoring strategies, coaches can make informed decisions, individualise training loads, and adapt the periodised plan to the athlete's unique responses.

Special Considerations in Periodisation

a. Youth Athletes

Periodisation for youth athletes must align with the principles of Long-Term Athletic Development (LTAD). The focus should be on building a broad athletic base, developing fundamental movement skills, and fostering enjoyment in the sport, rather than early specialisation and excessive competitive pressure.

i. **Emphasis on General Physical Preparation**: Youth athletes require more time in GPP, focusing on developing coordination, agility, balance, and general strength through varied activities.

ii. **Reduced Specialisation:** Early specialisation in combat sports can lead to overuse injuries and burnout. Training should incorporate a wide range of movements and skills from different athletic disciplines.

iii. **Growth and Maturation:** Coaches must be aware of individual differences in growth spurts and maturation rates. Training loads should be adjusted to account for increased injury risk during periods of rapid growth.

iv. **Psychological Development:** Maintaining enjoyment, fostering intrinsic motivation, and teaching life skills are paramount. Competition should be viewed as part of the developmental process, not solely about winning.

v. **Less Rigid Periodisation:** While a framework is useful, the strictness of periodisation might be relaxed compared to elite adults, allowing for more flexibility and responsiveness to the young athlete's changing needs and enthusiasm.

b. Female Athletes

Recognising the unique physiological characteristics of female athletes, particularly the influence of the menstrual cycle (MC), is crucial for optimising training and performance.

i. **Hormonal Fluctuations:** The MC involves fluctuating levels of oestrogen and progesterone, which can impact various physiological parameters such as metabolism, neuromuscular function, thermoregulation, and even injury risk (McNulty et al., 2020).

ii. **Follicular Phase (low oestrogen, then rising):** Generally associated with increased strength, power, and pain tolerance. May be a favourable time for higher-intensity strength and power training (Sims et al., 2023).

iii. **Ovulatory Phase (oestrogen peak**): Can be a time of increased neuromuscular efficiency. However, some research suggests a potentially higher risk of ACL injury due to ligament laxity associated with oestrogen (Herzberg et al., 2017).

iv. **Luteal Phase (oestrogen and progesterone rise, then fall):** Higher core body temperature, potentially impaired thermoregulation, and increased protein catabolism. Might be a time for slightly reduced intensity or increased focus on endurance work, particularly if symptoms of premenstrual syndrome (PMS) are present.

v. **Menstrual Phase (low oestrogen and progesterone):** Can be associated with symptoms like pain, fatigue, and mood disturbances. Training may need to be modified, potentially with reduced intensity or volume, depending on individual symptoms.

vi. **Individual Variability:** The impact of the MC varies significantly between individuals. Coaches should encourage open communication with female athletes to understand their symptoms and tailor training accordingly.

vii. **Cycle Tracking:** Encouraging athletes to track their menstrual cycle and associated symptoms can provide valuable data for individualising training and recovery strategies (Carmichael et al., 2021).

LEARNING TASKS

1. Recap the training principles for sports performance.
2. Brainstorm the benefits of periodisation.
3. Analyse the phases of periodisation.

PEDAGOGICAL EXEMPLARS

a. Starter

Think of a musician preparing for a concert. He would not play the same piece at the same intensity every day or he might burn out. Instead, he would practice in phases, focusing on different aspects of his performance. Similarly, in sports training, periodisation involves breaking down the training year into specific phases to achieve optimal performance and reduce the risk of injury. How can we apply this concept to sports training?

b. Introduction

Ask learners to share their thoughts on the concept of periodisation in relation to the musician preparing for a concert.

c. Collaborative learning

- Learners research from the internet and other relevant sources on the various components of training (endurance, flexibility, strength, speed).
- Learners in groups discuss activities that will best cater for the various components of training.
- Learners identify and discuss the phases of the training cycles in relation to the components of training.
- Learners research and discuss the benefits of periodisation in relation to training.

d. Project based learning

- Learners design activities for the various components of training for individuals and or groups.
- Learners signpost the activities with the various phases of the training circles.

KEY ASSESSMENT Level 3: Class Exercise

Consider a senior high school athlete whose competition is 3 months away. Design a training schedule based on the phases of periodisation.

PLC Session 11

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***class exercise***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the exercise (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).

Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).

8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
    a. transfer your chats into your learning planner template.
    b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
    c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 12

Learning Indicator: *Apply the principles of periodisation for training programme planning*

FOCAL AREA: THE PRINCIPLES OF PERIODISATION FOR TRAINING PROGRAMME PLANNING

Introduction

Periodisation is a sophisticated, systematic approach to organising training that involves dividing a training programme into planned, sequential cycles. Its core aim is to optimise an athlete's performance at specific times (e.g., major competitions), concurrently preventing overtraining, reducing injury risk, and fostering long-term athletic development. This methodology is underpinned by fundamental biological principles, notably the General Adaptation Syndrome (GAS) and the Supercompensation theory.

PLANNING ACTIVITIES TO CATER FOR VARIOUS COMPONENTS OF TRAINING

Effective periodisation necessitates meticulous planning, involving a detailed blueprint for how various training components will be developed across distinct cycles.

a. **Strength Training:** This encompasses exercises to develop muscular strength, power, and endurance. The specific type of strength training (e.g., maximal strength, power, hypertrophy) and the associated training volume and intensity will vary significantly depending on the phase of the periodisation cycle and the athlete's goals. Different periodisation models, such as linear, undulating, and block periodisation, can be employed to target specific strength adaptations.

   Example: In a preparatory phase, the emphasis might be on building a base of muscular strength and hypertrophy with moderate intensity and higher volume. As the competitive phase approaches, the focus might shift towards power development with higher intensity and lower volume.



Figure 12.1: *Strength training activity*

b. **Endurance Training:** This includes activities to improve cardiovascular fitness and muscular endurance. This might involve continuous training (e.g., long, slow distance runs), interval training (e.g., short bursts of high-intensity work with recovery periods), or tempo runs (sustained effort at a specific pace). The specific type of endurance training will depend on the sport's demands (e.g., aerobic capacity, anaerobic capacity).

Example: A marathon runner would likely have a greater emphasis on long, slow distance runs and tempo runs during the preparatory phase, with interval training becoming more prominent as the competition phase nears.

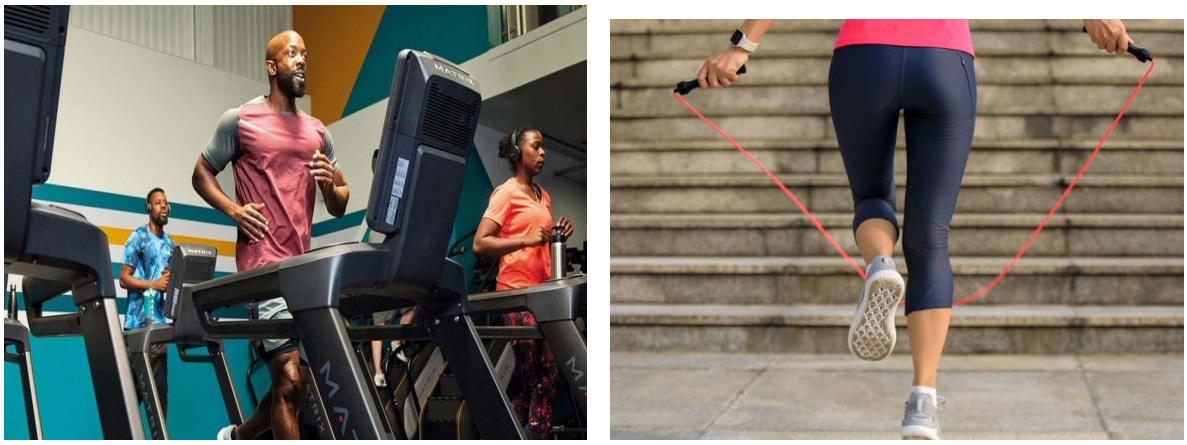


Figure 12.2: *Endurance activities*

c. **Flexibility and Mobility Training:** Exercises designed to improve range of motion, flexibility, and joint mobility are crucial for injury prevention and optimal movement patterns. The focus might shift from general flexibility in the preparatory phase to more sport-specific mobility work in the competitive phase. Include both static (holding a stretch) and dynamic (moving through a range of motion) stretching exercises.

Example: In the preparatory phase, athletes might engage in general stretching routines. During the competitive phase, the focus might shift to dynamic stretching and mobility exercises specific to the sport's movements.

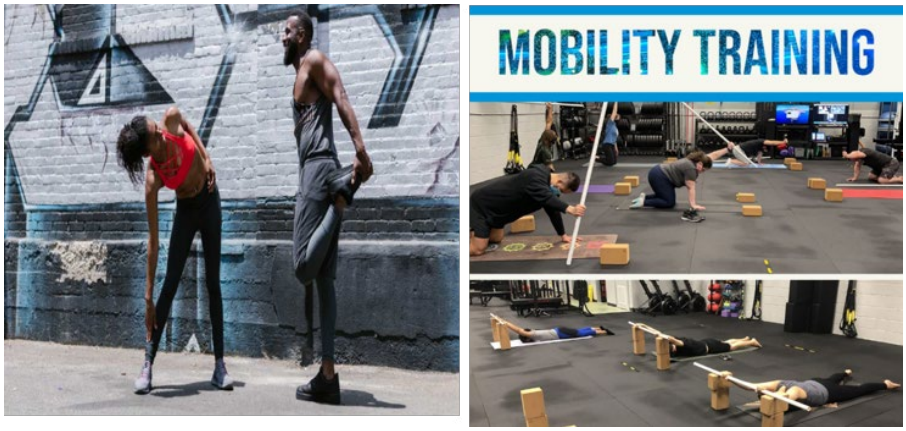


Figure 12.3: *Flexibility and Mobility Training*

d. **Skill Development:** This involves practicing sport-specific skills and techniques. The focus might be on fundamental skills in the preparatory phase and refining techniques in the competitive phase. The specific skills practiced and the training methods used will be highly dependent on the sport.

Example: A football player would spend time practicing passing, shooting, and dribbling skills. The emphasis on these skills would change throughout the season.

e. **Recovery and Regeneration:** Incorporating strategies to promote physical and mental recovery is vital. This includes rest days, active recovery (e.g., light exercise to promote blood flow), sleep optimisation, and appropriate nutrition. The emphasis on recovery will vary depending on the training load and the phase of the periodisation cycle.

Example: During a high-intensity training block, athletes will need more rest days and may benefit from strategies like massage or ice baths to aid recovery.

2. Key Planning Considerations

a. Needs Analysis: A thorough needs analysis is essential. This involves assessing the athlete's current fitness level, strengths, weaknesses, and the specific demands of their sport. This informs the design of the periodisation plan, ensuring training is targeted and relevant. This critical step forms the basis for individualisation, ensuring the programme is tailored to the athlete's unique needs.

b. Long-Term Goals: The periodisation plan should align with long-term goals, such as peak performance at a specific competition or series of competitions. This requires careful planning across macrocycles (yearly plans), mesocycles (several months), and micro cycles (weekly plans).

c. Individualisation: Training plans should be individualised, considering factors like age, experience, training history, and injury risk. This often involves adjusting training volume, intensity, and exercise selection to meet the unique needs of each athlete.

d. Monitoring and Adjustment: Regular monitoring of athlete progress is essential. This can involve performance testing, physiological monitoring (e.g., heart rate variability), and subjective feedback (e.g., perceived exertion, sleep quality). This data allows coaches to make informed adjustments to the training plan, ensuring it remains effective and safe.

PERFORMING THE ACTIVITIES TO DEVELOP THE VARIOUS COMPONENTS OF TRAINING FOLLOWING THE PERIODISATION PLAN

Once the periodisation plan is designed, effective implementation is critical for success. This involves:

a. Structured Training Sessions: Each training session should be carefully structured to target the specific components of training outlined in the plan, adhering to the specifications for volume, intensity, and exercise type.

b. Progressive Overload: The training load should be progressively increased over time, ensuring the athlete is constantly challenged but not overwhelmed. This requires careful monitoring of the athlete's response to training. The principle of progressive overload is a fundamental tenet of effective training.

c. Strategic Recovery and Deloading: Planned Reloads: As per Cyclicality and the Supercompensation theory, intentionally reducing training load (volume or intensity) for a micro cycle (e.g., every 3rd or 4th week within a mesocycle) is fundamental. This period allows the body to fully recover, repair damaged tissues, and achieve the desired supercompensation effect, enabling greater adaptations in subsequent harder training blocks.

i. **Active Recovery**: Incorporating low-intensity, non-strenuous activities on recovery days (e.g., light cycling, walking, stretching, foam rolling) can aid physiological recovery by increasing blood flow, facilitating nutrient delivery, and assisting waste product removal.

ii. **Passive Recovery**: Adequate sleep (7-9 hours per night for adults, more for younger athletes), optimal nutrition (sufficient calorie and macronutrient intake), and consistent hydration are non-negotiable pillars of recovery and adaptation. Stress management and psychological rest are equally crucial for overall well-being.

d. Adherence to the Plan: Consistent adherence to the periodisation plan is crucial for achieving the desired results. This requires discipline and commitment from both the athlete and the coach. Clear communication and a strong coach-athlete relationship are vital for ensuring adherence.

e. Sustaining Specificity Throughout: As the athlete progresses through the periodisation phases, it is crucial to ensure that the activities performed become increasingly specific to the competitive demands. For instance, a track athlete's resistance training in the GPP might involve general strength exercises, but in the SPP and CP, it would transition to highly specific power and speed movements, directly translating to track performance.

f. Flexibility and Adaptation: The plan should be flexible enough to accommodate unexpected events, such as illness, injury, or changes in competition schedule. The coach must be prepared to make adjustments to the plan based on the athlete's response to training and any unforeseen circumstances.

g. Regular Evaluation: Regularly evaluate the training programme's effectiveness. This might involve reviewing training data, athlete feedback, and competition results. This allows for informed adjustments to the plan and ensures it remains aligned with the athlete's goals.

h. Communication: Open and consistent communication between the athlete and the coach is crucial. This ensures the athlete understands the plan, feels supported, and can provide feedback on their progress and any challenges they are facing.

By meticulously planning and then executing activities within this periodised framework, continuously monitoring the athlete's response, and making informed, adaptive adjustments, coaches can maximise performance potential, foster robust long-term development, and significantly mitigate risks associated with continuous high-intensity training.

LEARNING TASKS

1. Briefly describe the key components of a comprehensive training programme (e.g., strength, endurance, flexibility, skill).
2. Develop a periodised training programme for a specific sport or athlete, incorporating progressive overload, specificity, recovery, and variation.
3. Design a system for monitoring athlete progress and adjusting the training programme, accordingly, including regular assessment and performance testing.

PEDAGOGICAL EXEMPLARS

a. Starter

Consider this scenario: Imagine you are training for a marathon. Would you train the same way every day, week, and month leading up to the race? Consider the intensity, volume, and type of training you might need. What would change as the race gets closer? Discuss this briefly in groups.

b. Introduction

Ask learners to share their opinions on the scenario they discussed.

c. Activity based learning

- Learners in groups plan activities to develop the various components of training.
- Learners use suitable training approaches e.g., (circuit training, fartlek training, interval training, etc.) to perform the activities in relation to the components of training.

d. Project based learning

- Learners design activities for the various components of training and practice them at home / school at their convenient times.

- Learners design a system for monitoring their progress, keep record of their performance and submit for feedback.

e. Mind mapping

Students in groups, create visual concept maps, linking the principles of periodisation to each other, to the different training phases, and to their practical implications (e.g., injury prevention, peaking).

KEY ASSESSMENT: Practice Paper

A track coach is working with a sprinter. Describe how he would plan for the development of speed and power across a 2-month period, incorporating different phases (e.g., preparatory, competitive, transition), and outlining the key training emphases of each phase. (30 Marks)

Hint Conduct Practice Paper 1. It should cover the contents taught from Year 1 to 3. Refer to the Table of Specification and Structure of the Paper at the end of this section. Learners' papers should be marked immediately and scores entered into the SAP.

TABLE OF SPECIFICATION (PRACTICE PAPER 1)

FOCAL AREA	TYPE OF QUESTION	DOK LEVEL				TOTAL
		1	2	3	4	
1. Biomechanical Principles	Multiple Choice	–	1	1	–	2
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
2. Health and wellness	Multiple Choice	2	3	1	–	6
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
3. Health Education Professionals	Multiple Choice	2	1	–	–	3
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
4. Human Diseases	Multiple Choice	3	1	–	–	4
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
5. Career Resume Building	Multiple Choice	1	1	–	–	2
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
6. Training Principles for Sports Performance	Multiple Choice	–	2	1	–	3
	Essay	–	1	–	–	1
	Practical	–	–	–	–	–

7. Technology in PE Careers	Multiple Choice	1	1	1	–	3
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
8. Invasion Sports Coaching/ Officiating	Multiple Choice	1	2	1	–	4
	Essay	–	–	–	–	–
	Practical	–	–	2	–	2
9. Running Sports Coaching/ Officiating	Multiple Choice	1	1	1	–	3
	Essay	–	–	–	–	–
	Practical	–	–	1	–	1
10. Coping with depression and prevention of suicide	Multiple Choice	1	1	–	–	2
	Essay	–	–	1	–	1
	Practical	–	–	–	–	–
11. Types of injuries	Multiple Choice	1	1	1	–	3
	Essay	–	–	1	–	1
	Practical					
12. Eating disorders and their effects on the human body	Multiple Choice	1	1	1	–	3
	Essay	–	1	–	–	1
	Practical	–	–	–	–	–
13. The principles of periodisation for training programme planning.	Multiple Choice	1	1	–	–	2
	Essay	–	1	–	–	1
	Practical	–	–	–	–	–
		31%	42%	27%		
		15	20	13		
TOTAL NO. OF ITEMS	(MCQ)	15	17	8	0	40
TOTAL NO. OF ITEMS	(Essay)	0	3	2	0	5
TOTAL NO. OF ITEMS	(Practical)	0	0	3	0	3

PLC Session 12

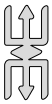
45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous session, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand.
   b. identify three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to

a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.

b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q).

c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).

   a. The key assessment for the week is ***Practice Paper 1***. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the practice paper (NTS 3k-3q).

10 minutes **Content Exploration**

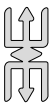
5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

   b. all teachers in the group work through the problem individually for 3–4 minutes

   c. the group then works through it together the problem, step by step

   d. highlight the most common errors made at each step (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).

   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.

   b. After the enactment, ask for structured feedback from the group

      i. was the concept explained in a way that a learner with no prior knowledge could follow?

      ii. were the examples grounded in contexts familiar to Ghanaian learners?

iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section Review

The focus of the lesson in week 11 was on the principles of periodisation. Again, we looked at the definition of periodisation, its purpose and benefits, phases of training within a periodised plan, monitoring and evaluation and special considerations in periodisation.

In Week 12, the main theme of the lesson was applying the principles of periodisation for training programme planning. We also dived into planning activities to cater for various components of training and performing the activities to develop the various components of training following the periodisation plan.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 11

Competition: Weekend of Week 12

MARKING SCHEME
Understanding of Periodisation Principles (10 marks)
• *Needs Improvement (1–3 marks): Basic understanding with limited phase differentiation*
• *Satisfactory (4–6 marks): Clear understanding with appropriate phase progression*
• *Very Good (7–8 marks): Thorough understanding with well-structured phases and logical progression*
• *Excellent (9–10 marks): Comprehensive understanding showing sophisticated knowledge of phase characteristics and interactions*
Training Load Progression (10 marks)
• *Needs Improvement (1–3 marks): Limited evidence of appropriate load progression*
• *Satisfactory (4–6 marks): Adequate progression of volume and intensity across phases*
• *Very Good (7–8 marks): Well-designed load progression with appropriate volume–intensity relationship*
• *Excellent (9–10 marks): Excellent load management showing nuanced understanding of progression principles*
Practical Application (10 marks)
• *Needs Improvement (1–3 marks): Generic schedule lacking specificity for high school context*
• *Satisfactory (4–6 marks): Practical schedule with some consideration of high school athlete needs*
• *Very Good (7–8 marks): Well-considered application appropriate for high school athletes*
• *Excellent (9–10 marks): Highly practical schedule demonstrating excellent understanding of high school athlete constraints and requirements*

Model Answer

Phase 1: General Preparation (Weeks 1–4)

Training frequency: 4 sessions per week

Weekly structure:

- **Monday:** Strength development (3×8-10 reps at 70-75% 1RM); fundamental movement patterns; 20-minute aerobic development.
- **Wednesday:** Technical skills training; movement quality emphasis; core stability work.
- **Thursday:** Circuit training for work capacity; general conditioning (30 minutes).
- **Saturday:** Longer duration endurance session (40 minutes); mobility and flexibility work.

Key focus: Establishing foundational fitness, work capacity and technical fundamentals with higher volume, moderate intensity training.

Phase 2: Specific Preparation (Weeks 5–8)

Training frequency: 5 sessions per week

Weekly structure

- **Monday:** Strength development (4×6 reps at 80-85% 1RM); sport-specific power introduction.
- **Tuesday:** Technical skills under light fatigue conditions; basic tactical concepts.
- **Wednesday:** Active recovery; mobility work; light technical practise.
- **Thursday:** Sport-specific conditioning; competitive movement patterns.
- **Saturday:** Speed development; technical application under varied conditions.

Key focus: Increasing training specificity and intensity while maintaining adequate volume; integrating technical skills with physical development.

Phase 3: Pre-competition Phase (Weeks 9–11)

Training frequency: 4-5 sessions per week

Weekly structure

- **Monday:** Power development (3×3-5 reps at 85-90% 1RM); explosive sport movements.
- **Tuesday:** Technical refinement under competitive conditions.
- **Thursday:** High-intensity interval training matching competitive demands.
- **Friday:** Tactical application; decision-making under fatigue (optional session).
- **Saturday:** Competition-specific scenarios; performance rehearsal.

Key focus: Integrating physical qualities with technical/tactical elements; reduced volume with maintained high intensity; competition-specific preparation.

Phase 4: Taper/Peaking (Week 12)

Training frequency: 3 sessions with reduced duration

Weekly structure

- **Monday:** Short, high-quality power/speed session (reduced volume, maintained intensity).
- **Wednesday:** Technical sharpening; strategy review; confidence building.
- **Friday:** Pre-competition activation session; mental preparation; light technical rehearsal.

Key focus: Significant reduction in training volume while maintaining intensity; emphasising freshness and mental preparation; final performance optimisation.

WEEK 12

Understanding of Periodisation Principles (15 marks)
Needs Improvement (1–4 marks): Basic understanding with limited phase differentiation.
Satisfactory (5–8 marks): Clear understanding with appropriate phase progression.
Very Good (9–12 marks): Thorough understanding with well-structured phases and logical progression.

Excellent (13–15 marks): Comprehensive understanding showing sophisticated knowledge of compressed periodisation requirements.
Practical Application (15 marks)
Needs Improvement (1–4 marks): Generic programme lacking specificity for sprinting.
Satisfactory (5–8 marks): Practical programme with appropriate sprint-specific elements.
Very Good (9–12 marks): Well-designed programme demonstrating clear understanding of sprint requirements.
Excellent (13–15 marks): Excellent programme showing sophisticated understanding of sprint training principles.

Model answer

Introduction

A two-month training period represents a compressed development timeline, likely forming part of a larger annual plan. This condensed approach requires focused interventions targeting specific performance elements with efficient progression between phases.

General Preparation Phase (Weeks 1–2)

Key Training Emphases

- **Foundational Strength:** 3-4 sets of 6-8 repetitions of compound movements developing force production capacity.
- **Technical Reestablishment:** Sprint drills emphasising posture, arm action and leg mechanics.
- **Work Capacity:** Extensive tempo runs (150-200m at 70-75% effort) building recovery systems.
- **Basic Plyometrics:** Fundamental jumping exercises focusing on landing mechanics and reactivity.
- **Training Frequency:** 5 sessions weekly with balanced distribution of elements.

Progressive Elements

- Establishing baseline capacities through moderate volume.
- Technical emphasis on fundamental movement patterns.
- Graduated loading preparing for subsequent intensity.

Specific Preparation Phase (Weeks 3–4)

Key Training Emphases

- **Power Development:** Olympic lift derivatives and ballistic exercises (3-4 sets of 4-6 repetitions).
- **Acceleration Focus:** Short sprint work (10-30m) with full recovery between efforts.
- **Reactive Strength:** Advanced plyometric progressions including depth jumps and bounding sequences.
- **Special Endurance:** Segmented runs developing speed endurance specific to event requirements.

- **Training Frequency:** 5 sessions weekly with increased quality emphasis.

Progressive Elements

- Increased intensity with controlled volume reduction.
- Greater emphasis on velocity-specific training.
- Integration of technical elements under moderate fatigue.

Pre-Competition Phase (Weeks 5-6)

Key Training Emphases

- **Maximum Velocity:** Flying sprints and maximum speed development over 30-60m.
- **Explosive Power:** Peak power development through contrast training methods.
- **Start Refinement:** Block starts and first 30m acceleration development.
- **Race Modelling:** Simulated competitive efforts with appropriate recovery.
- **Training Frequency:** 4-5 sessions weekly with quality over quantity approach.

Progressive Elements

- Near-maximal intensity with significant volume reduction.
- Technical application under competition-specific conditions.
- Tactical elements integrated with physical development.

Competition Phase (Weeks 7-8)

Key Training Emphases

- **Performance Optimisation:** High-quality sprint work at 95-100% intensity with complete recovery.
- **Power Maintenance:** Minimal volume, maximal intent explosive exercises maintaining neural drive.
- **Tactical Refinement:** Race strategy implementation and competitive scenario preparation.
- **Tapering Strategy:** Strategic volume reduction maintaining intensity and frequency.
- **Training Frequency:** 4 sessions weekly with careful fatigue management.

Progressive Elements

- Maintenance of developed qualities rather than continued development.
- Peak performance timing through appropriate tapering.
- Psychological preparation for competitive demands.

Implementation Considerations

Volume-Intensity Relationship

- Progressive volume reduction (approximately 40% from weeks 1-2 to weeks 7-8).
- Corresponding intensity increase ensuring training quality.
- Undulating patterns within each phase preventing monotony.

Integration Strategy

- Complementary scheduling of strength, power and speed sessions.

- Technical elements incorporated within all training phases.
- Recovery protocols matching training demands.

Monitoring Approach

- Performance tracking through flying 30m times and jump metrics.
- Readiness assessment guiding daily training adjustments.
- Technical evaluation through video analysis.

This compressed periodisation model maximises adaptation within the limited timeframe by focusing on key performance determinants while strategically progressing training emphasis to align with competition requirements.

SECTION 6: SCIENTIFIC BASIS OF MOVEMENTS IN PHYSICAL ACTIVITY

STRAND: PHYSICAL EDUCATION

Sub-Strand: Scientific Basis of Physical Activity

Learning Outcome: *Discuss kinesiology in physical activity*

Content Standard: *Demonstrate knowledge, understanding and application of kinesiology concepts in physical activity*

INTRODUCTION AND SECTION SUMMARY

The concept of kinesiology, the scientific study of human movement, is fundamental to understanding physical activity and its effects on the human body. Within the realm of physical education, kinesiology offers essential insights into how the body moves, functions, and adapts during exercise. By drawing from multiple scientific disciplines such as anatomy, physiology, biomechanics, and motor control, kinesiology provides a structured approach to improving movement efficiency, promoting health, and enhancing physical performance across all age groups.

In this section, the concept of kinesiology in physical activity is being examined, considering human movement, and by means of a multidisciplinary lens to optimise function and well-being. Its key components, including anatomical, physiological, biomechanical, and psychological, among others, serve as practical tools for planning, delivering, and evaluating physical education programmes. When these components are effectively applied, they help educators design safe, inclusive, and motivating activities that meet learners' developmental needs while fostering physical competence, confidence, and lifelong engagement in active living.

The weeks covered in this section include the following:

Week 13: Explain the concept of kinesiology in physical activity

Week 14: Discuss components of kinesiology and how to apply them in physical education

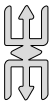
SUMMARY OF PEDAGOGICAL EXEMPLARS

Practical activities exemplifying kinesiology in physical education include using biomechanical analysis (e.g., video feedback during athletics to refine running technique based on force application and lever principles), applying exercise physiology concepts through heart rate monitoring during interval training to demonstrate aerobic and anaerobic energy system responses, structuring skill acquisition sessions using motor learning principles (such as variable practice and progressive part-whole methods for teaching complex games skills like basketball lay-ups), and employing sport psychology strategies to foster intrinsic motivation and positive group cohesion during team sports. These exemplars translate core kinesiological components – encompassing anatomy, physiology, biomechanics, motor control, and psychology – into tangible teaching practices, enabling learners to understand the scientific basis of movement, optimise their own performance, appreciate training

effects on the body, and develop both physical competence and positive behavioural attitudes towards lifelong activity within a structured educational context.

ASSESSMENT SUMMARY

Assessment strategies will holistically evaluate learners' grasp of both focal areas. Understanding of the core concept of kinesiology – its interdisciplinary nature and role in analysing human movement within physical activity – will be assessed through written assignments (e.g., essays defining kinesiology and explaining its significance) and structured verbal questioning during practical sessions. Learners' ability to identify, understand, and apply key kinesiology components (such as basic biomechanical principles for technique analysis, exercise physiology concepts for activity planning, motor learning theories for skill progression, and psychological strategies for motivation) within physical education contexts will be evaluated primarily through practical application. This includes analysing performance using kinesiological terminology, designing and justifying developmentally appropriate activity sessions based on physiological principles, demonstrating effective skill instruction informed by motor learning, and reflecting critically on the application of these components to enhance personal or peer performance, safety, and enjoyment. Formative feedback throughout will support competency development.



Note

Teachers are encouraged to also employ appropriate assessment strategies and modes that best suit their lessons and learning environments to achieve the required learning outcome.

Assessment Summary for the Indicator

Week	Indicator	DoK Level	Assessment Mode
13	Explain the concept of kinesiology in physical activity	Level 3	Assignment
14	Discuss components of kinesiology and how to apply them in physical education	Level 3	Research work

RECAP

Recap the following weeks from years 1 and 2

Year 1	**Week 14:** Discuss the concepts of anatomy and physiology in physical activity. **Week 15:** Apply the concepts of anatomy and physiology in physical activity.
Year 2	**Week 13:** Discuss biomechanical principles in physical activity. **Week 14:** Apply biomechanical principles in physical activity.

Recap

In year 1, learners explored the core concepts of anatomy and physiology related to physical activity, subsequently mastering their practical application to enhance performance, prevent injury, and promote overall well-being. This integrated approach provided a deep understanding of how the human body functions and adapts under the demands of physical exertion, preparing them to design and implement effective exercise interventions.

During this initial phase, learners focused on the body's structural components and their functional responses to physical exertion.

In their second year, learners advanced their understanding by exploring the fundamental biomechanical principles that govern human movement in physical activity. They subsequently mastered the practical application of these principles to optimize performance, enhance technique, and prevent injuries. This in-depth study provided the analytical tools necessary to dissect movement patterns and design interventions that align with the laws of physics.

In the final year, learners will explore the concept of kinesiology in physical activity, examining its significance and applications. They will discuss the various components of kinesiology and how to effectively apply these principles in physical education. This comprehensive understanding will enable them to enhance teaching practices and improve student engagement in physical activities.

WEEK 13

Learning Indicator: *Explain the concept of kinesiology in physical activity*

FOCAL AREA: CONCEPT OF KINESIOLOGY IN PHYSICAL ACTIVITY

1. Concept of kinesiology

Kinesiology, rooted in the Greek term "kinesis," signifying movement, and the suffix "-ology," denoting a science or branch of knowledge, is fundamentally the study of human movement. Its historical roots trace back to the ancient philosopher Aristotle, often called the "Father of Kinesiology." Fundamentally, kinesiology refers to a branch of science that focuses on the mechanics of the human body and how it moves.

a. Basic Kinesiology Concepts

i. **Planes of Movement:** Human movement can be classified into three planes—sagittal (divides the body into left and right), frontal (divides the body into front and back), and transverse (divides the body into top and bottom). Understanding these planes helps in analysing and improving movement patterns.

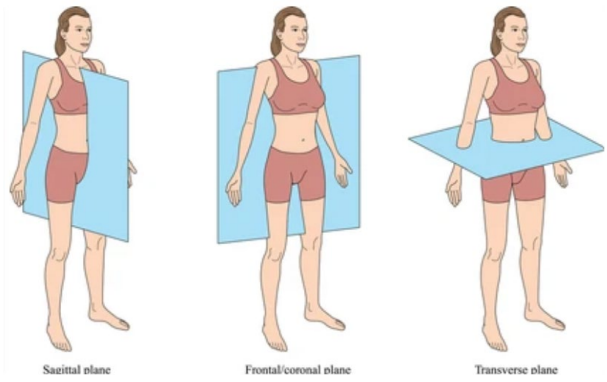


Figure 13.1: *Planes and Axis of Movement*

ii. **Muscle Actions:** Muscles work by contracting, and they can perform different actions like flexion (bending a joint), extension (straightening a joint), abduction (moving a limb away from the body's midline), and adduction (moving a limb towards the midline).

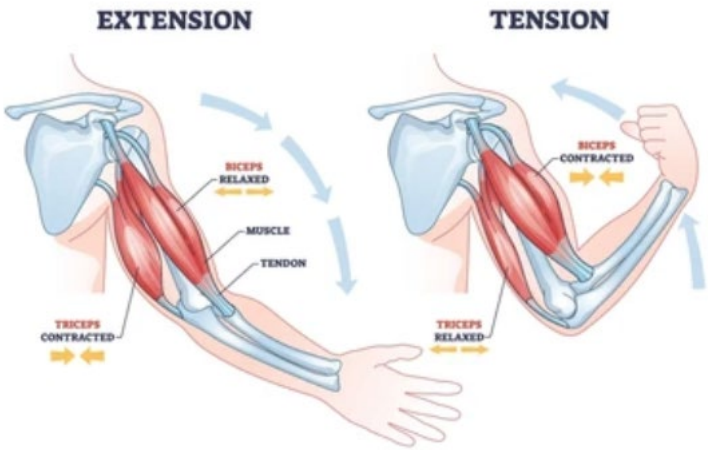


Figure 13.2: *Muscle Action*

Joint Types: Joints allow for movement and come in different types, each with a specific range of motion. These include:

- **Hinge joints** (e.g. knee, elbow): Allow movement in one direction (back and forth).
- **Ball-and-socket joints** (e.g. shoulder, hip): Allow movement in all directions, including rotation.
- **Pivot joints** (e.g. neck): Allow rotational movement around a central axis.
- **Ellipsoidal (condyloid) joints** (e.g. wrist): Allow movement in two directions (up and down, side to side) but not rotation.
- **Saddle joints** (e.g. thumb): Allow movement back and forth and side to side, giving greater flexibility.
- **Plane (gliding) joints** (e.g. wrist, ankle): Allow bones to slide over each other in limited directions.



Figure 13.3: *Joints in the human body*

iii. **Neuromuscular Coordination:** This refers to the ability of your muscles and nervous system to work together efficiently. Good coordination is essential for smooth and precise movements, whether in sports or everyday activities.

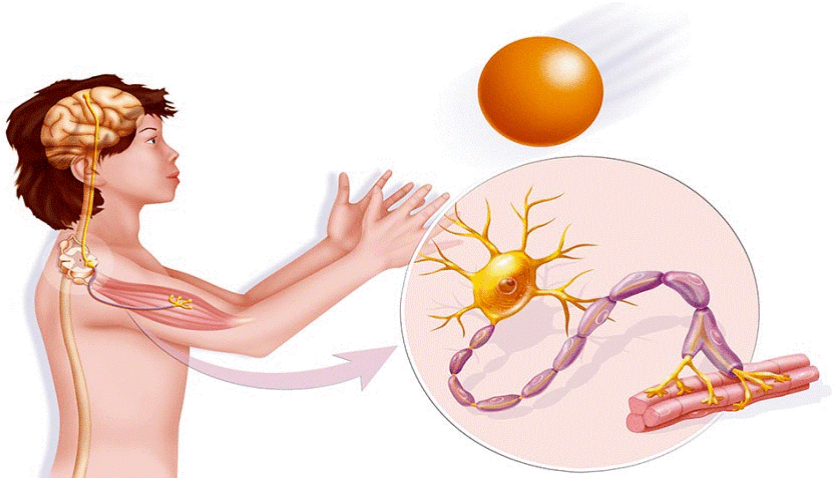


Figure 13.4: *Neuromuscular Coordination*

b. Principles of Kinesiology

Kinesiology operates on foundational principles drawn from multiple disciplines, primarily anatomy, physiology, biomechanics, and motor learning, to analyse and enhance human movement. In the context of Physical Activity (PA), the following principles are essential for understanding, applying, and optimising participation and performance:

i. **Principle of Biomechanics:** Human movement follows the laws of physics, particularly Newton's laws of motion. It explains how internal and external forces act upon the body and how the body responds to optimise performance, maintain balance, and prevent injury.

- **Force and motion:** Movement occurs through the application of internal and external forces (muscle contractions, gravity, ground reaction forces).
- **Leverage:** Bones act as levers and joints as fulcrums; muscles apply force to move the body efficiently.
- **Equilibrium and balance:** Stability is achieved when the body's centre of gravity is maintained within its base of support.
- **Kinetic chain:** Movement is the result of coordinated action across joints and muscles; inefficiencies in one part can affect the whole chain.
- **Example:** Using the third-class lever system in a biceps curl to analyse muscular force production, where the fulcrum is the elbow, effort is applied by the biceps, and the load is the weight in the hand.

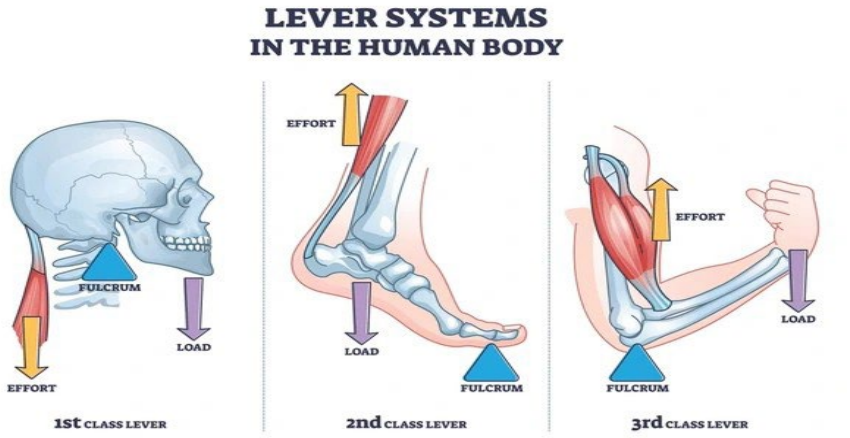


Figure 13.5: *Principles of biomechanics*

ii. **Principle of Muscular Function:** The biomechanical and physiological laws governing how muscles move by contracting and pulling on bones across joints.

- **Agonist–antagonist relationship:** For effective movement, one muscle contracts (agonist) while the opposite muscle relaxes (antagonist).
- **Muscle contractions:** Include concentric (shortening), eccentric (lengthening), and isometric (static) actions, all of which contribute to movement control.
- **Examples:**
    - Biceps brachii during elbow flexion acts as a prime mover, - by contracting concentrically, pulling the radius toward the humerus and producing elbow flexion.

- Triceps brachii during push-up acts as a prime mover and stabiliser, with concentric contraction during elbow extension, and isometric contraction to stabilise the elbow during lowering.

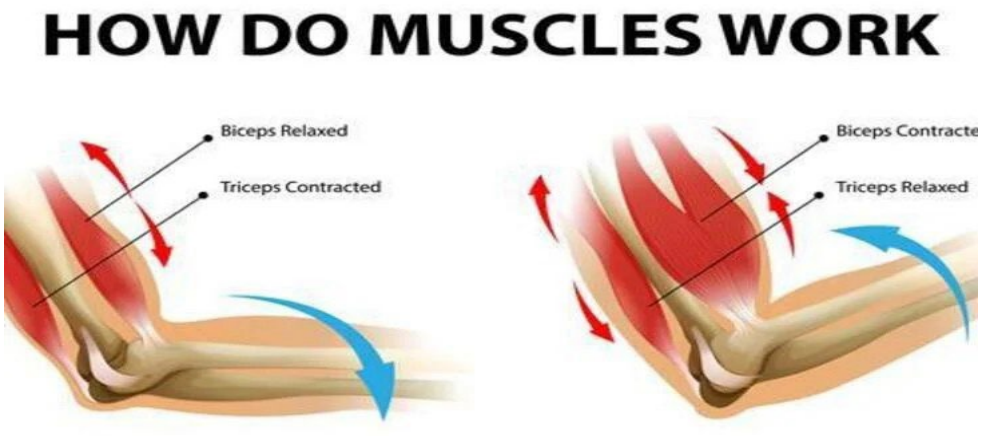


Figure 13.6: *Principle of Muscular Function*

iii. **Principle of Motor Learning and Control:** Motor skills are developed and refined through practice, feedback, and neural adaptation.

- **Skill acquisition:** Movement skills are acquired with practice and progress through cognitive, associative, and autonomous stages.
- **Feedback mechanisms:** Intrinsic (sensory) and extrinsic (teacher/coach) feedback help refine performance.
- **Motor programmes:** The brain organises and stores movement patterns for the efficient execution of learned tasks.
- **Example:** Providing specific feedback to help a student improve their tennis serve during the associative stage.



Figure 13.7: *Motor Learning and Control*

iv. **Principle of Anatomical Structure:** Movement is determined by the structure and function of bones, joints, muscles, and connective tissues.

- **Posture and form:** Proper alignment ensures optimal force generation and reduces injury risk.

- **Joint functionality:** Each joint has a specific range of motion; exceeding it can cause damage, while limited motion can hinder performance.
- **Symmetry:** Balanced strength and flexibility across both sides of the body enhance stability and function.
- **Example:** Knowing which muscles perform flexion at the elbow during push-ups.

v. **Physiological Adaptation Principle:** The body's inherent ability to undergo structural and functional changes in response to systematic, repeated physical stress (training).

- **Overload:** To improve, the body must be challenged beyond its normal limits.
- **Specificity:** Adaptations are specific to the activity performed (e.g., strength training vs. endurance training).
- **Reversibility:** Gains in fitness or skill are lost when training stops.
- **Individuality:** Responses to exercise vary between individuals due to genetics, age, and fitness level.
- **Example:** Cardiovascular adaptation to aerobic training, where a distance runner shows improved VO max after 8 weeks of endurance training.

vi. **Energy Utilisation Principles:** The physiological concepts governing how the body produces, stores, and expends energy to sustain physical activity.

- **Aerobic and anaerobic systems:** Different movements use different energy systems based on duration and intensity.
- **Efficiency:** The goal of kinesiology is to enhance energy efficiency through improved technique and conditioning.
- **Example:** Aerobic system in long-distance running (Long-term Energy), as a marathon runner primarily uses the aerobic system, with a shift toward fat utilisation as glycogen stores decline.

vii. **Principle of Functional Movement:** The concept that human movement should be efficient, coordinated, and purposeful, reflecting the natural biomechanics of daily and athletic activities.

- **Movement purpose:** Every action should be purposeful and biomechanically sound.
- **Integration:** Movements should involve multiple muscle groups working in harmony for tasks like running, jumping, or lifting.
- **Progression and regression:** Movements can be scaled to match skill and fitness levels.
- **Example:** Squatting to pick up an object uses hip, knee, and ankle mobility with lumbar-pelvic stability.

These principles provide the theoretical and practical foundation for designing effective physical activity programmes, improving athletic performance, and reducing injury risk.

c. Importance of Kinesiology in Physical Education and Sports

The importance of kinesiology in physical activity and sports is fundamental for optimising performance, preventing injury, enhancing training methods, and promoting overall health. Kinesiology applies scientific principles to analyse, improve, and understand movement within both recreational and competitive contexts. The following are its key areas of importance:

i. **Enhances Athletic Performance**

- By studying biomechanics and motor control, kinesiology helps refine techniques, improve efficiency, and maximise power and speed.
- Enables sport-specific training that targets relevant muscles, energy systems, and movement patterns.

ii. **Injury Prevention and Rehabilitation**

- Identifies movement faults and biomechanical imbalances that predispose athletes to injury.
- Guides rehabilitation through therapeutic exercise and functional movement retraining to restore safe performance.

iii. **Improves Training Effectiveness**

- Uses exercise physiology to design training programs that optimise adaptation (strength, endurance, flexibility).
- Applies principles of overload, progression, and specificity for systematic athletic development.

iv. **Supports Skill Acquisition and Motor Learning**

- Applies theories of motor learning and control to accelerate skill development.
- Facilitates effective practice design, feedback provision, and performance consistency.

v. **Promotes Psychological Readiness and Motivation**

- Integrates sport psychology to enhance focus, confidence, and stress management.
- Addresses behavioural factors influencing training adherence and competitive performance.

vi. **Facilitates Performance Analysis**

- Employs motion analysis and biomechanics tools to objectively assess technique and provide data-driven feedback.
- Enables coaches and athletes to make informed adjustments.

vii. **Encourages Lifelong Physical Activity**

- Provides knowledge for safe and enjoyable participation beyond competitive sport.
- Promotes physical literacy and healthy lifestyles through movement competence.

LEARNING TASKS

1. Recap the concept of anatomy and physiology, biomechanical principles and their application in physical activity and sports.
2. Discuss the basic concepts and importance of kinesiology in physical activity
3. Demonstrate the principles of kinesiology in physical activity

PEDAGOGICAL EXEMPLARS

a. Introduction

Stimulate learners' prior understanding and application of anatomical, physiological, and biomechanical principles in physical activity through collaborative, reflective, and applied strategies by putting learners into small groups and engaging them to perform some activities. For example:

i. Guide learners to create flashcards with terms associated with anatomical, physiological, and biomechanical principles in physical activity (such as Organs, systems, system physiology, exercise physiology, kinetics, levers, concentric contraction, eccentric contraction, lateral, distal, abduction, elevation, etc.).

ii. Design a concept category including Anatomy, Physiology, Biomechanics, and their application to Physical Activity.

iii. One member from each group picks a card and goes to place it under the correct concept category.

iv. The class then engages in a guided correction and discussion to address any misplacements and reinforce understanding.

b. Concept Mapping

Learners work in mixed groupings to recap the concepts of anatomy, physiology and biomechanical principles in physical activity from year 1 and 2 lessons, building on the above introductory activities. Guided by the central theme in the introductory stage, they construct a concept map by expanding the information with what they recall. Learners are encouraged to link the anatomical structures, physiological processes, and biomechanical principles to related specific physical activities. Through questioning and discussion, they are supported with clarification and deeper connections. Finally, learners present their concept maps for peer feedback and teacher-led correction and reinforcement.

c. Collaborative Learning

Learners are shown pictures, videos, infographics, and audio or audio-visual resources on kinesiology, and asked to jot down their impressions or understanding of the content. They then share their reflections in pairs. In mixed groups, learners conduct further research using relevant sources such as learners' manuals, the internet, and textbooks to explore the basic concept and importance of kinesiology in physical activity. Each group explains their findings and engages in critique and discussion to deepen understanding.

d. Visual / Multimodal Instruction

Learners are shown pictures, diagrams, animated videos, audios, etc., on principles of kinesiology to illustrate joint movements, muscle actions, and body mechanics. Learners watch short video clips of athletes performing various physical activities, identifying principles such as force, motion, and levers (for example, in the principle of biomechanics). The videos are paused at key points to highlight and explain specific movements using visual annotations. Learners are then given printed infographics and asked to label or match terms with body parts or movement types. To consolidate learning, learners work in small groups to create short posters or digital slides summarising a principle, using images and key terms, and present it to the class.

Note

- *The teacher can modify or design appropriate approaches to suit the learning environment and the learner's background.*
- *Provide learners with varied resources such as videos, audio, audio-visuals, infographics, etc., to meet their learning differences.*
- *Structure group tasks to promote mixed-ability collaboration, ensuring each learner contributes according to their strengths.*

KEY ASSESSMENT Level 3: Assignment

1. Analyse how the principles of kinesiology can inform an approach to correcting a student's improper running technique. In your answer include:
   - A definition of kinesiology as the study of human movement and how this is relevant to analysing and improving physical activity.
   - Three specific biomechanical principles and how these apply to correcting improper running technique.
   - Three suggestions for correcting form using the identified principles.
   - A clear explanation of the reasoning why these corrections are appropriate.

PLC Session 13

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

Note

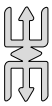
- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app

a. The key assessment for the week is ***assignment***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the assignment (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 14

Learning Indicator: *Discuss components of kinesiology and how to apply them in physical education*

THEME OR FOCAL AREA: APPLYING THE PRINCIPLES OF KINESIOLOGY IN PHYSICAL ACTIVITY

1. Components of kinesiology

These are the interdisciplinary constituents that help in understanding, analysing, and applying human movement effectively, particularly within physical activity and education settings. They include:

a. **Anatomy:** The structure of the human body, including bones, muscles, joints, and connective tissues. It is essential for identifying which body parts are involved in movement and how they interact.

b. **Physiology:** This examines how body systems (e.g., muscular, cardiovascular, respiratory, nervous) function during physical activity. It is Important for understanding energy production, fatigue, and body responses to exercise.

c. **Biomechanics:** This applies mechanical principles to human movement (for example, force, motion, levers, balance). It helps in analysing and improving performance while reducing injury risk.

d. **Motor Learning:** This is the process through which individuals acquire, refine, and retain skills necessary to perform physical tasks through practice and experience. It focuses on how movement skills are learned and improved over time.

e. **Motor Control:** This refers to how the central nervous system (CNS) regulates and directs the body's musculoskeletal system to produce purposeful, coordinated movements. It involved the initiation, execution, and regulation of motor actions.

f. **Exercise Psychology:** This is the psychological and emotional factors that influence participation in physical activity, and conversely, how regular exercise affects mental health, mood, behaviour, and overall psychological well-being.

2. Application of the components of kinesiology in physical activity

The application of the components provides a structured and scientific foundation for enhancing movement, performance, instruction, rehabilitation, and physical well-being. Each component contributes uniquely to the understanding and improvement of human motion, especially within physical activity, sport, and health contexts as follows:

a. Biomechanical

i. **Application in Skill Analysis and Technique Improvement**

- Biomechanical analysis helps break down complex movements into components such as force, velocity, and joint angles.
- This allows coaches and educators to identify inefficient or harmful movement patterns and provide corrective feedback.

- **Example:** A coach uses video analysis to observe that a player's elbow extends too early during a jump shot, reducing throwing power. By adjusting the timing of elbow extension and strengthening shoulder rotators, the player improves shot velocity and accuracy.

ii. **Application in Injury Prevention and Rehabilitation**

- By understanding the forces acting on the body during activity, biomechanics aids in identifying movements that place excessive stress on tissues.
- This knowledge informs training modifications and rehabilitation protocols to avoid overuse injuries.

Example: A physiotherapist analyses a handball player's landing mechanics and identifies excessive knee valgus, increasing Anterior Cruciate Ligament (ACL) injury risk. Corrective strength and neuromuscular training are introduced to align the knee during jump landings, reducing injury likelihood.

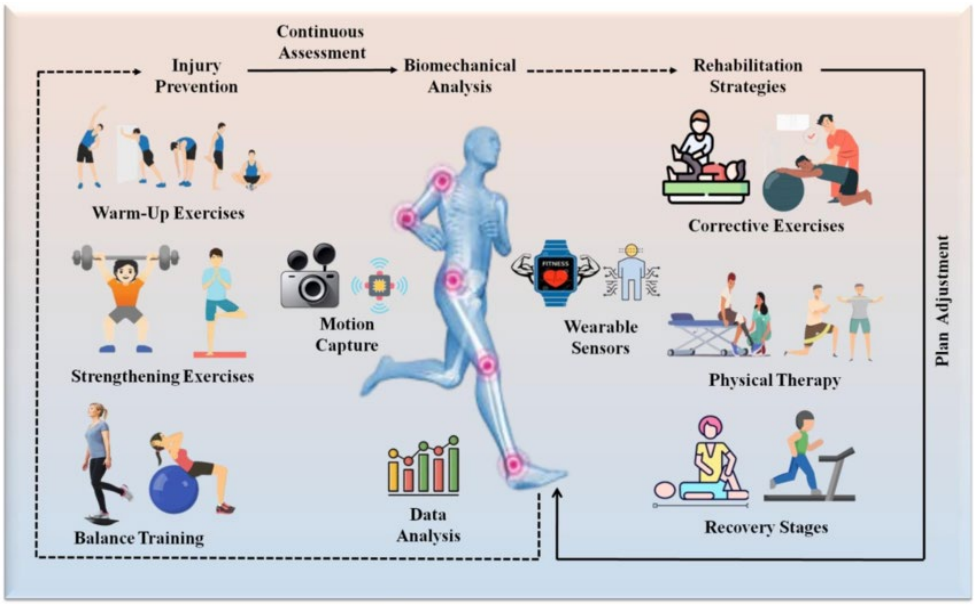


Figure 14.1: *Application of Injury Prevention and Rehabilitation*

iii. **Application in Optimising Training Programmes**

- Biomechanical assessments identify strengths, weaknesses, and asymmetries in movement. This informs targeted training to improve joint angles, force production, or muscle activation to match the demands of the sport or activity.
- Understandings of mechanical efficiency guide the development of exercises that improve power, speed, and endurance.
- **Example:** A coach analyses the jumping and landing mechanics of his handball players, enabling him to design plyometric drills that improve explosive power while minimising knee stress. This enhances jump shot performance and reduces injury.

iv. **Application in Performance Enhancement**

- Biomechanics helps athletes maximise their mechanical advantage by optimising body positions and movement sequencing.
- By analysing motion patterns, joint angles, and force vectors, biomechanics helps athletes adjust their technique to achieve optimal performance with less effort and greater effectiveness.

- **Example:** A coach observes or uses video to analyse a sprinter's stride length and ground contact time, identifying inefficient foot placement. By adjusting sprint mechanics and incorporating resisted sprint drills, the athlete improves acceleration and top-end speed.

v. **Application in Movement Economy and Energy Efficiency**

- Biomechanical analysis identifies inefficient motions such as excessive joint movement or improper posture, which increase energy cost.
- By correcting these through technique adjustments, athletes use less metabolic energy to perform the same task.
- **Example:** Using biomechanical analysis, a coach identifies excessive vertical oscillation in a long-distance runner's stride. By training for smoother, flatter foot strikes and optimal cadence, the runner improves movement economy and conserves energy during races.

b. Anatomical Structure

i. **Application in Understanding Muscle Function**

- Knowledge of how muscles contract enables coaches to design effective strength training programmes.
- Understanding anatomical structure helps identify which body parts are involved in specific movements.
- **Examples**
  - Targeting the quadriceps during squats helps improve lower limb power in jumping activities.
  - In a squat, the quadriceps, hamstrings, and gluteus maximus are the primary muscles engaged, with joint action occurring at the hip, knee, and ankle.

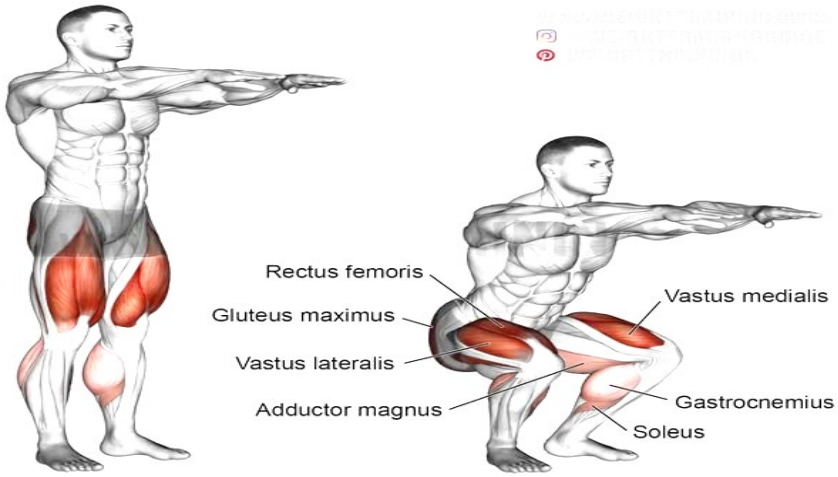


Figure 14.2: *Application of muscle function in anatomy*

ii. **Application in Joint Structure and Movement**

- Understanding joint anatomy enables educators, trainers, and therapists to design appropriate movement tasks, prevent injuries, and enhance mobility by respecting the functional capacity of each joint.
- Understanding synovial joints guides movement analysis and injury prevention.

- **Examples**
  - Knowing that the shoulder is a ball-and-socket joint allows for multidirectional movement in sports like handball, while recognising that the knee's hinge structure limits it mainly to flexion and extension, guiding safe exercise prescription.
  - A footballer training hip flexibility benefits from knowing how the ball-and-socket joint allows a full range of motion.

iii. **Application in Circulatory System Awareness**

- This knowledge aids in designing safe and effective exercise programmes, monitoring intensity levels, and promoting cardiovascular health by aligning activities with the body's circulatory demands.
- Recognising how the heart and blood vessels respond to exercise aids endurance training.
- **Examples**
  - In endurance training, awareness of heart rate zones enables learners to work within aerobic thresholds, enhancing stamina while avoiding overexertion.
  - During long-distance running, heart rate monitoring ensures the athlete remains in the aerobic zone.

iv. **Application in Respiratory Efficiency**

- An understanding of respiratory anatomy allows for the development of exercises and techniques that enhance lung capacity, breathing control, and oxygen utilisation to support sustained physical effort.
- Knowledge of lung function supports breathing techniques in sport.
- **Examples**
  - Teaching diaphragmatic breathing in aerobic activities like long-distance running improves oxygen exchange, delays fatigue and enhances overall performance.
  - Swimmers use controlled breathing patterns to maximise oxygen uptake and delay fatigue.

v. **Application in Posture and Alignment**

- Knowledge of anatomical alignment helps educators and trainers correct poor posture, prevent musculoskeletal injuries, and promote biomechanical efficiency during both static and dynamic activities.
- Anatomical awareness of spinal curves improves posture during performance.
- **Examples**
  - In physical education, teaching learners to maintain a neutral spine during lifting exercises reduces stress on the vertebral column and promotes safe, effective movement.
  - A gymnast maintains a neutral spine during balance routines to enhance stability and control.

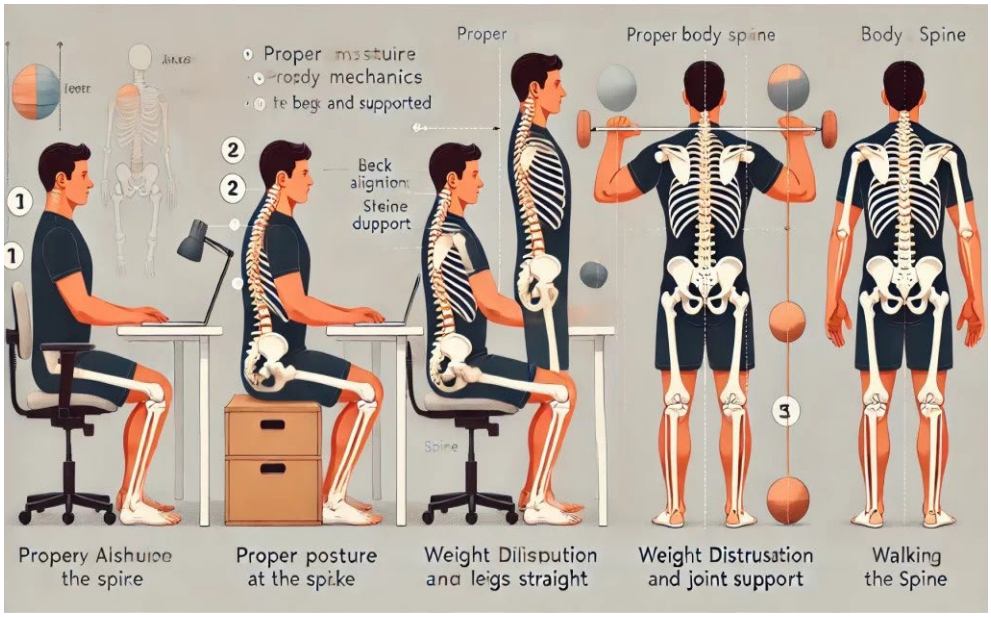


Figure 14.3: *Application of Posture and Alignment Exercise Physiology*

i. **Application in Monitoring Exercise Intensity**

- Physiological markers such as heart rate, rate of perceived exertion (RPE), oxygen uptake, and lactate levels are used to guide training intensity according to individual fitness levels and goals.
- Use of heart rate zones and perceived exertion to ensure training occurs at the appropriate intensity.
- **Examples**
    - In a PE lesson, learners are instructed to maintain 70–85% of their maximum heart rate during aerobic activities like jogging, using heart rate monitors or pulse checks to stay within the target zone for cardiovascular improvement.
    - In circuit training, learners wear heart rate monitors to maintain 70–85% of their maximum heart rate for cardiovascular endurance.

ii. **Application in Designing Training Programmes**

- Exercise physiology guides the selection of intensity, duration, frequency, and rest intervals according to energy system demands, muscle fibre types, and individual fitness levels.
- Tailoring workouts based on understanding of energy systems (aerobic vs anaerobic).
- **Examples**
    - For improving anaerobic capacity in basketball players, a coach designs interval training with short, high-intensity bouts (For example, 30 seconds sprinting with 1-minute rest), targeting fast-twitch muscle fibres and enhancing lactic acid tolerance.
    - Sprint intervals are used to train the anaerobic system, improving speed and power in short-distance runners.

iii. **Application in Recovery and Fatigue Management**

- By monitoring physiological indicators such as heart rate variability, lactate clearance, and muscle soreness, recovery strategies like active recovery, hydration, sleep, and nutrition can be implemented effectively.

- Knowledge of lactic acid removal and muscle recovery guides rest periods and cool-down activities.
- **Examples**
  - After a high-intensity football match, players engage in low-intensity cycling and stretching to enhance blood circulation and accelerate the removal of metabolic waste, reducing muscle fatigue and soreness.
  - After high-intensity games, players engage in active recovery (light jogging and stretching) to promote lactic acid clearance.

iv. **Application in Thermoregulation and Hydration**

- Exercise physiologists apply knowledge of sweat rate, fluid loss, and core temperature to develop hydration strategies and cooling interventions, especially in hot or humid environments.
- Managing body temperature and fluid balance during activity in different environments.
- **Examples**
  - During outdoor PE sessions in high temperatures, learners are scheduled for water breaks every 20 minutes and encouraged to wear light clothing, helping regulate body temperature and prevent dehydration or heat exhaustion.
  - Physical education instructors schedule hydration breaks and shaded rest periods during outdoor sessions in hot climates.

v. **Application in Adaptation to Training**

- Understanding these adaptations enables the design of training programmes that target specific systems such as cardiovascular, muscular, or respiratory to improve performance and fitness outcomes.
- Understanding how repeated exercise leads to physiological adaptations such as increased stroke volume or VO max.
- **Examples**
  - A cross-country athlete engages in regular aerobic training, leading to increased stroke volume, improved VO max, and enhanced capillary density, which collectively improve oxygen delivery and endurance capacity.
  - A long-distance runner undergoes endurance training to increase capillary density and oxygen uptake efficiency.

c. Motor Control

i. **Application in Balance and Stability**

- Motor control enables the body to respond to internal and external forces by activating stabilising muscles and adjusting joint positions to prevent falls and maintain control.
- Motor control helps maintain postural stability during movement and stillness.
- **Examples**
  - In a physical education setting, learners perform single-leg balance exercises on a wobble board, where sensory input and muscle coordination work together to maintain postural stability and improve balance control.

- In gymnastics, learners engage in balance beam activities that train the body to make real-time adjustments using proprioceptive feedback.

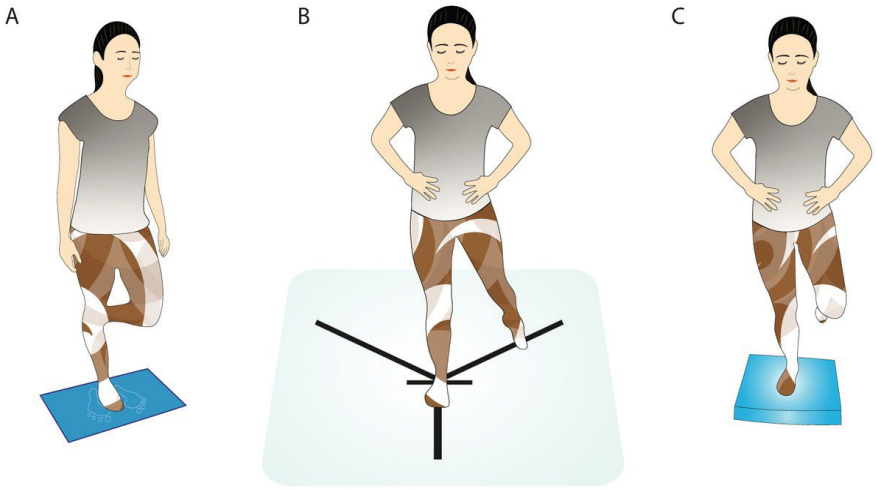


Figure 14.4: *Application of Balance and Stability*

ii. **Application in Timing and Coordination of Movement**

- Motor control ensures that different body segments move in synchrony, allowing the execution of complex tasks with appropriate force and rhythm.
- Ensures muscles activate in the correct sequence for smooth, accurate motion.
- **Examples**
  - In netball, a learner coordinates stepping, arm extension, and wrist flick to pass the ball accurately while in motion, demonstrating effective timing and inter-limb coordination.
  - In volleyball, successful spiking requires precise coordination of the jump, arm swing, and wrist flick.

iii. **Application in Skill Execution Under Varying Conditions**

- Motor control allows athletes to modify force, direction, and posture to maintain performance consistency despite variability.
- Motor control allows adaptation of movement to changing environments or tasks.
- **Examples**
  - In football, a learner adjusts kicking technique when the ball is moving or when under pressure from an opponent, maintaining control and accuracy through adaptive motor responses.
  - A volleyball player adjusts in blocking and spiking techniques when jumping off balance or under defensive pressure or attacking drive.

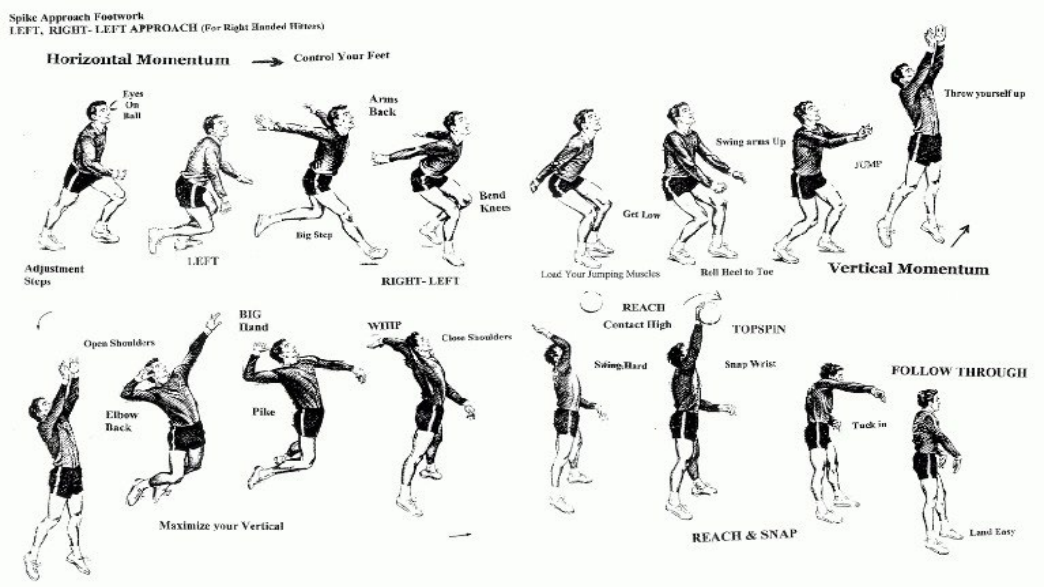


Figure 14.5: *Application of Skill Execution Under Varying Conditions*

iv. **Application in Reflex and Automatic Movement Integration**

- The central nervous system integrates spinal reflexes and automatic motor patterns to protect the body and maintain functional movement during unexpected or high-speed actions.
- Combines voluntary and involuntary responses to enhance reaction and protection.
- **Examples**
  - o During agility drills, a learner instinctively shifts their weight and repositions their foot to avoid a fall after a misstep, demonstrating integrated reflexive and automatic motor control.
  - o A learner quickly withdraws the foot from an unstable surface during agility drills to prevent falling.

v. **Application of Motor Pattern Refinement in Rehabilitation**

- Through repeated, task-specific practice and sensory feedback, motor control helps individuals relearn correct movement patterns and eliminate compensatory habits.
- Re-teaching functional movement patterns after injury or neurological impairment.
- **Examples**
  - o After an ankle injury, a learner performs guided walking drills on uneven surfaces to retrain proper gait mechanics and improve neuromuscular coordination for safe, stable locomotion.
  - o A recovering athlete retrains walking mechanics using guided, repetitive movement tasks.

d. Motor Learning

i. **Application in Progressive Skill Development**

- By progressing through manageable stages, learners develop coordination, control, and understanding before advancing to more demanding versions of the skill.
- Teaching begins with simple forms of movement and gradually increases complexity.

- **Examples**
  - In volleyball, a learner begins with underarm passing in a stationary position, then progresses to moving passes and eventually to game-like passing under pressure.
  - In basketball, learners start with stationary dribbling before advancing to dribbling while moving and changing direction.

ii. **Application of Use of Feedback to Improve Performance**

- Both intrinsic (from the learner's own sensory experience) and extrinsic (from an external source like a teacher or device) feedback are used to refine motor responses and reinforce correct movement patterns.
- Feedback (intrinsic and extrinsic) helps learners adjust movements and correct errors.
- **Examples**
  - In athletics, a coach uses slow-motion video replay to show a sprinter their start technique, then offers verbal cues to adjust body position and reduce reaction time.
  - A PE teacher provides verbal cues and video playback to help a learner improve their swimming stroke technique.

iii. **Application of Practice Scheduling for Skill Retention**

- Random and variable practice promote deeper cognitive processing and better transfer to real-world conditions, while blocked practice aids early-stage learning.
- Different practice structures (blocked, variable, random) are used to enhance skill learning and retention.
- **Examples**
  - In tennis, a learner first practices 20 consecutive forehand shots (blocked), then alternates unpredictably between forehand, backhand, and volley (random) to reinforce retention and adaptability during match play.
  - A learner alternates between chest passes, bounce passes, and overhead passes in netball to improve adaptability

iv. **Application on Stages of Learning Consideration**

- Each stage requires different teaching strategies: beginners need clear demonstrations and frequent feedback, while advanced learners benefit from autonomy and task variability.
- Instruction is matched to the learner's stage (cognitive, associative, autonomous) for effective progression.
- **Examples**
  - In teaching the overhead serve in volleyball, a novice receives step-by-step guidance and modelling (cognitive stage), while an experienced player practices under game-like conditions with minimal correction (autonomous stage).
  - A beginner gymnast receives detailed, step-by-step guidance, while an advanced learner receives minimal feedback to encourage autonomy.

v. **Application of Transfer of Learning Across Skills**

- Positive transfer enhances new skill acquisition when skills share similar movement patterns or cognitive demands, while recognising potential negative transfer helps prevent interference.

- Previously learned skills assist in learning new, related movements.
- **Examples**
  - o A learner who has developed the overarm throw in cricket finds it easier to learn the javelin throw in athletics due to similar arm action, timing, and coordination, resulting in positive transfer.
  - o A learner who has mastered the overarm throw in cricket finds it easier to learn the volleyball serve due to positive transfer.

LEARNING TASKS

1. Discuss the components of kinesiology in physical activity.
2. Apply the principles of kinesiology in practical physical activity.

PEDAGOGICAL EXEMPLARS

a. Introduction

Stimulate learners' interest and readiness to explore the components of kinesiology and their application in physical activity. Let learners understand that these components enable us to analyse movement more precisely, improve performance, prevent injury, and promote lifelong participation in physical activity and sports. Explore through discussion, practical demonstrations and performance, to appreciate how each component contributes to effective learning, coaching, and participation in sport and exercise.

b. Exploratory Learning

Engage learners in mixed groupings to explore through the internet, textbooks, learners' manuals, etc., the components of kinesiology and discuss them, as well as their applications in physical activity and sports. Provide real-life movement scenarios for them to examine and draw connections between theoretical concepts and physical activity by:

i. Observing a short video clip showing various sports movements (such as sprinting, jumping, throwing, etc.).

ii. Identifying which components of kinesiology (such as anatomy, biomechanics, and motor control) are involved in each action.

iii. Discussing in their groups how these components influence performance, technique, or injury prevention, and

iv. Recording their observations and presenting a brief account of some selected movement to the class.

c. Practical Approach

Engage learners in mixed groupings with tasks that show the application of anatomy, biomechanics, motor control, etc., in efficient and safe performance. Learners in their groups design activities and perform them, considering the following:

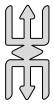
i. Begin with a general, dynamic warm-up, followed by a specific warm-up, while focusing on joint mobility and muscle activation.

ii. Every group perform movement tasks (for example, jumping, throwing, balancing) while observing which body parts and systems are involved.

iii. Identify and record how the various components and biomechanical principles, such as force, leverage, and balance, influence the effectiveness of each movement.

iv. Learners work in pairs to provide feedback using correct anatomical and mechanical terms.

v. Reflect as a group on how understanding kinesiology can improve performance and prevent injury.



Note

- *Pedagogy "b" (Exploratory Learning) could be treated theoretically as lesson 1 of 2 for learners to grasp the application concepts, and use pedagogy "c" (Practical Approach) for learners to perform as lesson 2 of 2.*
- *The teacher can modify or design appropriate approaches to suit the learning environment and the learner's background.*
- *Provide learners with varied resources such as videos, audio, audio-visuals, infographics, etc., to meet their learning differences.*
- *Structure group tasks to promote mixed-ability collaboration, ensuring each learner contributes according to their strengths.*

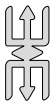
KEY ASSESSMENT Level 3: Research Work

1. Research and critically analyse how biomechanical principles within kinesiology can be utilised to optimise performance and reduce injury risk in a secondary school physical education programme. Support your response with specific examples of how these principles could be applied in the teaching of two different sports activities.

PLC Session 14

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

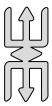
- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*

- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***research work***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the research work (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).

9. Remember to
    a. transfer your chats into your learning planner template.
    b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
    c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 6 Review

In Week 13, learners were introduced to the foundational concepts of kinesiology in relation to physical activity. Kinesiology, defined as the study of human movement, was explored in terms of its application to understanding how our bodies move and function during exercise and daily tasks. This initial phase focused on building a theoretical understanding of the key elements involved in optimising movement and preventing injuries. The curriculum likely covered various aspects such as anatomy, physiology, and the biomechanical principles underpinning human motion.

Week 14 marked a shift towards the practical application of the knowledge acquired in the previous week. Learners actively engaged in discussing the components of kinesiology and how they can be applied within physical education settings. This practical component provided valuable insights into how an understanding of anatomy, physiology and biomechanics can inform the design of effective and safe physical activity programmes, improve motor skills, and promote overall health and well-being. This hands-on experience allowed learners to translate theoretical understanding into real-world scenarios, thereby deepening their comprehension and skill development in applying kinesiological principles in physical education.

This section effectively progressed from theoretical understanding to practical application, ensuring a comprehensive learning experience in the application of kinesiology within physical activity and education. The structured approach of introducing concepts before moving to performance-based activities is crucial for developing well-rounded expertise in this specialised area.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 13 (20 MARKS)

Score marks	Model Answer
Understanding of Kinesiology Principles – (5 marks)	
• *Clear definition of kinesiology as the study of human movement* *(2 marks)* • *Correctly identifies its relevance to analysing and improving physical activity performance* *(3 marks)*	• *Kinesiology involves anatomy, physiology, and biomechanics in movement.* • *The scientific study of human movement, incorporating anatomical, physiological and biomechanical principles to analyse and improve movement efficiency.* *(Any one of these answers)* • *Analysis of running technique using observational assessment from multiple angles (sagittal, frontal, transverse planes) to identify specific movement inefficiencies.* • *It provides insight into muscular and joint functions during running.* • *It helps identify inefficiencies or injury risks in movement patterns.* *(Any one of these answers)*
Identification of Specific Biomechanical Principles – (6 marks)	
• *Correct identification of relevant biomechanical principles with a brief explanation of each* *(2 marks for each)*	• *Newton's Laws of Motion: Explains how internal and external forces act upon the body and how the body responds to optimise performance, maintain balance, and prevent injury.* • *Levers: Bones act as levers and joints as fulcrums; muscles apply force to move the body efficiently.* • *Balance and Stability: Stability is achieved when the body's centre of gravity is maintained within its base of support.* • *Centre of Mass and Base of Support: Efficiency and alignment in stride, optimal positioning for efficient movement.* • *Force Production and Absorption: Movement occurs through the application of internal and external forces (muscle contractions, gravity, ground reaction forces – foot strike and propulsion mechanics).* *(Any three of these answers)*
Application to Running Technique – (5 marks)	

• *Clear analysis of how kinesiology principles apply to diagnosing improper technique* *(2 marks)* • *Logical suggestions for correcting form using identified principles* *(3 marks)*	• *Identifying over-striding through observation of the centre of mass positioning.* • *Explanation of how over-striding creates braking forces that waste energy.* • *Discussion of lever systems in the ankle, knee and hip joints during running.* • *Using Newton's Third Law to explain how proper force application against the ground creates forward propulsion.* *(Any two of these answers)* • *Recommending a shorter stride length to improve ground contact time.* • *Adjusting arm swing for better balance and momentum.* • *Correcting foot strike position to enhance force absorption and reduce injury.* • *Addressing the athlete's posture, as this forms the foundation for all subsequent movement patterns.* • *Using video analysis to provide visual feedback and comparison with efficient technique models.* • *Implementing corrections progressively, beginning with static posture before advancing to dynamic movement.* *(Any three of these answers)*
Reasoning and Justification – (4 marks)	
• *Reasoned explanation of why corrections are appropriate* *(2 marks)* • *Demonstrates understanding of how these changes enhance performance or reduce injury* *(2 marks)*	• *Explaining that correcting limb alignment reduces joint stress.* • *Arguing that improved posture increases running economy.* • *Justifying the use of kinetic chain analysis to ensure coordinated movement.* *(Any two of these answers)* • *Appropriate corrective action (such as coaching cues, drills) based on analysis.* • *Specific drills like high knees, butt kicks, or A-skips that target particular aspects of technique.* • *Explanation of how proper arm movement counterbalances lower body rotation.* *(Any two of these answers)*

WEEK 14

MARKING SCHEME WITH MODEL ANSWERS (20 MARKS)

Criteria / Score marks	Model Answer
Introduction and Understanding of Biomechanical Principles – (4 marks)	
• *Accurate explanation of biomechanical principles and relevance to physical education* *(2 marks)* • *Clear linkage to kinesiology and justification for use in school physical education* *(2 marks)*	• *Biomechanical principles within kinesiology examine how mechanical laws apply to human movement.* • *It is essential in physical education for understanding movement efficiency, reducing injury, and teaching correct technique.* • *Key principles include Newton's Laws of Motion, leverage systems, force production and absorption, momentum, stability, balance, and centre of gravity.* *(Any one of these answers)* • *Biomechanics, as a component of kinesiology, provides scientific grounding for teaching physical skills effectively and safely in school settings.* • *Understanding these principles allows educators to adapt activities for different skill levels and prevent common sports injuries.* • *The principles provide the scientific foundation for understanding efficient movement patterns.* *(Any one of these answers)*
Analysis of How Biomechanical Principles Optimise Performance – (6 marks)	
• *Identification and explanation of at least three biomechanical principles* *(3 marks)* • *Critical analysis of how these improve performance* *(3 marks)*	• *Force summation: combining muscle group actions to maximise output (for example; in a javelin throw).* • *Balance and stability: improving a gymnast's base of support to enhance control on the beam.* • *Newton's First Law (inertia): explains why a stationary object requires force to move, while* • *Newton's Third Law (action-reaction): explains how athletes generate force against surfaces to propel themselves.* • *Lever systems (first, second, and third class): explain mechanical advantage in various joint movements (for example, improving arm swing in sprinting).* • *Centre of gravity concepts: explain stability in different stances and positions.* *(Any three of these answers)* • *Using angular momentum in a discus throw helps increase rotational speed, enhancing distance.* • *Optimising projectile motion in basketball shooting improves accuracy and success rate.* • *Understanding impulse-momentum relationship allows for better take-off in the high jump.* • *Teaching correct sprinting posture and arm action to improve speed (Newton's 3rd Law).*

	• *Optimising the throwing angle in the javelin using projectile motion principles.* • *Using stability concepts to teach correct tackling technique in rugby.* • *Applying the lever principle in teaching overarm throwing to increase force and accuracy.* • *Encouraging proper force absorption techniques in landing from a jump (e.g., in volleyball).* *(Any three of these answers)*
Analysis of How Biomechanical Principles Reduce Injury – (4 marks)	
• *Explanation of biomechanical factors that contribute to injury* *(2 marks)* • *Application of principles to reduce risk in school physical education* *(2 marks)*	• *Poor landing technique can increase ground reaction force, leading to knee injuries.* • *Incorrect spinal alignment during lifting increases risk of back injury.* • *Overuse of Specific Muscles or Joints, such as repetitive actions in overhead throws or long-distance running without biomechanical efficiency, that lead to overuse injuries (for example, rotator cuff strain, shin splints).* • *Inadequate use of body levers (such as improper arm extension in throwing) leads to inefficient force transfer and muscular strain.* *(Any two of these answers)* • *Teaching proper deceleration and landing techniques in netball reduces ACL injuries.* • *Using correct biomechanics in overhead volleyball serves prevents shoulder strain.* • *Promote movement economy, reinforce rest and recovery, vary training drills, and teach proper force application and body mechanics.* • *Teach force summation, optimal lever positioning, and sequencing of movements to improve performance and reduce strain.* *(Any two of these answers)*
Application in Two Different Sports Activities – (6 marks)	
• *Sport 1 – Identification and explanation of application* *(3 marks)* • *Sport 2 – Identification and explanation of application* *(3 marks)*	*Sport: Sprinting (Athletics)* • *Teaching learners to use proper knee drive and foot strike patterns to improve stride length and reduce overuse injuries.* • *Application of Newton's Third Law in starting blocks to maximise reaction force.* • *Teaching learners to lean slightly forward during the acceleration phase, aligning the centre of mass ahead of the base of support.* *(Any one of these answers)* *Sport: Football* • *Use of the centre of mass and base of support to improve balance when changing direction in dribbling.* • *Teaching proper foot positioning during passing to reduce ankle inversion injuries.*

	• *Teaching learners' full leg extension in a long kick or shot at goal, where the leg functions as a third-class lever, improves the length of the lever (leg extension) and increases ball speed.* *(Any one of these answers)*

Note

Marks should be given for alternative valid biomechanical principles and applications not listed in the model answers.

SECTION 7: ACADEMIC AND CAREER PATHWAYS

STRAND: ACADEMIC AND CAREER PATHWAYS

Sub-Strand: Health Education Pathways

Learning Outcome: *Identify an interesting career pathway in health education and demonstrate its competencies.*

Content Standard: *Demonstrate knowledge in career preparedness in Health Education.*

INTRODUCTION AND SECTION SUMMARY

This section explores the field of career pathways in health education. It focuses on understanding the reasons for selecting career pathways in health education. Learners will identify various health education professions, such as community health workers, public health educators, and school health coordinators. They will explore the fundamental reasons why individuals might choose these various career paths in education over other professions. The aim is to provide learners with insight into the diverse career opportunities within health education and how these professions contribute to a healthier society.

Learners will also delve into the professional competencies required in a chosen career within health education. These include needs assessment, planning, implementation, evaluation, advocacy, communication, leadership, and adherence to ethics and professionalism.

By the end of this section, learners will gain a clearer understanding of the motivation behind choosing career pathways in health education and the essential professional competencies required in such a career. This knowledge will empower learners to make informed decisions about pursuing a career that positively impacts public health.

Weeks covered by this section:

- **Week 15:** Justify reasons for selecting a career pathway in health education. (Preparation for seminar presentation).
- **Week 16:** Demonstrate professional competencies in a career of interest in health education. (Seminar presentations).

SUMMARY OF PEDAGOGICAL EXEMPLARS

Employ a blend of research activities, discussions, and guest speaker engagements to introduce learners to the reasons for selecting career pathways in health education profession. Encourage learners to investigate various reasons through digital research, group presentations, and case studies that showcase real-world health education initiatives.

Differentiated instruction is key to addressing the diverse learning needs of your learners. While gifted learners may take on advanced tasks like explaining the various reasons for selecting career pathways in health education over other professions, other learners may benefit from guided discussions or visual aids that outline professional preparation steps. Inclusive activities ensure that all learners actively engage with the topic, fostering a comprehensive understanding of health education careers and pathways.

ASSESSMENT SUMMARY

Assessment for this topic will focus on evaluating **learners'** comprehensive understanding and their ability to articulate the various motivations and justifications for choosing **career pathways** within health education. It will also assess their understanding and practical application of the professional **competencies** essential for a chosen **career** in health education.

A key assessment method will be a **seminar presentation. Learners** will be assessed on their ability to justify their reasons for selecting a **career pathway** in health education through a formal **seminar presentation.** This will involve presenting their research, arguments, and insights to their peers and **educators.** Assessment criteria will include clarity of reasoning, evidence-based argumentation, presentation skills, and engagement with questions.

Assessment Summary

Week	Indicator	DoK Level	Assessment Mode
15	Reasons for selecting a career pathway in health education. (Preparation for seminar presentation)	Level 3	Class exercise
16	Demonstrate professional competencies in a career of interest in health education. (Seminar presentations).	Level 3	Seminar Presentation

WEEK 15

Learning Indicator: *Justify reasons for selecting a career pathway in health education*

FOCAL AREA: REASONS FOR SELECTING A CAREER PATHWAY IN HEALTH EDUCATION

Recap weeks

Year 2	Week 15: Identify professionals in health education. Week 16: Discuss professional preparation of career pathways in health education.

RECAP

Year 2 focused on recognising the various professionals within the field of health education. This included roles such as health educators, community health workers, public health specialists, and school health coordinators. Emphasis was placed on understanding their responsibilities and contributions towards promoting health and wellbeing. The sessions also highlighted the importance of collaboration among these professionals to effectively address public health challenges.

The discussion centred on the educational and training pathways required for careers in health education. It provided an overview of relevant qualifications, certifications, and skills necessary to enter and progress within the field. Additionally, the learners covered career development opportunities, professional organisations, and continuing education that support long-term success. Special attention was given to aligning personal interests and strengths with specific career options in health promotion and education.

In the final year, learners will explore the reasons behind choosing a career pathway in health education. This involves reflecting on personal motivations, values, and the impact they wish to have within the health sector. Learners will be encouraged to consider how their skills and interests align with the demands and opportunities of health education careers. By understanding these factors, learners can make informed decisions about their future professional direction and commit to meaningful roles that contribute to public health.

INTRODUCTION

Selecting a career pathway in health education is a significant decision that can profoundly impact both individual lives and communities. This field encompasses a variety of roles aimed at improving public health, promoting wellness, and preventing disease. Aspiring health educators must consider their personal interests, societal responsibilities, and the diverse opportunities available. This exploration enables individuals to align their passions with meaningful professional contributions, ultimately fostering healthier communities. In this section, we will explore the critical factors influencing the selection of a career in health education.



Figure 15.1: *Group of health education professionals*

REASONS FOR SELECTING A CAREER PATHWAY IN HEALTH EDUCATION

Health education professionals play a vital role in promoting the health and well-being of communities. They provide essential knowledge and support that empower individuals to make informed decisions about their lifestyle, disease prevention, and mental health care.

Choosing a career in health education is often motivated by a passion for helping others, a commitment to improving public health, and an interest in educating diverse populations. Many are driven by the desire to make a positive impact on society by encouraging healthier behaviours and reducing health inequalities. In this way, health education professionals contribute significantly to building healthier, more informed communities and play a crucial part in the broader healthcare system.

Choosing a career in health education is often motivated by a combination of personal passion, societal commitment, and professional growth opportunities. Health Education professionals are dedicated to improving public well-being through knowledge dissemination, empowerment, and advocacy.

Health education is a vital sector within the broader field of public health, offering dynamic and purpose-driven career opportunities for individuals passionate about making a measurable difference in people's lives. Health Education offers a rewarding career path for individuals driven by a desire to improve the well-being of others and contribute to a healthier society. This content explores the key reasons why one might choose this profession, focusing on personal drive, societal impact, professional growth, and the unique aspects of the field.



Figure 15.2: *Monitoring service by health personnel*

a. Personal Drive and Passion

i. Intrinsic Motivation for Helping Others

Many individuals' pursuing health education are driven by intrinsic motivations rooted in a genuine desire to help others and make a positive impact on health outcomes. This altruistic drive sustains long-term commitment and job satisfaction far beyond external rewards such as salary or status. Genuine passion emerges from the motivation to improve lives and shape healthier communities, aligning with self-determination theories that highlight the importance of authentic, self-authored motivation in career choice.



Figure 15.3: *Community health nurse offering assistance to a pregnant woman*

ii. Personal Health Experiences

Personal or family health experiences can strongly influence the decision to enter health education. Experiencing or witnessing health challenges often heightens empathy and awareness, inspiring individuals to pursue careers where they can contribute to preventing similar hardships for others. Studies show that such experiences significantly increase interest in health careers among minority youth in underserved communities, fostering a dedication to reducing health disparities. These firsthand encounters make the profession deeply meaningful, and purpose driven.

iii. Commitment to Lifelong Learning

Health Education is a dynamic field requiring an ongoing commitment to professional development to keep pace with evolving healthcare knowledge and practices. Lifelong learning ensures professionals remain competent in delivering the most current information and interventions. This commitment enhances both personal fulfilment and the quality of care provided. Structured continuing education programmes, including certifications and workshops, support this continuous growth.

b. Societal Impact and Relevance

i. Addressing Pressing Public Health Issues

Health Education professionals play a pivotal role in tackling urgent public health challenges by informing policy and community interventions. Their work spans education on chronic disease prevention, mental health promotion, and tackling health inequities. By improving population health literacy and behaviours, they contribute to reducing premature mortality and improving quality of life.



Figure 15.4: *Health education professional given education on mental health to community members*

ii. Empowering Individuals and Communities

Central to Health education is empowerment, enabling individuals and communities to take active control over their health choices. This empowerment occurs through culturally sensitive education, community engagement, and advocacy, fostering sustainable health improvements and resilience. Effective empowerment respects cultural diversity and addresses social determinants of health that influence outcomes beyond individual behaviour.



Figure 15.5: *Community engagement in sexual reproductive health*

iv. Contribution to National Health Strategies

Health Educators significantly support national health objectives by implementing programmes aligned with public policy goals, such as reducing health disparities and promoting preventive care. For example, in the UK, Health Education England provides leadership to develop a competent health workforce attuned to national health priorities. Their efforts underpin broader strategies to enhance public health infrastructure and service delivery.

c. Professional Growth and Opportunities

i. Diverse Career Pathways

Health Education offers myriad career options across settings, reflecting its interdisciplinary nature. Professionals work in local government and healthcare trusts, contributing to health improvement programmes and policy. They are active in educational institutions such as schools and universities, developing curricula, training students, and conducting research. Additionally,

roles in corporate wellness focus on employee health promotion, stress management, and behaviour change initiatives. Non-profit organisations also provide opportunities to engage in community-based health advocacy and programme coordination.

ii. Stability and Demand within the Health Sector

The Health Education sector is characterised by strong demand and growing stability, driven by increased focus on prevention, health promotion, and workforce resilience. An ageing population and rising burden of chronic illnesses amplify the need for skilled Health Education professionals who can address complex health needs efficiently. Projections indicate positive employment growth and expanding roles, ensuring sustainable career options.

d. Unique Aspects of Health Education

Health Education is distinct in its blend of scientific knowledge, behavioural science applications, and community engagement. Unlike strictly clinical roles, health educators focus on prevention through voluntary behaviour change, tailoring interventions at multiple societal levels—from individuals to policy. The profession requires competencies in assessment, planning, implementation, evaluation, advocacy, and communication, making it uniquely positioned to bridge health science and social systems.

Moreover, health education emphasises ethical responsibility and cultural competence, ensuring inclusive and respectful engagement across diverse populations. This ethical foundation enhances trust and effectiveness in public health interventions, distinguishing health education as a critical discipline in contemporary healthcare.

LEARNING TASKS

1. Recap and explain the various professions in health education.
2. List three reasons why professional preparation is important for people in health education careers.
3. Listen to a health professional (guest speaker) presentation on reasons why people choose the various health education professions over others.
4. Discuss the reasons for selecting the various careers in health education.

PEDAGOGICAL EXEMPLARS

a. Starter

Engage learners to brainstorm about their career aspirations in health education.

Instructions

i. Begin with a short video or presentation highlighting various professionals in health education (e.g., health educators, public health officials, wellness coaches).

After the presentation, ask learners to reflect on the following questions:

ii. What interests you about health education?

iii. Which health education professional inspires you the most, and why?

Facilitate a brief discussion where learners share their thoughts in pairs before opening it up to the whole class.

b. Introduction

Begin with a brief introduction to professionals in health education and its importance in promoting community health. Emphasise the various reasons why people choose career pathways in this field.

c. Research-Based Learning

Learners visit local health facilities to interview a health education professional or watch recorded interviews to inquire about the various professions in health education and the factors that influence individuals to choose these professions over others.

In mixed groups, learners are tasked with researching relevant sources to gather additional insights into why people may be inclined to pursue careers in health education. They will then summarise their findings and present them for class discussion.

d. Guest Speaker Session

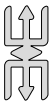
Invite a local health education professional to discuss the various health professions and the reasons why individuals choose these careers over those in other fields. During the workshop, the health professional should provide a range of materials, including audio recordings, audiovisual presentations, infographics, and other formats to ensure that all learners, including those with diverse needs, can benefit from the session.

e. Collaborative Learning

In groups, learners discuss reasons for selecting a career pathway in Health Education. The group lead or secretary later presents their points to the class with justifications.

f. Seminar Preparation

In week 18, learners will deliver a seminar on 'Demonstrating Core Professional Competencies in a Real-World Health Education Scenario in Ghana'. It is recommended that groups are formed, and the key competencies are assigned to each group at the end of week 17. Groups can be asked to start their preparation as homework between lessons.



Note

Please see week 18 Pedagogical Exemplars and Key Assessment for topics and seminar requirements.

KEY ASSESSMENTS LEVEL 3: Seminar Presentation

1. a. Analyse two distinct personal motivations that might lead an individual to choose a career in Health Education.

   b. For each motivation, explain how it can contribute to job satisfaction and effectiveness in the field.

PLC Session 15

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand

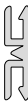
b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).

3. Use your subject specific app to plan your lesson. Ask the app to

   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.

   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)

   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app

   a. The key assessment for the week is ***seminar presentation***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the presentation (NTS 3k-3q).

10 minutes **Content Exploration**

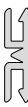
5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

   b. all teachers in the group work through a similar problem individually for 3–4 minutes

   c. the group then works through the problem together step by step

   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).

a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.

b. After the enactment, ask for structured feedback from the group

   i. was the concept explained in a way that a learner with no prior knowledge could follow?

   ii. were the examples grounded in contexts familiar to Ghanaian learners?

   iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to

   a. transfer your chats into your learning planner template.

   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).

   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 16

Learning Indicator: *Demonstrate professional competencies in a career of interest in health education (Seminar presentations)*

FOCAL AREA: PROFESSIONAL COMPETENCIES IN A CAREER OF INTEREST IN HEALTH EDUCATION

Introduction

Choosing a career in health education opens the door to making a meaningful impact on individual and community well-being. To succeed in this dynamic field, professionals must develop a broad set of competencies that go beyond basic knowledge of health topics. These professional competencies encompass essential skills, attitudes, and behaviours that enable health educators to effectively assess needs, design and implement programmes, communicate clearly, and collaborate with diverse populations.

Understanding these competencies is crucial for anyone interested in pursuing a career in health education, as they form the foundation for delivering high-quality, evidence-based health promotion and education.



Figure 16.1: *Different professions in health education*

1. **Core Professional Competencies in Health Education**

   Health education specialists are defined by a comprehensive framework of competencies that ensure their effectiveness in practice. These include needs assessment, planning, implementation, evaluation, advocacy, communication, leadership, and adherence to ethics and professionalism.

   a. Assessment of Needs and Capacity

   Health educators must be able to systematically assess the health needs of individuals and communities, identify priority populations, and evaluate available resources to inform programme development. This process also involves collecting and analysing primary and secondary data to understand health determinants and community capacity

   b. Planning

   Competent health educators develop strategic plans with measurable objectives, engage relevant stakeholders, and devise tailored interventions based on assessment findings. Effective planning includes resource allocation, pilot testing, revision, and sustainability considerations.

c. Implementation

Executing health education programmes requires coordination of resources, training of staff, delivery of evidence-based interventions, and ensuring programme fidelity. Health education specialists create learning environments conducive to behavioural change and monitor progress against objectives.



Figure 16.2: *Health education personals undergoing training.*

d. Evaluation and Research

Evaluation competency involves designing and conducting process, impact, and outcome assessments to measure programme effectiveness. This includes collecting, managing, and analysing data, interpreting findings, and disseminating results to improve health education practice.

e. Advocacy

Health education professionals advocate for policy, systemic, or environmental changes by identifying health issues, engaging stakeholders, developing persuasive messages, and mobilising community and political support to address public health challenges.

f. Communication

Effective communication entails identifying audience characteristics, crafting tailored messages grounded in theory, utilising appropriate media channels, and evaluating communication outcomes. This competency optimises health literacy and behaviour change among diverse populations.

g. Leadership and Management

Leadership skills include building and maintaining partnerships, managing human and material resources, facilitating training, and strategic planning. Health educators demonstrate organisational leadership to ensure successful health promotion initiatives.

h. Ethics and Professionalism

Adherence to ethical principles, cultural humility, and professionalism is critical. Health education specialists maintain legal compliance, promote health equity, serve as authoritative resources, engage in continuous professional development, and advocate for the profession.

2. **Importance of Demonstrating Competencies in Seminar Presentations**

In the context of a seminar presentation, health education professionals illustrate these competencies by effectively conveying accurate, evidence-based information, engaging audiences, and advocating for health promotion. Demonstrating these skills reflect their capacity to apply theory to practice, communicate complex health concepts clearly, and inspire behavioural change.

Professionals often use competency frameworks such as the National Commission for Health Education Credentialing (NCHEC) Areas of Responsibility or the Core Competencies for Public Health Professionals to guide their presentation content and delivery.

Career Implications

A deep mastery of these competencies supports career growth in diverse health education roles, including community health educator, patient advocate, health coach, and wellness coordinator. Competency-based training enhances professional credibility and readiness to meet the evolving needs of populations served.

LEARNING TASKS

1. Learners research a specific career in health education (e.g., health promotion, health teaching, health advocacy).
2. Learners analyse the key professional competencies required for success in this career, including skills, knowledge, and attitudes.
3. Learners prepare and deliver a presentation on a topic related to professional competencies in health education.

PEDAGOGICAL EXEMPLARS

a. Starter "My Dream Health Education Role"

Teacher poses the Scenario

Write the following on the board or display it prominently: "Imagine you have landed your dream job in **Health Education**. This could be a Public Health Officer, a School Health Coordinator, a Community Health Worker, a Health Promotion Specialist, or anything else that excites you within health education."

i. **"What qualities, skills, or pieces of knowledge would someone absolutely need to be brilliant in that job?"**

ii. Ask learners to individually jot down their top three ideas in response to the question. Encourage them to think beyond just knowing facts about health.

iii. Ask learners to turn to a partner and share their three ideas. They should discuss any similarities or interesting differences.

iv. Bring the class back together. Ask a few pairs to share one or two of their most insightful or common ideas. Jot the following eight key terms on the board (e.g., communication, empathy, scientific knowledge, teaching skills, leadership, problem-solving, cultural awareness).

b. Introduction

Nice ideas, everyone! All those things you mentioned are incredibly important.

Today, we are going to formalise that thinking by exploring the concept of **professional competencies in the field of health education**. In any career, a competency is not just about what you know, but what you can do effectively and consistently, combining your knowledge, skills, and attitudes. For those of you considering a career in health education, understanding these competencies is vital.

c. Collaborative Learning

Learners are organised into mixed-ability and mixed-gender groups to discuss the diverse professional competencies in health education. Each group then presents their insights to the entire class, utilising visual aids or other relevant materials to effectively support their conclusions. Following the presentations, facilitate a critique session where the class provides constructive feedback on the findings, fostering critical thinking and deeper understanding. Create an environment that encourages active listening, respectful communication, and meaningful participation within each group. Regularly monitor group interactions to ensure effective collaboration, promptly addressing any issues related to participation, conflict, or teamwork to maintain a positive and productive learning atmosphere.

d. Seminar Presentation

In mixed-gender groups, learners continue their preparation and deliver their seminar presentations on health education competencies. They apply theoretical knowledge to practical scenarios while engaging diverse audiences effectively. Feedback should be provided on content accuracy, presentation skills, application to Ghanian context and group dynamics.

KEY ASSESSMENT Level 3: Seminar Presentation

Group Seminar Presentation Assignment

Topic: Demonstrating Core Professional Competencies in a Real-World Health Education Scenario in Ghana

Instructions

1. Choose one of the following key competencies:
    a. Effective Communication
    b. Assessment of Needs and Capacity
    c. Ethics and Professionalism
    d. Leadership and Management
    e. Evaluation and Research
2. Prepare a 10–15-minute seminar presentation that demonstrates your group's understanding and application of the chosen competency in a real-world health education scenario in Ghana.
3. Use examples and case studies to illustrate the application of the competency.

PLC Session 16

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
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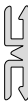
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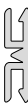
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   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section Review

The focus of the lesson in week 15 was reasons for selecting a career pathway in health education. We looked at areas such as personal drive and passion, societal impact and relevance, professional growth and opportunities and unique aspects of health education.

In Week 16, the main theme of the lesson was professional competencies in a career of interest in health education. Again, we looked at the core professional competencies in health education, the importance of demonstrating competencies in seminar presentations and its career implications.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 15 (Marks: 40)

Criteria	Marks	Description
Identification of Motivations	*8*	*Clearly identifies two distinct personal motivations relevant to career choice in Health Education. (4 marks per motivation)*
Explanation of Motivation 1	*6*	*Provides a detailed analysis of the first motivation, describing its nature and relevance.*
Explanation of Motivation 2	*6*	*Provides a detailed analysis of the second motivation, describing its nature and relevance.*
Contribution to Job Satisfaction	*10*	*For each motivation, explains clearly how it enhances job satisfaction with relevant examples or reasoning. (5 marks per motivation).*
Contribution to Effectiveness	*10*	*For each motivation, explains clearly how it supports effectiveness in Health Education roles with appropriate examples or reasoning. (5 marks per motivation).*
TOTAL 40 Marks		

Model Answer

Introduction

Choosing a career in Health Education is often motivated by personal factors that reflect an individual's values and aspirations. Two notable motivations include a passion for positively impacting individuals' well-being and a desire for a stable career with growth opportunities.

Motivation 1: Passion for Making a Positive Impact

Many individuals are drawn to Health Education due to a sincere desire to improve people's health and empower communities through knowledge dissemination. This altruistic motivation aligns with a commitment to societal well-being and personal fulfilment.

Contribution to Job Satisfaction

This motivation fosters a high degree of job satisfaction as individuals witness tangible improvements in individuals' health outcomes and community wellness. The intrinsic reward from helping others encourages sustained engagement and reduces burnout.

Contribution to Effectiveness

A passionate educator is more likely to be dedicated, innovative, and resilient, thus enhancing the quality and impact of health education programmes. Their commitment results in effective communication, stronger relationships with learners, and proactive problem-solving in public health contexts.

Motivation 2: Desire for Professional Stability and Growth

Health Education offers a diverse range of career pathways with prospects for continuous professional development, job security, and advancement. This motivation appeals to those

seeking a predictable and evolving career trajectory.

Contribution to Job Satisfaction

Job security and opportunities for career progression contribute to a stable working environment, reducing stress related to employment uncertainties. Continuous learning initiatives and skills development keep the professional motivated and satisfied.

Contribution to Effectiveness

Professionals motivated by career growth are inclined to update their knowledge and competencies regularly, apply evidence-based practices, and engage in leadership roles, thereby enhancing the overall effectiveness of Health Education services.

WEEK 16 (20 marks)

1. Content (8 marks)

- Clarity and relevance of the scenario (2 marks)
- Depth of understanding and application of the chosen competency (3 marks)
- Use of examples and case studies to illustrate application (3 marks)

2. Presentation Skills (4 marks)

- Organisation and structure of the presentation (1 mark)
- Clarity and confidence of delivery (1 mark)
- Use of visual aids and materials (1 mark)
- Time management (1 mark)

3. Application to Ghanaian Context (4 marks)

- Relevance of the scenario to the Ghanaian context (2 marks)
- Application of cultural and contextual factors in the presentation (2 marks)

4. Group Dynamics (4 marks)

- Evidence of teamwork and collaboration (1 mark)
- Clear roles and responsibilities among group members (1 mark)
- Effective communication and coordination among group members (1 mark)
- Engagement and participation of all group members (1 mark)

Model Answer

Effective Communication

Scenario: Developing a health education programme to promote malaria prevention in a rural Ghanaian community.

Application: Using clear and simple language, incorporating local dialects, and engaging community leaders to facilitate behaviour change.

Assessment of Needs and Capacity

Scenario: Conducting a needs assessment to identify gaps in health education services for adolescents in Accra.

Application: Using surveys, focus groups, and stakeholder interviews to gather data and inform programme development.

Ethics and Professionalism

Scenario: Addressing ethical dilemmas in a health education programme for vulnerable populations in Ghana.

Application: Applying principles of autonomy, beneficence, and justice to ensure respectful and equitable programme implementation.

Leadership and Management

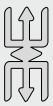
Scenario: Managing a team to implement a health education programme for non-communicable diseases in Ghana.

Application: Using leadership skills to motivate team members, manage conflicts, and ensure programme goals are met.

Evaluation and Research

Scenario: Evaluating the effectiveness of a health education programme to promote vaccination uptake in Ghana.

Application: Using research designs, data collection methods, and statistical analysis to assess program impact and inform future programming.



Note

- *The model answers provided are just examples and may not be exhaustive.*
- *Groups are encouraged to think creatively and apply the chosen competency in a unique and innovative way.*
- *The presentation should demonstrate a clear understanding of the competency and its application in a real-world health education scenario in Ghana.*

SECTION 8: ACADEMIC AND CAREER PATHWAYS

STRAND: ACADEMIC AND CAREER PATHWAYS

Sub-Strand: Physical Education Pathways

Learning Outcome: *Identify an interesting career pathway in physical education and demonstrate its competencies.*

Content Standard: *Demonstrate knowledge in career preparedness in Physical Education.*

INTRODUCTION AND SECTION SUMMARY

A combination of personal passions, professional aspirations, and societal needs often influences the decision to pursue a career in Physical Education (PE). Many individuals are drawn to this field due to a deep-seated passion for sports, physical activity, and a desire to promote health and well-being among diverse populations. Moreover, the role of physical educators extends beyond teaching; they inspire students to adopt active lifestyles, contribute to the prevention of health issues such as childhood obesity, and foster essential life skills, including teamwork, discipline, and leadership. This distinctive blend of personal fulfilment and social impact makes Physical Education a compelling career choice. Understanding the multifaceted motivations behind selecting this career pathway is crucial for prospective educators and institutions alike, as it shapes both recruitment and training practices within this vital educational sector.

The reasons for choosing a career in Physical Education are diverse and reflect both intrinsic and extrinsic motivations. Passion for sport and physical activity frequently serves as the primary catalyst, alongside a strong commitment to helping others improve their physical health and overall well-being. Altruistic factors, such as making a positive impact on youth and combating public health challenges, also play a significant role. Additionally, practical considerations—including job opportunities, professional development, and the enjoyment derived from dynamic, interactive teaching environments—further influence this career choice. Research consistently indicates that while intrinsic motivations tend to dominate, extrinsic factors such as job security and career advancement cannot be overlooked. Appreciating this complex motivational landscape is essential for developing effective Physical Education teacher education programmes and ensuring that prospective educators are both passionate and prepared for their pivotal roles in schools and communities.

SUMMARY OF PEDAGOGICAL EXEMPLARS

Pedagogical exemplars play a crucial role in shaping career choices in PE by providing models of effective teaching and learning practices that align with students' diverse needs and interests. They emphasise personalised and inclusive approaches that cater to different learning styles and competencies. For example, innovative teaching methods incorporate technology, such as interactive multimedia and digital tools, to engage students actively and support their physical literacy development. Additionally, adaptable pedagogical strategies help educators address individual learner profiles, including those

with disabilities, by offering accommodations and modified expectations within Physical Education programmes. These exemplars not only facilitate skill acquisition but also foster motivation, social interaction, and lifelong engagement with physical activity.

Furthermore, the integration of career-oriented guidance within the PE curriculum encourages learners to understand the wide-ranging career opportunities in health, sport management, coaching, adapted physical education, and wellness promotion. This holistic pedagogical approach assists learners in identifying their strengths and aligning their educational journey with potential professional pathways, thereby enhancing career readiness.

The weeks covered in this section include the following:

Week 17: Evaluate reasons for selecting a career pathway in Physical Education. (Preparation for seminar presentation).

Week 18: Demonstrate professional competencies in a career of interest in Physical Education. (Seminar presentation).

ASSESSMENT SUMMARY

Assessment in Physical Education serves as a foundational tool to monitor and support student progress in physical competence, health knowledge, and social skills, which are essential for career development in this field. Effective assessment practices include both formative and summative evaluations, utilising a range of methods such as skill performance analysis, peer assessments, and technology-assisted feedback. These assessments provide detailed insights into students' physical abilities and inform personalised instructional adjustments.

In the context of career pathway selection, assessments are also used to identify students' aptitudes and interests, guiding them towards suitable roles such as physical education teaching, coaching, sports administration, or specialised roles like adapted physical education. Comprehensive assessment frameworks, including Individualised Education Plans (IEPs) for learners with additional needs, exemplify how targeted evaluations contribute to inclusive education and career planning.

Moreover, contemporary assessment models stress ongoing professional development for educators to stay abreast of evolving standards and incorporate new technologies, further enhancing the quality of guidance and preparation learners receive. This continuous improvement cycle ensures that career pathways in Physical Education remain relevant and responsive to both learner potential and industry demands.

Assessment Summary

Week	Indicator	DoK Level	Assessment Mode
17	Evaluate reasons for selecting a career pathway in Physical Education. (Preparation for seminar presentation).	Level 3	Homework
18	Demonstrate professional competencies in a career of interest in Physical Education. (Seminar presentations).	Level 3	Seminar presentation

WEEK 17

Learning Indicator: *Justify reasons for selecting a career pathway in Physical Education*

FOCAL AREA: REASONS FOR SELECTING A CAREER PATHWAY IN PHYSICAL EDUCATION

Introduction

A career in physical education offers a rewarding path for individuals passionate about health, fitness, and inspiring others, providing opportunities to make a significant impact on community well-being and enjoy diverse professional roles. This field attracts those who seek to combine their love for physical activity with a desire to foster healthy lifestyles in others.



Figure 17.1: *Physical education teacher assisting in taking measurement.*

1. Identifying Modern Career Pathways in Physical Education

Modern career pathways in Physical Education (PE) include a variety of roles such as Physical Education teacher, Sports coach, and Fitness trainer or Instructor, each with distinct qualifications, roles, and development opportunities.

a. Physical Education Teacher

A Physical Education teacher works in schools or colleges, instructing young people in sports, fitness, and healthy lifestyles. Teachers deliver the national curriculum for PE, helping pupils develop skills, teamwork, and confidence through a range of physical activities and sports. Becoming a PE teacher typically requires obtaining a degree in physical education or sports science combined with Qualified Teacher Status (QTS) through a course such as a Postgraduate Certificate in Education (PGCE) or a degree apprenticeship. Career progression can lead to roles as head of department, deputy head, or headteacher. PE teachers benefit from competitive salaries, pension schemes, and holiday entitlements, with work environments often extending outdoors and potentially including evening or weekend commitments.



Figure 17.2: *A physical education teacher having effective communication with his students*

b. Sports Coach

Sports coaching is a dynamic career focusing on helping individuals or teams enhance their performance in specific sports. Coaches work in various settings, including schools, clubs, leisure centres, and professional sports organisations. Entry into coaching can be through university courses in sports coaching or exercise science, college courses, apprenticeships, or relevant work experience. Qualifications from National Governing Bodies (NGBs) are essential and typically start at Level 1 for assistants, progressing to Level 4 for elite coaching roles. Coaches develop personalised training programmes, assess abilities, motivate participants, and may work with other specialists such as physiotherapists or nutritionists. This career often requires flexible hours, including evenings, weekends, and travel. Salaries vary widely, with community roles often voluntary or part-time and professional-level posts offering higher pay and benefits. Coaching also offers opportunities for continuous professional development and engagement in broader sports management or development roles.



Figure 17.3: *An Athletics coach assisting his athlete*

c. Fitness Trainer or Instructor

Fitness trainers and instructors guide individuals or groups in exercise programmes designed to improve health and physical fitness. They may work in gyms, fitness centres, community settings, or be self-employed. This role requires knowledge of anatomy, physiology, and exercise techniques, often attained through vocational qualifications or degrees in exercise science or health and fitness. Trainers support clients by creating tailored workout plans, ensuring safety during exercise, and motivating clients to achieve their health goals. The fitness industry values

up-to-date professional skills, and trainers often pursue additional certifications in specialisms like strength and conditioning or rehabilitation. This pathway can also lead to roles in wellness coaching, nutrition advising, or sports therapy.



Figure 17.4: *Physical instructor leading aerobic exercise*

2. REASONS FOR SELECTING A CAREER PATHWAY IN PHYSICAL EDUCATION

The choice to pursue a career in Physical Education (PE) is influenced by a diverse range of personal motivations and professional opportunities. Key reasons why individuals select this rewarding pathway include having a personal passion for the sector, a desire to work in educational roles and to promote health, career diversity, job satisfaction, lifestyle benefits, continuous development, and societal contributions.

a. Personal Passion and Interest in Sports and Fitness

A profound love for physical activity and sports often serves as the primary motivator for choosing a PE career. Individuals who have a genuine enthusiasm for sports find satisfaction in sharing this passion with others, shaping their career interests towards fostering athletic skills and promoting an active lifestyle. Studies highlight that a strong athlete identity and dedication enhance motivation, encouraging many to enter professions that allow them to remain connected to physical activity. This intrinsic connection with sports not only sustains engagement but also informs teaching and coaching approaches, enriching the educational environment.

b. Desire to Promote Health and Wellbeing

Physical educators play a pivotal role in encouraging healthy lifestyles and lifelong fitness. The growing awareness of the benefits of physical activity on both physical and mental health drives many to pursue careers in PE with the intention to promote wellbeing at individual and community levels. Educational programmes emphasise skills that empower students to manage their health, make informed lifestyle choices, and develop competencies that contribute to their overall well-being. Research demonstrates that PE teachers often view their role as health promoters, actively combating public health issues such as physical inactivity and chronic illness through education and practice.

c. Opportunities for Teaching and Mentorship

The opportunity to guide, inspire, and mentor students or athletes attracts many to PE careers. The profession allows individuals to influence young people's development, instilling values of discipline, teamwork, and resilience. Mentorship roles within schools and sports organisations provide avenues for experienced professionals to support novice educators and athletes, fostering professional growth and personal fulfilment. Mentorship is recognised as a critical mechanism for enhancing teaching effectiveness and nurturing future talent within the field.

d. Career Diversity and Specialisation Options

PE offers diverse career pathways and specialisations including coaching, sports management, therapy, and fitness training. This spectrum provides flexibility and allows professionals to align their careers with individual strengths and interests. Coaching forms a foundational element, with structured training aiming to develop pedagogical and psychological skills for effective athlete development. Sports management, though varied in curriculum and recognition, is an essential area integrating administration and leadership within sports organisations. Fitness training and therapy further expand career options, combining physical education principles with health sciences. Beyond the traditional role of a school PE teacher, the field encompasses numerous pathways that cater to various interests and skill sets. These can include:

Table 17.1: Career pathways in Physical Education

Career Path	Description
Coaching	Developing athletic skills and mentoring athletes.
Sports Management	Roles in administration, marketing, or event organisation within sports organisations.
Fitness Training	Working with individuals or groups in gyms, community centres, or private settings.
Sports Therapy/ Rehabilitation	Assisting individuals in recovering from injuries and returning to physical activity.
Exercise Physiology/ Sports Science	Working with athletes to optimise performance, prevent injury, and aid recovery.
Outdoor Education:	Leading adventure activities and teaching survival skills.
Public Health Promotion	Developing and implementing community-wide physical activity programmes.

e. Job Satisfaction and Personal Fulfilment

Physical education careers are frequently associated with high level of job satisfaction, deriving from the rewarding experience of impacting individuals' physical and mental growth. Teachers often report that working with young people and witnessing their progress is the most fulfilling aspect of their profession. However, variations in satisfaction levels exist based on factors like gender, school environment, and workload. Despite challenges, the profession offers a keen sense of purpose and meaningful contribution.

f. Physical Activity and Lifestyle Benefits

A career in PE supports personal fitness and encourages active living alongside professional commitments. PE teachers are well-positioned to maintain their own physical health, which in turn enhances their credibility as health promoters. The profession integrates personal health practices with occupational duties, fostering a lifestyle that exemplifies the benefits of

physical activity. This dual role contributes to sustained personal well-being and professional effectiveness.

g. Educational and Professional Development Opportunities

Continuous learning, acquisition of certifications, and career advancement are central to careers in Physical Education. The sector provides numerous opportunities for professional growth through workshops, seminars, mentoring, and formal qualifications. The establishment of quality assurance models within CPD ensures that educators maintain high teaching standards and adapt to evolving educational demands. Engagement in professional learning communities has been shown to significantly enhance development and job performance.

h. Societal Impact and Community Engagement

Physical Education professionals contribute to healthier communities and public health promotion. Their work extends beyond schools into healthcare settings and community initiatives that address social isolation, chronic illnesses, and economic inactivity. Programmes led by PE professionals facilitate social inclusion, reduce anti-social behaviour, and foster community cohesion, underlying the sector's societal value. Collaborations with healthcare and social services amplify their impact, making them vital agents in public health strategies.

i. Job Market Demand and Future Prospects

Employment trends in Physical Education indicate sustained demand, with various roles available across educational institutions, sports organisations, and healthcare sectors. Regional and sectoral analysis shows growth in sports and fitness occupations, with an increased number of job placements and professional opportunities emerging. Challenges in recruitment exist but are offset by initiatives for training and retention, ensuring career viability. Salary ranges and professional development frameworks further support career sustainability.

j. Challenges and Resilience in Physical Education Careers

The profession of Physical Education requires resilience to manage workload pressures, role ambiguity, and work-life balance challenges.

While immensely rewarding, a career in Physical Education also presents its share of challenges, requiring resilience and adaptability. These can include:

i. **Resource Constraints**: Limited budgets for equipment, facilities, or professional development.

ii. **Large Class Sizes**: Managing and engaging diverse groups of students with varying abilities.

iii. **Curriculum Pressures**: Balancing national curriculum requirements with the need for engaging, inclusive, and progressive physical education.

iv. **Motivational Challenges**: Engaging students who may be disinclined towards physical activity.

v. **Injury Management**: Dealing with injuries sustained during activities and understanding appropriate first aid and prevention.

vi. **Workload**: Balancing teaching duties with extracurricular coaching, administrative tasks, and continuous professional development.

vii. **Perceptions**: Overcoming the perception that PE is less academic than other subjects.

Navigating these challenges requires strong organisational skills, pedagogical innovation, effective communication, and a commitment to professional growth. Resilience is key to overcoming setbacks and continuing to inspire students and promote physical activity effectively

LEARNING TASKS

1. Learners research physical education career routes, motivating reasons, required qualifications and typical responsibilities.
2. Learners explore personal reasons for selecting physical education as a career pathway.
3. Learners participate in a group discussion on the reasons for selecting a career pathway in Physical Education.

PEDAGOGICAL EXEMPLARS

a. Starter

Begin with an engaging question to capture attention and activate prior knowledge:

Question: "What motivates someone to choose Physical Education as their career? Think about your own interests or people you know in this field."

b. Introduction

Follow up with a brief interactive poll or discussion where learners share their initial thoughts on "what motivates someone to choose physical education as their career".

This activity warms up the class and frames the topic's relevance by connecting it to their experiences or perceptions.

c. Reflective Journaling

Encourage learners to write reflective journal entries exploring their own reasons for considering a career in PE.

- Prompt questions: What draws you to physical education? Which personal experiences or role models have influenced you? How do you envision your future career in this field?
- This method fosters self-awareness and intrinsic motivation, helping students articulate their personal connection to PE careers.

d. **Case Studies and Role Models**

Present case studies of professionals in the PE field (e.g., PE teachers, sports coaches, physiotherapists).

- Include stories highlighting their motivations such as love of sport, desire to help others, or career opportunities.
- Discuss how different pathways require varied qualifications and skills.
- This exemplar connects theory to real-world applications and inspires students through relatable role models.

e. Group Discussions and Debates

Organise structured discussions or debates on motivational factors for selecting a PE career.

- Suggested topics: "Is passion for sports more important than job security in choosing PE?" or "Do social contributions outweigh financial rewards in PE careers?"
- Encourages critical thinking, communication skills, and understanding of diverse perspectives.

f. Interactive Multimedia Presentations

Use videos, interviews, or podcasts featuring PE professionals discussing their career choices.

- Follow up with guided questions or small group reflections.

- This approach caters to auditory and visual learners and brings authentic voices into the classroom

g. Career Pathway Mapping/Seminar Preparation

Have students research and create visual maps of different PE career routes.

Include necessary qualifications, typical responsibilities, and motivational factors for each pathway.

- Present maps to peers for feedback.
- Encourages independent research, organisation, and presentation skills.

h. Guest Speaker Sessions

Invite a PE professional to share their journey and reasons for entering the field.

- Prepare students with questions in advance to maximise interaction.
- Real-life engagement enhances motivation and provides networking opportunities.

KEY ASSESSMENT Level 3: Homework

1. Consider a student who is deciding between becoming a Physical Education teacher and a fitness trainer. Analyse how personal interests, skills, and lifestyle preferences might influence their choice of career pathway in Physical Education. Support your reasoning with examples.

PLC Session 17

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

Note

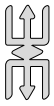
- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***homework***. Chat with your app to plan this assessment,

indicating what you and your learners will do before, during and after the homework (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 18

Learning Indicator: *Demonstrate professional competencies in your career of interest in Physical Education*

FOCAL AREA: PROFESSIONAL COMPETENCIES IN YOUR CAREER OF INTEREST IN PHYSICAL EDUCATION (SEMINAR PRESENTATIONS)

Introduction

Professional competencies in Physical Education careers encompass a range of knowledge, skills, and attitudes essential for effective practice and presentation in seminars. These competencies ensure that professionals can communicate, demonstrate expertise, and engage audiences meaningfully in educational and community settings.



Figure 18.1: *Physical therapy applying her skills to assist an injured athlete*

1.Professional Competencies in Physical Education

A foundational understanding of the core competencies required in Physical Education, emphasising the evolving role of physical educators from traditional teaching to community wellness leaders and innovators in health promotion.

a. Subject-Specific Knowledge and Expertise

Physical Education professionals must possess in-depth knowledge of exercise physiology, anatomy, kinesiology, sports science, and pedagogy to deliver scientifically informed presentations and programmes. This knowledge supports the design and explanation of effective physical activity interventions and curriculum innovations.

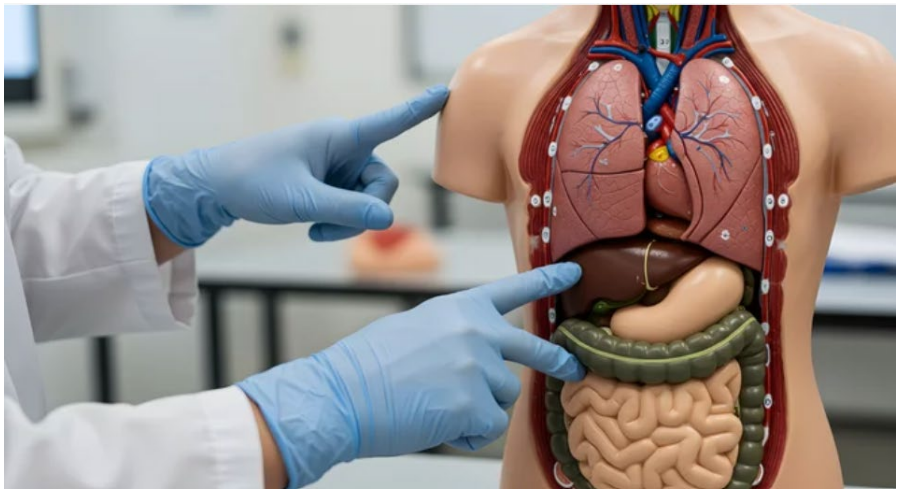


Figure 18.2: *Physical education professional teaching anatomy and physiology*

b. Communication and Presentation Skills

Effective communication is vital for delivering seminar presentations that engage diverse audien\ ces, including students, educators, coaches, and community members. Skills include clear instruction, motivational techniques, use of visual aids, and adapting messages to the audience's needs. Enhancing confidence and clarity in oral presentations also supports knowledge transfer and professional impact.



Figure 18.3: *Effective communication*

c. Pedagogical Competencies and Innovative Curriculum Implementation

Professionals must demonstrate competency in applying evidence-based pedagogical strategies and implementing innovative curricula with fidelity. For example, science-based physical education programmes promote active learning and connect physical activity with health science concepts. Seminar presentations often cover these instructional approaches to encourage professional development among peers.

d. Leadership and Motivational Skills

Leadership in physical education involves inspiring and managing teams, organising school wellness initiatives, and leading community health projects. Competencies in motivation help professionals foster participant engagement and promote lifelong physical activity habits through seminars and training sessions.

e. Assessment and Evaluation Competencies

A key competency is the ability to design, administer, and interpret assessments of physical performance and learning outcomes. Presenters must articulate the importance of formative and summative assessment in guiding instruction and improving student health literacy. This includes using data to demonstrate programme effectiveness in seminars.

f. Adaptability and Inclusive Practice

Physical educators must adapt to different audiences and environments, ensuring inclusive practices for students of varied abilities and backgrounds. Seminar presentations highlight methods for modifying activities and fostering equitable participation.

g. Continuous Professional Development and Reflective Practice

Ongoing learning and reflective practice are necessary to maintain and enhance professional competencies. Seminar presentations often emphasise the importance of CPD activities, workshops, and peer collaboration to keep current with research and best practices in physical education.

h. Practical Workshop and Resources Integration in Seminar Delivery

Competencies encompass using practical demonstrations, interactive activities, digital tools, and support materials to enhance seminar effectiveness. Innovative teaching aids and structured lesson plans, such as those from the Science and PE curriculum, are exemplary resources for engaging audiences.



Figure 18.4: *Using digital tools in teaching physical education*

i. Ethical and Professional Conduct

Maintaining professional ethics, including student safety, confidentiality, and responsible communication, is crucial. Presenters should model these behaviours and discuss their importance during professional seminars.

LEARNING TASKS

1. Identify and describe a PE-related career and its required professional competencies.
2. Define and evaluate key competencies in PE careers.
3. Learners deliver a seminar presentation highlighting professional competencies in physical education.

PEDAGOGICAL EXEMPLARS

a. Starter

Activity Title: "Competency Mapping

Divide learners into small groups. Provide each group with a large sheet of paper and markers. Ask them to brainstorm and list all the competencies they believe are important for success in Physical Education.

b. Introduction

Following the "Competency Mapping" activity, each group will present their brainstormed findings to the entire class. This will serve as an introduction to the broader discussion on professional competencies in Physical Education.

c. Group-based Learning

Organise learners into mixed-ability and gender-neutral groups. Utilising their multimedia and digital devices, each group is tasked with researching and designing a creative and informative poster. This poster should highlight five essential professional competencies of a Physical Education teacher.

Your poster must include the following elements for each of the five chosen competencies:

- Definitions: Provide a clear and concise definition for each competency.
- Practical Examples: Illustrate each competency with practical examples of how it is demonstrated in a Physical Education setting.
- Visual Representation: Incorporate visual illustrations or symbols that effectively represent each competency.

d. Seminar Presentation

In mixed-gender groups, learners deliver a seminar presentation on the competencies in a selected career in physical education. They apply theoretical knowledge to practical scenarios while engaging diverse audiences effectively. Feedback should be provided on content accuracy, communication effectiveness, and demonstrated leadership qualities. Learners can use their work from week 19 to feed into their presentation.

KEY ASSESSMENT: Practice Paper 2

As a newly qualified PE teacher in a diverse basic school in Accra, you are tasked with creating an inclusive PE programme that fosters physical literacy for all students. Outline your strategic approach, detailing how you'd demonstrate Pedagogical & Skill Acquisition Expertise, Cultural Competence & Diversity Inclusion, and Resource Management to ensure its success and sustainability in the Ghanaian school context.

HINT

Conduct Practice Paper 2. It should cover contents taught from Year 1 to 3. Refer to the Table of Specification and Structure of the Paper at the end of this section. Learners' papers should be marked immediately and scores entered the SAP.

TABLE OF SPECIFICATION (PRACTICE PAPER 2)

FOCAL AREA	TYPE OF QUESTION	DOK LEVEL				TOTAL
		1	2	3	4	
1. Biomechanical Principles: Applying Biomechanics	Multiple Choice	2	–	–	–	2
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
2. Health and wellness	Multiple Choice	1	3	1	–	5
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
3. Food Safety, Ogmsp Foods, Food Choice Factors	Multiple Choice	1	1	–	–	2
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
4. Common Human Diseases	Multiple Choice	1	1	1	–	3
	Essay	–	–	1	–	1
	Practical	–	–	–	–	–
5. First Aid	Multiple Choice	2	1	1	–	4
	Essay	–	–	–	–	–
	Practical	–	1	–	–	1
6. Training Principles for Sports Performance	Multiple Choice	2	2	–	–	4
	Essay	–		–	–	
	Practical	–	–	–	–	–
7. Health Education Professionals; Professional Preparation	Multiple Choice	–	1	1	–	2
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
8. Invasion Sports Coaching/ Officiating	Multiple Choice	–	–	–	–	–
	Essay	–	–	1	–	1
	Practical	–	–	1	–	1
9. Running Sports Coaching/ Officiating	Multiple Choice	1	1	–	–	2
	Essay	–	–	–	1	1
	Practical	–	–	1	–	1

10. Mental Health	Multiple Choice	1	2	1	–	4
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
11. Training Principles; Applying Training Principles	Multiple Choice	–	1	1	–	2
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
12. Sexual and Reproductive Health	Multiple Choice	1	1	–	–	2
	Essay	–	–	–	1	1
	Practical	–	–	–	–	–
13. Physical Activity for Healthy Living	Multiple Choice	2	1	1	–	4
	Essay	–	–	1	–	1
	Practical	–	–	–	–	–
14. Understanding the concept of nutrition	Multiple Choice	–	2	–	–	2
	Essay	–	–	–	–	–
	Practical	–	–	–	–	–
15. Injury management and prevention	Multiple Choice	1	1	–	–	2
	Essay					
	Practical					
		31%	40%	25%	4%	100%
TOTAL NO. OF ITEMS	(MCQ)	15	18	7	0	40
TOTAL NO. OF ITEMS	(Essay)	0	0	3	2	5
TOTAL NO. OF ITEMS	(Practical)	0	1	2	0	3

PLC Session 18

45 minutes **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous session, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand.
   b. identify three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q).

c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Use your app to plan and administer the mode of assessment for the Student Assessment Portal (SAP).
   a. The key assessment for the week is ***Practice Paper 2***. Chat with your app to plan this assessment by reviewing or developing the assessment items/tasks and marking schemes/rubrics for the practice paper (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or topic/idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through the problem individually for 3–4 minutes
   c. the group then works through it together the problem, step by step
   d. highlight the most common errors made at each step (NTS 1c, 1e, 2c, 2e, 3e-3j).

Note

- *This part is not 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
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30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
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      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
    a. transfer your chats into your learning planner template.
    b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
    c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section Review

Week 17 stablished the motivations for choosing a career in Physical Education. It examined various drivers, including a passion for sport and fitness, the desire to promote health and well-being, the fulfilment derived from teaching and mentoring, and the appeal of a dynamic and active profession. A thorough exploration of these motivations set foundation for the upcoming seminar presentation, facilitating a nuanced discussion of individual career aspirations within the field of physical education.

Week 18 outlined the key skills and attributes necessary for success in Physical Education. It covered a range of competencies, including pedagogical skills (such as lesson planning and classroom management), subject matter expertise (in areas like anatomy and exercise physiology), effective communication skills, leadership qualities, and a solid understanding of safeguarding and inclusive practices. These competencies were used by learners to do a seminar presentation.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 17(Total: 9 Marks)

Criteria	Marks	Description
1. Identification of relevant factors	*2*	*Identifies relevant personal factors (e.g., interests, skills, lifestyle preferences) that influence career decisions.*
2. Analysis of Physical Education Teacher Pathway	*2*	*Analyses how the factors apply specifically to the role of a PE teacher.*
3. Analysis of Fitness Trainer pathway	*2*	*Analyses how the same or different factors apply to the role of a fitness trainer.*
4. Comparative evaluation	*2*	*Makes clear comparisons between the two roles, showing how each career aligns differently with the individual's attributes.*
5. Use of relevant examples	*1*	*Provides at least one specific example to support the analysis.*

Model Answer

A student choosing between becoming a Physical Education (PE) teacher and a fitness trainer should consider personal interests, skills, and lifestyle preferences, as these can significantly influence career satisfaction and long-term success.

If the student enjoys working with young people in a structured educational environment and has strong communication and classroom management skills, they may be better suited to a career as a PE teacher. This role requires the ability to plan lessons, assess pupil progress, and foster physical development and teamwork among students. Additionally, those who value job stability, regular working hours, and school holidays may find this pathway more appealing.

On the other hand, becoming a fitness trainer might be more suitable for a student who prefers working with adults in one-on-one or small group settings and is passionate about fitness programming and personal goal setting. This role often requires flexibility, self-motivation, and marketing skills, as many trainers are self-employed or work variable hours depending on client availability. A student who values autonomy, enjoys gym-based environments, and seeks dynamic, client-driven interactions may prefer this pathway.

For example, a student who enjoys mentoring young athletes in a school sports team and values a predictable routine might choose to become a PE teacher. Conversely, someone who thrives in a fast-paced gym setting and enjoys helping adults achieve fitness goals may lean towards being a fitness trainer.

Ultimately, the decision should align with the student's personal strengths and desired lifestyle. Analysing these elements ensures a more informed and fulfilling career choice in the field of Physical Education.

WEEK 18

Model Answer

1. Needs Assessment & Inclusive Design (Initial Phase)

- **Assessment of Diverse Needs:** Start by conducting an informal assessment of students' current physical literacy levels, interests, and any specific needs or barriers (e.g., through observation, simple skill assessments, student questionnaires, discussions with class teachers). This demonstrates **Pedagogical & Skill Acquisition Expertise** in understanding learner profiles.
- **Curriculum Adaptation:** Design lessons using **differentiated instruction** to cater for varying abilities. This might involve multi-ability tasks, allowing students to choose challenge levels, or providing alternative equipment/movements. Focus on fundamental movement skills (running, jumping, throwing, catching) through varied activities rather than just competitive sports.
- **Cultural Competence & Diversity Inclusion:** Engage with parents and community leaders to understand cultural nuances regarding physical activity, traditional games, or gender roles in sport. Incorporate **local Ghanaian traditional games and dances** into the curriculum to boost engagement, cultural pride, and provide familiar entry points for disengaged students. Ensure activities are accessible regardless of economic background (e.g., not requiring expensive gear).

2. Delivery & Resourceful Implementation

- **Effective Pedagogy:** Use clear, concise instructions and demonstrations. Employ various teaching styles (e.g., direct instruction, guided discovery, peer teaching) to cater for different learning preferences. Provide positive, constructive feedback that focuses on effort and improvement, not just outcome. This exemplifies **Pedagogical & Skill Acquisition Expertise**.
- **Resource Management:** Given typical school budget constraints in Ghana, be resourceful. Utilise existing school facilities creatively. Improvise equipment using locally available, low-cost materials (e.g., plastic bottles for cones, old tyres for agility drills, skipping ropes from local markets). Organise inter-class or inter-school 'mini festivals' of traditional games, requiring minimal equipment but high engagement.
- **Building a Positive Environment:** Foster a supportive atmosphere where effort is celebrated, mistakes are learning opportunities, and all students feel safe and valued, regardless of their skill level. Actively challenge stereotypes or exclusionary behaviours. This is central to **Cultural Competence & Diversity Inclusion**.

3. Monitoring & Sustainability

- **Continuous Assessment:** Regularly observe student engagement and skill progression. Adapt lessons based on ongoing feedback and observations, demonstrating **Pedagogical & Skill Acquisition Expertise** in responsiveness.
- **Community Engagement:** Involve parents and the wider community in supporting physical activity, perhaps through family sports days or community fitness initiatives, building long-term programme sustainability and demonstrating **Collaboration & Partnership** (an underlying competency).

This approach ensures the PE programme is not only inclusive and develops physical literacy but is also culturally relevant and sustainable within the Ghanaian school system, reflecting a holistic demonstration of competencies.

Marking Scheme (20 Marks)

- **1-4 Marks: Understanding the Challenge:** Briefly acknowledges the core challenges of inclusion and physical literacy in the Ghanaian school context.
- **5-8 Marks: Strategic Approach Overview:** Outlines a logical, phased approach to programme design and delivery.
- **9-11 Marks: Demonstrating Competencies (for 2 of 3 specified competencies):** Provides specific, actionable strategies for demonstrating *two* of: **Pedagogical & Skill Acquisition Expertise**, **Cultural Competence & Diversity Inclusion**, **Resource Management**. Examples are relevant.
- **12-15 Marks: Demonstrating Competencies (for all 3 specified competencies):** Provides specific, actionable strategies for demonstrating *all three* competencies with good detail and direct relevance to the scenario and Ghanaian context. Shows clear understanding of how each contributes.
- **16-20 Marks: Justification & Interlinkage:** Clearly justifies *why* the chosen strategies are optimal for success and sustainability. Demonstrates how the specified competencies interlink to create a comprehensive and effective inclusive PE programme. Shows nuanced understanding of the practical application.

SECTION 9: ACADEMIC AND CAREER PATHWAYS

STRAND: ACADEMIC AND CAREER PATHWAYS

Sub-Strand: Sports Excellence Pathways

Learning Outcome: *Identify an interesting sports pathway and demonstrate its competencies*

Content Standard: *Demonstrate knowledge of preparedness for excellence in participation in sports*

INTRODUCTION AND SECTION SUMMARY

The pursuit of sporting excellence is a complex and multifaceted journey, demanding dedication, talent, and strategic support. Developing effective pathways to nurture and guide aspiring athletes is crucial for maximising their potential and ensuring the long-term success of a nation's sporting ambitions. Sports excellence pathways are structured programmes designed to identify, develop, and nurture talented athletes, providing them with the necessary support and resources to achieve their full potential and excel in their chosen sports. These pathways are critical for fostering a culture of excellence in sports, promoting athletic achievement, and contributing to the development of world-class athletes. Sports excellence pathways typically involve a range of components, including talent identification, coaching, training, competition, and support services. These pathways are designed to provide athletes with a comprehensive and supportive environment that enables them to develop their skills, build their strength and endurance, and achieve their goals.

This section will evaluate the reasons for selecting a given pathway in sport excellence and demonstrate professional competencies in the chosen sports pathway. It will explore the key components of a robust sports excellence pathway, examining the essential elements required to support athletes from grassroots participation through to elite competition.

The weeks covered in this section include the following:

Week 19: Evaluate reasons for selecting a given pathway in sport (preparation for seminar presentation)

Week 20: Demonstrate professional competencies in the chosen pathway of sports excellence (Seminar presentation)

SUMMARY OF PEDAGOGICAL EXEMPLARS

Sports excellence exemplars serve as valuable frameworks for understanding the pathways that lead to high performance and professional growth within the sporting domain. They highlight the integration of skill development, discipline, and strategic planning necessary for achieving success at competitive levels. These exemplars emphasise goal-oriented training approaches that cater to individual athlete profiles, ensuring that physical, technical, tactical, and psychological competencies are nurtured holistically. For instance, the application of sports science, performance analytics, and technology-

driven feedback mechanisms enables athletes to monitor progress and refine techniques effectively. Furthermore, inclusive coaching models within sports excellence programmes ensure that athletes of varying abilities and backgrounds receive tailored support, fostering equity and sustained motivation.

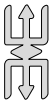
In addition, these pedagogical approaches underscore the importance of career planning within the field of sports. Learners are encouraged to evaluate their reasons for pursuing a specific sports pathway—be it coaching, performance analysis, athletic training, or sports administration—by reflecting on personal strengths, interests, and long-term goals. Through guided seminars and professional engagement activities, students gain insights into the competencies required to excel in their chosen pathway. This holistic preparation not only enhances performance capabilities but also supports career readiness and lifelong involvement in sport.

ASSESSMENT SUMMARY

Teachers are instructed to use both formative and summative assessments to evaluate learners' understanding of sports excellence pathways. Level 3 assessment modes, in which students can demonstrate both strategic reasoning and extended critical thinking and reasoning skills, should be the primary focus of these approaches at this time.

Formative assessments will include class discussions, exercises, homework, and group presentations, where learners will share their knowledge and personal learning experiences. These activities will assess learners' ability to evaluate reasons for selecting a given pathway in sport and demonstrate professional competencies in the chosen pathway of sports excellence.

Summative assessment will consist of an end-of-semester examination, which will be aimed at evaluating students' understanding to evaluate reasons for selecting a given pathway in sport and demonstrating professional competencies in the chosen pathway of sports excellence. Combining these two assessment forms will support learners in applying reasons for selecting a given pathway in sport and demonstrating professional competencies in the chosen pathway of sports excellence.



Note

Teachers are encouraged to employ appropriate assessment strategies and modes that best suit their lessons and learning environments to achieve the required learning outcome.

Assessment Summary

Week	Indicator	DoK Level	Assessment Mode
19	Evaluate reasons for selecting a career pathway in Sport (Preparation for seminar presentation)	Level 3	Practical
20	Demonstrate professional competencies in the chosen pathway of sports excellence (Seminar presentation)	Level 3	Practical

RECAP

Recap the following weeks from year 1

Year 1	Week 21: Identify career pathways in Sports Excellence Week 22: Discuss career pathways in Sports Excellence



Figure 19.1: *Examples of sport pathways*

1. Intrinsic Motivations

Intrinsic motivations are personal factors that drive an individual's desire to participate in a particular sport or pathway. These motivations are often rooted in personal interests, values, and passions. These are powerful drivers for sustained engagement and commitment in sport.

a. Passion and Love for the Sport

The most fundamental reason for choosing a sport pathway is a genuine passion for the sport itself. This love can manifest as enjoyment in participating, competing, and improving skills. Athletes often find joy in the process of training and the thrill of competition, which fuels their commitment to the sport. Example: A young footballer spending hours practising skills because they love the game, not just to win.



Figure 19.2: *A female soccer team celebrating*

b. Personal Goals and Aspirations

Individuals may set ambitious personal targets, such as achieving elite performance levels, mastering complex skills, representing their country, or simply improving their personal bests. These aspirations provide direction and drive. For example, a school athlete setting a goal to break a school record.

c. Sense of Identity and Self-Expression

Sport can become a significant part of an individual's self-concept and how they express themselves. For many athletes, their sport is a significant part of their identity. It provides a unique platform for displaying creativity, discipline, resilience, and problem-solving abilities. This sense of belonging can be a powerful motivator in choosing a pathway. For instance, A climber defining themselves by their adventurous spirit.

d. Challenge and Mastery

The appeal of overcoming obstacles, pushing personal boundaries, and continuously developing skills fosters a sense of competence and achievement. The pursuit of mastery constantly refining technique and understanding is a strong intrinsic reward. Athletes are often drawn to pathways that provide opportunities for personal growth, skill development, and the satisfaction that comes from overcoming obstacles. **Example:** A chess player meticulously analysing their game to improve strategy.

2. Extrinsic Motivations

Extrinsic motivations are external factors that influence an individual's decision to select a particular pathway in sport. While not as sustainable as intrinsic motives on their own, they can play a significant role, particularly in professional or highly competitive contexts. These can include tangible rewards and societal recognition.

a. Scholarships and Financial Incentives

The prospect of financial support for education, training, or living expenses can be a major draw, especially for talented athletes from diverse socio-economic backgrounds. Pursuing a sport can lead to educational opportunities that alleviate financial burdens, making it an attractive pathway for many. Professional contracts, prize money, or sponsorship deals are also powerful incentives in elite sport. A student-athlete may choose to pursue a scholarship to play a particular sport at a university.

b. Career Opportunities

Sport offers a wide array of professional roles beyond playing, such as coaching, sports science (e.g., nutritionist, physiotherapist, performance analyst), sports administration, event management, media, and marketing. A desire to work within the sporting ecosystem can lead to choosing these pathways. **Example:** A former athlete pursuing a career as a sports psychologist or a keen organiser moving into sports event management.

c. Fame and Recognition

The desire for public recognition, admiration, and a high profile can be a strong external motivator, particularly in high-profile sports. This can manifest as media attention, social media following, sponsorship deals or widespread public acknowledgment which can enhance their personal brand. A professional athlete may seek to gain fame and recognition through their performances.



Figure 19.3: *A young team receiving recognition for winning*

d. Social Status and Prestige

Achieving success in a sporting pathway can confer significant social status, respect, and prestige within communities, nationally, or even internationally. Athletes may be motivated to pursue pathways that elevate their standing within their community or social circles, leading to increased respect and admiration. Being associated with a successful team or institution can also contribute to this. **Example:** A national team captain gaining significant community respect, or a club becoming a source of local pride.

3. Environmental Factors

Environmental factors refer to the external environment and social context in which an individual makes decisions about their sport pathway.

a. Family Influence and Support

Family plays a crucial role through encouragement, financial investment, logistical support (transport to training, equipment), role modelling (e.g., parents who were athletes or coaches), and instilling values related to sport and physical activity. Family influence and support can play a significant role in shaping an individual's decision to select a particular pathway in sport. **Example:** A young athlete may be influenced by their parents' involvement in a particular sport or their encouragement to pursue a specific pathway.



Figure 19.4: *A father supporting his son to play basketball*

b. Coach and Mentor Influence

Effective coaches and mentors can significantly influence a pathway choice by providing positive experiences, skill development, guidance, encouragement, and inspiring belief in an individual's

potential. Poor coaching can also deter participation. Effective coaching can inspire athletes to pursue specific sports and help them navigate their development within that sport. A coach recognising an athlete's hidden talent and guiding them towards a specialist pathway, or a mentor providing career advice in sports management.



Figure 19.5: *A coach influencing his players*

c. Access to Resources and Facilities

The availability, quality, and affordability of training facilities (e.g., pitches, gyms, swimming pools), equipment, specialist coaching, and support services (e.g., sports science, medical care) are critical determinants that can influence an individual's decision to select a particular pathway in sport. Geographical location often plays a significant role here. For instance, an athlete may choose to pursue a pathway in a sport that has readily available resources and facilities, such as a local swimming pool or tennis court.

d. Peer Influence and Social Networks

Friends and teammates can exert powerful influence. Choosing a pathway that allows one to participate alongside friends or being part of a supportive and motivating social network within a sport, can be highly attractive. Social media networks also play an increasing role in influencing perceptions and choices. An individual may be influenced by their friends' participation in a particular sport or their social network's support for a specific pathway.

4. Personal Circumstances

Personal circumstances refer to the individual factors that can influence an athlete's decision-making process. Individual attributes, health status, and life stages significantly shape the feasibility and desirability of different sporting pathways.

a. Physical Attributes and Abilities

Natural talent, genetic predispositions (e.g., specific body type, muscle fibre composition), existing physical fitness levels, and motor skills can predispose an individual towards success and enjoyment in certain sports or roles, making those pathways seem more viable. **Example:** An individual with exceptional height and jumping ability being drawn to basketball or high jump, or someone with natural strength pursuing powerlifting.

b. Educational Opportunities

Balancing sports with academic pursuits is crucial. Athletes often consider how their chosen pathway can complement their educational goals, including the potential for scholarships and career opportunities. Educational opportunities can influence an individual's decision to select

a particular pathway in sport. A student-athlete may choose to pursue a scholarship to play a particular sport at a university.

c. Health and Well-being

A desire to improve or maintain physical health (e.g., weight management, cardiovascular fitness), mental well-being (e.g., stress reduction, enjoyment), or to manage specific health conditions through structured activity can lead to a sport participation pathway. Conversely, existing injuries or health issues might limit certain options. Athletes may choose pathways that promote their overall well-being and align with their health goals. **Example:** An athlete with a chronic injury may choose to pursue a pathway in a low-impact sport to minimise the risk of further injury.

d. Life Stage and Personal Goals

An individual's current life stage (e.g., childhood, adolescence, university, early career, retirement) heavily influences the time, energy, and resources available for sport. Personal goals related to family, career, or other life priorities can shift focus. For instance, younger athletes may focus on skill development, while older athletes might consider career transitions or long-term sustainability in their sport.

5. The Decision-Making Process

The decision-making process refers to the steps an individual takes to select a particular pathway in sport. This process involves several key components that help individuals make informed decisions about their sport participation.

a. Information Gathering and Research

Individuals actively seek out information about different pathways. This might involve researching educational requirements, career prospects, training demands, or the experiences of others already in a specific role. Gathering information and conducting research can help individuals make informed decisions about their sport pathway. Example: Reading university prospectuses for sports degrees or researching professional coaching qualifications. Also, an athlete may research different coaching programs or training methods to determine which one best aligns with their goals.

b. Evaluation of Options and Alternatives

Once information is gathered, individuals weigh the pros and cons of various pathways, considering how each aligns with their motivations, circumstances, and environmental opportunities. This involves critical thinking and comparing different routes. Evaluating options and alternatives can help individuals determine which pathway best aligns with their goals and priorities. Deciding between pursuing professional playing or focusing on a degree in sports science.

c. Seeking Advice and Guidance

Consulting with trusted individuals is a crucial step. This includes discussions with parents, teachers, coaches, career counsellors, mentors, or professionals already in the desired pathway. Their insights and experiences can provide valuable perspectives and clarify uncertainties. **Example:** A young athlete discussing their future with their coach, or a student seeking career advice from a university lecturer.

d. Commitment and Follow-Through

Once a decision is made, it requires sustained commitment and effort to pursue the chosen pathway. This involves making necessary sacrifices, dedicating time to training or study, and demonstrating resilience in the face of challenges. The initial decision is just the beginning of the journey. **Example:** An individual enrolling in a demanding coaching course and consistently applying themselves to their studies and practical placements.

LEARNING TASKS

1. Classify professionals within sports career pathways.
2. Research an athlete's career pathway, including their early development, progression to elite levels, and any challenges they faced.

PEDAGOGICAL EXEMPLARS

a. Starter

Think about your favourite sports personality. What makes them successful? Is it just natural talent, or is there something more? Let learners come out with their thougths.

b. Introduction

Guide learners to understand the following statement:

Choosing a pathway in sport is a significant decision. It is not just about picking a sport; it is about aligning your aspirations, abilities, and resources with a structured plan for development. This decision is influenced by a complex interplay of factors, including personal goals, inherent talent, access to resources, and support networks.

c. Digital Learning

Show videos or pictures of various professionals in the sports industry for learners to watch and identifying them.

Learners classify the various professionals into athletes and technical experts.

d. Collaborative Learning

Learners in groups identify an athlete and research their career pathway including their:

- early development.
- progression to elite levels
- any challenges they have faced and how they overcame these.

How did the sports excellence pathway contribute to the athlete's success?

Learners in groups present their work to the class.

KEY ASSESSMENT Level 3: Practical

1. Scenario Analysis and Justification

Activity: Read the following scenario and answer the questions that follow.

Scenario: "Kwofie, a talented 14-year-old sprinter, has been offered a place in two different sports academies. Academy A focuses intensely on individual athletic performance, offering world-class coaching in sprinting, access to advanced sports science facilities, and a rigorous competition schedule aimed at elite youth championships. Academy B, while still highly competitive, places more emphasis on a holistic athlete development model, including academic support, mental resilience training, and opportunities for coaching younger athletes, alongside their high-performance sprint programme."

a. If Kwofie's primary motivation is to achieve professional sprinting success as quickly as possible, which academy would he most likely select? Justify your choice with at two specific reasons from the scenario. (5 marks)

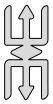
b. If Kwofie's parents are concerned about his long-term well-being and academic future beyond sport, which academy might they encourage him to choose? Explain your reasoning, referencing two features of the academy. (5 marks)

c. Considering both Kwofie's ambition and his parents' concerns, and assuming Kwofie values his education, what are two potential *conflicts* that might arise in this decision-making process? How might Kwofie and his family approach resolving these two conflicts? (8 marks)

PLC Session 19

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



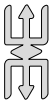
Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 20

Learning Indicator: *Demonstrate professional competencies in the chosen pathway of sports excellence (seminar presentation)*

FOCAL AREA: PROFESSIONAL COMPETENCIES IN THE CHOSEN PATHWAY OF SPORTS EXCELLENCE

Introduction

The pursuit of sports excellence is a demanding journey, requiring not only exceptional athletic ability but also a robust set of professional competencies that drive success in the sports industry. While talent and dedication are crucial, a robust set of professional competencies is equally vital for athletes, coaches, and support staff alike. Professionals in the sports excellence pathway must possess a unique blend of skills, knowledge, and attributes that enable them to excel in their roles.

Professional competence in the realm of sports excellence is not merely about possessing knowledge, but about the effective and ethical application of that knowledge in complex, dynamic, and high-stakes environments. It is the bedrock upon which sustained athlete success and well-being are built.



Figure 20.1: *Sports excellence*

1. Defining Professional Competence in Sports Excellence

a. What is Sports Excellence?

Defining the High-Performance Environment

Sports Excellence refers to the pinnacle of athletic achievement and the systems designed to facilitate it. This encompasses:

i. **Elite Athletes:** Individuals performing at the highest levels of their sport.

ii. **Olympic/Paralympic Levels:** Participation in major international multi-sport events, often representing national teams.

iii. **Professional Leagues:** Athletes competing for remuneration in established sporting organisations. It is characterised by intense competition, marginal gains determining success, significant physical and psychological demands, and typically a professional support structure (coaches, sports scientists, medical teams).

Distinguishing from General Sports Participation:

Unlike general sports participation, which prioritises health, recreation, and mass engagement, sports excellence focuses on:

i. **Performance Optimisation:** Maximising athletic potential and competitive outcomes.

ii. **Specialisation:** Often deep specialisation in one sport from a younger age.

iii. **Systematic Training:** Highly structured, periodised, and scientifically informed training programmes.

iv. **Results-Oriented:** While development is key, competitive results are a primary measure of success.

b. The Multi-Dimensional Nature of Competence

Beyond technical skill, professional competence in sports excellence is multi-faceted, encompassing:

i. **Knowledge Dimension:** The theoretical understanding of scientific principles (e.g., physiology, biomechanics, psychology) and sport-specific information (e.g., rules, tactics).

ii. **Application Dimension:** The ability to translate theoretical knowledge into practical, effective, and context-specific interventions (e.g., designing a training plan, executing a coaching session, making a tactical decision).

iii. **Interpersonal Dimension:** Skills related to effective communication, collaboration, empathy, and building strong relationships with athletes, colleagues, and stakeholders.

iv. **Ethical Dimension:** Adherence to professional standards, values, and moral principles, prioritising athlete welfare and integrity of the sport.

Why a Holistic Set of Competencies is Crucial for Success: A single dimension is insufficient. For example, a coach with vast technical knowledge but poor interpersonal skills will struggle to motivate athletes. Similarly, a physically skilled athlete without a strong psychological game will underperform under pressure. High-performance environments are complex adaptive systems requiring professionals to operate effectively across all these domains.

c. The Impact of Competence

i. **Athlete Performance Optimisation**: Competent professionals maximise an athlete's physical, technical, tactical, and psychological potential, directly contributing to improved competitive results (e.g., faster times, higher scores, more wins).

ii. **Athlete Well-being and Longevity**: Beyond performance, competence ensures that training is sustainable, injuries are minimised, mental health is supported, and athletes can enjoy long and healthy careers, transitioning successfully post-sport. This reflects an ethical duty of care.

iii. **Ethical Practice and Reputation of the Sport/Organisation:** Competent professionals uphold the values of fair play, anti-doping, and integrity. This builds trust within the sporting community, enhances the sport's reputation, and safeguards its long-term viability.

Conversely, incompetence or unethical practice can lead to scandals, public mistrust, and athlete harm.

2. Core Domain Expertise & Knowledge Application

This foundational pillar underscores that effective practice in sports excellence is built upon a robust and current knowledge base.

a. Scientific Foundations of Performance

Exercise Physiology: Understanding how the body responds and adapts to physical training. This includes knowledge of:

i. **Energy systems** (ATP-PC, anaerobic glycolysis, aerobic oxidation) and their relevance to specific sports (e.g., anaerobic for sprint, aerobic for marathon).

ii. **Adaptation to training** (e.g., cardiovascular adaptations, muscle hypertrophy, neural efficiency).

iii. **Fatigue mechanisms** (e.g., muscle glycogen depletion, central fatigue) and strategies for prevention/management.

iv. **Biomechanics:** The study of human movement from a mechanical perspective.

v. **Sport Psychology:** The application of psychological principles to enhance performance and well-being.

vi. **Sports Nutrition**: The science of fuelling the body for optimal performance and recovery.



Figure 20.2: *Sports science and performance*

b. Sport-Specific Mastery

i. **In-depth knowledge of rules, tactics, and techniques of the chosen sport(s)**: This extends beyond merely knowing "what" but understanding "why" and "how" (e.g., not just knowing a goal is a goal, but understanding offside rules, tactical formations, specific passing techniques).

ii. **Understanding the specific demands (physical, mental, technical) of different positions/roles:** Recognising that a football goalkeeper's demands differ significantly from a striker's, or a boxer's from a judoka's.

iii. **Historical and current trends in the sport:** Awareness of how the sport has evolved, dominant strategies, and emerging techniques, allowing for adaptive coaching.

c. Performance Analysis and Data Interpretation

Proficiency in collecting, analysing, and interpreting performance data: This includes:

i. **Quantitative data:** GPS tracking (e.g., distance covered, speed), heart rate monitors, strength testing metrics (e.g., 1RM, power output), video analysis (e.g., technical breakdowns, tactical patterns), blood markers (e.g., lactate, cortisol).

ii. **Qualitative data:** Athlete feedback, coach observations, wellness questionnaires.



Figure 20.3: *Soccer performance analysis*

iii. **Translating data into actionable insights for coaching and athlete development:** The ability to convert raw data into clear, understandable information that directly informs training adjustments, tactical decisions, and athlete feedback. This is a crucial skill for evidence-based practice.

d. Research Literacy and Evidence-Based Practice

Ability to critically evaluate scientific literature and integrate new research findings: Not simply accepting all published research, but discerning credible sources, understanding methodologies, and applying relevant findings to practice.

Applying evidence-based principles in all aspects of practice: Moving beyond anecdotal evidence or tradition and making decisions informed by the best available scientific evidence, professional experience, and athlete values.

3. Coaching and Leadership Competencies

This outlines the practical skills necessary for guiding, motivating, and directing athletes towards excellence.

a. Pedagogical and Skill Acquisition Expertise

i. **Effective teaching methodologies:** Employing a range of approaches such as direct instruction, guided discovery, problem-solving, and constraint-led approaches to facilitate learning.

ii. **Understanding motor learning principles**: Applying concepts like stages of learning (cognitive, associative, autonomous), types of feedback (knowledge of results, knowledge of performance), and practice variability (blocked vs. random practice) to optimise skill acquisition.

iii. **Skill analysis and correction:** The ability to observe an athlete's movement, accurately identify technical flaws, diagnose their root cause (e.g., biomechanical, strength deficit), and devise effective corrective strategies and drills.

b. Strategic Planning and Periodisation

i. **Designing long-term athlete development plans**: Creating a roadmap for an athlete's progression over months, years, and even a full career, linking training phases to competition cycles. This includes macrocycles (annual), mesocycles (monthly), and micro cycles (weekly).

ii. **Optimising training loads, recovery, and tapering for peak performance:** Skilfully manipulating volume, intensity, frequency, and type (FITT principle) of training to induce adaptation, manage fatigue, and ensure the athlete reaches optimal physical and mental state for key competitions.

iii. **Integrating physical, technical, tactical, and psychological training:** Ensuring that all components of training are seamlessly woven together, so improvements in one area support others.

c. Communication Mastery

i. **Clear, concise, and persuasive verbal communication**: Delivering instructions, feedback, and motivational messages in a way that is easily understood and inspires action.

ii. **Effective non-verbal communication:** Utilising body language, gestures, facial expressions, and eye contact to convey confidence, empathy, and clarity. Active listening through attentive body language.

iii. **Adapting communication style to individuals and diverse groups:** Recognising that athletes have different learning styles, personalities, and cultural backgrounds, and tailoring communication accordingly.

d. Decision-Making Under Pressure

i. **Making timely and effective decisions in high-stakes environments:** Such as during a competition (e.g., tactical changes, substitutions, medical interventions) where rapid, accurate judgment is essential.

ii. **Problem-solving unexpected challenges:** The ability to think on one's feet and devise solutions for unforeseen obstacles like unforeseen injuries, equipment failure, adverse weather conditions, or opponent's tactical shifts.

e. Motivational & Athlete Empowerment Strategies

i. **Fostering intrinsic motivation and self-efficacy in athletes:** Moving beyond external rewards, helping athletes find internal drive and believe in their own capabilities.

ii. **Techniques for goal setting, confidence building, and resilience development:** Guiding athletes through processes that build mental fortitude, set realistic yet challenging targets, and develop coping mechanisms for setbacks.

iii. **Empowering athletes to take ownership of their journey:** Encouraging autonomy, critical thinking, and self-reflection, making athletes active participants in their development.

4. Interpersonal and Collaborative Competencies

The high-performance environment is inherently collaborative. Effective professionals must excel at working with others.

a. Multidisciplinary Team Collaboration

i. **Working effectively with sports scientists, medical staff, physiotherapists, psychologists, nutritionists**: Understanding the expertise of each discipline and how they contribute to the athlete's overall programme.

ii. **Understanding roles and responsibilities within a high-performance team:** Clarifying boundaries and avoiding duplication or conflict of effort.

iii. **Facilitating seamless information exchange and integrated athlete support**: Ensuring that all relevant information about an athlete is shared appropriately and decisions are made collectively for the athlete's best interest.

b. Empathy and Active Listening

i. **Understanding and responding to athletes' emotional states, concerns, and personal challenges:** Moving beyond treating athletes as mere machines, recognising their humanity and the impact of external factors on performance.

ii. **Building trust and rapport through genuine connection:** Essential for athletes to feel comfortable sharing vulnerabilities, receiving feedback, and committing to the coaching process.

c. Conflict Resolution and Difficult Conversations

i. **Mediating disagreements within the team or with athletes:** Skilfully navigating interpersonal conflicts to maintain team cohesion and individual focus.

ii. **Delivering challenging feedback or discussing sensitive topics constructively:** Addressing performance shortfalls, behavioural issues, or personal problems in a way that is firm but supportive, fostering growth rather than resentment.

d. Networking and Relationship Building

i. **Establishing and maintaining professional relationships within the sports industry:** Connecting with other coaches, administrators, scouts, and experts globally to share knowledge and identify opportunities.

ii. **Leveraging networks for athlete opportunities, resource sharing, and continuous learning:** Using professional connections to find appropriate competitive opportunities for athletes, access specialised equipment or facilities, or learn about new training methods.

5. Professionalism and Ethical Conduct

Upholding the highest standards of integrity and ethical behaviour is non-negotiable in sports excellence.

a. Ethical Decision-Making and Integrity

i. **Adhering to codes of conduct, anti-doping policies, and safeguarding procedures:** Strictly following established rules and guidelines to ensure fair play, athlete safety, and compliance with legal and sporting regulations.

ii. **Prioritising athlete welfare over competitive gain:** Making decisions that always put the athlete's long-term health, safety, and well-being before short-term performance outcomes. This is particularly crucial in high-pressure environments where corners might be tempted to be cut.

iii. **Maintaining confidentiality and professional boundaries:** Respecting athletes' privacy and ensuring appropriate relationships are maintained within a professional coaching context.

b. Accountability and Responsibility

i. **Taking ownership of decisions and outcomes**: Accepting responsibility for both successes and failures and using them as learning opportunities.

ii. **Adhering to professional standards and regulations:** Consistently meeting the expectations of governing bodies, employers, and the wider sporting community.

c. Continuous Professional Development (CPD)

i. **Commitment to lifelong learning and staying current with industry best practices:** Regularly engaging in educational opportunities, reading research, and seeking mentorship.

ii. **Actively seeking out new knowledge, certifications, and experiences**: Continuously enhancing one's skill set and knowledge base to remain effective in an evolving field.

d. Role Modelling and Professional Image

i. **Demonstrating the values and behaviours expected of athletes and the organisation**: Coaches are often seen as leaders and mentors; their conduct sets the standard.

ii. **Maintaining a positive and professional image in all interactions:** Representing themselves, their athletes, and their organisation with decorum and respect.

6. Applied and Contextual Competencies

These competencies highlight the practical application of skills within various operational and environmental contexts.

a. Resource Management

i. **Efficiently managing time, budget, equipment, and personnel**: Optimising the use of available resources to achieve maximum impact on athlete development and performance.

ii. **Optimising available resources for maximum impact:** This is especially relevant in contexts where resources might be limited; competence here involves creativity and effective prioritisation.

b. Problem-Solving and Adaptability

i. **Responding effectively to unforeseen challenges, changes in plans, or competitive curveballs:** The ability to think critically and adjust strategies rapidly in response to dynamic situations (e.g., sudden venue change, unexpected opponent strategy).

ii. **Creative problem-solving in resource-constrained environments:** Finding innovative solutions when ideal resources are not available, which can be particularly relevant in developing sporting nations.

c. Cultural Competence and Diversity Inclusion

Understanding and respecting diverse cultural backgrounds, beliefs, and practices of athletes and staff: Recognising how cultural factors can influence motivation, communication, training responses, and athlete well-being.

Creating an inclusive environment that values diversity: Ensuring that all athletes feel safe, respected, and supported, regardless of their background, gender, or ability.



Figure 20.4: *A culturally diverse France National Football team*

d. Innovation and Technology Integration

Exploring and responsibly adopting new technologies to enhance training, analysis, and recovery: Being open to and proficient in using advancements like wearable tech, advanced video analysis software, and recovery tools.

Fostering a culture of continuous improvement: Encouraging a mindset of experimentation, learning from successes and failures, and always seeking better ways to achieve excellence.



Figure 20.5: *The use of technology to determine whether a player is offside*

LEARNING TASK

1. Analyse a specific pathway of sports excellence.
2. Learners demonstrate their knowledge and understanding of the key competencies required for success in a chosen pathway through the preparation and delivery of a seminar presentation on a topic related to professional competencies in sports excellence.

PEDAGOGICAL EXEMPLARS

a. Starter: Ask learners to think about a moment in high-performance sport – either one they have witnessed, been a part of, or even just seen on television – where you observed a professional (a coach, a sport scientist, a team manager, a medical staff member, an official, etc.) demonstrate truly exceptional competence under pressure. It could be a brilliant tactical decision, an incredible handling of a crisis, a powerful piece of communication, or an ethical stand.

Jot Down (1 minute): Learners jot down one or two keywords or a brief phrase that describes *what* that professional did, and *what competency* you think they showcased. For example, the coach adjusted strategy mid-game - Adaptability and Strategic Planning, or Physio calmly assessed injury.

Quick Share (2 minutes): Now, in pairs or small groups of three, learners briefly share their observations.

b. Introduction

We often celebrate the athlete's dedication, talent, and triumphs forgetting the unsung heroes. The coaches, the sport scientists, the medical teams etc. Their role is paramount, and their effectiveness hinges on a specific, sophisticated set of professional competencies. We will be exploring the key skills, knowledge, and attitudes required for success in various sports pathways, including coaching, sports management, and sports science.

c. Collaborative Learning

In mixed ability and mixed gender groups, learners discuss and analyse a career pathway in sports excellence. For the selected pathway groups, analyse the key competencies required for professionals in this pathway, including skills, knowledge, and attitudes.

Groups present their work for the whole class to critique and finalise.

d. Demonstrative Learning/Presentation

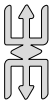
In groups, learners research the key competencies required for success in a chosen pathway. Learners then plan and deliver a short presentation demonstrating the model selected professional competencies in their career of interest in sports excellence.

After each presentation allow the class to provide feedback.

KEY ASSESSMENT Level 3: Practical

Answer the following questions in the form of a presentation

1. Discuss four (4) roles of leadership in promoting a positive team culture in sports.
2. How can coaches and team captains demonstrate leadership skills to foster a cohesive and motivated team environment?



Note

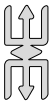
Teachers should provide learners with clear guidelines on the structure, format and time allocated for the presentation.

PLC Session 20

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.

2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



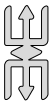
Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practice (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes
   c. the group then works through the problem together step by step
   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes	Enactment

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 9 Review

Week 19 explored the reasons for selecting a given pathway in sport delving deeper into factors such as intrinsic and extrinsic motivations, environmental factors, personal circumstances and decision-making process. This lesson helped learners to gain a deeper understanding of the professional competencies required for success in sports excellence and be better equipped to pursue their career goals.

The focus of the lesson in Week 20 analysed the key professional competencies required for success in various sports pathways, including coaching, sports management, and sports science. Through group discussions and seminar presentations, learners developed a deeper understanding of how to apply professional competencies in their own careers. Demonstrating these professional competencies, learners can enhance their careers and contribute to the success of their organisations and the sports industry.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 19

Model answer

(a) (5 marks)

- **Most likely selection:** Academy A **(1 mark)**
- **Justification (2 marks each, up to 4 marks)**
  - Focuses intensely on individual athletic performance.
  - Offers world-class coaching in sprinting.
  - Access to advanced sports science facilities.
  - Rigorous competition schedule aimed at elite youth championships.
  - Aimed at achieving professional sprinting success as quickly as possible.

(b) (5 marks)

- **Encouraged choice:** Academy B **(1 mark)**
- **Reasoning (Mention 1 mark, Explain 3 marks)**
  - **Holistic athlete development model:** Shows concern for the 'whole person', not just the athlete.
  - **Academic support:** Directly addresses parental concerns about academic future.
  - **Mental resilience training:** Contributes to long-term well-being beyond physical performance.
  - **Opportunities for coaching younger athletes:** Implies development of transferable skills and future career options.

(c) (8 marks)

- **Two potential conflicts (any 4points = 4marks)**
  - Kwofie's desire for quick professional success vs. parents' desire for long-term well-being/ academic security.
  - The immediate gratification/glamour of elite training vs. the delayed benefits of holistic development.
  - Pressure from peers/coaches at Academy A vs. family values promoting balance.
  - Financial implications of one pathway over another (if implied by "rigorous competition" vs. "academic support").
- **Approach to resolving two conflicts (Any 4points = 4marks)**
  - **Communication/Discussion:** Openly discuss pros and cons of each with family, coaches, and school advisors.
  - **Compromise:** Explore if Academy A offers *any* academic flexibility, or if Academy B could fast-track specific sprint development.
  - **Information Gathering:** Seek advice from former athletes on both pathways, or experts in sports psychology/career guidance.

- **Prioritisation Exercise:** Together, rank what is most important for Kwofie's current and future life.

WEEK 20

Model answer and marking scheme

1. Leadership is the single most critical factor in shaping and sustaining a positive team culture in sports. It provides the vision, sets the standards, and creates the environment in which a team thrives.

   a. **Vision and Values Articulation:** Leaders are responsible for clearly defining and communicating the team's shared vision, mission, and core values. This provides a moral compass and a unified purpose, ensuring everyone understands what the team stands for, beyond just winning. A positive culture stems from shared beliefs and behaviours.

   b. **Role Modelling and Standard Setting:** Leaders must embody the desired behaviours, work ethic, and attitudes they expect from the team. Their actions speak louder than words, setting the benchmark for discipline, respect, resilience, and commitment. This consistent modelling reinforces the values daily.

   c. **Communication and Transparency:** Effective leadership fosters open, honest, and consistent communication channels. This includes providing clear feedback, listening actively to athletes' concerns, and being transparent about decisions. This builds trust, reduces uncertainty, and ensures everyone feels heard and valued, which is fundamental to a positive, inclusive culture.

   d. **Establishing Accountability:** Leaders hold themselves and all team members accountable to the agreed standards and values. This is done fairly and consistently, ensuring that both positive contributions are recognised and undesirable behaviours are addressed constructively. A culture of accountability ensures mutual respect and shared responsibility.

   e. **Fostering Psychological Safety:** Leaders create an environment where athletes feel safe to take risks, make mistakes, express opinions, and be themselves without fear of punitive judgment or ridicule. This encourages learning, creativity, and genuine connection, allowing individuals to flourish and contribute authentically.

   f. **Empowerment and Ownership:** Good leaders empower team members to take ownership of their roles and contribute to collective decisions. By delegating responsibilities and encouraging initiative, leaders foster a sense of belonging, commitment, and shared pride in the team's journey.

   g. **Conflict Resolution:** Inevitably, conflicts arise. Leaders adeptly mediate disputes, facilitating resolution through fair processes and promoting understanding. Their ability to manage interpersonal tensions is crucial for maintaining harmony and preventing negativity from festering.

2. Coaches and team captains, though distinct in their roles, both wield significant influence in cultivating a cohesive and motivated team environment through specific demonstrations of leadership skills.

Coaches

   a. **Visionary Coaching and Strategic Planning:** Coaches define the team's playing philosophy, short-term, and long-term goals. By developing clear, challenging, yet achievable training plans, they provide purpose and direction, motivating athletes to work towards a common objective. They might implement team-building drills or off-field activities specifically designed to foster cohesion.

b. **Fairness, Consistency, and Impartiality:** Coaches must apply rules, selection criteria, and disciplinary actions consistently and impartially across all players. This builds trust and ensures players feel valued, reducing resentment and promoting a sense of equity within the team.

c. **Developmental Feedback and Growth Mindset:** Providing regular, constructive feedback that focuses on athlete development and growth, rather than just performance outcomes, motivates players. Encouraging a growth mindset where mistakes are learning opportunities rather than failures fosters resilience and continuous improvement, promoting a psychologically safe environment.

d. **Empowerment through Delegation:** Coaches empower captains and other senior players by delegating responsibilities (e.g., leading warm-ups, organising team meetings, mentoring younger players). This builds leadership capacity within the team and fosters a sense of shared ownership and responsibility, enhancing cohesion.

e. **Emotional Intelligence:** Coaches demonstrate emotional intelligence by managing their own emotions under pressure, showing empathy towards athletes' struggles, and adapting their communication style to individual needs. This helps to de-escalate tension and build strong, trusting relationships.

Team Captains

a. **Leading by Example (Work Ethic & Discipline):** Captains are the embodiment of the team's values. They consistently demonstrate exceptional work ethic, discipline, and commitment in training and competition, inspiring their teammates to match their intensity and adherence to standards.

b. **Effective On-Field Communication and Direction:** During matches, captains are vocal leaders, providing clear instructions, encouragement, and tactical adjustments. Their ability to organise and motivate teammates in high-pressure situations is crucial for maintaining focus and cohesion.

c. **Peer Mentorship and Support:** Captains actively mentor younger or less experienced players, offering guidance, support, and encouragement. They help new players integrate into the team and understand the culture, fostering a welcoming and cohesive environment.

d. **Mediating Player-Level Conflicts:** Often the first point of contact for minor disagreements among players, captains can mediate and resolve issues before they escalate to the coaching staff. This informal conflict resolution is vital for maintaining harmony within the peer group.

e. **Voice of the Players:** Captains serve as a crucial communication link between the players and the coaching staff, articulating player concerns, ideas, and feedback. This ensures players feel their voices are heard and contributes to a more responsive and motivated environment.

Marking Scheme for Presentation

A: Content – Role of Leadership in Promoting Positive Team Culture (8 Marks)

- **2 Marks:** Limited understanding. Mentions only one or two superficial points. Lacks depth in explaining *how* leadership influences culture.
- **2 Marks:** Basic understanding. Discusses some relevant roles (e.g., setting standards, communication) but explanations may lack detail or fail to connect explicitly to *promoting positive* culture. Some accuracy issues.

- **2 Marks:** Good understanding. Clearly discusses several key roles of leadership (e.g., vision, role modelling, communication, accountability, psychological safety). Explanations are generally accurate and provide reasonable depth on *how* these promote a positive culture.
- **2Marks:** Comprehensive understanding. Discusses a wide range of critical roles with excellent detail and nuance. Clearly articulates the mechanisms by which leadership fundamentally shapes a positive team culture, demonstrating a sophisticated grasp of the subject.

B: Content – How Coaches and Captains Demonstrate Leadership (8 Marks)

- **2 Marks:** Limited understanding. Provides very few or vague examples for coaches and captains. Fails to differentiate roles or provide specific behaviours.
- **2 Marks:** Basic understanding. Provides some relevant examples for coaches and captains, but they may lack specificity or be generic. May not clearly differentiate the unique contributions of each role.
- **2 Marks:** Good understanding. Provides a good range of specific and actionable examples for both coaches and captains, demonstrating how they foster cohesion and motivation. Shows a fair understanding of the distinct, yet complementary, nature of their roles.
- **2 Marks:** Comprehensive understanding. Provides an excellent, detailed, and distinct set of examples for both coaches and captains. Clearly articulates how their specific leadership behaviours contribute synergistically to a cohesive and motivated team environment. Examples are highly relevant and illustrative.

Section C: Presentation Quality (4 Marks)

- **1 Mark: Clarity and Structure**
  - 0: Disorganised, difficult to follow.
  - 1: Generally well-organised, logical flow. Easy to understand.
- **1 Mark: Delivery and Engagement**
  - 0: Unconfident, monotone, no audience engagement.
  - 1: Confident, engaging delivery, good eye contact, clear articulation.
- **1 Mark: Use of Examples/Evidence**
  - 0: No specific examples, purely theoretical.
  - 1: Effectively uses specific, relevant examples (from sports, personal experience, or case studies) to illustrate points.
- **1 Mark: Conciseness and Time Management**
  - 0: Rambling, off topic, significantly over/under time.
  - 1: Stays on topic, concise delivery, manages time effectively within allocated limits.

SECTION 10: ACADEMIC AND CAREER PATHWAYS

STRAND: ACADEMIC AND CAREER PATHWAYS

Sub-Strand: Coaching and Officiating of Games

Learning Outcome: *Apply concepts and principles of coaching and officiating to improve performance and management of target/batting and fielding games*

Content Standard: *Demonstrate understanding in the application of the concepts and principles of coaching combat sports (e.g., Tae Kwon Do, Judo, Karate, Wrestling, Kickboxing, Jiujitsu fencing, boxing Tai Chi etc.)*

INTRODUCTION AND SECTION SUMMARY

This section acquaints learners with the core concepts and principles of coaching in combat sports, focusing on enhancing performance while maintaining athlete safety and well-being. Learners will explore the foundations of effective coaching, including planning, communication, motivation, skill development, and performance analysis. Emphasis will also be placed on injury prevention strategies, both as part of athlete preparation and as a critical coaching responsibility.

Throughout the section, learners will examine how combat sports coaches can apply principles of periodisation, tactical development, motor learning, and safe practice to maximise performance outcomes and reduce the risk of injury. They will also consider how psychological and physiological factors affect athlete engagement and long-term development.

By the end of this section, learners will have acquired a strong foundational understanding of coaching principles specific to combat sports, as well as the ability to apply these principles in practical coaching contexts. This includes the ability to plan safe, structured sessions, adopt athlete-centred approaches, and foster regular, purposeful participation in combat sport training. Links will be made with biology, psychology, and physical education to highlight how coaching practices can support lifelong participation, performance enhancement, and injury prevention.

The weeks covered in this section include the following:

Week 21: Discover the concepts and principles of coaching combat sports.

Week 22: Employ the concepts and principles of coaching in the performance of combat sports.

SUMMARY OF PEDAGOGICAL EXEMPLARS

A range of inclusive teaching methods should be employed to bring the concepts of coaching combat sports to life. Use demonstrations, class discussions, video analysis, and scenario-based role-play to explore key coaching principles, such as effective feedback, progressive skill instruction, and athlete motivation.

Practical activities will enable learners to lead and participate in warm-ups, practice injury prevention drills, design performance-based sessions, and implement cooldown strategies relevant to combat sports. Small group work will foster peer learning and encourage learners to evaluate coaching behaviours and techniques.

These will provide learners the opportunities to:

- Analyse case studies of elite combat sport coaching.
- Explore advanced themes such as psychological resilience, sport-specific recovery protocols, or ethical decision-making in high-performance coaching.
- Plan and executes coaching competencies in combat sports.

Differentiated tasks and scaffolding should support all learners, especially during practical coaching activities. Encourage reflection and peer feedback to develop coaching confidence and deepen understanding. Use digital platforms and resources (e.g., video tutorials, expert interviews, coaching analysis apps) to enhance learner engagement and promote active, independent learning

ASSESSMENT SUMMARY

Assessment methods will include quizzes on key coaching concepts, principles, and injury prevention strategies in combat sports. Group presentations exploring strategies for maintaining athlete engagement, performance development, and safe practice in combat sports. Reflective coaching journals, where learners document their experience in leading warm-ups, applying coaching principles, and evaluating their coaching approach.

Practical assessments will require learners to design and lead coaching sessions that reflect best practices in combat sports, demonstrate safe warm-up, technical instruction, and cooldown techniques, with explanations of the rationale behind each activity.

Ongoing formative feedback will support individual learner progress and ensure that learners develop the ability to coach safely, effectively, and with purpose. Emphasis will be placed on promoting long-term participation in combat sports through sound coaching practice, athlete development, and injury prevention awareness.

Assessment Summary

Week	Indicator	DoK Level	Assessment Mode
21.	Concepts and principles of coaching combat sports.	Level 3	Class Exercise
22.	Concepts and principles of coaching in the performance of combat sports.	Level 3	Practical

WEEK 21

Learning Indicator: *Discover the concepts and principles of coaching combat sports*

FOCAL AREA: CONCEPTS AND PRINCIPLES OF COACHING COMBAT SPORTS

Introduction

Combat sports are physical activities that involve attack and defence techniques between two opponents. These sports have a long history, dating back to ancient civilisations, where they were practised both as military training and as a form of entertainment and competition. Today, combat sports include a wide variety of disciplines, such as boxing, judo, karate, taekwondo, and MMA (Mixed Martial Arts). Each of these sports has its own rules, specific techniques, and philosophies, but all share emphasis on discipline, respect for the opponent, and the pursuit of personal growth.

In this contemporary era, combat sports are practised both recreationally and professionally, with local, national, and international events and championships. These competitions not only celebrate the skill and technique of athletes but also promote important values such as discipline, perseverance, and mutual respect. Additionally, the growing popularity of modalities like MMA has helped attract new audiences and diversify the base of practitioners.



Figure 21.1: *Types of combat sports*

1. UNDERSTANDING COMBAT SPORTS

Combat sports are competitive contact sports characterised by direct physical confrontation between two individuals, to defeat an opponent through striking, grappling, or a combination thereof, or by accumulating points based on predetermined rules. Unlike team sports, success in combat sports primarily hinges on individual performance, requiring unique demands on an athlete's physical and psychological capabilities. These sports are often governed by stringent rules covering the definition of combat areas, protective equipment, permitted and prohibited

techniques, and criteria for victory. The rules are designed to ensure athlete safety while maintaining competitive integrity.



Figure 21.2: *Example of combat sports*

a. Types of Combat Sports

Combat sports can be broadly categorised by their dominant modes of engagement:

i. **Striking Sports:** These disciplines primarily involve the use of punches, kicks, elbows, and knees to incapacitate an opponent or score points. Examples include:

- **Boxing**: Is a modality that primarily focuses on punching techniques, emphasising speed, strength, and precision. Athletes wear gloves and compete in a ring, with specific rules aimed at ensuring safety and fairness in the fight. Focuses on punches (jabs, crosses, hooks, uppercuts) with highly refined footwork and defensive manoeuvres.



Figure 21.3: *Boxing as an example of combat sports*

- **Kickboxing:** Combines punches with various kicks, often allowing knees and occasional clinching.
- **Muay Thai:** Known as "The Art of Eight Limbs," incorporating punches, kicks, elbows, and knees, along with clinching techniques and sweeps.

ii. **Grappling Sports**: These sports emphasise control, throws, joint locks, and chokeholds to submit an opponent or achieve dominant positions. Examples include:

- **Judo**: On the other hand, is a Japanese martial art that focuses on throws (*nage-waza*), pins (*osaekomi-waza*), joint locks (*kansetsu-waza*), and chokes (*shime-waza*). and grappling techniques, aiming to use the opponent's weight and strength against them.



Figure 23.4: *Judo*

i. **Brazilian Jiu-Jitsu (BJJ):** Specialises in ground fighting, focusing on submissions and positional control.

ii. **Wrestling (For example, Freestyle, Greco-Roman**): Emphasises takedowns, control, and pins, with variations in allowable holds and techniques.



Figure 21.6: *Combat sports equipment's*

2. COACHING PHILOSOPHY

A coach's philosophy serves as the guiding framework for all their actions, shaping the training environment, athlete-coach relationships, and overall approach to development.

a. Coaching Styles

Coaching styles can vary significantly, each with its advantages and disadvantages in the context of combat sports:

i. **Authoritarian (Command Style):** The coach makes all decisions, and athletes are expected to follow instructions without question.

ii. **Democratic (Co-operative Style):** The coach involves athletes in decision-making processes, fostering a sense of ownership and responsibility.

iii. **Laissez-faire (Delegatory Style):** Minimal intervention from the coach, allowing athletes significant freedom to develop independently.

In combat sports, a hybrid approach is often most effective, blending elements of democratic and authoritarian styles. A coach might be democratic in planning and long-term strategy but more authoritarian during intense sparring or competition to ensure immediate compliance and safety.

b. Athlete-Centred Approach

An athlete-centred approach prioritises the individual needs, goals, and well-being of each athlete, promoting holistic personal growth alongside technical and tactical skill development. This involves:

i. **Individualised Training Plans**: Recognising that each athlete has unique strengths, weaknesses, learning styles, and physiological responses.

ii. **Active Listening:** Genuinely listening to athlete feedback, concerns, and aspirations.

iii. **Holistic Development:** Focusing on the athlete as a whole person, including their academic, social, and emotional well-being, not just their sporting performance.

iv. **Empowerment:** Encouraging athletes to take responsibility for their own learning and performance.

3. TECHNICAL SKILLS DEVELOPMENT

Mastery of technique is the bedrock of success and safety in combat sports.

a. **Skill Acquisition**

Effective skill acquisition involves a systematic and progressive approach:

i. **Progressive Training:** Introduce new skills gradually, ensuring athletes master foundational techniques before advancing to more complex variations or combinations. This follows a continuum from simple to complex, known as scaffolding. For instance, in judo, a coach would teach *ukemi* (breakfalls) before *nage-waza* (throws), and then *uchi-komi* (repetitions of entry into a throw) before *nage-komi* (full throw practice).

ii. **Drills and Sparring**

- Drills: Repetitive exercises focused on isolating and perfecting specific movements or sequences. Drills enhance muscle memory, precision, and efficiency. They can be cooperative (e.g., partner performing a specific defence) or resistive (e.g., partner offering light resistance).
- **Sparring:** Simulated combat against a resisting opponent, allowing athletes to apply techniques in realistic, dynamic scenarios. Sparring is crucial for developing timing, distance management, adaptability, and tactical understanding under pressure. It must be controlled and progressive, starting light and gradually increasing in intensity.

iii. **Motor Learning Principles**: Incorporate principles such as deliberate practice (focused, purposeful training), varied practice (performing skills in different contexts), and distributed practice (spreading learning over time) to enhance skill retention and transfer.

b. **Feedback Mechanisms**

High-quality feedback is vital for skill refinement and athlete development:

i. **Positive Reinforcement:** Acknowledge and praise correct execution, effort, and improvement. This builds confidence and motivates athletes to continue striving. Be specific about *what* was done well (e.g., "That jab had excellent snap on it!").

ii. **Constructive Criticism:** Provide specific, actionable feedback on areas needing improvement. This should be delivered sensitively and focus on the behaviour, not the person. A popular method is the "sandwich method": positive comment, constructive criticism, positive comment.

iii. **Timely and Specific:** Feedback is most effective when delivered immediately after the action and tailored to the specific technique or tactical decision.

iv. **Demonstration:** Supplement verbal feedback with clear demonstrations of the correct technique.

v. **Questioning:** Ask athletes what they felt or noticed, encouraging self-reflection and deeper understanding.

4. PHYSICAL CONDITIONING

Physical fitness is the engine of performance in combat sports, enabling athletes to execute techniques effectively, withstand impact, prevent injuries, and recover between rounds and sessions.

a. Importance of Fitness

A well-rounded conditioning programme should be periodised (see below) and include:

i. **Strength Training:** Enhances power for striking and grappling, improves muscular endurance for sustained effort, and protects joints. This includes maximal strength, explosive power, and strength endurance (e.g., resistance training, plyometrics, medicine ball throws).

ii. **Cardiovascular Training:** Improves aerobic and anaerobic capacity, crucial for sustaining high-intensity efforts over multiple rounds and aiding rapid recovery. This includes interval training (HIIT), steady-state cardio, and sport-specific drills (e.g., bag work, skipping rope).

iii. **Flexibility Training:** Enhances range of motion, reducing injury risk and improving technique execution (e.g., high kicks in Taekwondo, submissions in BJJ). This includes dynamic warm-ups and static cool-downs.

b. **Periodisation:** Structuring training into cycles (macrocycles, mesocycles, microcycles) to systematically vary intensity and volume, ensuring progressive overload, preventing overtraining, and peaking for competition.

c. **Nutrition:** Proper nutrition is fundamental for supporting training adaptations, managing weight (where applicable), preventing illness, and optimising recovery. Coaches should:

- **Educate Athletes:** Guide a balanced diet rich in macronutrients (carbohydrates for energy, protein for repair, healthy fats) and micronutrients (vitamins, minerals).
- **Hydration:** Emphasise adequate fluid intake before, during, and after training.
- **Weight Management:** For sports with weight classes, guide athletes on safe and sustainable weight management strategies, avoiding dangerous, rapid weight-cutting methods by collaborating with qualified sports nutritionists.
- **Pre- and Post-Competition Nutrition:** Advise on appropriate fuel for performance and nutrients for recovery

5. MINDSET TRAINING STRATEGIES

Mindset training is crucial in combat sports for developing mental toughness, focus, and composure under pressure.

a. **Mental Toughness:** This includes resilience, the ability to cope with pressure, and endurance to overcome setbacks. Elite athletes often exhibit higher mental toughness, allowing them to maintain focus and composure under intense stress.

b. **Psychological Attributes:** Elite fighters possess confidence, strong motivation, emotional control, and concentration. These traits are often developed through dedicated sports psychology programmes.

c. **Growth Mindset:** Cultivating a growth mindset involves seeing adversity as a learning opportunity, building confidence through positive self-talk, and embracing mistakes for continuous improvement.

d. **Mental Preparation:** Techniques like mental imagery and visualisation help athletes envision successful scenarios and manage emotions. Mindfulness and relaxation practices, such as meditation and deep breathing, reduce stress and improve concentration.

e. **Focus and Concentration:** Athletes manage distractions and anxiety through strategic planning, scenario training, pre-competition rituals, and cognitive restructuring. Meditation enhances concentration by training the brain to direct attention effectively.

f. **Composure:** Techniques to remain calm under pressure include diaphragmatic breathing, progressive muscle relaxation, and mental rehearsal. Reframing nerves as a sign of readiness and focusing on controllable factors can turn anxiety into an advantage.

g. **Navigating Highs and Lows:** Athletes must objectively analyse both victories and defeats to identify strengths to maintain and areas for improvement. Maintaining a positive attitude and determination through goal setting and positive self-talk is essential for long-term participation.

6. SAFETY AND ETHICS

The unique nature of combat sports places a high ethical burden on coaches to prioritise athlete safety and uphold the integrity of the sport.

a. Injury Prevention

Coaches have a paramount responsibility for injury prevention. This is ensured through:

i. **Proper Technique:** Continuously emphasise and reinforce correct technique, as poor form is a leading cause of injury.

ii. **Warm-Up and Cool-Down:** Implement comprehensive dynamic warm-ups to prepare the body for activity and static cool-downs to aid recovery and improve flexibility.

iii. **Progressive Training Load:** Avoid sudden spikes in training volume or intensity that can overload the body. Follow periodisation principles.

iv. **Protective Gear:** Ensure athletes use appropriate and well-maintained protective equipment (e.g., mouthguards, headguards, shin guards, hand wraps, cups).

v. **Appropriate Sparring Partners:** Pair athletes with partners of suitable skill, size, and temperament. Control sparring intensity.

vi. **Medical Checks:** Encourage regular medical examinations and ensure athletes are fit to train and compete.

vii. **Rest and Recovery:** Promote adequate sleep and active/passive recovery strategies to allow the body to adapt and repair.

b. Ethical Coaching: Ethical coaching is foundational to creating a positive and safe sporting environment:

i. **Promote Fair Play and Respect:** Instil values of sportsmanship, respect for opponents, officials, and coaches. Teach athletes to win humbly and lose gracefully. This involves demonstrating these values as a coach.

ii. **Uphold the Integrity of the Sport:**

- **Anti-Doping**: Educate athletes on anti-doping policies and the dangers of performance-enhancing drugs. Ensure compliance with relevant anti-doping agencies.
- **Safe Weight Management:** Actively discourage and prevent dangerous weight-cutting practices (e.g., rapid dehydration, excessive caloric restriction). Prioritise long-term health over short-term competitive gain.
- **No Excessive Aggression:** Teach controlled aggression and strategic intent, not uncontrolled violence.

c. Prioritise Athlete Well-being

i. **Safeguarding:** Adhere to national safeguarding policies to protect children and vulnerable adults from harm.

ii. **Long-Term Health**: Make decisions that consider the athlete's long-term physical and mental health, not just immediate competitive success.

iii. **Professional Boundaries:** Maintain appropriate professional boundaries with athletes, avoiding conflicts of interest or exploitative relationships.

iv. **Confidentiality**: Respect athlete confidentiality regarding personal and medical information.

LEARNING TASKS

1. Identify different types of combat sports and their coaching styles.
2. Research and present on the key concept of coaching combat sports.
3. Explore techniques for enhancing mental toughness in athletes.
4. Analyse successful coaching strategies, behaviour and their impact in combat sports.
5. Design a fitness programme tailored for combat sports athletes.

PEDAGOGICAL EXEMPLARS

a. **Starter**

Show the class a short video featuring different combat sports (for example; boxing, judo, martial arts). After the video, conduct an interactive survey on:

i. "Which of these combat sports have you participated in, either recreationally or competitively?"

ii. "Looking at the video, what do you think the athletes might have missed out on before, during, or after their training session?"

b. **Introduction**

Provide the class with a presentation outlining the various types of combat sports. Then, give a brief overview of each.

c. **Digital-Based Learning**

In mixed-ability groups, learners use their digital devices to research one key concept or principle related to coaching combat sports. As learners conduct their research, teacher moves round to offer guidance, ask prompting questions, and check for understanding. Provide additional resources for emerging learners and challenge highly proficient learners to relate the concept to real-life examples and link it to coaching effectiveness.

d. **Case Study**

Learners in mixed-ability groups select a well-known coach in combat sports (for example; a boxing or MMA coach) and research their coaching methods, philosophy, and notable athletes they have trained. Write a case study detailing their strategies and the impact on their athletes' success and training and present it in class.

e. **Project-Based Learning**

In mixed-ability groups, learners design a 2-week fitness and conditioning programme tailored for athletes in a specific combat sport (for example; boxing, judo, MMA, kickboxing, taekwondo, etc.). Assign learners to small groups. Each group should assign roles to promote inclusion and cater to different strengths. Groups should research:

i. Common movement patterns and energy systems used in the sport.

ii. Key physical attributes (for example; strength, power, endurance, agility).

iii. Recovery needs and injury risks.

Each group presents their training programme to the class. Encourage the class to ask questions and offer feedback.

KEY ASSESSMENT Level 3: Class Exercise

Evaluate a scenario where a coach encourages aggressive tactics that may endanger an opponent. How would you respond as a coach, and what principles would guide your decision-making?

PLC Session 21

45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.

b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)

c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).

Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app

   a. The key assessment for the week is ***class exercise***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the exercise (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

   b. all teachers in the group work through a similar problem individually for 3–4 minutes

   c. the group then works through the problem together step by step

   d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).

Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).

   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.

   b. After the enactment, ask for structured feedback from the group

      i. was the concept explained in a way that a learner with no prior knowledge could follow?

      ii. were the examples grounded in contexts familiar to Ghanaian learners?

iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 22

Learning Indicator: *Employ the concepts and principles of coaching in the performance of combat sports*

FOCAL AREA: CONCEPTS AND PRINCIPLES OF COACHING IN THE PERFORMANCE OF COMBAT SPORTS

1. **CONCEPTS AND PRINCIPLES OF COACHING COMBAT SPORTS (PERFORMANCE FOCUS)**

   Coaching combat sports requires a sophisticated and integrated approach, combining in-depth technical knowledge with advanced physiological, psychological, and strategic principles. The ultimate is to optimise an athlete's ability to excel in competitive environments.



Figure 22.1: *Example of combat sports*

a. **Foundational Coaching Principles in Combat Sports**

   These principles underpin all effective performance coaching, ensuring a systematic, athlete-centric, and safe development pathway.

b. **Sport-Specific Knowledge Application**

   i. **In-depth Technical and Tactical Mastery:** Coaches must possess an encyclopaedic knowledge of their combat sport's techniques, counter-techniques, and tactical systems. This includes understanding the nuances of different fighting styles (for example; out-fighters vs. infighters in boxing; guard players vs. passers in BJJ).

   ii. **Strategic Adaptation:** The ability to analyse opponents' strengths and weaknesses and apply this knowledge to devise specific fight strategies for the athlete. This often involves detailed video analysis of opponents and the athlete's performance.

   iii. **Contextual Understanding:** Applying theoretical knowledge to real-world competitive scenarios. This involves understanding the demands of specific competitive formats (for example; amateur vs. professional rules, number of rounds, scoring criteria) and how to train for them.

iv. **Continuous Evolution:** Staying abreast of new techniques, rule changes, and training methodologies emerging within the sport globally. This requires ongoing professional development and critical evaluation of new trends.

c. **Athlete-Centred Training Plans**

i. **Individualised Periodisation:** Designing training cycles (macrocycle, mesocycle, micro cycle) that are specifically tailored to the individual athlete's competitive calendar, physiological responses, technical progress, and psychological state. This moves beyond generic templates.

ii. **Strength-Weakness Profiling:** Conducting comprehensive assessments to identify the athlete's unique strengths to be maximised and weaknesses to be addressed. Training plans are then specifically designed to optimise these factors relative to their competitive goals.

iii. **Collaborative Goal Setting:** Engaging the athlete in the goal-setting process (using SMART principles), fostering intrinsic motivation and ownership of their training journey.

iv. **Adaptive Programming:** Maintaining flexibility in training plans to adapt to unforeseen circumstances such as minor injuries, illness, or changes in competition schedule. This requires constant communication and monitoring.

d. **Long-Term Athlete Development (LTAD)**

i. **Phased Specialisation (Performance Stages):** While LTAD typically begins early, for performance coaching, the focus is on the latter stages: 'Train to Compete' and 'Train to Win'. This involves highly specialised, high-intensity training with a strong emphasis on tactical and strategic preparation.

ii. **Holistic Maturation:** Continuing to support the athlete's physical, mental, emotional, and social development through adolescence and adulthood, ensuring they can cope with the demands of elite performance.

iii. **Sustainable Performance:** Implementing LTAD principles to prevent burnout, overuse injuries, and premature retirement, allowing athletes to maximise their performance longevity.

iv. **Transition Planning:** Preparing athletes for successful transitions between competitive levels and eventually for retirement from elite sport, ensuring continued engagement in an active lifestyle or a new career path.

e. **Effective Communication and Feedback**

i. **Precision and Specificity:** Delivering exact and detailed technical and tactical instructions, leaving no room for ambiguity.

ii. **Multi-Modal Feedback:** Utilising various methods, including verbal cues, demonstrations, video analysis, and kinesthetics adjustments (for example; physically moving an athlete into a correct position), to cater to different learning styles.

iii. **Constructive Critique for Performance:** Providing highly analytical feedback, directly addresses performance gaps, and offers clear, actionable solutions for improvement. This often involves reviewing competition footage.

iv. **Motivational Communication:** Building athlete confidence, maintaining motivation through periods of intense training or setbacks, and fostering a strong coach-athlete relationship based on trust and respect.

v. **Tactical Debriefing:** Leading structured discussions post-training or competition to analyse performance, identify areas for improvement, and refine strategies.



Figure 22.2: *Coach communication with athletes*

f. **Safety-First Training Environment**

i. **Risk Mitigation in High-Intensity Training:** Implementing rigorous safety protocols for high-intensity sparring, live drills, and strength and conditioning sessions, which carry inherent risks in combat sports.

ii. **Appropriate Protective Gear:** Ensuring athletes consistently use the correct and well-maintained protective equipment (for example; head-guards, mouthguards, hand wraps, shin guards).

iii. **Qualified Supervision:** Maintaining constant, vigilant supervision during all training activities, especially those involving contact or complex lifts.

iv. **Progressive Load Management:** Systematically increasing training intensity and volume to allow the body to adapt, reducing the risk of acute trauma and overuse injuries.

v. **Immediate Injury Response:** Having a robust Emergency Action Plan (EAP) in place, with readily available first aid, trained personnel, and clear procedures for accessing advanced medical care. This is critical in Ghana's context, where immediate medical access might be varied.

2. TECHNICAL AND TACTICAL SKILL DEVELOPMENT IN COMBAT SPORTS

This section outlines the detailed methodology for refining and integrating skills to achieve optimal competitive application.

a. Fundamental Technique Refinement

i. **Perfecting Basics:** For performance athletes, 'fundamentals' are not just learned, but constantly refined. This involves drilling the core movements (for example; footwork, basic strikes, stance, guard, posture) to an exceptionally high level of precision and efficiency.

ii. **Efficiency and Economy of Motion:** Coaching athletes to perform techniques with minimal wasted movement, optimising energy expenditure, and maximising speed/power.

iii. **Consistency Under Duress:** Drills designed to ensure fundamental techniques remain solid even when the athlete is fatigued, under pressure, or facing a strong opponent.

b. Advanced Technique Integration

i. **Seamless Transitions:** Coaching the fluid movement between different techniques, ranges (for example; striking to grappling), and positions. For MMA, this is paramount.

ii. **Combination Drills:** Developing complex sequences of attacks, defences, and counterattacks that flow naturally and are difficult for opponents to predict or defend.

iii. **Situational Sparring:** Practising advanced techniques within specific competitive scenarios (for example; starting in a disadvantageous position, grappling from a specific clinch) to develop adaptability and problem-solving.

c. Tactical Strategy Development

i. **Opponent Analysis:** In-depth study of prospective opponents' habits, tendencies, strengths, weaknesses, preferred techniques, and fight IQ to create a bespoke game plan.

ii. **Strategic Game Plans:** Developing comprehensive fight strategies that outline how the athlete will control distance, exploit openings, dictate pace, and manage energy across rounds.

iii. **In-fight Adaptation:** Training athletes to quickly assess and adjust their strategy during a live fight, recognising opponents' reactions, openings, and unexpected developments.

iv. **Feints and Setups:** Coaching the use of deceptive movements and precursor actions to create openings for primary attacks or transitions.

d. Footwork and Movement Enhancement

i. **Dynamic Agility:** Drills that simulate rapid changes of direction, acceleration, and deceleration specific to the demands of the sport (for example; lateral shuffles, pivot drills, explosive bursts).

ii. **Positional Control:** Training athletes to always be in an advantageous position relative to their opponent, whether for offence, defence, or maintaining balance.

iii. **Economy of Movement:** Optimising footwork to conserve energy while maintaining mobility and explosive readiness.

iv. **Ring/Cage/Mat Craft:** Mastering the spatial awareness to control the competitive area, cut off opponents, or escape compromising positions.

e. Distance Management and Control

i. **Mastering Ranges:** Training athletes to proficiently operate and transition between various fighting ranges (for example; long-range kicking, mid-range punching, clinch, grappling on the ground).

ii. **Entry and Exit Mechanics:** Drilling precise footwork and body positioning for entering attack range effectively and safely and exiting to avoid counters.

iii. **Psychological Control of Distance:** Using movement and feints to dictate the opponent's proximity, forcing them into unfavourable ranges.

iv. **Reading Distance Cues:** Teaching athletes to recognise subtle shifts in an opponent's posture or movement that indicate their desired range.

3. PHYSICAL AND MENTAL CONDITIONING STRATEGIES IN COMBAT SPORTS

Performance in combat sports is inextricably linked to superior physical and mental preparation.

a. Strength and Conditioning Programme Design

i. **Periodised Strength and Conditioning:** Designing strength, power, and endurance programmes that align with the athlete's overall training periodisation (for example; hypertrophy in off-season, maximal strength leading into power, then specific power/ endurance closer to competition).

ii. **Sport-Specific Strength:** Focusing on movements and muscle groups critical for the combat sport (for example; grip strength for judo, rotational power for striking, neck strength for wrestling).

iii. **Anaerobic Power and Capacity:** Developing explosive power for single efforts (for example; a knockout punch, a powerful takedown) and the ability to repeat high-intensity efforts multiple times within a round.

b. Cardiovascular Fitness Enhancement

i. **High-Intensity Interval Training (HIIT):** Implementing intervals that mimic the work-to-rest ratios of rounds and exchanges in competition, improving both aerobic and anaerobic systems.

ii. **Aerobic Base Building:** Maintaining a strong aerobic foundation to support recovery between high-intensity efforts, prevent fatigue, and improve overall training volume tolerance.

iii. **Sport-Specific Drills:** Utilising drills that combine combat movements with high-intensity intervals (for example; specific shadow boxing rounds, wrestling drills with limited rest) to enhance fight conditioning.

c. Agility and Reaction Time Training

i. **Reactive Agility Drills:** Training that requires athletes to react to unpredictable stimuli (for example; a coach's command, an opponent's movement) rather than pre-planned patterns.

ii. **Proprioceptive Training:** Exercises that improve body awareness and the ability to quickly adjust balance and position in response to external forces.

iii. **Visual Tracking:** Drills to enhance visual processing speed, crucial for tracking opponents' movements and anticipating attacks.

d. Mental Skills Training

i. **Goal Setting (Performance and Process):** Beyond outcome goals, setting clear performance-based (for example; "land 5 significant strikes per round") and process-based goals (for example; "maintain strong posture in the clinch") to enhance focus and provide tangible markers of progress.

ii. **Self-Talk and Affirmations:** Training athletes to use positive internal dialogue to manage self-doubt, build confidence, and maintain focus during high-pressure situations.

iii. **Arousal Regulation:** Teaching techniques to manage physiological arousal (for example; heart rate, breathing) both before and during competition to optimise performance.

iv. **Mindfulness and Focus:** Practices to enhance present-moment awareness, reducing distractions and improving concentration during training and competition.

e. Performance Anxiety Management

i. **Pre-Performance Routines:** Developing consistent routines for the hours and minutes leading up to a competition to provide a sense of control and familiarity.

ii. **Imagery and Visualisation:** Extensive mental rehearsal of successful performance, specific techniques, and tactical execution under various scenarios.

iii. **Cognitive Restructuring:** Helping athletes identify and challenge negative or irrational thoughts about performance, replacing them with more realistic and positive interpretations.

iv. **Simulated Competition:** Gradually exposing athletes to competitive stress through realistic sparring and mock fights to desensitise them and build coping mechanisms.

4. **HOLISTIC ATHLETE SUPPORT AND DEVELOPMENT IN COMBAT SPORTS**

Performance coaching extends beyond the gym, encompassing all aspects of an athlete's life to ensure optimal well-being and sustained performance.

a. Nutrition and Recovery Planning

i. **Performance Nutrition:** Tailoring dietary plans to meet the high energy demands of training, optimise muscle repair and growth, and support precise weight management (crucial for weight-class sports).

ii. **Hydration Protocols:** Implementing specific hydration strategies before, during, and after training and competition, especially vital in Ghana's climate.

iii. **Sleep Optimisation:** Educating athletes on sleep hygiene and monitoring sleep quality as a critical recovery tool.

iv. **Active Recovery Strategies:** Utilising techniques such as foam rolling, stretching, light activity, and cryotherapy/hydrotherapy (where available) to accelerate physiological recovery between sessions.

b. Injury Prevention and Management

i. **Comprehensive Screening:** Conducting regular musculoskeletal screens and movement assessments to identify potential injury risks and imbalances.

ii. **Rehabilitation Programmes:** Implementing targeted exercises to strengthen vulnerable areas and improve joint stability, acting proactively to prevent injuries.

iii. **Load Monitoring:** Meticulously tracking training volume, intensity, and athlete fatigue to prevent overtraining syndrome and overuse injuries.

iv. **Multidisciplinary Team Collaboration:** Working closely with physiotherapists, sports doctors, massage therapists, and other specialists for effective injury diagnosis, rehabilitation, and safe return-to-play protocols. This network is crucial for high-performance athletes.

c. Ethical Conduct and Sportsmanship

i. **Integrity in Competition:** Instilling a deep sense of fair play, respect for opponents, officials, and the rules of the sport. Promoting honesty and humility in victory and grace in defeat.

ii. **Clean Sport Advocacy:** Educating athletes comprehensively on anti-doping regulations, the dangers of performance-enhancing drugs, and promoting a drug-free approach to competitive success.

iii. **Professionalism:** Guiding athletes on appropriate behaviour, both inside and outside the competitive arena, as ambassadors for their sport and country.

iv. **Safe Weight Management Practices:** Strictly adhering to ethical and medically sound guidelines for weight cutting, prioritising athlete health over competitive advantage.

d. Athlete Monitoring and Evaluation

i. **Quantitative Data Analysis:** Utilising objective measures such as heart rate variability (HRV), GPS data (where applicable), physiological testing results (for example; VO2 max, vertical jump), and training load metrics to track progress and readiness.

ii. **Qualitative Feedback:** Gathering subjective data through athlete questionnaires (for example; wellness surveys for sleep, mood, fatigue), one-on-one discussions, and self-assessment.

iii. **Performance Metrics Tracking:** Analysing competition performance statistics (for example; strike accuracy, takedown success rate, submission attempts, round control) to identify tactical and technical patterns.

iv. **Feedback Loops:** Continuously using both quantitative and qualitative data to inform training adjustments, identify signs of overtraining or under-recovery, and optimise performance strategies.

e. Career Transition Support

i. **Dual Career Planning:** Encouraging and supporting athletes to pursue educational or vocational pathways alongside their athletic careers, providing a foundation for post-sport life.

ii. **Financial Literacy:** Where appropriate, guiding athletes on managing finances, endorsements, and savings, considering the often-unpredictable nature of professional combat sports careers.

iii. **Identity Beyond Sport:** Helping athletes to develop a strong sense of self and identity beyond their achievements in the combat arena, mitigating potential psychological challenges associated with retirement.

iv. **Mentorship and Networking:** Facilitating connections with mentors, former athletes, and industry professionals who can provide guidance and opportunities for post-athletic careers (for example; coaching, commentating, business).

LEARNING TASKS

1. Discuss concepts and principles of coaching combat sports with focus on the areas that optimise an athlete's ability to excel in competitive environment.
2. Develop a concept map linking the physical, technical, tactical, and psychological demands of specific combat sports to appropriate coaching content and planning strategies based on established coaching principles.

3. Demonstrate a clear athlete-centred coaching approach that incorporates ethical practices, motivational strategies, and core coaching principles.
4. Plan and execute a combat sport coaching sessions that incorporate key principles such as progression, individualisation, safety, and feedback to enhance athlete performance.

PEDAGOGICAL EXEMPLARS

a. Starter

Show the class a short video featuring different combat sports (for example; boxing, judo, taekwondo, MMA). After the video, conduct an interactive survey using the following questions:

i. *"Which of these combat sports have you participated in, either recreationally or competitively?"*

ii. *"From what you observed, which coaching behaviours or practices do you think helped or possibly hindered the athletes' performance?"*

This encourages learners to begin thinking critically about how coaching decisions impact athlete development and outcomes.

b. Introduction

Provide a class presentation that introduces the principles of coaching in combat sports. Outline key tenets, including progression, individualisation, effective communication, goal setting, safety, athlete-centred coaching, and performance feedback. Use examples from various combat sports to illustrate how each principle enhances athlete performance in both training and competition settings.

c. Exploratory Learning

Engage learners in mixed groupings to explore key concepts and principles of coaching combat sports with a focus on performance enhancement. In their small mixed groups, guide learners to investigate the following areas:

i. Foundational coaching principles in combat sports

ii. Sport-specific knowledge application

iii. Athlete-centred training plans

iv. Long-Term Athlete Development (LTAD)

v. Effective communication and feedback

Using a range of sources including audio-visuals, pictures, coaching outlines, athlete case studies, and other performance footages, guide learners to discover how such information contribute to effective coaching practice. Learners analyse how each concept supports the development and peak performance of combat sport athletes.

Learners organise their findings into a visual concept map or interactive presentation that demonstrates the interconnectedness of these coaching principles for whole class discussion.

d. Demonstration Approach Learning

Learners in mixed groupings are engaged to design and demonstrate in a micro-coaching session on a selected combat sport with an athlete. This should visibly demonstrate an athlete-centred approach, and explicitly incorporating:

i. Ethical coaching practices (for example; safeguarding, consent, fairness, integrity).

ii. Motivational strategies (for example; fostering autonomy, relatedness, competence; goal setting; positive reinforcement).

iii. Core coaching principles (for example; individualisation, holistic development, empowerment, safety).

Guide learners in their groups to conduct a brief (2-3 minute) pre-session discussion with their athletes to identify their specific goal for the session, current mood /energy level, and any concerns (such as; what would make the session most useful for them).

Support learners to clearly adapt the session content (drills/activities) and their coaching style based on the athletes stated needs and goals.

e. **Practical Activity**

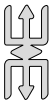
Engage learners in mixed groups to plan and execute a combat sport coaching session that effectively incorporates key coaching principles including progression, individualisation, safety, and constructive feedback. Each group prepares a selected combat sport and executes it. Learners use appropriate drills, adaptations, and communication strategies to show how these principles are applied in practice, ensuring that the session promotes skill acquisition, physical conditioning, and a safe, supportive learning environment. In their delivery, learners should be guided to ensure that:

i. Progression is evident through observable increases in task demands.

ii. Individualisation is clear with differentiated tasks, feedback, or coaching focus.

iii. Safety is prioritised through active monitoring, environment management, and clear instructions.

iv. Feedback is timely, specific, and actionable for performance improvement.



Note

- *Engage learners to warm-up adequately for the practical activity (for activities "e").*
- *Ensure that the activities are physically and psychologically safe.*
- *Let learners agree on clear consent before physical contact (for activities "d and e").*
- *Guide learners to treat pre-session discussion information respectfully (for activities "d and e").*
- *Guide learners to provide mastery-focused feedback such as; Your guard position is much tighter or lose, which guard position improves your defense, etc. (For activities "d and e").*
- *Make room for inclusivity in their group works, demonstration, performance, etc.*
- *Engage both emerging learners and highly proficient learners accordingly for maximum learning outcomes.*

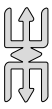
KEY ASSESSMENT Level 3: Practical

1. A combat sports athlete is performing well physically but shows signs of high stress and anxiety before competitions.
   a. As their coach, how would you use the principles of holistic development and athlete-centred coaching to address their mental well-being?
   b. Detail specific actions you would take and explain why these principles are more effective than just focusing on their physical training."

PLC Session 22

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to
   a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.
   b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)
   c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

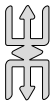
4. Plan the week's key assessment with your app
   a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the homework (NTS 3k-3q).

10 minutes | **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
   a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
   b. all teachers in the group work through a similar problem individually for 3–4 minutes

c. the group then works through the problem together step by step

d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
   a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
   b. After the enactment, ask for structured feedback from the group
      i. was the concept explained in a way that a learner with no prior knowledge could follow?
      ii. were the examples grounded in contexts familiar to Ghanaian learners?
      iii. did any misconceptions surface and if so, how were they addressed?

5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 10 Review

Week 21 laid the groundwork for understanding the core concepts and principles of coaching combat sports. This initial phase focused on building a theoretical foundation, likely covering sport-specific physiology, psychology, and biomechanical principles. The goal was to provide a comprehensive understanding of the elements crucial for optimising performance and ensuring safety in combat disciplines.

Week 22 transitioned from theory to practical application, specifically focusing on combat sports performance. Learners actively discussed how coaching principles inform the design of effective training programmes, enhance technical proficiency, and promote strategic thinking in real-world combat scenarios. This hands-on approach allowed learners to translate their theoretical knowledge into tangible coaching skills, deepening their comprehension and ability to apply these principles effectively.

MARKING SCHEMES FOR THE KEY ASSESSMENTS

WEEK 21

(10 marks)

Criteria	Marks Available	Descriptors
1. Understanding of the scenario and ethical concerns	*2 marks*	*- 1 mark for identifying that the coach's actions pose a risk to safety and fair play* *- 1 mark for recognising ethical implications (e.g. duty of care, respect, safety)*
2. Evaluation of the coach's behaviour	*2 marks*	*- 1 mark for critical evaluation of the coach's approach (e.g. unsporting, dangerous)* *- 1 mark for reference to potential consequences (e.g. injury, sanctions, damaged reputation)*
3. Justified response as a coach	*3 marks*	*- 1 mark for stating a clear and appropriate action (e.g. reporting, discussing, intervening)* *- 1 mark for explanation of how this protects athlete welfare or upholds standards* *- 1 mark for tone and professionalism of response*
4. Application of coaching principles	*3 marks*	*- 1 mark for referencing specific coaching principles (e.g. athlete-centred, long-term development)* *- 1 mark for alignment with governing body codes (e.g. UK Coaching Code of Conduct)* *- 1 mark for linking these principles directly to the scenario*

Model Answer

In the given scenario, the coach is promoting aggressive tactics that may harm the opponent, which raises immediate ethical concerns. This approach neglects the core principles of athlete safety, respect for opponents, and the duty of care expected from any responsible coach.

Encouraging behaviour that could lead to injury violates the spirit of fair play and can damage the athlete's reputation, increase the risk of disqualification, or result in long-term consequences for both participants. It also sets a poor example for sportsmanship and discipline within combat sports.

As a coach witnessing this, I would take immediate steps to address the behaviour. First, I would speak to the coach privately to express concern and outline why such tactics are not acceptable. If the issue persisted or posed a serious risk, I would report it to the appropriate safeguarding officer or governing body.

My response would be guided by principles of athlete-centred coaching, which prioritises long-term development, safety, and ethical conduct.

In conclusion, my actions would aim to uphold high coaching standards while protecting the welfare of all athletes involved.

WEEK 22 (10 marks)

Marking Criteria
Understanding of Holistic Development (2 marks)
1 mark: Demonstrates basic understanding of holistic development as encompassing physical, mental, and emotional aspects.
2 marks: Clearly explains how holistic development aims to improve the athlete as a person beyond their sport.
Understanding of Athlete-Centred Coaching (2 marks)
1 mark: Demonstrates basic understanding of athlete-centred coaching as putting the athlete at the core of the coaching process.
2 marks: Explains how this approach involves tailoring strategies to individual needs and empowering athletes.
Specific Actions for Mental Well-being (4 marks)
1 mark per relevant and specific action (up to 4 actions) related to stress and anxiety management, grounded in the principles. Actions should demonstrate practical application.
Examples: Implementing mindfulness/breathing techniques, pre-fight routines, cognitive reframing/ positive self-talk, goal setting (SMART), open communication/active listening, focusing on process over outcome, fostering resilience, considering external stressors.
Explanation of Effectiveness (2 marks)
1 mark: Explains why these principles are more effective than just physical training for mental well-being (e.g., addresses root causes, builds resilience, fosters intrinsic motivation).

2 marks: Provides a clear and well-reasoned argument, linking the principles directly to improved mental state and performance.

Model Answer

As a coach, addressing an athlete's high stress and anxiety before competitions requires a commitment to holistic development and an athlete-centred coaching approach. Holistic development recognises that an athlete is a whole person, not just a performer, and aims to enhance their physical, mental, emotional, and social well-being, both within and outside the sport. This approach ensures that the athlete develops as a better individual, which in turn can lead to improved performance. Athlete-centred coaching focuses on the individual needs of each athlete, empowering them and tailoring strategies to their specific circumstances rather than applying a one-size-fits-all method.

To address their mental well-being, I would take the following specific actions:

Open Communication and Active Listening: I would initiate regular, confidential conversations with the athletes to understand the specific triggers and nature of their stress and anxiety. These fosters trust and allow the athlete to feel heard and supported, which is crucial for addressing underlying issues. By actively listening, I can tailor my approach to their unique challenges.

Implementation of Mental Skills Training: I would integrate mental exercises into their routine, such as mindfulness, deep breathing techniques, and positive affirmations. Mindfulness practices help athletes manage stress and anxiety by improving emotional control and focus. Developing a consistent pre-fight routine incorporating these techniques can reduce anxiety and enhance focus.

Cognitive Reframing and Goal Re-evaluation: I would work with the athlete to identify and challenge negative thoughts that exacerbate anxiety, helping them to replace these with more positive and realistic perspectives through cognitive reframing. We would also set clear, realistic goals using the SMART framework, focusing on controllable elements like performance and effort rather than just outcomes. This helps shift their focus from the pressure of winning to improving specific skills and gaining experience.

Emphasis on Recovery and Life Balance: I would ensure that the athlete's training load allows for adequate physical and mental recovery, as overtraining can lead to fatigue, listlessness, and increased stress. Encouraging a balanced lifestyle beyond the sport, including social interactions and new activities, contributes to their overall well-being and resilience.

These principles are more effective than solely focusing on physical training because stress and anxiety are psychological phenomena that cannot be resolved through physical conditioning alone. While physical fitness is vital, mental well-being directly impacts performance, and unchecked anxiety can negatively affect an athlete's physical execution and decision-making. Holistic and athlete-centred approaches promote emotional regulation, self-awareness, self-discipline, and mental toughness, which lead to lower levels of cognitive and somatic anxiety and higher self-confidence. By fostering these psychological attributes, athletes become better equipped to manage competitive pressures, perform optimally, and thrive both in and out of the combat arena. This comprehensive care ultimately enhances the athlete's motivation, satisfaction, and long-term engagement in the sport.

SECTION 11: ACADEMIC AND CAREER PATHWAYS

STRAND: ACADEMIC AND CAREER PATHWAYS

Sub-Strand: Coaching and Officiating of Athletics.

Learning Outcome: *Apply concepts and principles of coaching and officiating to improve performance and management of Field events (jumps).*

Content Standard: *Demonstrate understanding and application of the concepts and principles of coaching and officiating of Field events (jumps, e.g., High jump, long jump, Triple jump, and pole vault.)*

INTRODUCTION AND SECTION SUMMARY

This section provides a comprehensive overview of coaching and officiating practices related to jumping events in track and field athletics. It emphasises essential principles, methodologies, and safety considerations for coaching various jumping disciplines such as long jump, triple jump, high jump, and pole vault. Additionally, it outlines the roles, responsibilities, and protocols for officials responsible for ensuring fair competition and adherence to rules. By integrating coaching techniques with officiating guidelines, the content aims to promote athlete development, competition integrity, and safety.

This content details the core aspects of coaching jumping events, including fundamental movements, technical training, and progressive methodologies tailored to each discipline. It highlights key coaching principles, such as athlete-centred approaches, moderation of training volume, and the importance of sequencing drills to optimise performance and reduce injury risk. Moreover, it elucidates the specific techniques and drills for long jump, triple jump, high jump, and pole vault, with a focus on proper mechanics and safety.

The officiating framework is equally comprehensive, covering pre-competition checks, rule enforcement, foul identification, measurement procedures, and athlete management. It underscores the importance of fairness, safety, and professionalism in officiating, with clear delineation of officials' roles and responsibilities during competitions. Overall, the section integrates coaching and officiating strategies to support effective training, fair competition, and athlete safety in jumping events.

The weeks covered by this section are:

Week 23: Discover the concepts and principles of coaching and officiating jump events.

Week 24: Employ the concepts and principles of coaching and officiating in the performance of jump events.

SUMMARY OF PEDAGOGICAL EXEMPLARS

In this section, the teacher should foster active engagement and experiential learning. This involves facilitating purposeful discussions to deepen understanding, structuring interactive conversations to support clinical reasoning related to jump techniques, and promoting collaborative participation

among learners. Incorporating practical, project-based tasks, such as analysing jump event videos or designing training drills, allows learners to apply theoretical knowledge to real-world scenarios.

These strategies should be implemented through mixed-ability and mixed-gender groupings where appropriate, as well as via paired and individual activities to accommodate diverse learning needs and styles. If hands-on projects or simulations, like practising officiating calls or coaching a specific jump phase, cannot be completed during scheduled sessions, learners should be given adequate time to complete them independently or in small groups. Learners will then present and reflect on their outcomes in a subsequent session, discussing their insights on coaching methodologies or officiating decisions.

This approach encourages learners to explore current evidence-based practices in jump events, including online resources and relevant coaching or officiating manuals. It supports the development of critical skills for clinical practice in coaching and officiating, such as performance analysis, rule interpretation, and strategic planning, ultimately helping them get smart in this specialised field.

Ongoing professional development for educators is essential to stay current with evolving standards and incorporate new technologies, enhancing the quality of guidance and preparation learners receive. This continuous improvement cycle ensures that career pathways in Physical Education remain relevant and responsive to both learner potential and industry demands. Finally, the section on officiating rules provides essential knowledge for your students to understand fair play and competition structure.

ASSESSMENT SUMMARY

Effective assessment practices combine formative and summative evaluations, using various methods such as skill performance analysis, peer assessments, and technology-assisted feedback. These assessments provide valuable insights into learners' physical abilities, informing personalised instructional adjustments. They will help identify learners' aptitudes and interests, guiding them towards suitable career pathways, including physical education teaching, coaching, sports administration, or specialised roles like adapted physical education. Individualised Education Plans (IEPs) for learners with additional needs demonstrate how targeted evaluations contribute to inclusive education and career planning.

When teaching the practical application, draw attention to the critical biomechanical principles underpinning all jump events—velocity, take-off angle, and centre of mass. Encourage learners to visualise and articulate these concepts. The event-specific coaching methods for long jump, triple jump, high jump, and pole vault offer excellent case studies for learners to analyse and apply.

Ongoing formative feedback will support individual learner progress and ensure that learners develop the ability to coach and officiate safely, effectively, and with purpose.

Assessment Summary

Week	Indicator	DoK Level	Assessment Mode
23	Discover the concepts and principles of coaching and officiating jump events.	Level 3	Practical
24	Employ the concepts and principles of coaching and officiating in the performance of jump events.	Level 3	Practical

WEEK 23

Learning Indicator: *Discover the concepts and principles of coaching and officiating jump events*

FOCAL AREA: CONCEPTS AND PRINCIPLES OF COACHING AND OFFICIATING JUMP EVENTS

Introduction

Coaching jumping events involves key principles that apply to the high jump, long jump, triple jump, and pole vault. A primary task for any coach is to design a training programme that ensures continuous athlete progression while preventing injuries. This is especially challenging for experienced athletes. To ensure adaptation, training must incorporate overload by manipulating frequency, volume, and intensity. Additionally, exercises must be specific to the target task to ensure a carry-over effect. Biomechanics helps quantify the potential effect of training exercises, moving beyond a coach's "gut feeling".



Figure 23.1: *Jumping events*

1. Coaching and Officiating Jumping Events

Jumping events encompass the instruction of fundamental movements and appropriate progressions for long jump, triple jump, high jump, and pole vault, with an emphasis on technical mastery, athlete advancement, and safety protocols. Officiating these events involves upholding fair competition through the consistent application of established rules, effective management of the event area, and precise recording of results.

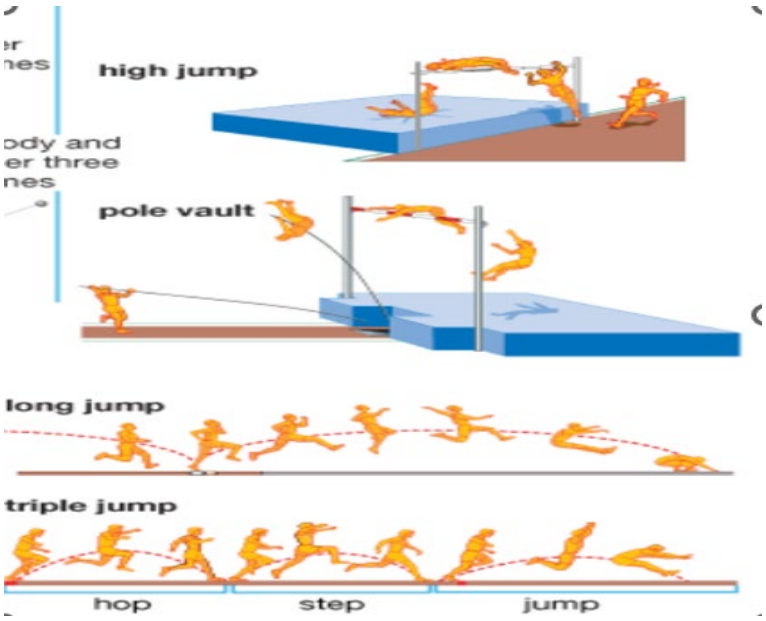


Figure 23.2: *Types of jumping events*

2. Conceptual Framework of Coaching Jumping Events

Coaching jumping events focuses on a progressive approach, starting with fundamental movements and gradually introducing more complex techniques. The approach run is critical for generating horizontal velocity and momentum, which is then converted into vertical force during take-off. Coaches must prioritise proper mechanics, optimal take-off angles, and the height of the centre of mass at take-off to maximise performance. Long-term success for young athletes begins with teaching fundamental movements.

3. Coaching Principles

Effective coaching in track and field, particularly for jumping events, adheres to several key principles:

a. **Athlete-Centred Approach:** The athlete's well-being and development are paramount. Coaches should foster a positive and enjoyable environment, allowing athletes to choose their events and guiding them towards success without dictating choices. Providing critical but caring attention to each athlete is essential.

b. **Moderation of Volume:** "Less is more" is a crucial principle, particularly for younger or less experienced athletes. High-volume, high-intensity workouts can lead to overuse injuries and hinder recovery. Training should focus on the minimum effective dose to prevent overtraining and promote recovery. Short training cycles, such as two weeks on and one week of reduced load, are often more effective than longer ones.

c. **Frequent Practice of Technical Skills:** Jumpers need to jump often to improve. Functional movements and specific event techniques should be drilled at least three times per week at maximal effort. This includes practising the approach, run, take-off, and landing/clearance mechanics.

d. **Relevance of Drills:** Every drill should have a direct benefit and translate to the athlete's performance in their event. Coaches should be able to explain the purpose of each drill to their athletes.

e. **Importance of Sequencing:** Practice sessions should be carefully sequenced to optimise performance and prevent injuries. Technical drills and dynamic/plyometric exercises should precede cardiovascular workouts and strength exercises. Training in a fatigued state can lead to poor form and increased injury risk.

f. **Collaborative Planning:** Coaches should work with athletes to set goals and develop training plans, considering their academic, extracurricular, and family commitments. Planning for breaks and providing resources for independent fitness maintenance demonstrates investment in athletes' overall well-being.

g. **Positive and Fun Environment:** Maintaining an infectious positive energy and incorporating games into practice keeps athletes engaged and motivated. This helps build athletes for the future, not just for the current season.

4. Methodologies of Coaching

Coaching methodologies involve specific drills and progressions tailored to each jumping event.

a. Long Jump Coaching



Figure 23.3: *A large horizontal velocity along the run-up and a vertical velocity at the take-off board.*

i. **Approach Run:** Developing proper sprint mechanics and consistent runway management is essential. Youth jumpers can achieve optimal speed in 8 to 10 strides, focusing on controlled runs in a "tall" position with the take-off leg slightly in front of the body. Coaches should emphasise quick steps and a high knee drive at take-off.



Figure 23.4: *Approach run in horizontal jumps*

ii. Landing Technique: Using a ramp can help increase airtime to complete proper landing execution. Drills like standing long jump variations help teach take-off and landing basics, focusing on pushing off with feet and swinging arms forward, then landing with heels first and sliding knees up.



Figure 23.4: *Landing techniques in long and triple jumps*

iii. Take-off Variations: Plyometric drills such as continuous penultimate stride and take-off (3-4 strides between) are highly specific for long jumping. Other drills include easy jog into penultimate stride, 4-6 steps with a jump into a split landing, and full approach jumps at near-optimal speed.



Figure 23.5: *Take-off from the board*

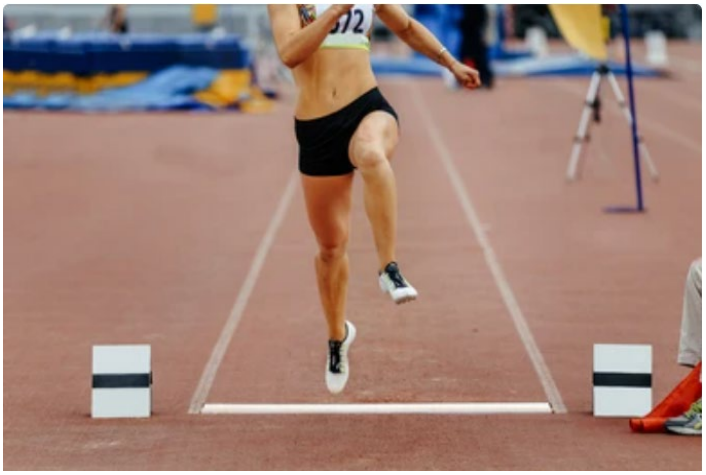


Figure 23.6: *High knee drive at take–off*

b. Triple Jump Coaching

The triple jump involves three distinct skills: hop, step (bound), and jump.

i. Hop Phase: Start with easy hopping and progress to more aggressive hopping for distance, using drills like 5 short single-leg hops or 3 intermediate single-leg hops.



Figure 23.7: *Hop phase in triple jump*

ii. Step/Bound Phase: Drills include walking or jogging into alternate leg bounding.

Combinations: As technical skills develop, combination drills link phases, such as walking or jogging, into three single-leg hops followed by alternate leg bounding. Linking the bound and long jump phases is also crucial.



Figure 23.8: *Step phase in triple jump*

iii. Triple Jump Sequence: Integrate all three phases in proper sequence, such as 4 steps into three hops, three bounds, followed by a long jump. Coaching points include driving forward with the body, swinging the free leg, ensuring ground contact slightly in front of the body, and maintaining a "run tall, jump tall" posture.

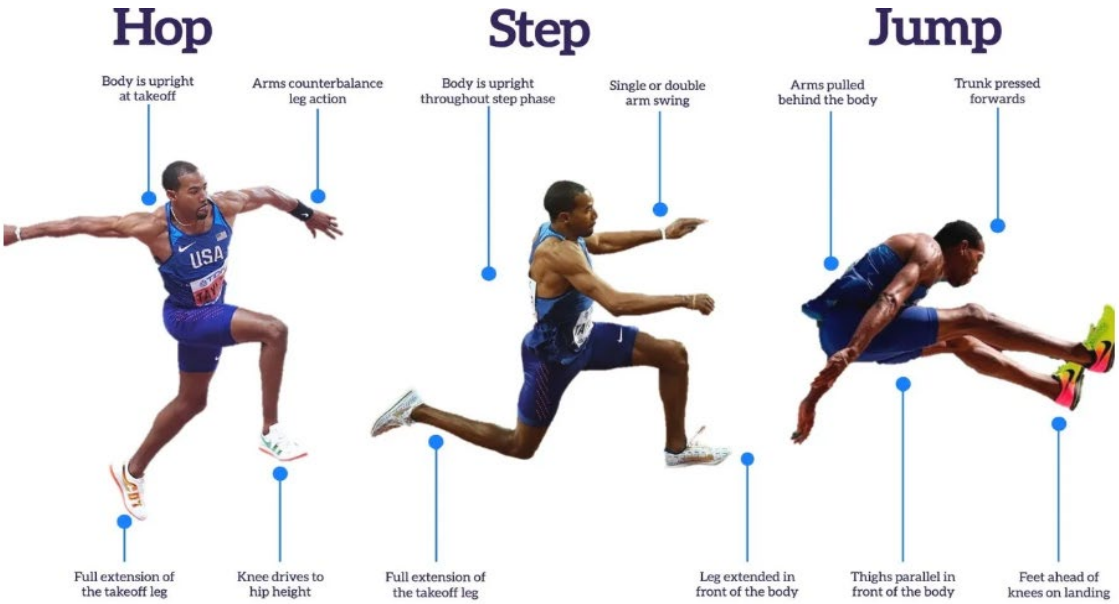


Figure 23.9: *Triple jump techniques*

c. High Jump Coaching

i. Approach: The high jump approach begins with a straight run transitioning into a curve for the final five steps. High jumpers use checkmarks for the start and the curve. The body should lean inward slightly on the curve, with eyes focusing on the near standard during the curve and shifting across the bar during the final steps.

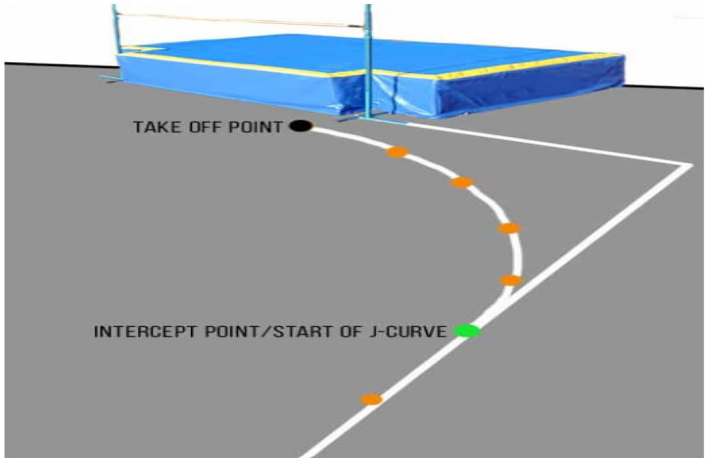


Figure 23.10: *The approach run in high jump*

ii. Take-off: High jumpers prepare by lowering their hips on the penultimate step. The take-off point is typically near the standard on the jumping side, with the take-off foot placed well in front and toes pointed at the back corner of the pit. The free leg and both arms drive up aggressively during take-off.

iii. Flight: During flight, the body lies out over the bar, with hips rising and a slight arch, knees separated and bent, and arms dropping to the side. The head lifts as the feet pass over the crossbar.



Figure 23.11: *Rose Yeboah exhibiting the flight technique in high jump*

d. Pole Vault Coaching

i. **Safety and Progression:** Technical proficiency is key, and safety concerns related to pole selection and pit location/size must be addressed. Proper teaching progressions and a safe environment are crucial for minimising risks.

ii. **Hand Placement and Pole Drop:** Hands should be slightly wider than shoulder width, with the top hand 6-18 inches from the top of the pole and palms facing up when extended overhead. The pole tip starts high and gradually drops with each step, with a more prominent drop during the last four strides to set up a good plant.

iii. **Plant and Take-off:** The pole plant must occur before the vertical component of the vault. Similar to the long jump, hips are positioned during the penultimate stride, and the take-off is with the left foot directly under the top hand, pushing the pole up with both hands. An active forward and upward jumping action off the ground helps load the pole.

iv. **Inverted Body Position:** As the swing slows, hips extend forward, lower legs move near the pole, and the body becomes inverted. The pole vaulter pulls hands to the chest and lifts hips, while both arms pull along the pole's axis.



Figure 23.12: *Pole vault phases*

e. Conceptual Framework of Officiating Jumping Events

Officiating track and field jumping events involve ensuring fairness and adherence to rules. Officials are responsible for judging events, managing the competition area, and making critical decisions. This includes supervising the preparation of the area for safety and equipment, ensuring facility compliance with rules, and providing rule outlines to competitors.

f. Principles and Guidelines for Officiating

Officiating principles and guidelines ensure fair play, athlete safety, and efficient event management.

g. Role and Responsibilities of Officials

i. **Chief Judge:** Responsible for allocating officials, supervising area preparation for safety and equipment, defining competition rules to athletes, ruling on attempt validity (white flag for fair, red for foul), and advising athletes on reasons for fouls.

ii. **Recorder (Official Two):** Calls competitors, records results to the nearest centimetre below the distance achieved (e.g., 11.755m becomes 11.75m), and ensures measurements are repeated for accuracy. Also, the time trials indicate when 15 seconds remain with a yellow flag.

iii. **Bar Official (Vertical Jumps):** Manages the landing pit, declares legal jumps, and ensures the pit is ready for competition.

iv. **General Officials (Officials Three and Four):** Stand clear of the sandpit, rake the sand level after each jump, and ensure the runway is clear of debris. They also place marking stakes at the nearest break in the sand.

h. Pre-Competition Checks

i. **Landing Systems:** Officials must check landing mats for wear, rips, and adequate cushioning, ensuring they are on a level surface and securely attached. Surrounding areas must be clear of obstacles.

ii. **Equipment:** Verify that the board is level with the runway, the scratch line is clearly defined, and the sand is moistened and level with the board.

iii. **Athlete Briefing:** Before competition, officials must review rules, explain time limits, foul criteria, and tie-breaking procedures with athletes.

i. During the Competition Rules

Time Limits: Athletes typically have one minute to initiate an attempt after their name is called for horizontal jumps. In vertical jumps, if one athlete remains, they are allowed five minutes for subsequent attempts after clearing the bar for a record or personal best.

j. Fouls

- **Long Jump:** A foul occurs if any part of the take-off foot breaks the vertical plane of the take-offline, if the athlete takes off from outside the board, or if they somersault during the jump or run-up. Touching the ground outside the landing area closer to the take-off line than the nearest sand mark is also a foul. Walking back through the pit after landing results in a foul.

- **Triple Jump**: A foul occurs if the hop phase does not land on the same foot used for take-off, or if the step phase does not land on the other foot from which the jump is performed.
- **High Jump:** A miss occurs if the crossbar is dislodged by the athlete's action, or if they touch the ground beyond the vertical plane of the nearer edge of the crossbar without clearing it. Athletes must take off from one foot.
- **Pole Vault:** A foul occurs if the bar does not remain on both pegs due to the athlete's action, if they touch the ground or pole beyond the vertical plane of the back end of the box without clearing the bar, or if they move their upper hand higher on the pole after leaving the ground. Steadying or replacing the bar with hands during the vault is also a foul.
- **Measuring Jumps**: Measurements are taken perpendicularly from the edge of the take-off board (or its extension) to the nearest break in the sand made by any part of the competitor's body.
- **Ties**: Ties are generally broken by comparing the second-best performance. If still tied, the third-best performance is used, and so forth. For vertical jumps, ties are broken by fewer misses at the last cleared height, then by fewer overall misses. A jump-off may also be used in cases of ties for first place in vertical jumps.

k. Athlete Management

i. **Excused Athletes:** Athletes may be excused to compete in other events, with specific time limits determined by the games committee. The head event judge may change the order of competition to accommodate these athletes, and they are responsible for notifying the judge before leaving.

ii. **Conduct:** Officials should be friendly, professional, objective, and encouraging, ready to consult the rule book or field referee if disputes arise.

iii. **Post-Competition:** Verify results with other officials, sign the score sheet, and clear the area of any tape marks or litter.

LEARNING TASKS

1. Observe the performance of two athlete jumpers and make suggestions for improvement.
2. Use video to analyse the various jumping techniques used athletes.
3. Learners participate in officiating a jumping event or practice session.
4. Learners design a one-day inter-class athletic programme focusing on selected jumping events.

PEDAGOGICAL EXEMPLARS

a. Starter

Show a video on the various jumping events in track and field to draw learners' attention to the lesson.

A video on horizontal jumps

https://youtu.be/0NIKQX-44kM?t=65

A video on vertical jumps;

https://youtu.be/RYMFEW3v328?t=44

https://youtu.be/A1g43QWLfhw?t=25

Invite learners to share their thoughts on the video they watched and what they make out of it.

Focus on key aspects such as take-off, flight, and landing techniques. Compare and contrast the techniques employed by the athletes.

b. Introduction

Introduce basic coaching principles and emphasise the coach's role in facilitating skill development and tactical awareness. Assist learners in describing the roles and responsibilities of officials in jumping events.

c. Experiential Learning

Learners attend the training sessions of the school's athletics team, observe the performances of two jumpers, and suggest areas for improvement.

- Take detailed notes on each jumper's technique, approach, and overall performance.
- Identify strengths and areas that require enhancement.

d. Collaborative Learning

In mixed ability and mixed gender groups, divide learners into small groups and assign each group to research on reliable sources to gather information on coaching principles specifically related to jump events (high jump, long jump, triple jump, pole vault). Groups discuss their research findings, encouraging each member to contribute their insights. Each group presents their findings to the class.

e. Group Based Learning

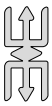
a. Divide learners into small groups and provide each group with role cards that outline the responsibilities of various officials (e.g., chief judge, recorder, bar official, general officials).

b. Each group reads and discusses their assigned role, then prepares a brief presentation (2-3 minutes) to share with the class.

f. Activity-based learning

Learners in groups design and participate in a jumping event, taking on roles as coaches and officials. Coaches oversee warm-ups, provide encouragement and give performance feedback. Officials are responsible for judging events, managing the competition area, and making critical decisions. Officials should record and analyse jumping heights, athlete performances, and any rule infractions observed. Each learner is assigned an officiating role, such as chief judge, recorder (official two), bar official (vertical jumps) and general officials (Officials Three and Four) and practise making officiating calls in a controlled environment.

Reflect on the experience and suggest improvements for more effective officiating.



Note

- *Be conscious of learners who need assistance and provide support e.g., learners with mobility, vision, hearing, speech, etc. impairments.*
- *Encourage learners to respect individual differences (i.e., beliefs, religions, abilities, temperaments, cultures, etc.).*
- *Other appropriate approaches to engage learners can be used.*

g. Closure

Ask learners to reflect on what they learned about coaching and officiating. Prompt questions like:

- What qualities make an effective coach?
- How do officials ensure a fair competition?

KEY ASSESSMENT Level 3: Practical

During a high jump competition, your athlete is struggling with their approach, consistently taking off too close to the bar and knocking it forward. You notice their pre-competition routine was rushed due to unexpected travel delays. How would you intervene during the competition to help them regain their rhythm and confidence, and what long-term strategies would you implement to prevent similar issues in future competitions?

PLC Session 23

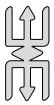
45 minutes	Planning & Reviewing the Learning Plan

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
2. Use your subject specific app to explore the content before planning. Ask the app to
   a. explain the week's concepts in a practical way that will make it easier for learners to understand
   b. identify two or three common misconceptions learners may have on the week's content and how to address them using contexts familiar to Ghanaian learners. (NTS 3a, 3g and 3m).
3. Use your subject specific app to plan your lesson. Ask the app to

a. suggest the most effective method for teaching the week's concepts to learners with diverse backgrounds.

b. suggest learning activities, differentiation and essential questions based on the method of teaching (NTS 3a-3q)

c. review your prepared learning plan and address any challenging issues you may have identified in your subject area (NTS 3a-3c).



Note

- *Take note of the recap topics linked to Years 1 and 2 while preparing for your lesson.*
- *Refer to the Values Learning Community Handbook and link the values for the week in your lesson to ensure that learners are applying what they learn.*

4. Plan the week's key assessment with your app

a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes **Content Exploration**

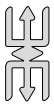
5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then

a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)

b. all teachers in the group work through a similar problem individually for 3–4 minutes

c. the group then works through the problem together step by step

d. highlight the most common errors made at each step and discuss (NTS 1c, 1e, 2c, 2e, 3e-3j).



Note

- *This part is not just about 'How do I teach this?' but how do I teach it for learners to understand?*
- *If the group still shares the same content gap, use the app: ask it to solve the problem step by step and explain the reasoning behind each step.*
- *Problems/ideas discussed should be sourced from the Teacher Manual content, not invented separately. This keeps the content exploration directly connected to what teachers will deliver.*

30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).

a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.

b. After the enactment, ask for structured feedback from the group

i. was the concept explained in a way that a learner with no prior knowledge could follow?

ii. were the examples grounded in contexts familiar to Ghanaian learners?

iii. did any misconceptions surface and if so, how were they addressed?

5 minutes	Reflection

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
8. Identify a critical friend to observe and provide feedback on your lesson in relation to the PLC Session conducted (NTS 1f, 1g).
9. Remember to
   a. transfer your chats into your learning planner template.
   b. read your Teacher Manual and related Learner Material in preparation for the next session. Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).
   c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

WEEK 24

Learning Indicator: *Employ the concepts and principles of coaching and officiating in the performance of jump events*

FOCAL AREA: CONCEPTS AND PRINCIPLES OF COACHING AND OFFICIATING IN THE PERFORMANCE OF JUMP EVENT

1. Coaching Principles for Jump Events

Coaching jump events involves a multifaceted approach that considers technical, physical, and psychological aspects of an athlete's development. A fundamental principle is maintaining postural integrity, which means keeping the body upright and in a good position for maximum power output in all jumping and sprinting events. Coaches consistently emphasise this, along with proper foot strike and rhythm, as core fundamentals in technical sessions.

2. Key Coaching Philosophies

a. **Simplicity and Consistency**: Many coaches advocate for a simple approach to technical training, focusing on consistently reinforcing the basics. The goal is to establish strong patterns of quality posture, foot contact, and rhythm.

b. **Individualisation:** While fundamental rules apply, effective coaching tailors the technical model to each athlete's unique strengths and weaknesses. Building on strengths while progressively addressing weaknesses is a common strategy.

c. **Systematic Progression:** Technical training should generally progress from simple to complex, and from low intensity to high intensity, always emphasising efficiency and accuracy in movement patterns. This involves preparing the body to handle greater forces at higher velocities and developing reactive strength.

d. **Sequential Mastery:** Technical training is viewed as a series of linked moments, with each building on the previous one, starting from the initiation of an attempt. This includes teaching runway approach dynamics constantly, integrating them into acceleration, speed, and lactic sessions.

3. Technical Elements and Drills

a. **Take-off:** For the long jump, key coaching tips for take-off include demonstrating a single-leg take-off, using an odd number of strides in the approach, and emphasising strong extension of the take-off knee and ankle. The stretch-shortening cycle is crucial for an effective take-off, involving isometric stabilisation of muscles before the leg plant, which converts large eccentric forces into rapid concentric muscle lengthening.

b. **Approach Run:** Developing proper sprint mechanics is essential for consistent runway management. Youth jumpers typically reach optimal speed in 8 to 10 strides, which is not maximal speed but the fastest controllable pace for good technique. Coaches should practice the approach run to ensure consistent foot placement on or near the board.

c. **Landing:** In long jump and triple jump, landing is influenced by the take-off angle, flight path, and in-flight body position changes. In-flight mechanics aim to slow forward rotation and set up a proper landing, with the body's centre of mass moving backwards as both feet reach

forward to maximise distance. For high jump and pole vault, bar clearance is determined by the take-off angle, flight path, and body positions relative to the bar.

d. **Plyometric Training:** Quality plyometric training is a cornerstone for track and field jumpers, as well as for basketball, volleyball, and team sport jumpers. The drop jump is a foundational exercise for developing fast stretch-shortening cycle function and can also serve as a readiness-to-train marker. However, dropping from heights above 0.45 meters can lead to high eccentric forces, which may not provide additional benefit in volleyball training and could cause injuries.

4. Effective Cueing Strategies

Cues are verbal words and descriptions coaches use to elicit a specific motor response from an athlete. Effective cueing requires a sophisticated understanding of movement, including the timing relationships between individual body part movements. It also involves understanding cause-and-effect relationships in skill execution, where the proper execution of one phase depends on a prior movement. The most advanced coaching considers the sensations and feelings an athlete experiences during performance, translating what appears to the coach into what it feels like to the athlete.

a. Types of Cues

i. **Internal Cues:** Refer to movements or positions of body parts, such as "knees up" or "dorsiflex the ankle".

ii. **External Cues:** Refer to movements of the body, often with surroundings, like "lower your centre of mass" or "push up".

iii. **Spatial Cues:** Deal with the location and relative position of body parts, such as cuing the knee to drop in front of the ankle in a triple jump take-off.

iv. **Temporal Cues:** Focus on the timing or rhythm of movements, like telling a long jumper to "rise later" if they rise prematurely.

v. **Fragmented Cues:** Address small portions of a larger movement, suitable for drills and low speeds.

vi. **Holistic Cues:** Deal with gross characteristics or larger parts of a movement, often one or two keywords, best for high-speed, high-intensity situations.

vii. **Quantitative Cues:** Provide information on the degree of correctness or incorrectness, generally preferred over qualitative cues.

viii. **Cycling Cue Systems:** Cues and cue systems should be cycled similarly to training cycles, as cues can lose effectiveness over time. This ensures continued technical improvement and prevents regression.

5. Officiating Concepts for Jump Events

Officiating in jump events requires a thorough understanding of rules, fairness, and efficient competition management. Officials are crucial in providing order and regulation within sports contests.

a. General Officiating Responsibilities

i. **Fairness and Impartiality:** A core principle is being fair to both sides in a competitive event, which is a necessary condition for good sports officiating. Impartiality is crucial, especially regarding training that might favour performance styles.

ii. **Rules and Regulations:** Officials must have adequate knowledge of the rules and regulations for every sport to be competed in. Rules guide what is valued in performance and help ensure fairness.

iii. **Event Management**: Officials should start on time and keep the event moving without rushing. The chief judge allocates officials, supervises area preparation for safety and equipment, and defines the event. Contestants are called up in order: "up," "on deck," and "on hold".

iv. **Time Limits:** In vertical jumps (high jump and pole vault), athletes get 1 minute to start an attempt after their name is called. If two to three athletes remain, each gets 2 minutes, and if only one athlete remains, 5 minutes is allowed. In horizontal jumps, the time starts when the official indicates readiness. If an athlete decides not to attempt a trial after the time has begun, it is considered a failure once the period elapses.

6. Specific Event Rules and Officiating

a. Long Jump and Triple Jump

i. **Attempts:** Athletes get three attempts in random order. The top 8 jumpers receive three more attempts in reverse order, with the best preliminary jumper competing last. If there are 8 or fewer competitors, a fair mark is not required for all six attempts.

ii. **Take-off:** Athletes must take off from behind the board. A failure occurs if any part of the take-off foot/shoe breaks the vertical plane of the take-offline while taking off, or if they take off from outside end of the board.

iii. **Measurement:** The measurement is taken from the end of the take-off board to the first mark in the sand made by the athlete.

iv. **Landing:** The athlete must leave the pit past the landing mark. Failure occurs if, during landing or overbalancing, they touch the border or ground outside the landing area closer to the take-offline than the nearest break in the sand.

v. **Ties:** Ties are broken by the second-best performance after the competition. Performances with wind readings over 2.0 meters per second are not considered for records.

vi. **Triple Jump Specifics:** The triple jump consists of a hop, a step, and a jump in that order. The hop requires landing on the same foot as the take-off, stepping on the other foot, and then the jump is performed from that other foot. Touching the ground with the "sleeping" leg during the jump is not a failure.

b. High Jump and Pole Vault

i. **Take-off:** High jumpers must take off from one foot.

ii. **Misses:** A miss occurs when the crossbar is dislodged by the athlete's action. Athletes are out after three consecutive misses, but jumpers can pass to the next height if they have one or two misses. If the plane of the crossbar is broken, it's considered an attempt even if the jumper doesn't take off.

iii. **Pole Vault Specifics:** Some federations have weight limits for poles. In pole vault, jumpers cannot touch the crossbar during an attempt with their hands; if the lower body touches and the bar stay on, it's up to the official.

iv. **Ties:** In case of a tie, the athlete with fewer misses at the last cleared height wins. If still tied, the athlete with the fewest overall misses wins. If still tied, a jump-off occurs by

lowering the bar, and athletes take turns jumping until one clears the height. Alternatively, athletes can agree to share the place.

7. Role of Officiating Technology

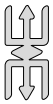
While not explicitly detailed for jump events, officiating technology, such as camera-based tracking systems, can assist in making accurate decisions in sports. These technologies can enhance fairness and efficiency in game operations, impacting spectators' perceptions and attitudes towards the sport.

a. **The latest technological advancements aiding officiating in jump events**

The latest technological advancements aiding officiating in jump events primarily involve precise measurement systems, automated foul detection, and sophisticated video analysis, all aimed at enhancing accuracy and fairness. These innovations reduce reliance on human judgment for critical, split-second decisions.

LEARNING TASKS

1. Learners research and present on coaching principles.
2. Learners identify and understand the specific roles and responsibilities of officials in jumping competitions.
3. Learners apply coaching techniques in practical setting.
4. Understand the roles and responsibilities of officials in jump events, including rules, common fouls, and scoring.
5. Analyse and critique jump event performances from both a coaching and officiating perspective.
6. Apply coaching and officiating principles in simulated jump event scenarios.
7. Learners select one jumping event, watch a video on it, analyses the coaching strategies and officiating effectiveness and discuss your conclusions with the class.



Note

Select from the list provided, the tasks that can be performed in your school, given the school's/ learners' particular situation and working within the allotted time.

PEDAGOGICAL EXAMPLARS

a. Starter

Show a short video on jumping events, highlighting the various roles involved, including coaching principles and general officiating responsibilities. After viewing the video, engage the learners in a brief discussion to encourage them to share their thoughts. This will provide them with a clear understanding of their responsibilities within the lesson.

b. Introduction

Coaches train athletes to enhance their skills and develop race strategies, while officials ensure fairness and enforce the rules during competitions. Both play a crucial role in jumping events. This lesson will explore their responsibilities, key qualities, and guiding principles.

c. Think-Pair-Share

In pairs, learners will research and present on a specific coaching principle (e.g., feedback, motivation, skill progression). Each pair will prepare a short presentation (3-5 minutes) explaining the principle and providing examples of how it can be applied in coaching jumping events. Encourage learners to use diagrams or videos to illustrate their points and after each presentation, allow time for questions and constructive feedback from peers.

d. Role-Playing

Learners, grouped by mixed gender and diverse abilities, will organise a mock competition where they take on various roles to practise officiating and making calls. Each learner writes a brief reflection on their experience in their assigned role, focusing on the challenges they faced and the lessons they learnt.

e. **Collaborative Learning**

Learners organised into mixed-ability and mixed-gender groups, learners conduct a practice session where they take turns acting as coaches for their peers during jumping drills. Coaches provide feedback and encouragement, focusing on skill development and tactical advice. The practice sessions will be recorded, allowing learners to review their coaching techniques and identify areas for improvement. Following the practice, a debriefing session will be held where coaches can share their experiences and receive feedback from both their peers and instructors.

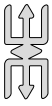
KEY ASSESSMENT Level 3: Practical

Discuss the ethical considerations involved in officiating jumping events. How can officials ensure fairness and integrity while managing the pressures of competition?

PLC Session 24

45 minutes | **Planning & Reviewing the Learning Plan**

1. Begin the session by recapping lessons from the previous year/session/week, focusing on how learning was applied.
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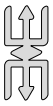
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    a. The key assessment for the week is ***practical***. Chat with your app to plan this assessment, indicating what you and your learners will do before, during and after the practical (NTS 3k-3q).

10 minutes **Content Exploration**

5. As a subject group, select one problem or idea/term in the week's content that is challenging (not a routine procedural question, but one that requires conceptual understanding) and then
    a. use the app, ask it to solve the problem step by step and explain the reasoning behind each step (you may be assisted by a teacher who is strong in the content area)
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30 minutes **Enactment**

6. Enact a teaching activity based on your learning plan (NTS la-1b, 1e-lg, 2c, 2e, 2f, 3c-3j and 3o).
    a. Colleagues observe with specific attention to clarity of concept explanation, use of familiar Ghanaian examples and how misconceptions are handled if they arise.
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        i. was the concept explained in a way that a learner with no prior knowledge could follow?
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5 minutes **Reflection**

7. Reflect and share your views on the session. One thing that worked well, what did not work well and what you will do differently. (NTS 1a, 1b).
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9. Remember to
    a. transfer your chats into your learning planner template.
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Take note of the recap weeks, which are linked to Years 1 and 2 (NTS 3a).

c. integrate National Values, GESI, SEL, and 21st century skills into your learning activities, assessment tasks, and rubrics/mark schemes.

Section 11 Review

In Week 23, learners were introduced to the foundational concepts and principles of coaching and officiating within jump events. This initial phase focused on building a theoretical understanding of the key elements involved in guiding athletes and ensuring fair play in these disciplines. The curriculum covered various aspects such as biomechanics, training methodologies, and the rules governing different jump events.

Week 24 marked a shift towards the practical application of the knowledge acquired in the previous week. Learners actively engaged in applying the concepts and principles of coaching and officiating through the performance of jump events. This practical component provided valuable hands-on experience, allowing learners to translate theoretical understanding into real-world scenarios, thereby deepening their comprehension and skill development in both coaching and officiating roles.

This section effectively progressed from theoretical understanding to practical application, ensuring a comprehensive learning experience in the coaching and officiating of jump events. The structured approach of introducing concepts before moving to performance-based activities is crucial for developing well-rounded expertise in this specialised area.

MARKING SCHEMES FOR THE KEY ASSESSMENT

WEEK 23

High Jump Coaching Scenario

Question Breakdown:

The question requires a multi-faceted answer, demonstrating understanding of immediate intervention, psychological support, and long-term preventative strategies.

Part 1: Immediate Intervention during the Competition (How would you intervene...?)

Part 2: Helping Regain Rhythm and Confidence (to help them regain their rhythm and confidence...)

Part 3: Long-Term Strategies (what long-term strategies would you implement...?)

Marking Scheme (Total 20 Marks)

Part 1: Immediate Intervention during the Competition (8 Marks)
4 Marks (Excellent): Provides specific, actionable in-competition adjustments. Demonstrates a clear understanding of high jump technique and common issues. Interventions are realistic and directly address the problem of taking off too close.
2 Marks (Very Good): Offers general but relevant in-competition advice. Some understanding of high jump technique is evident. Interventions might be less specific or comprehensive.
2 Marks (Satisfactory): Vague or irrelevant suggestions. Lacks understanding of in-competition coaching or high jump mechanics.
Part 2: Helping Regain Rhythm and Confidence (6 Marks)
3 Marks (Excellent): Addresses both the physical rhythm and the psychological aspect of confidence. Offers empathetic and supportive communication strategies. Shows awareness of athlete psychology under pressure.
2 Marks (Very Good): Focuses on one aspect (rhythm or confidence) or provides general encouragement without specific strategies.
1 Mark (Satisfactory): Ignores the psychological aspect or offers unhelpful advice.
Part 3: Long-Term Strategies (6 Marks)
3 Marks (Excellent): Proposes comprehensive, forward-thinking solutions that go beyond the immediate competition. Includes strategies for routine management, technical refinement, and mental preparation. Demonstrates proactive coaching.
2 Marks (Very Good): Suggests some relevant long-term strategies but may lack depth or breadth. Might focus only on technical aspects.
1 Mark (Satisfactory): Fails to suggest long-term solutions or offers irrelevant ones.

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Answer Model

Immediate Intervention during the Competition

First, I would initiate a calm and reassuring conversation with the athlete, acknowledging the impact of the travel delays without dwelling on them. My immediate focus would be on helping them re-establish a consistent approach mark. I would guide them to visually re-check their starting mark, perhaps walking through their approach at a slow pace to mentally re-engage with the rhythm. I would also encourage them to focus intently on a single, clear cue for their take-off, such as "push through the heel" or "drive the knee," rather than overthinking the entire sequence.

Regaining Rhythm and Confidence

To help them regain rhythm, I would advise simplifying their approach thoughts and focusing on one or two key technical cues for the next jump, rather than trying to correct everything at once. I'd also suggest taking a moment to breathe deeply and visualise a successful jump, reinforcing positive mental imagery. For confidence, I would remind them of previous successful jumps and their innate ability, emphasising that this is a temporary setback due to unusual circumstances, not a reflection of their skill. I'd convey my unwavering belief in their capacity to adjust and succeed.

Long-Term Strategies to Prevent Future Issues

Long-term, I would implement several preventative strategies. Firstly, we would develop and rigorously practice a robust pre-competition routine that can be adapted to various environments and time constraints, including exercises for dynamic warm-up, visualisation, and mental preparation. Secondly, we would incorporate more varied approach drills into regular training, including those that challenge the athlete to adjust their stride pattern and take-off point on command, improving their adaptability. Finally, we would focus on mental resilience training, teaching strategies for managing unexpected stress and maintaining focus, ensuring they can perform optimally even when circumstances are not ideal.

WEEK 24

Marking Scheme (10 Marks)

1. Understanding of Ethical Considerations (3 Marks)
o Clear explanation of ethical principles relevant to officiating (2 Marks)
o Identification of specific ethical dilemmas in jumping events (1 Mark)
2. Discussion on Fairness and Integrity (3 Marks)
o Insight into how fairness can be maintained in officiating (2 Marks)
o Examples of integrity in decision-making (1 Mark)
3. Management of Competition Pressures (3 Marks)
o Strategies for managing pressure while officiating (2 Marks)
o Discussion of the impact of pressure on decision-making and how to mitigate it (1 Mark)
4. Clarity and Structure (1 Mark)
o Logical organisation of ideas and clarity of expression (1 Mark)

Model Answer

Officiating jumping events involves several ethical considerations that are crucial for maintaining the integrity of the sport. Key ethical principles include fairness, impartiality, and transparency. Officials must ensure that decisions are based on objective criteria rather than personal biases or external

pressures. Specific ethical dilemmas might arise from conflicts of interest, such as officiating events involving friends or club members, which can compromise the perceived fairness of the competition.

To ensure fairness and integrity, officials can implement several strategies. For example, they should adhere strictly to the established rules and guidelines of the sport, ensuring that all athletes are treated equally. Maintaining clear communication with competitors regarding rules and expectations also fosters an environment of transparency. Additionally, officials should be trained in recognising and mitigating their biases, thereby enhancing the integrity of their decisions.

Managing the pressures of competition is another critical aspect of officiating. Officials may face significant stress due to the high stakes of the event, which can affect their decision-making. To cope with this pressure, officials can employ strategies such as thorough preparation before the event, mental rehearsal of potential scenarios, and maintaining a calm demeanour during competitions. Engaging in regular training and seeking feedback from peers can also help officials build confidence and resilience under pressure.

In conclusion, by understanding ethical considerations, ensuring fairness and integrity, and effectively managing competition pressures, officials can uphold the standards of the sport while contributing to a positive competitive environment.

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