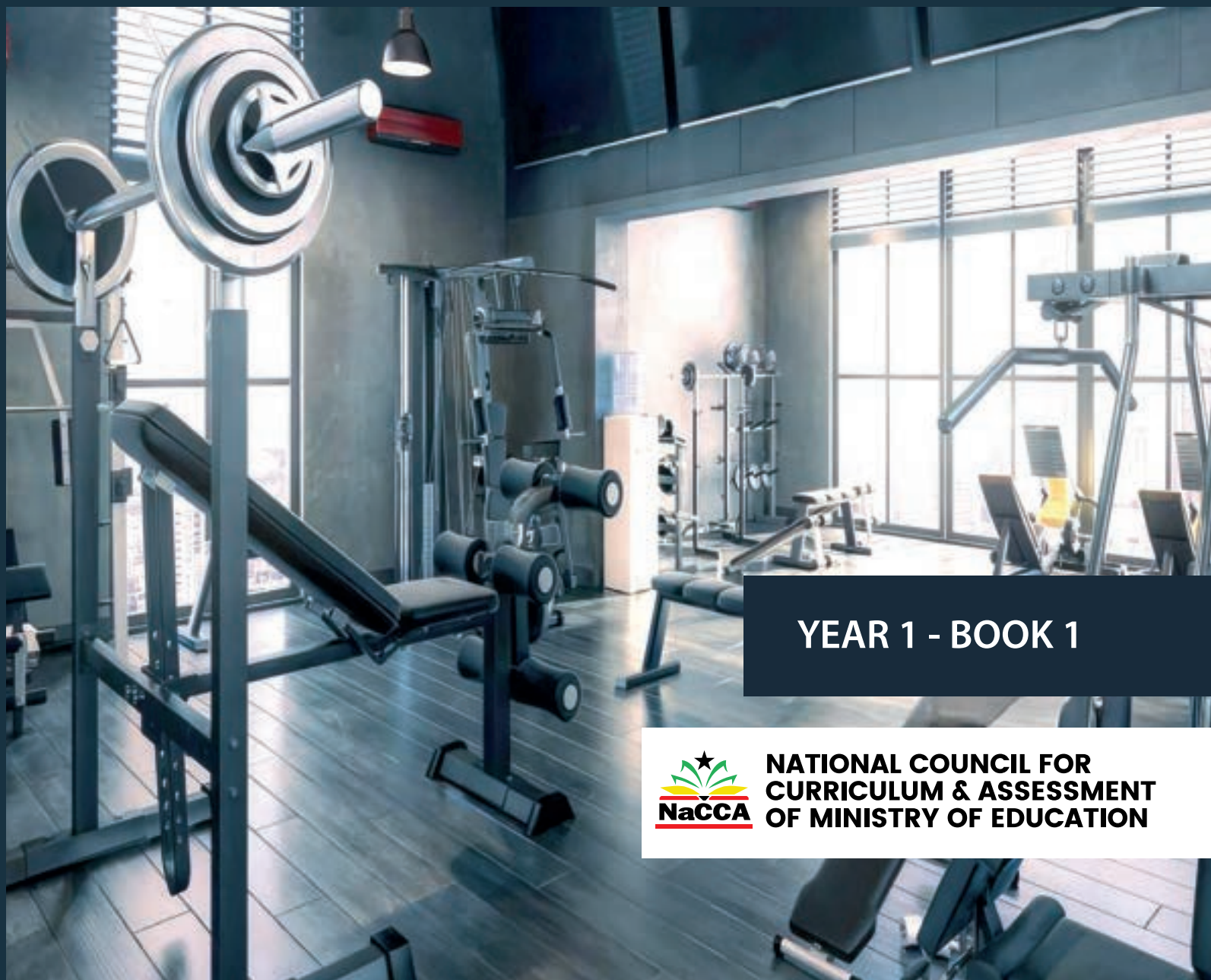
MINISTRY OF EDUCATION

Physical Education and Health (Elective)

TEACHER MANUAL



YEAR 1 - BOOK 1

NATIONAL COUNCIL FOR CURRICULUM & ASSESSMENT OF MINISTRY OF EDUCATION

MINISTRY OF EDUCATION

REPUBLIC OF GHANA

Physical Education and Health (Elective)

Teacher Manual

Year One - Book One

NATIONAL COUNCIL FOR CURRICULUM & ASSESSMENT OF MINISTRY OF EDUCATION

PHYSICAL EDUCATION AND HEALTH (ELECTIVE) TEACHER MANUAL

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INTRODUCTION

The National Council for Curriculum and Assessment (NaCCA) has developed a new Senior High School (SHS), Senior High Technical School (SHTS) and Science, Technology, Engineering and Mathematics (STEM) Curriculum. It aims to ensure that all learners achieve their potential by equipping them with 21st Century skills, competencies, character qualities and shared Ghanaian values. This will prepare learners to live a responsible adult life, further their education and enter the world of work.

This is the first time that Ghana has developed an SHS Curriculum which focuses on national values, attempting to educate a generation of Ghanaian youth who are proud of our country and can contribute effectively to its development.

This Teacher Manual for Physical Education and Health (Elective) covers all aspects of the content, pedagogy, teaching and learning resources and assessment required to effectively teach Year One of the new curriculum. It contains this information for the first 12 weeks of Year One, with the remaining 12 weeks contained within Book Two. Teachers are therefore to use this Teacher Manual to develop their weekly Learning Plans as required by Ghana Education Service.

Some of the key features of the new curriculum are set out below.

Learner-Centred Curriculum

The SHS, SHTS, and STEM curriculum places the learner at the center of teaching and learning by building on their existing life experiences, knowledge and understanding. Learners are actively involved in the knowledge-creation process, with the teacher acting as a facilitator. This involves using interactive and practical teaching and learning methods, as well as the learner's environment to make learning exciting and relatable. As an example, the new curriculum focuses on Ghanaian culture, Ghanaian history, and Ghanaian geography so that learners first understand their home and surroundings before extending their knowledge globally.

Promoting Ghanaian Values

Shared Ghanaian values have been integrated into the curriculum to ensure that all young people understand what it means to be a responsible Ghanaian citizen. These values include truth, integrity, diversity, equity, self-directed learning, self-confidence, adaptability and resourcefulness, leadership and responsible citizenship.

Integrating 21st Century Skills and Competencies

The SHS, SHTS, and STEM curriculum integrates 21st Century skills and competencies. These are:

- Foundational Knowledge: Literacy, Numeracy, Scientific Literacy, Information Communication and Digital Literacy, Financial Literacy and Entrepreneurship, Cultural Identity, Civic Literacy and Global Citizenship
- Competencies: Critical Thinking and Problem Solving, Innovation and Creativity, Collaboration and Communication
- Character Qualities: Discipline and Integrity, Self-Directed Learning, Self-Confidence, Adaptability and Resourcefulness, Leadership and Responsible Citizenship

Balanced Approach to Assessment - not just Final External Examinations

The SHS, SHTS, and STEM curriculum promotes a balanced approach to assessment. It encourages varied and differentiated assessments such as project work, practical demonstration, performance assessment, skills-based assessment, class exercises, portfolios as well as end-of-term examinations and final external assessment examinations. Two levels of assessment are used. These are:

- Internal Assessment (30%) – Comprises formative (portfolios, performance and project work) and summative (end-of-term examinations) which will be recorded in a school-based transcript.
- External Assessment (70%) – Comprehensive summative assessment will be conducted by the West African Examinations Council (WAEC) through the WASSCE. The questions posed by WAEC will test critical thinking, communication and problem solving as well as knowledge, understanding and factual recall.

The split of external and internal assessment will remain at 70/30 as is currently the case. However, there will be far greater transparency and quality assurance of the 30% of marks which are school-based. This will be achieved through the introduction of a school-based transcript, setting out all marks which learners achieve from SHS 1 to SHS 3. This transcript will be presented to universities alongside the WASSCE certificate for tertiary admissions.

An Inclusive and Responsive Curriculum

The SHS, SHTS, and STEM curriculum ensures no learner is left behind, and this is achieved through the following:

- Addressing the needs of all learners, including those requiring additional support or with special needs. The SHS, SHTS, and STEM curriculum includes learners with disabilities by adapting teaching and learning materials into accessible formats through technology and other measures to meet the needs of learners with disabilities.
- Incorporating strategies and measures, such as differentiation and adaptative pedagogies ensuring equitable access to resources and opportunities for all learners.
- Challenging traditional gender, cultural, or social stereotypes and encouraging all learners to achieve their true potential.
- Making provision for the needs of gifted and talented learners in schools.

Social and Emotional Learning

Social and emotional learning skills have also been integrated into the curriculum to help learners to develop and acquire skills, attitudes, and knowledge essential for understanding and managing their emotions, building healthy relationships and making responsible decisions.

Philosophy and vision for each subject

Each subject now has its own philosophy and vision, which sets out why the subject is being taught and how it will contribute to national development. The Philosophy and Vision Physical Education and Health (Elective) is:

Philosophy: The Philosophy underpinning the secondary school physical education and health curriculum is to provide opportunities for every learner to develop their potential to the fullest within a conducive environment supported by skilled teachers. Every learner needs to be equipped with skills and competencies for lifelong healthy living and to be able to further their education or proceed to the world of work.

Vision: The vision of the SHS physical education and health curriculum is to prepare learners equipped with relevant skills and competencies to progress and succeed in further studies, the world of work and adult life. It is aimed at equipping all learners with the 21st Century skills and competencies required to be responsible citizens and life-long learners. Young people will therefore be prepared to become effective, engaging, and responsible citizens. This will enable them to contribute to the ongoing national physical activity and sport for health development to support the nation's economy and well-being.

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Elective Physical Education and Health (Elective) Summary

S/N	STRAND	SUB-STRAND	YEAR 1			YEAR 2			YEAR 3		
			CS	LO	LI	CS	LO	LI	CS	LO	LI
1.	Health Education	Health and Wellness	1	1	2	1	1	2	1	1	3
		Nutrition and Diet in Health	1	1	3	1	1	3	1	1	3
		Common Human Diseases	1	1	3	1	1	3	1	1	3
2.	Physical Education	Physical Activity for Healthy Living	1	1	3	1	1	2	1	1	3
		Training Principles for Sports Performance	1	1	2	1	1	2	1	1	2
		Scientific Bases of Physical Activity	1	1	2	1	1	2	1	1	2
3.	Academic and Career Pathways	Health Education Pathways	1	1	2	1	1	2	1	1	2
		Physical Education Pathways	1	1	2	1	1	2	1	1	2
		Sports Excellence Pathways	1	1	2	1	1	2	1	1	2
		Coaching and Officiating of games	1	1	2	1	1	2	1	1	2
		Coaching and Officiating of athletics	1	1	2	1	1	2	1	1	2
Total			**11**	**11**	**25**	**11**	**11**	**24**	**11**	**11**	**26**

Overall Totals (SHS 1 – 3)

Content Standards	**33**
Learning Outcomes	**33**
Learning Indicators	**75**

SECTION 1: HEALTH AND WELLNESS

Weeks 1 and 2

Strand: **Health Education**

Sub-Strand: Health and Wellness

Learning Outcome: *Explain health and wellness and their roles in daily living*

Content Standard: Demonstrate understanding of the concepts of health and wellness including mental health

Weeks 3, 4 and 5

Strand: **Health Education**

Sub-Strand: Nutrition and Diet in Health

Learning Outcome: *Discuss nutrition and diet in healthy living*

Content Standard: Demonstrate knowledge and understanding of nutrition and diet in health

INTRODUCTION AND SECTION SUMMARY:

Health and wellness are the most important assets that any human being has. It is therefore essential that we take good care of our health because everything we are and wish to be depends on health and wellness – Your Health is your Wealth.

In this section, learners will be assisted to explain, demonstrate, and apply the knowledge gained from studying health and wellness in their daily lives. Through this session, learners will be able to take better care of their health and improve their general well-being to live healthier and possibly longer lives.

The weeks covered by the section are:

Week 1: Explain the concepts of health and wellness

Week 2: Discuss the various components of health and wellness.

Week 3: Explain healthy eating 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

SUMMARY OF PEDAGOGICAL EXEMPLARS:

Teachers are expected to consider the abilities and backgrounds of learners before engaging them. Lead learners to work in groups, learn the values of teamwork, research using their digital devices on health and wellness, relate experiences from their daily lives and apply them for wellness, strength, good health and longevity. Pay equal attention to the gifted, talented and learners with Special Educational Needs (SEN).

ASSESSMENT SUMMARY

In the assessments, design varied assessment tasks taking into consideration learner differences in their understanding of concepts and proficiency**.** This will enable teachers to meet the varied assessment needs of every learner. Make room for learners to freely express their views on the concept, their experiences on the causes of ill health and how they prevented or managed similar situations. Find creative ways of assigning learners to undertake projects and weekly plans of activities to improve their health and wellness as forms of assessment. The aim should be towards lifestyle changes and better quality of life.

Week 1

Learning Indicator: *Explain the concepts of health and wellness*

Theme or Focal Area: The concepts of health and wellness

HEALTH AND WELLNESS

a. The meaning of health:

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO).

Health focuses on the physical body and whether it functions well or not. It involves what you eat and the way you eat, what you do with your body and the absence of acute or chronic diseases.

Fig. 1.1: *A healthy-looking family leading a happy life*

i. **Healthy Living**

Healthy Living refers to a state of well-being that includes various aspects of physical, mental, emotional, and social health. It involves making conscious and positive choices that promote overall wellness and improve the quality of life. Healthy living is not merely the absence of illness but rather a proactive approach to maintaining and enhancing one's health.

Fig. 1.2: *The need for sleep*

b. The meaning of wellness

Wellness is an active process through which people become aware of and make choices toward a more successful existence (American National Institute of Wellness).

It is associated with actively pursuing activities, making choices and lifestyle changes, controlling risk factors that can harm a person, focusing on nutrition, having a balanced diet, and following spiritual practices that lead to holistic health.

Wellness is concerned with a lifestyle that produces well-being. A lifestyle of wellness is achievable whether a person has perfect health, or if they have a chronic illness. Wellness is about all aspects of your life including your body, your work, your relationships, your emotional life, and so much more (Suzanne Monroe, 2021).

Fig. 1.3: *Wellness produces a joyful life*

Fig. 1.4: *Wellness gives the ability to perform life's activities easily*

c. The concept of health and wellness

Health and wellness refer to a state of well-being, which includes soundness of mind, body, and spirit as well as the presence of a positive capacity to develop one's potential and to lead an energetic, fulfilling, and productive life (Law Insider).

Fig. 1.5: *Having regular medical check-ups*

Fig. 1.6: *Working or studying hard at the right time is wellness*

d. Risk factors/Negative attitudes that affect health and wellness

- **What are risk factors?**

  Risk factors are actions or conditions that increase a person's likelihood of having an illness or injury (MedicineNet: *Rohini Radhakrishnan*).

  Some risk factors for health and wellness are as follows:

- **Bad for health:**
  - Drinking Alcohol: Can cause liver damage, stroke, heart disease and cancer.
  - Smoking: A major risk factor for lung cancer and cardiovascular diseases.
  - Having unprotected sex: Can lead to the contraction and spread of sexually transmitted diseases/infections.
  - Eating unhealthy, processed and unwholesome foods leads to an increased risk of illnesses such as obesity, high blood pressure and diabetes.

Fig. 1.7: *Bad eating habits*

- **Bad for wellness:**
  - Being late to functions.
  - Pushing everything to the next day.
  - Not maximising weeknights and weekends.
  - Comparing yourself to others.
  - Ruminating over something that went wrong.
  - Spending a large amount of time watching Screens e.g. televisions, mobile phones, laptops and tablets.
  - Lack of physical activity.
  - Living in an unclean environment.

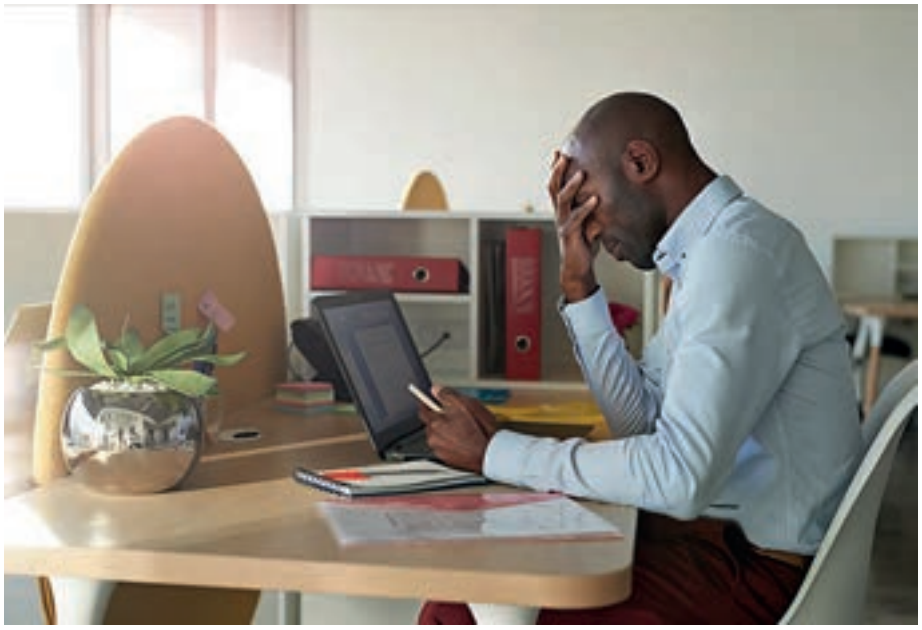

Fig. 1.8: *Sitting and working with phones and on computers for too long*

Fig. 1.9: *Living in an unclean environment degrades wellness*

e. Benefits of health and wellness:

i. Improved physical health
ii. Enhanced mental well-being
iii. Increased energy levels
iv. Reduced stress
v. Enhanced cognitive function
vi. Better sleep quality
vii. Disease prevention
viii. Increased longevity
ix. Improved self-confidence
x. Enhanced productivity

Fig. 1.10: *A responsible life leads to a healthier longer life*

Learning Tasks

a. Describe daily life activities that can positively impact health and wellness.

b. Analyse habits that need to be prevented/corrected to ensure health and wellness.

c. Project work (Problem-Solving): Select one benefit of health and wellness and give a daily report of a healthy activity that has been undertaken to maintain/achieve this targeted benefit. Continue for one week.

Note: If the project is to be done in groups, consider proximity and other critical aspects of learners for the groupings, making room for peer assistance, individual learner's progress and self-actualisation.

Also, be conscious of learners who need special assistance regarding disabilities and provide alternatives or better arrangements.

Pedagogical Exemplars

a. **Group-based Learning:**

In mixed-gender and ability groups, learners watch videos or pictures of people engaged in physical exercises, drinking water, eating a balanced diet, sleeping and cleaning their immediate surroundings. By providing probing questions, guide learners to analyse what they have seen and link it to health and wellness. Encourage learners to accept divergent opinions. Give further explanations to learners who need support by using probing or leading questions for them to clarify responses where necessary.

In mixed groupings, learners explore from the internet, library or other sources and come up with their own definition of health. Learners discuss their meanings of the keywords in their definition of health.

Encourage learners to contribute to the discussion verbally, through writing or any other means they are comfortable with. Make room for learners who can explore from multiple sources and provide a wider range of information.

b. **Talk-for-Learning:**

Learners suggest daily life activities that can positively impact health and wellness.

Discuss how healthy living impacts their ability to perform tasks in PEH and share what they have learnt with their partners while ensuring gender-neutral pairings.

c. **Collaborative Learning:**

In mixed groups, learners analyse habits that need to be prevented/corrected to ensure health and wellness. Ensure all learners collaborate and contribute to the discussion. Learners can present their findings verbally, through writing or by any other means they are comfortable with. Make room for learners to explore using a wide range of information sources.

Encourage shy learners in each group to lead the discussion while emphasising the need for patience and respect for each other. Invite leaders to share their findings with the whole class.

Key Assessments

Level 2: Explain the term, health.

Level 3: Describe three ways by which the understanding how the concept of wellness can affect the sports performance of student athletes.

Level 4: Analyse two activities that depict healthy living and how they can impact our lives.

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Week 2

Learning Indicator: *Discuss the various components of health and wellness*

Theme or Focal Area: Discussion of the various components of health and wellness

DIMENSIONS/COMPONENTS OF HEALTH AND WELLNESS

Introduction

To facilitate a detailed discussion and understanding, health and wellness can be broken down into various areas of your daily living.

Fig 2.1:*Components/Dimensions of health and wellness*

a. Components/Dimensions of health and wellness

i. **Physical health and wellness**

The state of the body and how it functions.

Lifestyle choices that can lead to good physical health and wellness include:

- Eating healthy foods.
- Exercising regularly.
- Seeing your doctor for regular check-ups.
- Avoiding drug use.
- Getting at least 6-8 hours of sleep every night.
- Drinking clean water daily (2 liters-8 cups for women and 2.6 liters-10 cups for men).

Fig. 2.2: *Choose the healthy food: It is the right road to take*

Fig. 2.3: *Keeping an active life for physical health and wellness*

ii. **Mental/Intellectual health and wellness**

The state of the mind our thoughts and how it controls our behaviours.

Lifestyle choices that can lead to good mental health and wellness include:

- Managing stress by engaging in positive activities that make you happy.
- Staying positive by thinking about progressive things.
- Seeking help if you're feeling down.
- Keeping abreast of current affairs.
- Taking your studies/work seriously.
- Becoming a life-long learner.
- Talking to a counsellor, a teacher and your parents.

iii. **Emotional health and wellness**

Refers to the state of your feelings/emotions and the ability to cope with stress, express your feelings and manage your emotions. This helps us to understand our temperament and control our behaviour.

Lifestyle choices that can lead to good emotional health and wellness include:

- Managing stress.
- Expressing your feelings in healthy ways.
- Keeping a positive attitude when problems arise.
- Discovering your personal stress reliever.
- Managing your time wisely.
- Finding someone you trust and can openly share your feelings with.
- Smiling even when you don't feel like it.

Fig. 2.4: *Having a positive feeling is good for emotional health and wellness*

iv. **Social health and wellness**

Explains the state of your relationships, including your ability to interact with others, communicate effectively as well as build and maintain healthy relationships.

Lifestyle choices that can lead to good social health and wellness include:

- Interacting with others in a friendly and cordial manner.
- Communicating effectively.
- Building and maintain healthy relationships.
- Getting involved in social activities like fun clubs.
- Knowing who your best friends are.
- Recognising when you are in an unhealthy relationship and quit.
- Balancing your social life with your academic/career responsibility.

Fig. 2.5: *Together is better. Positive social life heals*

v. **Environmental health and wellness**

Explained as the state of your surroundings, including your home, work, and leisure environments and how they affect you.

Lifestyle choices that can lead to good environmental health include:

- Distancing yourself from environmental hazards and pollutants.
- Maintaining the natural environment by avoiding deforestation and illegal mining.
- Avoiding littering the environment.
- Cleaning your rooms and the facilities in them regularly.
- Arranging items in an organised and orderly manner.
- Remove obstacles in spaces for easy passage for all, including those less able.

Fig. 2.6: *A clean environment creates health and wellness*

vi. **Financial health and wellness**

Financial health is the state of your money issues and includes your ability to save, manage your money and make sound monetary decisions.

Lifestyle choices that can lead to good financial health include:

- Planning your spending and prepare a budget.
- Avoiding impulse spending.
- Saving for the future.
- Avoiding scams and easy money-making schemes like ritual money, fraud (internet fraud, Ponzi schemes) gambling and dubious money-increasing ventures.
- Avoiding online fraud and impersonators to make money.
- Avoiding associating with people with ill-gotten wealth.

Fig. 2.7: *Saving Money for future use*

vii. **Occupational health and wellness:**

The preparing and making use of your gifts, skills and talents to gain purpose, happiness and enrichment in your life.

Lifestyle choices that can lead to good financial health and wellness include:

- Exploring a variety of career options.
- Creating a vision for your future.
- Choosing a career that suits your personality, interests and talents.
- Being open to change and learning new skills.

Fig. 2.8: *Fully occupied with work*

viii. **Spiritual health and wellness**

The state of your soul, including your ability to find meaning and purpose in life, connect with a higher non-human power and live a life of values and principles.

Lifestyle choices that can lead to good spiritual health and wellness include:

- Being aware of your healthy spiritual needs.
- Connecting with a healthy spiritual higher authority.
- Living a life of values and principles.
- Finding a quiet place and spend time there regularly.
- Pondering over the meaning of your life.
- If you have a healthy religion, studying and practicing it.
- Spending time appreciating the natural world around you.

Fig. 2.9: *Time to connect with a higher spiritual power*

b. The influence of health and wellness on sports performance

Health and wellness play a significant role in sports performance, as they directly impact an athlete's physical and mental capabilities.

The following are some ways in which health and wellness impact sports performance:

i. Physical fitness:

Good health and wellness contribute to overall physical fitness, including strength, endurance, flexibility and agility. Athletes who take their health and wellness seriously are better able to train effectively and perform at their best.

ii. Injury prevention:

Maintaining good health and wellness helps in preventing injuries. Proper nutrition, hydration, rest and recovery are essential for reducing the risk of injuries during training and competition. Additionally, a well-balanced training programme can help strengthen muscles and joints, reducing the likelihood of injuries.

iii. High energy levels:

Nutrition and hydration are crucial for sustaining energy levels during training and competitions. Athletes need to consume a balanced diet that provides adequate nutrients to fuel their workouts and promote recovery. Dehydration and poor nutrition can lead to fatigue, decreased performance and increased risk of injury.

iv. **Mental well-being:**

Mental health plays a significant role in sports performance. Athletes who prioritise their mental well-being are better able to cope with stress, anxiety, and pressure during competitions. Techniques such as mindfulness, visualisation and relaxation exercises can help athletes stay focused and mentally prepared for their events.

v. **Recovery and adaptation:**

Adequate rest and recovery are essential for allowing the body to adapt to training tasks and improve performance. Sleep, in particular, plays a critical role in recovery, as it allows the body to repair muscles, consolidate learning and recharge energy stores. Athletes who prioritise rest and recovery experience faster gains in performance and are less prone to overtraining and burnout.

vi. **Immune function:**

Good health and wellness support a robust immune system, which is essential for athletes to stay healthy and perform at their best. Regular exercise, proper nutrition, adequate sleep, and stress management all contribute to a strong immune system, reducing the risk of illness and ensuring consistent training and competition participation.

vii. **Longevity in sports:**

Prioritising health and wellness not only enhance short-term performance but also contributes to longevity in sport. Athletes who take care of their bodies and prioritise overall well-being are more likely to have sustainable careers and enjoy continued success over a longer period.

viii. **Social support:**

Athletes who have strong support systems from family, friends, coaches, teammates and fans, often perform better in sports. These support systems provide encouragement, motivation and a sense of belonging. Social support helps to boost confidence and mental resilience during competitions. Additionally, positive relationships within the sporting community can create a supportive environment that enhances overall well-being and performance.

ix. **Financial advantage:**

Having financial resources can significantly impact an athlete's ability to access training facilities, equipment, coaching, medical support and travel opportunities for competitions. Athletes may have greater access to resources that enhance their training and performance, such as personalised coaching, specialised equipment, and high-quality nutrition.

x. **Environmental awareness:**

Awareness of environmental conditions, such as weather, altitude, air quality and playing surface can influence sports performance. Athletes who train and compete in environments that closely resemble competition conditions may have an advantage in adapting to specific competition challenges, such as high altitude or extreme temperatures. Additionally, access to safe and well-maintained training facilities can contribute to injury prevention and optimal performance.

xi. **Spiritual inspiration**:

Spiritual well-being refers to a sense of purpose, meaning and connection to something greater than oneself. For some athletes, spiritual beliefs and practices can provide mental strength, resilience, and a sense of inner peace that positively impacts sports performance. Spiritual practices such as meditation, prayer or mindfulness can help athletes manage stress, stay focused, and maintain focus during challenging times in their sporting careers.

Learning Tasks

a. Explain any three components of health and wellness.

b. Match five daily activities with their components of health and wellness.

c. Discuss three harmful activities that will affect physical health and wellness and provide solutions for these.

d. In small groups of 4-6, learners use the chart below as a guide to design a healthy lifestyle plan. Learners should individually complete a plan for the next thirty days and report to their groups daily.

Selected Dimension: Physical Health and Wellness

Table 2.1: Sample of a healthy lifestyle chart

Name	Daily Healthy Activities			
	Day 1	**Day 2**	**Day 3**	**Day 4**
Abu	Health-walk with friends	Drank 8-10 cups of water	Rode bicycle to the market	Drew water from the well
Ama	Attended Aerobic Dance Training	Played football with neighbours	Slept 7 – 8 Hours of Sleep and woke up on time.	Went for hiking
Adzo	Ate balance diet	Weeded the frontage of the house	Went on hiking	Swept the house
Addo	Cleaned the kitchen	Played volleyball with friends	Went on errands on foot	Did skipping

Pedagogical Exemplars

a. **Collaborative Learning:**

Show a video/picture(s) of people of various walks of life engaged in different activities. Learners in mixed-ability groups identify and describe what they see.

Learners in mixed groupings explore the internet, library books or other available sources for information and categorise the observed activities mentioned above into the components of health and wellness. Encourage learners to assist each other while exploring extensively for wider information.

b. **Talk-for-Learning:**

In groups, learners discuss activities that can help to achieve each of the components of health and wellness. Learners can input orally, in writing or in any convenient approach.

Learners also look at harmful activities that can affect physical health and wellness and provide solutions to addressing them. They write down their outcomes and assign group secretaries to present to the whole class for contributions and finalisation.

c. **Problem-Based and Collaborative Learning:**

Through problem-solving, learners describe at least four actions that can be taken to prevent or improve issues with emotional health and wellness and develop a checklist of healthy social behaviours and how they impact their health and wellness.

Give equal opportunities to both genders.

Learners in appropriate groupings use a chart as a guide to design a healthy lifestyle plan that shows what each member of the group does to achieve a healthy lifestyle.

d. Reflective Learning:

In an inclusive environment, learners describe how they make money, what they use their money for and how they keep money for future use. Assist them in explaining financial health and wellness.

Learners describe spiritual health and wellness, their relationships with a higher spiritual power and how that spirituality helps them to achieve health and wellness while exhibiting tolerance for each other.

Note: Be conscious of and consider:

i. The special needs of learners e.g. physically challenged, hearing impaired, speech impaired, etc. and provide appropriate support.
ii. Learners' Socio-Emotional Learning (SEL) needs, by encouraging respect for individual differences, beliefs, religions, abilities, temperaments, cultures, etc.
iii. The use of other appropriate approaches to engage learners.
iv. Researching and adding to the examples given.

Key Assessments

Level 1: List two ways of improving or addressing emotional health and wellness issues.

Level 2: Explain the components of health and wellness.

Level 3: Prepare a list of daily activities and categorise them into the various components/dimensions of health and wellness.

Level 3: Identify one dimension of health and wellness and examine its influence on the sports performance of a student athlete.

Level 4: Analyse four solutions on how to address environmental issues to improve health and wellness in each of the following:

1. Classroom
2. Home
3. Community

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Week 3

Learning Indicator: *Explain healthy eating behaviour and how that promotes physical health*

Theme or Focal Area: Healthy eating behaviour and how it promotes physical health.

HEALTHY EATING BEHAVIOUR

Introduction

Health is the foundation for life and the fuel for the sustenance of this health is found in the food we eat. It is therefore essential that we are very careful and critical with our diet and nutrition.

Fig. 3.1: *The art of carefully choosing your food powers your life*

a. Healthy Eating

Healthy eating refers to the practice of taking in a variety of foods that give the body nutrients needed to maintain health, feel good, and have energy (breastcancer.org).

Fig. 3.2: *A healthy blend of fruits and vegetables*

b. What is a healthy diet?

A healthy diet is a course of food that provides all the essential nutrients, vitamins, and minerals that the body needs to function optimally while supporting overall well-being.

It consists of a balanced combination of various food groups, including fruits, vegetables, whole grains, lean proteins, healthy fats, and limited amounts of processed foods, sugars, and sodium.

A healthy diet helps to protect the body against malnutrition in all its forms, as well as a range of Non-Communicable Diseases (NCDs) and other conditions.

It's important to note that individual dietary needs may vary based on factors such as age, sex, activity level, and any underlying health conditions (WHO).

Fig. 3.3: *A healthy diet*

c. Effects of healthy eating behaviours on physical health

Physical health highlights the well-being of the body and its proper functioning relative to the ability to perform daily tasks and live comfortably. It deals with factors such as physical fitness, proper nutrition and the absence or proper management of diseases or injuries.

The table below breaks down the impact of healthy eating on the body:

Table 3.1: How our eating behaviour affects our physical health

S/N	Components of Physical Health	Healthy Eating Behaviour and its Effect
1	Weight Management	A healthy balanced diet promotes weight maintenance or weight loss. It can prevent obesity and reduce cardiovascular diseases, diabetes and certain cancers.
2	Healthy Heart	A balanced diet low in saturated fats, cholesterol, sodium and high in fruits, vegetables, whole grains and lean proteins helps maintain healthy blood pressure, cholesterol levels and reduces the risk of heart diseases.
3	Stronger Bones	Adequate calcium and vitamin D intake through a nutritious diet contributes to strong bones and reduces the risk of osteoporosis and fractures.
4	Stronger Muscles and Improved Flexibility	A diet rich in protein, vitamins and minerals supports muscle growth, repair and maintenance. It also enhances general strength and flexibility.

5	Increased Energy Levels	Balanced meals with a mix of carbohydrates, proteins and healthy fats provide sustained energy throughout the day, promotes productivity and reduces fatigue.
6	Stronger Immune System	Proper nutrition including fruits, vegetables, whole grains and adequate proteins supports a healthy immune system, reduces the risk of infections and promotes faster recovery.
7	Easy Digestion	A diet rich in fibre, fluids and probiotics promotes regular bowel movements, prevents constipation and supports a healthy gut microbiome.
8	Healthy Skin	Foods containing vitamins A, C, E and antioxidants help maintain healthy skin, reduce skin conditions and promote a youthful appearance.
9	Effective Brain Function	A diet rich in omega-3 fatty acids and antioxidants supports brain function, reasoning, memory and reduces age-related cognitive decline.
10	Longevity and Disease Prevention	A balanced diet contributes to overall well-being. It reduces the risk of chronic diseases and promotes a longer, healthier life.

Fig. 3.4: *Healthy eating behaviour and sports success*

Fig. 3.5: *Healthy eating behaviour and sports output*

d. Food pyramid

A food pyramid is a triangular depiction/guideline of daily diet that shows the types and proportions of food an individual should consume for good health.

It shows the different food groups and how much you need to have in a healthy diet.

i. A healthy food pyramid

A healthy food pyramid is a visual dietary guideline that stresses consuming wholesome, nutritious and balanced food to promote overall health and physical well-being.

ii. The goal of a healthy food pyramid

The goal of a healthy food pyramid is to provide a visual guide to making informed and balanced dietary choices that support overall well-being

iii. The objectives of a healthy food pyramid

- A food pyramid helps to prevent nutrient deficiencies and reduces the risk of chronic diseases and conditions such as obesity, diabetes, heart diseases, etc.
- A food pyramid helps individuals to maintain overall well-being by making healthy and balanced food choices.
- It provides nutritional guidance. A food pyramid helps to categorise food based on nutritional value and gives a clear guidance on the proportion of recommended intake.
- It promotes moderation in consumption and promotes variety by encouraging individuals to choose a wide range of foods from each food group. This helps in meeting nutritional needs and varied flavours in the diet.
- A food pyramid promotes healthy eating patterns. This is to encourage individuals to adopt healthy eating patterns. It helps to maintain optimal nutritional needs and health.

iv. The African Food Pyramid

From Chart 1 below, the African Food Pyramid has the following features:

- **Staple foods:** These foods provide energy and form the base of the pyramid. It consists of mainly grains (millet, sorghum, maize, rice), root crops (cassava, yam, cocoyam, potato) and plantain.
- **Vegetables:** Locally grown vegetables such as cassava leaves, okra, spinach, gboma, ayoyo, ademe and tomatoes provide essential vitamins and minerals.
- **Proteins:** They include a variety of animal parts and products such as fish, chicken, egg, beef, chevon (goat) and mutton (sheep), as well as plant-based proteins like beans, cowpea, soya and peanuts (groundnuts).
- **Fruits:** Indigenous fruits like mangoes, bananas, papayas, pineapples, and oranges are rich in vitamins, minerals, and natural sugars.
- **Fats and Oils:** They are often derived from palm oil, palm kernel oil, shea butter and coconut oil.

(Oldways Preservation and Exchange Trust, 2011)

Chart 1: *A guide on what and how you eat*

Source: *Oldways Preservation and Exchange Trust (2011)*

e. Proportions of food intake in a diet

The recommended percentages of food nutrients expected in a diet are:

i. Non-starchy vegetables 30-0%
ii. Fruits 15-30%
iii. Grains and starchy foods 15-30%
iv. Beans and other legumes 10-25%
v. Nuts and Seeds 10-20%
vi. Spices, Salt, Herbs, Condiments and healthy oil – in small amounts (*www.drkasenene.com)*

Learning Tasks

a. Discuss three objectives of a food pyramid. Encourage the use of digital devices.

b. Prepare a one-week menu for an athlete preparing for inter-school sports competition.

c. Learners design their personal weekly healthy eating plan taking into consideration cultural, social and financial backgrounds with the support of their parents.

Use the template below to design your weekly healthy eating plan:

Table 3.2: Weekly eating plan

Day/Meal	Breakfast	Lunch	Supper
Monday	Millet Koko + Koose with Vegetables	Kenkey with Pepper + Fried Fish + Fruit	Rice & Stew + Egg + Vegetables + Yoghurt
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			

Pedagogical Exemplars

a. **Experiential Learning:**

Show a video or pictures of people eating various kinds of local foods and invite learners to describe what type of food they see and relate them to food portions and nutritional requirements.

Guide learners in mixed-ability, gender, etc. groupings to reflect on how, what and when they eat. Use it as a guide to explain the meaning of healthy eating while being tolerant of the opinions of each other.

b. **Digital Learning:**

Engage learners with the aid of their mobile devices/computers to research and discuss the objectives of a food pyramid. Motivate learners to actively participate in the research using approaches within their means and contribute to the discussion verbally, through writing or any other means they are comfortable with. Make room for learners who can explore from multiple sources and provide a wider range of information.

c. **Collaborative learning:**

In groups, learners collaborate to prepare a one-week menu for their school athletes preparing for a competition. Learners appoint two members in each group to join another group to share their menu. Learners return to their original group to finalise their menu.

Learners design their own personal weekly healthy eating plan taking into consideration cultural, social and financial backgrounds. Learners can use their digital devices to source information.

Key Assessments

Level 1: State three factors to consider when selecting a healthy diet. Accept oral responses.

Level 2: Explain what is meant by the term 'healthy eating'. Accept oral or written responses.

Level 4: Analyse the quality and wholesomeness of home cooked Ghanaian local diets with foreign processed diets. Accept written description responses.

a. Give reasons why you prefer that diet

b. Which of them do you think is more beneficial for your health and why?

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Week 4

Learning Indicator: *Discuss the role of nutrition in healthy living*

Theme or Focal Area: Nutrition in healthy living

NUTRITION IN HEALTY LIVING

Introduction

Satisfying the body's nutritional requirement is the main reason we eat. It is therefore very important that what we eat is of the highest value so it meets the body's expectations for growth, development, maintenance and energy.

Fig. 4.1: *You are what you eat*

a. Understanding the concept of nutrition

Nutrition is the study of nutrients in food, their use in the body and how they affect its growth, development and overall health.

It involves understanding the different types of nutrients present in food, their functions in the body and the ways to obtain and utilise these nutrients to maintain good health.

Fig. 4.2: *Do you consider nutrition in selecting your diet?*

b. What are nutrients?

Nutrients are chemical compounds contained in food which our bodies need for energy, growth, development and reproduction.

The two major classifications of nutrients are essential nutrients and non-essential nutrients.

i. **Essential nutrients**

Essential nutrients are substances that our bodies require for proper functioning but cannot produce on their own or cannot have in sufficient quantities. These nutrients are derived from our diets. They are necessary for the body's growth, development and overall health.

Examples of essential nutrients, their functions and sources

Table 4.1: *Essential nutrients*

No.	Nutrient	Function	Food Sources
1	Carbohydrate	Provides energy for the body.	Whole grains (e.g. brown rice, millet, wheat, maize), roots (e.g. cassava, potato) and plantain.
2	Protein	Builds and repairs tissues, produces enzymes and hormones.	Beef, poultry, fish, egg, dairy products (e.g. milk, yoghurt), legumes (e.g. cowpea, soya beans), nuts (e.g. groundnut).
3	Fats	Provides energy, insulates organs, supports cell growth.	Palm kernel oil, sunflower oil, groundnut oil, coconut oil, butter, salmon, mackerel and avocado.
4	Vitamins	Assists in various biochemical reactions and supports overall health.	Fruits, vegetables, whole-grains, dairy products, egg, meat and fish.
5	Minerals	Regulates body processes, supports bone health, nerve function and muscle contraction.	Leafy green vegetables, dairy products, nuts, seeds and legumes.
6	Water	Facilitates bodily functions, maintains temperature, transports nutrients.	Drinking water, fruits, vegetables, soups and beverages.

ii. **Non-essential nutrients**

They are nutrients that the body can produce by itself in sufficient amounts for normal functioning. Although they are described as non-essential, they still play important roles in our overall health.

Examples of non-essential nutrients, their functions and sources

Table 4.2: Non-essential nutrients

No.	Nutrient	Function	Food Source
1	Fibre	A complex carbohydrate plant food which passes through the alimentary canal undigested but promotes healthy digestion and prevents constipation.	Whole grains, fruits, vegetables, legumes, nuts and seeds.

No.	Nutrient	Function	Food Source
2	Phytochemicals	They are nutrients that protect the internal organs from damage caused by toxins and the body's natural metabolic processes. They protect the body from viruses, bacteria, fungi and parasites. They improve the functions of the immune system, brain and heart.	Chocolate, orange and colourful fruits and vegetables e.g. carrots, cabbages, watermelon and berries.
3	Antioxidants	They are nutrients that may prevent or delay some types of cell damage. Antioxidants include vitamins A, C and E. They prevent diseases like cancer, heart disease, diabetes, stroke and other diseases of aging.	Dark chocolate (from cocoa beans), strawberries, beans, beetroot (sobolo) and spinach.
4	Prebiotics	These are non-digestible dietary fibres that stimulate the growth or activity of harmless bacteria to improve digestive health, immune system, and metabolic processes.	Green leafy vegetables, dandelion, garlic, onion, banana, oats, wheat and apples.
5	Probiotics	These are living micro-organisms that have health benefits when consumed and help to prevent diarrhoea, constipation, bowel inflammation, stomach ulcers, allergic disorders, vaginal infections, Urinary Tract Infections and oral health problems.	Yoghurt, cheese, beans fermented soybean, cassava, maize, sorghum and millet.

c. Nutrient deficiency/Malnutrition

Nutrient deficiency, also known as malnutrition, refers to a condition in which an individual's body does not get enough of the essential vitamins and minerals it needs for optimal health and function.

It occurs when the intake or absorption of essential nutrients falls below the recommended levels, leading to a deficiency in one or more nutrients (Biamadottir), (2023).

i. **Examples of nutrient deficiencies:**

- **Vitamin C deficiency**

  Vitamin C is essential for the formation of collagen which is a protein that helps keep our skin, bones and blood vessels healthy. It also facilitates the healing of wounds, immune function and the absorption of iron.

  Severe vitamin C deficiency results in a disease called scurvy. This is a disorder that causes rough skin with several spots, loosening of the teeth, bleeding gums and bleeding mucous membranes.

  A person suffering from vitamin C deficiency may experience symptoms like:

  - Fatigue and weakness: Not having enough vitamin C can make you feel tired and weak because your body isn't able to produce enough energy.
  - Joint pain**:** Your joints might start hurting because vitamin C plays a role in keeping your cartilage healthy.

- Bleeding gums**:** One of the classic signs of scurvy is bleeding gums. Without enough vitamin C, your gums can become swollen and bleed easily.
- Slow wound healing**:** Since vitamin C is important for making collagen, wounds may take longer to heal if you're deficient in this vitamin.
- Easy bruising**:** Your blood vessels become weaker without enough vitamin C, which can lead to easy bruising.
- Dry, rough skin**:** Vitamin C deficiency can also cause your skin to become dry and rough because collagen is essential for maintaining skin elasticity.

Vitamin C deficiency can be prevented by eating a lot of citrus fruits, mangoes, tomatoes, potatoes, broccoli, strawberries, and sweet peppers.

- **Iron deficiency**
  - Occurs when there is an inadequate intake or absorption of iron, leading to low levels of iron in the body.
  - Iron is essential to produce haemoglobin, a protein in red blood cells that carries oxygen throughout the body.
  - Iron deficiency can result in anaemia, causing symptoms such as fatigue, weakness, pale skin, shortness of breath, and impaired cognitive function.
  - To correct iron deficiency, we must eat a lot of red meat, liver, shellfish, sardine, beans, seeds and dark leafy vegetables.
- **Vitamin D deficiency**
  - Occurs when there is an insufficient intake or limited exposure to sunlight, which is necessary for the body to produce vitamin D.
  - Vitamin D plays a crucial role in calcium absorption, bone health, and immune function.
  - Vitamin D deficiency can lead to weakened bones, increased risk of fractures, bone loss, weak bones, muscle weakness, fatigue, and compromised immune function.
  - To correct Vitamin D deficiency, we must consume fatty fish, egg yolk and cod liver oil.
- **Vitamin B12 deficiency**
  - Occurs when there is inadequate absorption of vitamin B12 from the diet or impaired ability to utilise it.
  - Vitamin B12 is essential in the production of red blood cells, DNA synthesis, brain performance and proper nerve function.
  - Symptoms of Vitamin B12 deficiency may include fatigue, weakness, pale skin, shortness of breath, neurological symptoms like numbness or tingling in the hands and feet, difficulty walking and mood disturbances.
  - To correct Vitamin B12 deficiency, we need to consume a lot of shellfish, meat, egg and milk.
- **Calcium deficiency**
  - Calcium deficiency refers to insufficient calcium in the body.
  - Calcium is necessary for strong bones and teeth, working muscles, nerve transmission and blood clotting.
  - Calcium deficiency can lead to weakened bones, increased risk of fractures, osteoporosis, muscle cramps, and poor blood clotting.

- To address calcium deficiency, we need to consume more boned fish like sardine, dairy products and dark green vegetables like kontomire and spinach.

- **Iodine deficiency**
  - Occurs when there is insufficient intake of iodine, which is necessary to produce thyroid hormones.
  - Thyroid hormones regulate physical growth, brain development and bone maintenance.
  - Inadequate iodine can lead to hypothyroidism, which is characterised by fatigue, weight gain, increased heart rate, shortness of breath, cold intolerance, goitre (enlarged thyroid gland) and poor brain function particularly in children.
  - To prevent iodine deficiency, we need to take in a lot of fish, dairy products, egg and seaweed.

- **Zinc deficiency**
  - Zinc deficiency happens when there is a lack of dietary intake or impaired absorption of zinc.
  - Zinc is involved in various enzymatic reactions, immune function, wound healing, and DNA synthesis.
  - Symptoms of deficiency may include impaired growth and development, delayed sexual maturation, weakened immune function, skin rashes, hair loss, loss of appetite and impaired sense of taste and smell.
  - To prevent Zinc deficiency, we need to eat zinc-rich foods such as oysters, beef, fish, cereals, legumes, dairy foods, and beans soaked in water prior to cooking. (Merck, & Co. 2024)

Fig. 4.3: *A malnourished child*

Fig.4.4: *Child suffering from malnutrition/kwashiorkor*

Fig. 4.5: *Suffering from Goitre*

d. Influence of nutrition on sports performance

The following are ways by which proper nutrition can improve sports performance for athletes:

i. **Enhanced energy levels:** Proper nutrition provides athletes with adequate energy to fuel their workouts and performances, leading to improved stamina, endurance, and overall athletic performance.

ii. **Optimal macronutrient balance:** Consuming the right balance of carbohydrates, proteins, and fats supports muscle growth and repair, replenishes glycogen stores, and ensures efficient energy utilisation during exercise.

iii. **Improved muscle strength and power:** Consuming adequate protein and essential amino acids supports muscle protein synthesis, which can lead to increased muscle strength, power, and overall athletic performance.

iv. **Quicker recovery:** Proper nutrition, including post-exercise nutrition, helps replenish glycogen stores, repair muscle tissue, reduce muscle soreness, and accelerate recovery between workouts and competitions.

v. **Increased speed and agility:** Proper nutrition supports the development and maintenance of lean muscle mass, which can enhance speed, agility, and overall athletic performance.

vi. **Enhanced mental focus:** Nutrients like omega-3 fatty acids, B vitamins, and antioxidants play a role in brain health and cognitive function, leading to improved mental focus, concentration, and decision-making during sports performances.

vii. **Reduced risk of injuries:** Proper nutrition supports strong bones, healthy connective tissues, and optimal immune function, reducing the risk of injuries and facilitating faster healing in case of injury.

viii. **Improved hydration:** Proper hydration, achieved through adequate fluid intake and electrolyte balance, is crucial for optimal athletic performance, as even mild dehydration can impair physical and cognitive function.

ix. **Enhanced immune function:** A well-balanced diet rich in vitamins, minerals, and antioxidants supports a robust immune system, reducing the risk of illness or infection that can hamper training and performance.

x. **Long-term health and well-being:** Proper nutrition not only improves sports performance but also contributes to long-term health and well-being, reducing the risk of chronic diseases and ensuring overall physical and mental health.

Fig. 4.6: *How does nutrient quality in food impact sports performance?*

Source: *Inside The Games*

Learning Tasks

a. Describe two deficiency diseases each of essential nutrients and non-essential nutrients.

b. Explain four benefits of essential nutrients and non-essential nutrients.

c. State four Ghanaian local foods and the nutritional deficiency diseases they can help to prevent.

d. Compare and contrast the relationships between essential nutrients and non-essential nutrients for each of the following:

- Definition
- Function
- Example
- Necessity

Similarities/Differences between essential nutrients and non-essential nutrients

Table 6: Essential nutrients and non-essential nutrients

Description	Essential Nutrients	Non-Essential Nutrients
Definition		
Function		
Example		
Necessity		

Pedagogical Exemplars

a. Talk-for-Learning:

Show videos or pictures of some local dishes and ask learners to identify the nutritional values of those foods. Encourage learners to accept divergent opinions, analyse them and arrive at the right answer. Give further explanations to learners who need support by using probing or leading questions for learners to clarify responses where necessary.

b. Digital Learning:

With the aid of their digital devices, learners individually research the meanings of essential nutrients and non-essential nutrients and write them in their jotters.

Learners in small groups, research individually within the group to gather information on the benefits of the various types of essential and non-essential nutrients, then discuss them with the group and share their finalised findings through the group secretary with the whole class. Encourage learners to tolerate free expression from members.

Through the various discussions, learners complete a table of the essential and non-essential nutrients based on their similarities and differences (with respect to definition, function, example, and necessity), while assisting each other and motivating themselves to do more.

c. Collaborative Learning:

In six groups of mixed abilities and gender, groups are assigned tasks as follows:

Groups 1 and 3 are assigned to discuss the meaning and function of non-essential nutrients. After which these two groups come together and share their results to agree on a final one.

Groups 2 and 5 are assigned to discuss food sources of non-essential nutrients. After this they come together and share their results to agree on a final result.

Groups 4 and 6 are assigned to discuss nutrient deficiency. After this they also come together and share their results to agree on a final result.

The three groups then present their final results for whole class contribution.

d. Talk-for-learning:

Learners share their reasons why eating the various Ghanaian local foods can help prevent their correlational nutrients deficiency diseases.

Key Assessments

Level 1:

a. Identify four reasons why we eat.

b. Explain what is meant by the term Nutrition.

c. Identify at least five local foods common in your community. Outline the nutrients they provide and their functions.

Level 2:

a. Give a brief description of a nutrient and provide two examples.

b. Explain essential and non-essential nutrients.

Level 3: Describe how essential and non-essential nutrients contribute to the growth and development of adolescents? Give three examples of each.

Level 4: Analyse the role of nutrition on the sports performance of athletes.

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Week 5

Learning Indicator: *Discuss the role of diet in healthy living*

Theme or Focal Area: The impact of diet on healthy living

THE ROLE OF DIET IN HEALTHY LIVING

a. What is a diet?

A diet refers to the food and beverages consumed by an individual regularly. It includes all the nutrients necessary for the body's growth, development, and overall functioning.

b. Components of a diet

A balanced diet comprises foods that provide macronutrients, micronutrient, hydration/water and dietary fibre.

i. **Macronutrients:** Macronutrients are nutrients that the body requires in large amounts to provide energy and support various bodily functions.

- **Types of macronutrients:**

  o **Carbohydrates**: These are the body's primary source of energy. Carbohydrates can be found in foods such as grains, fruits, vegetables, and legumes.

Fig. 5.1: *A carbohydrate-rich diet*

- **Proteins**: Proteins are vital for growth, repair, and maintenance of body tissues. Good sources of proteins include lean meats, poultry, fish, eggs, legumes, and dairy products.

Fig. 5.2: *A protein-rich diet*

Source: *Adobe Stock*

- **Fats:** Fats provide energy, insulation, and protection for organs. Healthy fats can be obtained from sources such as nuts, seeds, avocados and oils.

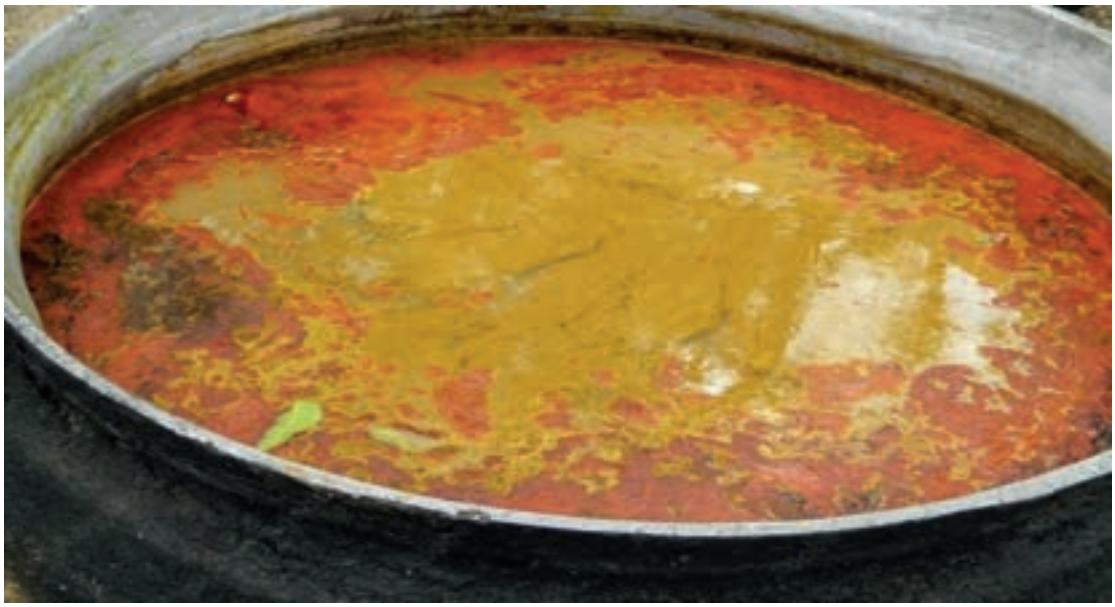

Fig. 5.3; A healthy fat-rich soup

ii. **Micronutrients:** Micronutrients are nutrients that the body requires in smaller amounts but are essential for normal growth, development and overall health.

- **Types of micronutrients:**
  - **Vitamins:** Vitamins are organic compounds that play crucial roles in various bodily functions, such as boosting the immune system, supporting cell growth, and aiding

in metabolism. Vitamins can be obtained from fruits, vegetables, whole grains and dairy products.

Fig. 5.4: *Vitamin-rich fruits and vegetables*

- **Minerals:** Minerals are inorganic substances that are essential for maintaining healthy bones, regulating body fluids, and supporting various physiological processes. Examples of minerals include calcium, iron, potassium, and zinc, which can be found in foods like leafy greens, nuts, seeds, dairy products and lean meats.

Fig. 5.5: *A mineral-sufficient balanced table*

iii. **Water/Hydration:** Water is vital for maintaining hydration, regulating body temperature and facilitating various metabolic processes. Water forms about 50% to 70% of your body's weight.

Hydration refers to the process of providing adequate fluid to the body to maintain proper functioning. The main source of water is drinking water. Other lesser sources are fruits, vegetables and beverages.

Fig. 5.6: *More water, more health*

iv. **Dietary Fibre:** This refers to the indigestible portion of plant-based foods, including fruits, vegetables, whole grains, legumes and nuts.

The benefits of dietary fibre are promoting healthy digestion, preventing constipation, and aiding in weight management reducing the risk of diseases such as heart disease and type 2 diabetes.

Examples of foods rich in fibre include whole grains, fruits, vegetables, legumes and nuts/seeds.

Fig. 5.7: *A diet rich in fibre*

c. Nutrient deficiency/Imbalance diseases

i. **Iron deficiency anaemia:** Insufficient intake of iron leads to decreased production of red blood cells, resulting in fatigue, weakness and reduced oxygen-carrying capacity (WHO 2021).

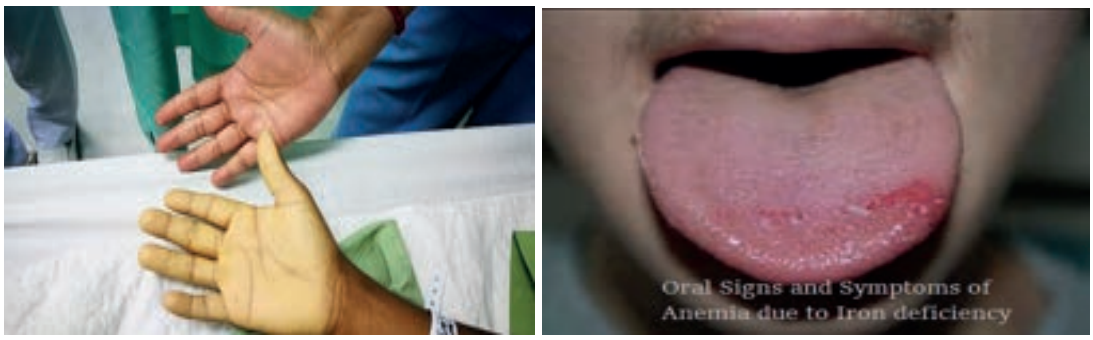

Fig. 5.8: *A symptom of iron deficiency anaemia*

Source: *DailyMail (2021)*

ii. **Vitamin D deficiency:** Inadequate vitamin D intake can lead to weakened bones, increased risk of fractures and potential impacts on immune function.

Fig. 5.9: *Knee injury due to vitamin D deficiency*

iii. **Pellagra (Niacin deficiency):** Insufficient Vitamin B3 intake causes pellagra, characterised by dermatitis, diarrhoea, dementia and death if untreated.

Fig. 5.10: *Thick, crusty, scaly or cracked skin are symptoms of niacin deficiency*

Source: *Healthline*

iv. **Beriberi (Thiamine deficiency):** Inadequate vitamin B1 intake leads to beriberi, resulting in weakness, nerve damage, cardiovascular problems and swelling.

Fig.5.11: *A child suffering from Beriberi*

v. **Rickets (Vitamin D and calcium deficiency):** Insufficient intake of vitamin D and calcium can cause rickets, characterised by weakened and deformed bones, skeletal abnormalities, and impaired growth.

Fig. 5.12: *Children with rickets (Bow-legged/Knocked-knees)*

Source: *gettyimages.com*

vi. **Scurvy (Vitamin C deficiency):** Inadequate vitamin C intake leads to scurvy, resulting in fatigue, joint pain, weakened immune system, and impaired wound healing.

vii. **Goitre (Iodine deficiency):** Insufficient iodine intake causes goitre, characterised by an enlarged thyroid gland, resulting in swelling in the neck and potential thyroid dysfunction.

Fig. 5.12: *Goitre*

viii. **Kwashiorkor (Protein deficiency):** Inadequate protein and calorie intake can lead to kwashiorkor, characterised by severe protein deficiency, oedema (fluid retention), muscle wasting, and stunted growth in children.

Fig. 5.13: *Children suffering from Kwashiorkor*

Source: *Stop African Malnutrition (2018)*

ix. **Obesity:** Overeating high-calorie diets can lead to obesity, associated with an increased risk of cardiovascular disease, diabetes, certain cancers, and musculoskeletal problems.

Fig. 5.14: *Obesity*

x. Type 2 Diabetes: Overeating, diets high in refined sugars and unhealthy fats can contribute to the development of type 2 diabetes, a metabolic disorder characterised by high blood sugar levels.

Fig. 5.15: *A symptom of diabetes*

d. Effects of overeating

Overeating, unbalanced diets or diets not having adequate amounts of the required nutrients can lead to the following:

i. **Weight gain:** Overeating often leads to consuming more calories than the body needs, resulting in weight gain. Excess weight can contribute to obesity, which is associated with numerous health problems, including heart disease, diabetes, and joint issues.

ii. **Poor nutritional intake:** Overeating can cause a preference for calorie-dense, low-nutrient foods like fast food, sweets, and snacks. As a result, adolescents may not consume enough essential nutrients like vitamins, minerals, and fiber, leading to nutritional deficiencies.

iii. **Digestive issues:** Consuming large quantities of food can put a strain on the digestive system, leading to discomfort, bloating, indigestion, and acid reflux.

iv. **Increased risk of chronic diseases:** Overeating, especially when coupled with a poor diet, can increase the risk of developing chronic conditions such as type 2 diabetes, hypertension, and cardiovascular diseases.

v. **Low energy levels:** While overeating may provide a temporary energy boost, it is often followed by a crash in energy levels, leading to feelings of lethargy and reduced motivation.

vi. **Body image and self-esteem:** Adolescents who overeat may experience body image issues and reduced self-esteem, especially if they are not satisfied with their weight or physical appearance.

vii. **Emotional eating:** Overeating can become a coping mechanism for dealing with stress, anxiety, or other emotions, leading to a harmful cycle of emotional eating.

viii. **Poor physical performance:** Overeating can negatively impact physical performance, making it challenging for learners to excel in physical activities or sports.

ix. **Disordered eating patterns:** Overeating may contribute to the development of disordered eating patterns, such as binge eating, where individuals feel a lack of control over their eating habits.

Learning Tasks

a. Research the meaning of diet, micro and macronutrients with three examples of each.

b. Outline the importance of carbohydrate and proteins to growth and development and how they influence an athlete's performance.

c. Discuss the role of healthy fats in the proper functioning of the body.

d. Debate: 'The Ghana School Feeding Programme is the solution to the malnutrition challenges of schools in the country'.

In two groups, debate for or against the motion taking into consideration your knowledge of nutrition, nutrients and diet.

Pedagogical Exemplars

a. Group based learning:

With the aid of their digital devices, learners in groups research the meaning of diet, micro and macronutrients with three examples of each and share their findings with other groups.

b. Talk-for-Learning:

Leaners discuss with their partners and outline the importance of carbohydrates and proteins to growth and development and how they influence athlete's performance.

Learners engage in structured discussion on the role of healthy fats in the proper functioning of the body asking open-ended questions. Encourage free speech among both genders and persons with additional needs.

In groups, learners are guided to explain vitamins and minerals and outline their functions and sources.

Guide learners in pairs to explain the importance of water and dietary fibres to the body. Encourage respect for each other's views as well as individual differences.

c. Collaborative Learning:

In small groups, learners participate in discussions on the types of nutrient deficiency diseases, examine their effects and find out the preventive methods for their families and the local communities. Guide learners to summarise the key or main ideas.

Learners in appropriate groupings create a seven-day menu of three-square meals that will help prevent nutrient deficiency in a family. Encourage active participation by all and make room for peer assistance as well as individual higher exploration for a wider range of ideas/information.

Key Assessments

Level 1: Explain what is meant by the term diet.

Level 2: Describe how macronutrients support the growth and development of adolescents.

Level 2: Describe two symptoms of micronutrient deficiency?

Level 3: Describe the role of water in maintaining the health and wellness of the body.

Level 3: Explain why dietary fibres are important in maintaining health and wellness.

Level 3: Describe how the study of nutrient deficiency diseases helps to maintain health and wellness.

Level 3: Describe how overeating can contribute to health issues of a family, a school, a community and the country?

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Section 1 Review

During Week 1, the learner should be able to explain health and wellness comprehensively, emphasising their holistic nature. Learners should actively engage in discussions, ask questions, and reflect on the risk factors to health and wellness. Visual aids and real-life examples should be utilised to enhance comprehension of the benefits of health and wellness.

Week 2 focuses on exploring the various components of health and wellness. Learners discuss how the components of health and wellness interconnect to influence well-being. Learners actively participate in activities, share personal experiences and critically think of strategies to enhance each component. Group activities foster collaboration and problem-solving skills among learners.

In Week 3, the learner is guided to explain the relationship between healthy eating behaviour and its impact on physical health. Learners should analyse their eating habits and identify areas for improvement. Practical strategies for incorporating healthy eating behaviours into daily routines are introduced, and learners engage in group activities and case studies to explore these strategies further.

Week 4 delves into the role of nutrition in healthy living. Learner's research essential and non-essential nutrients and their functions. Learners actively engage in discussions on the role of each nutrient in supporting bodily functions and their deficiency symptoms and evaluate their own dietary habits to make informed decisions.

During Week 5, the focus is on exploring the role of diet in healthy living. Learners explore the principles of a balanced diet and provide practical tips for incorporating healthy eating habits into their daily lives. Learners reflect on their eating behaviours and identify strategies for making healthier choices. Interactive activities such as meal planning and portion control techniques are necessary to support overall health and wellness goals.

Throughout the section, the teacher's guidance and facilitation of discussions, coupled with active participation and critical thinking from learners create a dynamic learning environment. By engaging in collaborative learning experiences, learners gain the knowledge and skills necessary to make informed decisions about their lifestyle choices and ultimately enhance their health and wellness.

Additional Reading

For additional reading on health and wellness, learners should consider other books and literature on healthy living, general wellness and nutrition and diet.

SECTION 2: HUMAN DISEASES

Strand: **Health Education**

Sub-Strand: Common Human Diseases

Learning Outcome: *Explain the concepts and discuss the classification of human diseases*

Content Standard: Demonstrate knowledge and understanding of the concepts and classification of diseases and levels of management

INTRODUCTION AND SECTION SUMMARY

This section covers fundamental aspects of human diseases, spanning their conceptual understanding, classifications and preventive measures. Learners will delve into the nature of diseases affecting humans, including their causes, symptoms and effects on health.

Understanding disease classifications will aid in recognising various types of illnesses and their respective characteristics. Learners will explore preventive strategies to mitigate the spread and impact of diseases, emphasising the importance of healthy lifestyle choices and hygiene practices.

At the end of this section, learners will be able to demonstrate a comprehensive understanding of human diseases, including their nature, classifications and preventive measures. They should be able to identify common diseases, describe their characteristics and propose effective strategies for disease prevention.

This section intersects with various subjects such as biology, where learners can deepen their understanding of disease mechanisms and pathogens. Additionally, it connects with health education, emphasising the importance of disease prevention through healthy lifestyle choices and hygiene practices. Understanding human diseases also has implications for social studies, as it involves exploring the societal impact of disease outbreaks and public health measures.

The weeks covered by this section are:

Week 6: The concept of human disease

Week 7: Classifications of human diseases

Week 8: Prevention of human diseases

SUMMARY OF PEDAGOGICAL EXEMPLARS

Teachers should employ diverse teaching methods, catering to varied learning styles through visual aids, group discussions, and hands-on activities. Learners must grasp the conceptual framework of human diseases, understand disease classifications, and apply preventive measures. For gifted and talented learners, additional content may include exploring advanced disease mechanisms, conducting case studies on historical pandemics, and engaging in critical discussions on global health policies.

ASSESSMENT SUMMARY

Assessment can include quizzes on disease recognition, oral presentations on preventive strategies and practical demonstrations of hygiene practices. Teachers must provide timely feedback and maintain records of individual performance in disease identification, understanding of preventive measures and participation in class activities.

Week 6

Learning Indicator: *Explain the concept of human disease*

Theme or Focal Area: The concept of human disease

HUMAN DISEASES

Human disease refers to abnormal conditions that affect the body's optimum functioning, causing physical or mental discomfort.

Fig. 6.1: *Feeling very sick*

a. Major reasons why diseases spread in Ghana:

i. **Poverty and socioeconomic inequalities:** Low incomes and unavailable income generating opportunities lead to limited access to healthcare and nutritious food.

ii. **Inadequate healthcare infrastructure:** Insufficient healthcare infrastructure, particularly in rural areas, hinders access to quality healthcare services. This includes a shortage of healthcare facilities, medical equipment, trained healthcare professionals and limited access to diagnostics and treatment.

Fig. 5.2: *Ghana needs more healthcare facilities*

iii. **Limited access to clean water and sanitation:** Inadequate access to clean water sources, poor sanitation facilities, lack of hygiene and improper waste management practices increase the risk of waterborne diseases, such as diarrhoea, cholera and typhoid fever.

Fig. 6.3: *A community in need of clean tap water*

iv. **Vector-borne diseases:** A vector refers to an organism such as a mosquito, tick or flea that can transmit pathogens (bacteria, viruses or parasites) from one host to another.

Ghana's tropical climate and ecological conditions support the spread of vector-borne diseases like malaria and dengue fever. Factors such as stagnant water, inadequate mosquito control measures and limited access to insecticide-treated bed nets contribute to their prevalence.

Fig. 6.4: *A mosquito biting its victim*

v. **High prevalence of communicable diseases:** A communicable disease, also known as an infectious disease or a transmissible disease is an illness caused by an attacking agent, such as bacteria, viruses, parasites, or fungi and can be transmitted from a person, animal, or object to another person, either directly or indirectly. Communicable diseases include HIV/AIDS, COVID-19, tuberculosis and vaccine preventable diseases like measles,

Fig. 6.5: *A child with measles*

Source: *Gist (2023)*

vi. **Lifestyle factors:** Changing lifestyle patterns, including unhealthy diets, sedentary lifestyles, tobacco use, and harmful alcohol consumption contribute to the rise in diseases such as cardiovascular diseases, diabetes and cancers.

Fig. 6.6: *An unhealthy behaviour that must be avoided*

vii. **Environmental factors:** Environmental challenges such as pollution, deforestation, illegal mining practices, indiscriminate disposal of waste, smoke emitting from vehicles, littering and climate change, can have adverse effects on health. Air pollution, for instance, increases the risk of respiratory diseases.

Fig. 6.7: *Environmental pollution in Accra*

viii. **Limited health education and awareness:** Insufficient health education and awareness programs hinder knowledge about disease prevention, symptom recognition and appropriate health-seeking behaviours. This can result in delayed diagnosis, inadequate treatment and the spread of infectious diseases.

Fig. 6.8: *Disease awareness and prevention campaign*

Source: *Breast Care International, Ghana (2022)*

b. Diseases/disorders and their risk factors

A risk factor is a condition that increases an individual's chances of getting a particular disease or injury. These factors may be genetic, environmental, behavioural or related to an individual's lifestyle choices.

The following are some diseases and the risk factors associated with each:

i. **Cardiovascular diseases**

Risk factors:

- High blood pressure (hypertension)
- High cholesterol level
- Smoking or tobacco use
- Physical inactivity
- Unhealthy diet (high in saturated fats and cholesterol)
- Obesity or overweight
- Diabetes
- Family history of heart disease
- Age and gender (older age, male gender, post-menopausal women)

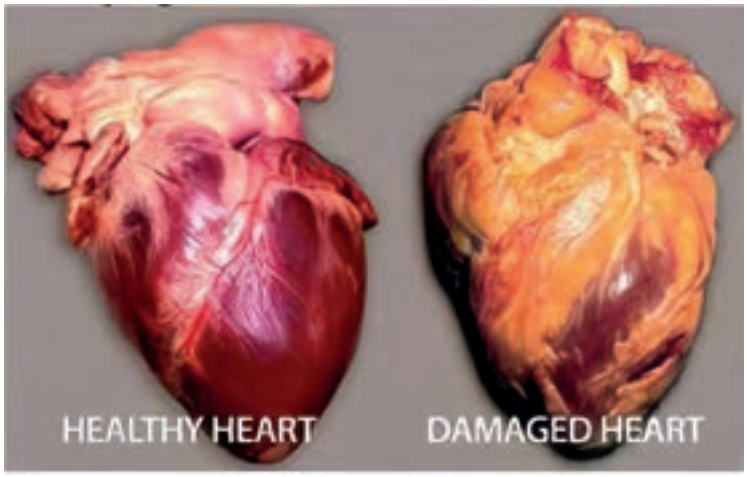

Fig. 6.9: *A healthy heart and a damaged/sick heart*

ii. **Cancer**

Risk factors:

- Tobacco use (smoking or chewing tobacco)
- Exposure to carcinogens (e.g. asbestos, radiation, certain chemicals)
- Family history of certain cancers
- Unhealthy diet (low fruit and vegetable intake, high processed or red meat consumption)
- Sedentary lifestyle
- Alcohol consumption
- Obesity or overweight
- Viral infections (e.g. human papillomavirus (HPV), hepatitis B and C)
- Exposure to extreme sunlight (skin cancer)

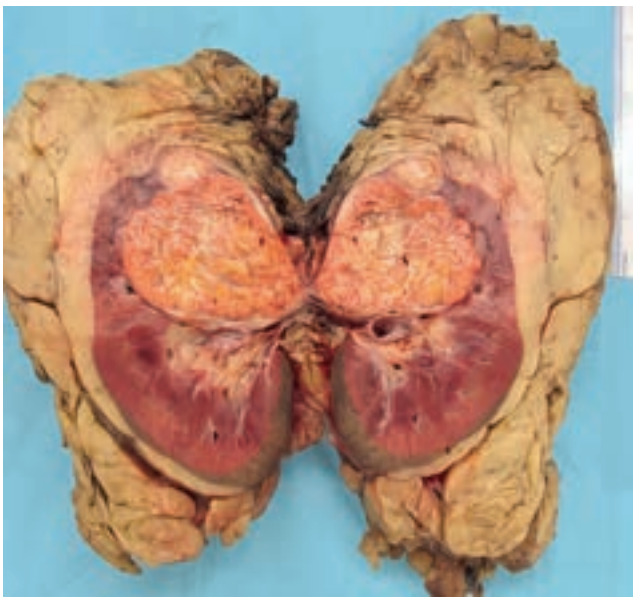

Fig. 6.10: *A damaged kidney split into two showing renal cancer at the top*

iii. **Type 2 Diabetes**

Risk factors:

- Obesity or overweight
- Sedentary lifestyle
- Unhealthy diet (high in processed foods, sugary beverages)
- Family history of diabetes
- Ethnicity (higher risk for certain ethnic groups, such as African Americans, Hispanics, and Native Americans)
- Age (risk increases with age)
- Gestational diabetes during pregnancy
- Polycystic ovary syndrome (PCOS)
- Hypertension

Fig. 6.11: *A skin disease associated with diabetes*

iv. **Respiratory Diseases**

Risk factors:

- Smoking or exposure to second-hand smoke
- Environmental pollutants (e.g. polluted air, occupational exposure to chemicals)
- Family history of respiratory diseases
- Allergies
- Chronic obstructive pulmonary disease (COPD)
- Asthma triggers (e.g. allergens, pollution, exercise)
- Occupational exposure (e.g. asbestos, smoke, dust)

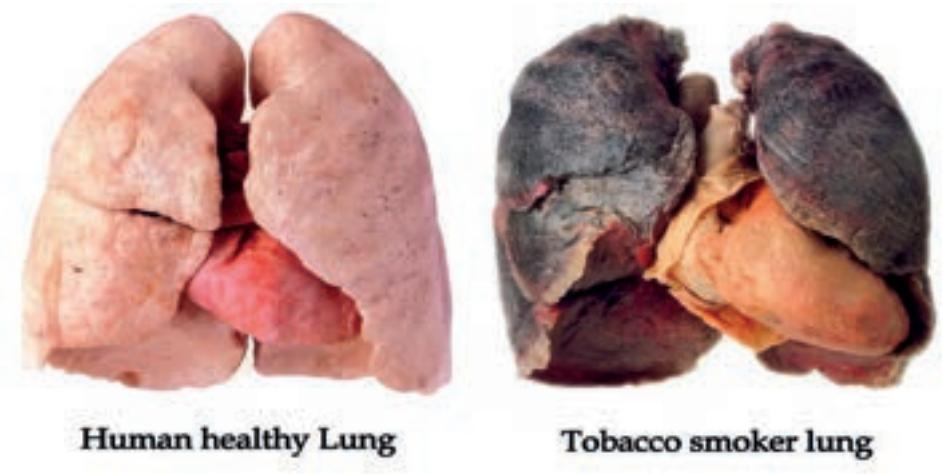

Fig. 6.12: *Healthy lungs versus diseased lungs*

v. **Mental Health Disorders**

Risk factors:

- Family history of mental illness
- Traumatic life events or experiences
- Chronic stress
- Substance abuse or addiction
- Physical, emotional, or sexual abuse
- Socioeconomic factors (e.g. poverty, unemployment, lack of social support)
- Genetic predisposition
- Certain personality traits

Learning Tasks

a. Explain what a disease is.

b. Describe at least five reasons why diseases spread in Ghana.

c. Examine three diseases and outline five risk factors associated with each.

d. Carefully study your community and research five common diseases that are prevalent there. Examine the causes of those diseases and their effects on the people and the community. Use your digital devices to assist you get more information from sources such as Ghana Health Service, the internet and media outlets.

Pedagogical Exemplars

a. Digital Literacy:

With the aid of digital devices, learners research the meaning of human diseases in a friendly atmosphere and assist each other. Support individual learners having challenges with the use of digital devices by providing keywords to guide their search. Further this by explaining the keywords of the search to the learners. Encourage peer-to-peer and teacher communication and assistance. Guide learners to evaluate information sources. Ensure learners maintain ethics in the digital world. Provide options for both written and oral feedback from learners' research.

b. Group-Based Learning/Project Based Learning:

Learners in groups constituting mixed-genders, backgrounds and identities outline and explain the major reasons why diseases spread in Ghana. Task and support learners in their groups to move the study into their communities to:

i. interact and identify common diseases

ii. Describe their mode of spread.

Act as a liaison between the various groups and the community members. Accept final works of learners on pen drives, discs, PowerPoint etc. Give feedback to learners so as they know their progress.

In groups with mixed abilities, learners examine the implications of inadequate health infrastructure in their communities. Encourage peer-to-peer learning, where learners at different levels work together to investigate the implications of inadequate health infrastructure. Encourage discussion, curiosity, exploration and sharing of ideas to foster a deeper understanding of the concept. Integrate pictures, videos, charts etc. in the lesson to illustrate key concepts to cater for all learners.

In groups, learners assess the impact of environmental destruction on their health.

c. Talk-for-Learning:

While respecting each other's economic backgrounds and social status, learners analyse the role of poverty in the spread and prevalence of diseases.

Provide themes to guide learners to analyse the impact of poverty in the spread of diseases. Specifically ensure each theme focuses on different classes of people in our community (low income, middle income and high income). Guide individual learners and groups who struggle to understand the task by giving them further explanation. Support learners to make their own notes from the presentations. Ensure each member of the group contributes while creating room for respect for diversity of ideas.

Encourage less confident learners to lead group discussions to examine the causes of the spread of vector-borne diseases in their communities. Support groups by giving leading clues to identify destructive environmental activities in their communities through open discussion. Assist and guide shy and less able learners to contribute to class discussion including providing supportive feedback to when they contribute to group or class discussions.

By encouraging open and frank discussions and assuring confidentiality and respect, learners assess lifestyles that are or can be detrimental to their health and hence affect their emotional, physical, social, psychological, financial, occupational and spiritual well-being. Support and encourage all learners to take part in the discussion by inviting them to share their thoughts and experiences. Assist and supports less able learners by providing additional resources, examples, prompts etc. to aid their understanding and enhance their discussion. Offer constructive feedback on learners' responses to encourage them to deepen their understanding and improve their communication skills.

d. Think-Pair-Share:

Allow learners to think and reflect individually, write their findings and pair up with partners to discuss their responses, they describe the impact of unclean water and unsanitary conditions on their health. Pair learners of mixed abilities to give them the opportunity to exchange ideas and learn from each other. Encourage pairs to share their findings with other groups. Shy learners or less confident learners will be supported by partners through collaboration. Support less able learners by giving further explanation of the key words and individualised constructive feedback.

Key Assessments

Level 1: Provide a definition on what a disease is.

Level 2: Describe five reasons why diseases spread in Ghana.

Level 3: Examine five effects of diseases on the social and economic lives of Ghanaians.

Level 4: Research and present a three-page document on the effects of five identified diseases in your community.

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Week 7

Learning Indicator: *Discuss the classification of human disease*

Theme or Focal Area: Classifications of human diseases

CLASSIFICATIONS OF HUMAN DISEASES

Diseases can be broadly classified into infectious diseases and non-infectious diseases.

a. Infectious diseases

Infectious diseases are diseases that are caused by pathogens and are transmitted either from person to person, from animals to humans or other mediums or objects to humans. Examples of pathogens are bacteria, viruses, fungi and parasites.

i. **Types of infections**

- **Viral infections:** Viral infections occur when a virus enters a person's body and causes harm. Some examples are common cold, flu, influenza, COVID-19, hepatitis and HIV/AIDS.

Fig. 7.1: *Viral disease*

- **Bacterial infections:** Bacterial infections occur when harmful bacteria enter a person's body and release toxins that can make them sick. Some examples are strep throat, salmonella, tuberculosis and whooping cough (pertussis).
- **Fungal infections:** Fungal infections occur when harmful fungi grow on or in a person's body and cause symptoms. Some examples are athlete's foot, ringworm, candidiasis and histoplasmosis (an infection found in the droppings of birds and bats).

Fig. 7.2: *Fungal infection*

- **Parasitic infections:** Parasitic infections occur when parasites use a person's body to live and reproduce causing symptoms and harm to the body. Some examples are worms, malaria plasmodium and toxoplasmosis (a disease transmitted through uncooked meat, soil or in cat faeces).

Fig. 7.3: *Parasitic infection*

ii. **Modes of transmission of infectious diseases:**

- **Direct transmission:** Person-to-person contact e.g. HIV/AIDS, gonorrhoea, tuberculosis and hepatitis.
- **Indirect transmission:** Via contaminated objects or vectors e.g. insect bites (e.g. malaria), airborne droplets (tuberculosis), contaminated food or water (cholera).

iii. **Risk factors of infectious diseases:**

- **Poor personal hygiene:** Not maintaining proper personal hygiene practices, such as handwashing and having regular baths can increase the risk of spreading infectious diseases.
- **Lack of vaccination:** Failing to receive recommended vaccinations can lead to individuals contracting various infectious diseases like polio, measles, yellow fever, COVID-19 etc.

Fig. 7.4: *Receiving a vaccination as protection against diseases*

- **Close contact:** Being near an infected person, especially without proper protective measures, increases the chances of contracting an infectious disease.
- **Contaminated food and water:** Consuming contaminated food or water sources can lead to various waterborne or food-borne infectious diseases.

Fig. 7.5: *Polluted water unsafe for drinking due to illegal mining*

- **Travel to and living in endemic areas:** Travelling to or living in regions with high rates of specific infectious diseases can increase an individual's risk of exposure to and contraction of diseases.
- **Weakened immune system:** Having a compromised immune system due to underlying health conditions or certain medications makes individuals more susceptible to infections.
- **Poor sanitation and infrastructure:** Living in areas with inadequate sanitation, limited access to clean water or overcrowded conditions can facilitate the spread of infectious diseases.
- **Animal contact:** Direct or indirect exposure to animals, their waste or animal products can lead to zoonotic diseases that can be transmitted from animals to humans.
- **Lack of awareness:** Insufficient knowledge about infectious diseases, their transmission, and prevention measures can contribute to an increased risk of contracting and spreading infections
- **Unsafe Sexual Practices:** Engaging in unprotected sexual activity, having multiple sexual partners or not practising safe sex (e.g. using condoms) can increase the risk of sexually transmitted infections (STIs).

b. Non-infectious diseases

Non-infectious diseases are non-pathogenic diseases that cannot be transmitted from person to person and are caused by factors such as genetic predisposition, lifestyle choices, environmental factors, or a combination of these.

i. Common examples of non-infectious diseases:

- Cardiovascular diseases (e.g. heart disease, stroke)
- Cancers
- Diabetes

- Respiratory diseases (e.g. asthma, chronic obstructive pulmonary disease)
- Mental health disorders

ii. Risk factors of non-infectious diseases:

The following are risk factors associated with non-infectious diseases:

- **Sedentary lifestyle:** Lack of regular physical activity or extended periods of inactivity increases the risk of developing various non-infectious diseases.
- **Unhealthy diet:** Consuming a diet high in processed foods, added sugars, and unhealthy fat and taking in low amounts of fruits, vegetables, and whole grains can contribute to the development of chronic diseases.
- **Tobacco and alcohol use:** Smoking and excessive alcohol consumption are linked to a wide range of non-infectious diseases, including cardiovascular diseases, respiratory disorders and certain types of cancers.
- **Obesity:** Excess body weight, especially when accompanied by a high body mass index (BMI), increases the risk of conditions such as heart disease, type 2 diabetes and certain cancers.
- **High blood pressure:** Consistently elevated blood pressure levels can damage blood vessels and increase the risk of heart disease, stroke and other cardiovascular disorders.
- **High cholesterol levels:** Elevated levels of LDL cholesterol ('bad' cholesterol) and low levels of HDL cholesterol ('good' cholesterol) can contribute to the development of heart disease and other circulatory problems.
- **Stress:** Chronic stress can lead to various health issues, including increased blood pressure, weakened immune systems, mental health disorders and cardiovascular diseases.
- **Genetic predisposition:** Certain non-infectious diseases have a link with a person's genetics, meaning that, individuals with a family history of conditions like diabetes, cancer or cardiovascular disorders may be at a higher risk.
- **Environmental pollution:** Exposure to environmental pollutants such as bad and dusty air or hazardous substances can increase the risk of respiratory diseases, certain cancers and other health problems.
- **Lack of sleep:** Inadequate sleep or poor sleep quality can contribute to a range of health issues, including obesity, diabetes, weakened immune systems and mental health disorders.

Learning Tasks

a. Outline the differences between infectious and non-infectious diseases.

b. Identify and explain the two main types of diseases.

c. Examine five risk factors associated with infectious diseases.

d. Learners research and present on the mode of transmission of infectious diseases.

e. Describe the modes of transmission of two infectious diseases.

f. Explore five risk factors of infectious diseases, how they come about and provide examples of diseases associated with each.

g. Analyse how infectious and non-infectious diseases can affect an adolescent's sports ambitions and performance.

Pedagogical Exemplars

a. Digital Literacy and Collaborative Learning:

In groups of mixed-culture, ability, gender and identity, learners create a report on infectious diseases and present it to the whole class by using different presentation methods. Make room for both oral and written feedback and encourage learners to also accept different opinions on their report while making inferences to real-world situations. Provide clues to guide the learner's explanation to ensure full participation.

With the aid of their digital devices, Group 1 is tasked to research the types of human infections, their examples and characteristics and provide feedback on findings. Guide learners to explain to the whole class their experiences of some human diseases. Bring to their attention the basic daily diseases people report in their school community. Support learners in their mixed-ability and mixed gender groups to categorise and suggest possible causes of human infectious diseases. Provide a checklist to guide learners in their research.

With the aid of digital devices, Groups 2 and 3 are tasked to research the Modes of Transmission or the Risk Factors of Infectious Diseases with their examples and provide feedback on their findings. Provide learners with group themes (Modes of transmission, Risk factors and Examples of Infectious Diseases). Move around to assist learners in researching their themes. Support learners to design an advocacy topic raising awareness on the transmission of common diseases in the school community. This should be suitable for implementation in the school.

Note: The number of groups to be formed is dependent on class size. The same theme can be assigned to more than one group.

b. Talk-for-Learning:

Through fishbone discussion, learners identify some common bacterial infections and describe them. Provide learners with different resources such as articles, pictures and videos.

Support learners to choose specific bacterial infections relevant to their level. Ensure each group is a mixture of learners of different levels to support each other.

Arrange the classroom so that the presenting group sits in the centre and the other groups sit around to observe and take notes. Summarise and explain keywords in the presentation. Encourage learners (observers) to ask questions and provide feedback to share additional information.

c. Think-Pair-Share:

Learners in their peer-to-peer pick-and-talk groups, think and reflect individually to identify the dangers of parasitic infections to their health and share their findings with partners. Present different flashcards to learners including pictures, microscopic images, short videos and presentations for learners to identify parasitic infections.

By creating and moderating constructive class discussions, allow shy and less able learners to contribute their thoughts. Encourage active listening and respectful engagements. Support learners to reflect and process what they learn from their peers. Teachers must give further explanations of keywords and summarise the various opinions.

Key Assessments

Level 2: Outline three general effects of bacterial infections on the community.

Level 2: Describe how bacterial infections affect the health and wellness of the body?

Level 2: State three parasitic infections and describe them.

Level 3: Describe how risk factors of infectious diseases may adversely affect your community if they are not attended to.

Level 3: Identify a common infectious disease in your school or community and describe an appropriate intervention for prevention.

Level 4: Analyse the risk factors of non-infectious diseases.

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Week 8

Learning Indicator: *Discuss the various levels of prevention of diseases*

Theme or Focal Area: Prevention of human diseases

Prevention And Control Of Infectious Diseases

The following are ways to prevent and control infectious (communicable) diseases:

a. Practice good personal hygiene

i. Wash your hands frequently with soap and water for at least 20 seconds.
ii. Cover your mouth and nose with a tissue or your elbow when coughing or sneezing.
iii. Avoid touching your face with unwashed hands.

Fig. 8.1: *Practise regular handwashing to prevent diseases*

b. Ensure vaccination

i. Follow the recommended vaccination schedule provided by healthcare professionals.
ii. Stay updated on vaccinations for diseases like measles, influenza, hepatitis, COVID-19 and others.

c. Maintain physical distancing and use protective measures

i. Keep a safe distance (at least 1 meter or 3 feet) from people who are sick.
ii. Keep a distance of an arms-length away when talking to people.

iii. Wear face masks or coverings when in crowded areas or when physical distancing is not possible.

Fig. 8.2: *Protect yourself against infectious diseases in public*

d. Ensure food and water safety

i. Wash fruits and vegetables thoroughly with clean water before consuming.

ii. Cook food at the recommended temperatures to kill bacteria and other pathogens.

iii. Drink clean and safe water from trusted sources or use water filters and purification methods if necessary.

Fig. 8.3: *Wash fruits and vegetables before eating*

e. Take precautions during travel

i. Research and be aware of any health risks or outbreaks in the destination you are traveling to.

ii. Follow travel advisories and recommendations from health authorities.

iii. Get necessary vaccinations before traveling, especially to areas with endemic diseases.

Fig. 8.4: *Look out for warning signs*

f. Strengthen the immune system

i. Maintain balanced and nutritious diet rich in fruits, vegetables and whole grains.
ii. Engage in regular physical activity to boost overall health.
iii. Get enough sleep and manage stress levels.

Fig. 8.5: *Engage in regular physical exercise to improve health*

g. Promote sanitation and infrastructure development

i. Follow proper waste disposal practices in your community.
ii. Support initiatives to improve sanitation facilities and access to clean water.
iii. Educate others about the importance of hygiene and cleanliness in preventing disease transmission.

h. Practice responsible animal contact

i. Wash hands thoroughly after handling animals or their waste.
ii. Avoid contact with wild or stray animals.
iii. Ensure pets receive regular veterinary care and vaccinations.

Fig. 8.6: *Send your pets and animals to the veterinary doctor regularly*

i. Increase awareness and education

i. Stay informed about infectious diseases through reliable sources, such as the Ministry of Education, Ghana Health Service and other reputable organisations.
ii. Attend health education programs or workshops to learn about disease prevention and management.
iii. Share accurate information with family and friends to combat misinformation.

j. Practice safe sexual behaviour

i. Use barrier methods, such as condoms to you protect against sexually transmitted infections (STIs).
ii. Get regular STI screenings and encourage open communication with sexual partners about sexual health.
iii. Seek medical advice and treatment if you suspect you may have been exposed to an STI.

Prevention And Control Of Non-Infectious Diseases

a. Regular physical activity

Engage in regular exercise or physical activity to maintain a healthy weight, improve cardiovascular health, and reduce the risk of various non-infectious diseases. Aim for at least 150 minutes of moderate-intensity aerobic activity per week, along with strength training exercises (Cleveland Clinic; HealthEssentials, 2023).

b. Healthy eating habits

Adopt a balanced diet that includes a variety of fruits, vegetables, whole grains, lean proteins, and healthy fats. Limit the intake of processed foods, sugary snacks, and beverages. Maintain portion control and stay adequately hydrated.

c. Avoid tobacco and limit alcohol consumption

Stay away from smoking or any form of tobacco use. Avoid drinking alcohol but if you insist on consuming it, do so in moderation. For adults, this generally means up to one drink per day for women and up to two drinks per day for men (Centres for Disease Control and Prevention, 2022).

d. Maintain a healthy weight

Achieve and maintain a healthy weight through a combination of regular physical activity and a nutritious diet. This reduces the risk of obesity-related diseases such as heart disease, type 2 diabetes, and certain cancers.

e. Regular health check-ups:

Schedule regular check-ups with healthcare professionals to monitor your health status, detect any early signs of diseases and receive appropriate preventive care.

f. Stress management

Practice stress management techniques such as regular exercise, meditation, deep breathing exercises and engaging in hobbies or activities that help you relax. Seek support from friends, family or professionals when needed.

g. Manage blood pressure and cholesterol

Monitor blood pressure and cholesterol levels regularly. If they are elevated, follow medical advice regarding lifestyle modifications, medication and dietary changes to manage them effectively.

h. Genetic testing and counselling

If you have a family history of certain non-infectious diseases, consider genetic testing or counselling to assess your risk and receive guidance on preventive measures.

i. Environmental awareness

Stay informed about environmental factors that can impact health and take necessary precautions. Minimise exposure to pollutants, maintain good indoor air quality and follow safety guidelines when working with hazardous substances.

j. Prioritise sleep

Establish a regular sleep routine and aim for 7-9 hours of quality sleep each night. Create a comfortable sleep environment and practice good sleep hygiene habits to improve overall well-being.

General Disease Prevention And Management Measures

a. Practise good hygiene

i. Wash hands frequently with soap and clean water, especially before eating and after using the toilet.

ii. Promote proper sanitation by using toilets or latrines and safely disposing of waste.

iii. Maintain cleanliness in living spaces and promote a clean environment in communities.

b. Use protection and practise safe behaviour

i. Use insecticide-treated bed nets to prevent malaria.

ii. Adopt safe behaviours to prevent accidents and injuries, such as wearing seat belts, using helmets and following road safety guidelines.

Fig. 8.9: *Sleep inside insecticide-treated bed nets for protection against mosquitoes.*

c. Get vaccinated

Stay up to date with immunisations to protect against vaccine-preventable diseases. Follow the national immunisation schedule and seek vaccinations for yourself and your family.

d. Seek early diagnosis and treatment

i. Recognise the signs and symptoms of common diseases, such as malaria, TB and Non-Communicable Diseases (NCDs).

ii. If you or someone you know experiences symptoms, seek prompt medical attention and follow healthcare provider recommendations for diagnosis, treatment and management.

e. Practise healthy lifestyle habits

Avoid unnecessary injuries, engage in regular physical activity to promote overall health and reduce the risk of NCDs.

f. Educate and raise awareness

i. Educate yourself and others about health issues, including preventive measures, symptoms and available resources.

ii. Raise awareness within your community about disease prevention, hygiene practices and the importance of seeking healthcare.

g. Support health initiatives

i. Participate in community health programs, campaigns and initiatives aimed at improving health and preventing diseases.

ii. Support organisations and initiatives working towards improving healthcare access, disease prevention and health promotion.

Fig. 8.10: *Engage in community health programmes like health walks*

Role Of Physical Education And Health In Disease Prevention And Promoting Good Health

a. Promotes healthy lifestyle choices (physical activity, balanced diet).

b. Enhances knowledge about disease prevention and management.

c. Develops skills to identify and avoid risky behaviours.

d. Encourages regular health screenings and self-care practices.

Learning Tasks

1. List five common diseases in your community and describe how to prevent them.
2. Describe three infectious and three non-infectious diseases in your community and analyse how to prevent them.

Teachers facilitate the organisation of one or more of the following group programmes:

3. Hold a mock parliament in your school to discuss common diseases prevalent in your school community and how to prevent them. After the discussions, send a report to your school authorities.
4. Organise a personal hygiene day in your school where you go around the entire campus in groups to talk to school community members about things they must do to prevent diseases and live healthier lives.
5. Organise a handwashing day in your school, position buckets, gallons or any water containers at vantage points and invite passersby to wash their hands with soap under clean running water. This can be done to commemorate Global Handwashing Day which falls on 15th October of every year. A short seminar can first be held to educate members of the school community on the importance of handwashing.

6. Visit the health facility nearest to your school, get briefed on the most dominant diseases reported there, organise a health walk programme in the community where your school is situated, highlight those diseases and provide suggestions on how to prevent them.
7. As PEH faculty, team up with members of other subject areas like Social Studies, Science and Home Economics or within your unit to periodically commemorate a few selected global awareness days to draw the school's attention to the issues. Some of these days could be World Leprosy Day – 30th January, World Malaria Day – 25th April, World Food Safety Day – 7th June, World Hepatitis Day – 28th July, World Mental Health Day – 10th October, World AIDS Day – 1st December (WHO, 2024)

Pedagogical Exemplars

Collaborative Learning/Group work

Learners discuss ways of preventing or controlling infectious diseases in their communities. Provide equal opportunities for all learners to freely express themselves. Assign each group a task, provide further explanation and support to less able individuals and groups. Assist learners with challenges to have a role to play in each group.

In small groups, learners discuss concepts of non-infectious disease prevention and management; jot down their points. The group leads or spokespersons report their points to the class. Ensure the group is mixed-ability so members can help each other. Prompt learners to analyse the information gathered. Support and encourage each group to share their findings and insight with the other groups.

In groups, learners examine how they can avoid STIs. Use flashcards to help leaners identify STIs from a group of infectious diseases. Provide an enabling and supportive environment for all learner's. Encourage learners to accept different opinions. Give personal and group support when needed. Supports shy and less able learners to play active role in their various groups.

Learners in mixed-ability groups, analyse personal hygiene practices that must be observed and demonstrate how to do at least one of them in class. Provide tasks that accommodate the different abilities of learners. Gude learners to create a template to record their daily hygiene activities for a week. Monitor the record-books and learners throughout the week to support learners with the task. Proceed by assisting each learner to sort the activities into at least four categories of personal hygiene. Encourage advanced learners to go deep into the topic stimulating critical thinking and analysis.

Key Assessment

Level 1: Describe five common practices that can help prevent disease.

Level 2:

1. Explain at least five ways of preventing or managing infectious and non-infectious diseases in your local communities.
2. Examine at least five places or occasions where we need to carefully practice good personal hygiene.

Level 3:

1. Describe why good personal hygiene practices are important to our health.
2. Identify at least five personal hygiene practices that must be observed in order to maintain good health.
3. Describe at least five pieces of travel information you must have before embarking on journeys, especially to places you have never been before, in order to maintain health and safety.

Level 4

4. Examine how STIs can affect the budding talent of young promising athletes and their career dreams.

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Section 2 Review

During Week 6, the concept of human disease should be introduced to the learner; covering definitions, causes and common symptoms. Learners should actively engage in the lesson by taking notes, asking questions and participating in discussions. Ensure clarity in explanations and guide learners to provide relatable examples. Engage learners to actively listen, participate in class discussions and take initiative in seeking clarification when needed.

In Week 7, assist learners in delving into the classifications of human diseases, including infectious, non-infectious, chronic and acute diseases. Learners should actively participate by organising and categorising different diseases according to their classifications. Encourage critical thinking by facilitating discussions on the distinctions between various disease types. Learners should demonstrate an understanding of the classifications by actively engaging in group activities and seeking additional resources for deeper comprehension.

Week 8 shifts the focus to disease prevention strategies. Present various preventive measures, including vaccinations, hygiene practices and lifestyle choices. Learners should actively participate in idea-sharing sessions to generate preventive measures and evaluate their effectiveness. Encourage learners to take ownership of their health by creating personalised prevention plans. Guide learners to actively participate in class discussions, collaborate with peers to develop preventive strategies and commit to implementing these strategies in their daily lives.

Additional Reading

Additional information on human diseases, their categorisations and preventive measures can be sourced from publications from the Ghana Health Service, World Health Organisation, Centres for Disease Control and books and websites on health.

SECTION 3: PHYSICAL ACTIVITY

Strand: **Physical Education**

Sub-Strand: Physical Activity for Healthy Living

Learning Outcome: *Apply physical activity concepts to improve health outcomes*

Content Standard: Demonstrate knowledge and understanding of physical activity and principles for healthy living

INTRODUCTION AND SECTION SUMMARY

This section covers interrelated areas such as concepts and importance of physical activity as well as principles and application of sports training. These focus on improving learners understanding and application of physical activities for healthy living and conditioning for sports performance. This will enable learners to engage in healthy living lifestyle through regular physical activities and also apply training principles for optimum fitness towards organised sports performance.

Week 9: Explain the concept of physical activity

Week 10: Discuss the importance of physical activity for healthy living

Week 11: Apply the concepts of physical activity in everyday life

SUMMARY OF PEDAGOGICAL EXEMPLARS

In this section, teachers are expected to use appropriate teaching approaches to enhance the understanding of the content. The following approaches are proposed for adaption. They include the use of the **think-pair-share** approach to engage learners to share their thoughts on types of sports training and summarise them in their jotters. The use of **group work** to engage learners in researching from the internet, books, and other available sources to identify and explain the training principles for sports performance and, the use of **collaborative learning** approaches to engage learners in groups to discuss and prepare presentations on the training principles for sports performance.

ASSESSMENT SUMMARY

Learners' achievement in a lesson delivery is essential, this is measured through assessment. It is expected that teachers employ appropriate assessment modes to achieve this. The following are examples of appropriate modes for adaption in this section. They include:

- Level 1 (Recall) - The learners reproduce the types of training and training principles. It could be orally or written for (AP) learners.
- Level 2 (Skills of Conceptual Understanding) - The learners describe or explain and provide examples of training principles. It could also be orally or written for (P) learners.
- Level 3 (Strategic reasoning) – Learners use the training principles to design a training programme which could be in the written form for (HP) learners.

Week 9

Learning Indicator: *Explain the concept of physical activity*

Theme or Focal Area: Implication Of Physical Activity On Sports Performance

a. Health

Health is an essential component in the life of every human being and as such, it is highly recommended for all to strive in working towards its attainment of which physical activity is the focal driver.

b. Concept of physical activity according to the World Health Organisation (WHO)

According to WHO, physical activity is any bodily movement produced by skeletal muscles that requires energy expenditure. It involves all movements including those performed during leisure time, for transport to get to and from places or as part of a person's work e.g. walking, cycling, playing games, working at the farm, construction, etc.

Fig. 9.1: *Examples of physical activities*

c. Recommended physical activity according to WHO

i. Adults: Aged 18+ years should engage in more than 150 minutes of moderate-intensity activity per week or its equivalent e.g. brisk walking, cycling at a moderate pace, swimming, dancing, hiking on flat terrain gardening.

ii. Adolescent: Active adolescents should engage in more than 60 minutes of moderate to vigorous intensity activity daily e.g. running, sprinting, cycling uphill, skipping rope, sprint swimming and rowing.

Note: The age group categorisations are subject to country classifications.

d. Concept of sedentary behaviour according to WHO

Any behaviour while in a sitting, reclining or lying posture with low energy expenditure may lead to sedentary behaviour e.g. sitting down for a long period, lying for a long period, watching TV, sitting down selling at the market or in the shop the whole day.

Fig. 9.2: *Examples of sedentary behaviours*

e. Relationship between physical activity, physical exercise and physical fitness

i. **Physical activity:** This is any movement that is carried out by the skeletal muscles that requires energy. In other words, it is any movement a person does.

ii. **Physical exercise:** This is a subset of physical activity that is planned, structured, and repetitive with the intent to improve or maintain physical fitness.

iii. **Physical fitness:** This is the measurable state of an individual's health and well-being such as strength, endurance or flexibility.

f. Examples of physical activities or ways of being physically active

Examples of physical activities are walking, cycling, gardening, taking part in organised sports, active recreation, playing traditional games with neighbours etc. These can be done at any level of skill and for enjoyment by everybody.

g. Forms of physical activity:

There are three main forms of physical activity:

i. Low intensity: Walking, sweeping, low-impact dancing, cycling and swimming etc.

ii. Moderate intensity: Jogging, doubles tennis, skipping (single leg take off) etc.

iii. Vigorous intensity: running, climbing hills, singles tennis, skipping (double leg take off) etc.

Fig. 9.3: *Levels of Intensity of Physical Activities*

The activity pyramid above (fig. 9.3) represents the following:

- Vigorous intensity activities at the base (green).
- Moderate intensity activities in the middle (blue).
- Low intensity activities at the top (gold).

h. Measuring exercise intensity

Three different methods can be used to measure one's exercise intensity to make sure the body is getting the most out of every workout. These are:

i. Target Heart Rate
ii. Talk Test
iii. Exertion Rating Scale

i. **Using the Target Heart Rate (THR)**

A target heart rate is the range at which a person's heart should beat during exercise to achieve the maximum benefits of working out (Johns Hopkins University, 2024).

The human body has an in-built system to measure its exercise intensity – the heart. Your heart rate will increase in proportion to the intensity of your exercise. You can track and guide your exercise intensity by calculating your Target Heart Rate (THR) range.

The maximum rate is based on a person's age. An estimate of a person's maximum heart rate can be calculated as 220 beats per minute (bpm) minus the age.

How to calculate Target Heart Rate (THR)

Example:

For a 42-year-old person, Maximum Heart Rate (MHR) = 220 - 42 = 178 bpm
THR = MHR x %Intensity = 178 x the intensity as shown in the table below:

Table 9.1: *Target Heart Rate calculation*

Target Zone	% Intensity	**THR in bpm**
Maximum Vo2 Max zone	90% - 100% -- (90/100 x 178) = 160 (100/100 x 178) = 178	160 – 178
Hard Anaerobic zone	80% - 90% -- (80/100 x 178) = 142 (90/100 x 178) = 160	142 – 160
Moderate Aerobic zone	70% - 80% -- (70/100 x 178) = 125 (80/100 x 178) = 142	125 – 142
Light Fat burn zone	60% - 70% -- (60/100 x178) = 107 (70/100 x 178) = 125	107 – 125
Very light Warm-up zone	50% - 60% -- (50/100 x178) = 89 (60/100 x 178) = 107	89 – 107

- *THR = Target Heart Rate*
- *MHR = Maximum Heart Rate*
- *RHR = Resting Heart Rate*
- *bpm = Beats Per Minute*

How to take your pulse/beats per minute (bpm)

There are two ways of checking a pulse:

- Radial pulse checking
- Carotid pulse checking
- The radial pulse is located on the inner wrist of the hand. To check the pulse using this method, the following procedures are applied:

  1. Put the first three fingers of one hand against the inner wrist of the other hand just below the thumb.
  2. Lightly press your fingers into the hollow next to the tendon on the thumb side. Note that the artery lies just beneath the skin.
  3. Using a stopwatch, count the pulse (beats) for 15 seconds. Multiply this figure by four to get your beats per minute. (For example, 31 pulse beats over 15 seconds equals a pulse rate of 124 beats per minute).

- The carotid pulse is located on either side of the windpipe. To check the pulse using this method, press the fingers lightly against one of the carotid arteries, located on either side of your windpipe.

ii. **Using the Talk Test**

The talk test is a simple and reliable way to measure intensity. It is executed as while engaging in an exercise or soon after an exercise,

- If you can talk and sing without breathing rapidly, you're exercising at a low level.
- If you can comfortably talk, but not sing, you're doing moderate intensity activity.
- If you can't say more than a few words without gasping for breath, you're exercising at a vigorous intensity.

iii. **Using the Exertion Rating Scale**

This method is based on observing your body's physical signs during physical activity, including increased heart rate, increased respiration or breathing rate, increased sweating and muscle fatigue.

As you become fitter, the same activity will become easier, and your exertion rating will decrease.

The table below shows the physical signs as against the intensity:

Level	Exertion	Physical sign
1	Minimal/low	None
2	Moderate	Stronger sensation of movement
3	Hard/vigorous	Sweating
4	Very hard/extremely vigorous	Heavy sweating and can't talk

Table 9.2: *Physical activity exertion rating scale*

i. Key facts about physical activity

1. Physical activity enhances thinking, learning and judgment skills
2. Physical activity has significant health benefits for the hearts body and mind

3. Physical activity contributes to preventing and managing non-communicable diseases such as cardiovascular diseases, cancer and diabetes
4. Physical activity reduces symptoms of depression and anxiety
5. Physical activity aids healthy growth and development in young people
6. Physical activity improves overall well-being

Learning Tasks

a. Demonstrate any three physical activities regularly performed for healthy living.

b. Demonstrate two activities that depict sedentary behaviour.

c. Perform two activities for each of the three forms of physical activity:
- Low intensity activity
- Moderate intensity activity
- Vigorous intensity activity

d. Design a well structured weekly physical activity plan based on the three forms of physical activity (low intensity, moderate intensity and vigorous intensity).

e. Based on the weekly plan of activities, create a log of your actual physical activity against the plan, using the three methods of measurement used in the various levels of intensities**.**

Pedagogical Exemplars

a. Experiential Learning:

Show videos on physical activities, physical inactivity and sedentary behaviours for learners to observe and identify the differences between the three forms of activity.

b. Collaborative Learning:

Place learners in mixed-ability groups to discuss the concept of physical activity, physical inactivity and sedentary behaviour.

c. Talk-for-Learning:

Provide learners with opportunities to discuss the features of physical activity, physical inactivity and sedentary behaviours through a whole class discussion.

d. Activity-based learning:

Learners in their mixed-ability groups perform physical activities in various intensities while using the three different methods to measure the intensities.

e. Project-based learning.

Assign learners in mixed-ability, gender, religion, etc. groupings to research and design appropriate physical activity plans for their class, family or local community, etc. to regularly engage in.

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.)

- Use other appropriate approaches to engage learners can be used.

Key Assessments

Level 1: For each of the following, state two activities that reflect being active, inactive or sedentary: aerobic dancing, playing oware, pounding fufu, sweeping the compound, drawing water from the well, hiking, cycling over a hill, playing video games and gardening.

Level 1: State two key facts about physical activity.

Level 2: Explain with examples the three forms of physical activity (low intensity, moderate intensity and vigorous intensity).

Level 2: State two key facts about physical activity and describe their significance.

Level 3: Taking any two key facts about physical activity, outline their implications on individual lives.

Level 3: Demonstrate any three moderate intensity activities in daily physical activity performances.

Level 4: Plan a presentation to educate the local community on the need to engage in regular physical activity taking into consideration, the age groups and the appropriate corresponding levels of intensity.

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Week 10

Learning Indicator: *Discuss the importance of physical activity for healthy living*

Theme or Focal Area: Importance of physical activity for healthy living

PHYSICAL ACTIVITY FOR HEALTHY LIVING

Introduction

Healthy living is a state individuals desire to attain in life. It is a prime objective of most human beings. It is therefore imperative to strive towards its attainment of which the recommended approach is through physical activity. Physical activity/exercise can improve one's health and reduce the risk of developing several diseases like type 2 diabetes, cancer and cardiovascular disease. Physical activity and exercise can have immediate and long-term health benefits. Most importantly, regular activity can improve your quality of life.

a. The importance of physical activities

Physical activity helps in the following bodily functions:

i. Improved Brain/mental health
ii. Weight management
iii. Bone and muscle strength
iv. Reduce risk of diseases (heart disease, stroke, diabetes, etc.)

b. The World Health Organisation (WHO) guidelines and recommendations for physical activity.

Recommended activity for various age groups:

i. Children 1-2 years old (over 24 hours)

Spend at least 180 minutes doing physical activities ranging from moderate intensity to vigorous intensity spread throughout the day.

At this age, children should not be restrained for more than one hour at a time when doing activities such as pushing prams/strollers, climbing highchairs, or sitting for extended periods.

ii. Children 3-4 years old (over 24 hours)

Should be assisted in spending at least 180 minutes in a variety of physical activities at any intensity, of which at least 60 minutes is moderate to vigorous spread throughout the day.

At this age, children should also not be restrained for more than one hour at a time when pushing prams/strollers, sitting for extended periods, etc.

iii. Children and adolescents aged 5-17 years

Are expected to do an average of 60 minutes per day of moderate to vigorous intensity activities consisting mostly of aerobic physical activity across the week.

They should be encouraged to incorporate vigorous intensity aerobic activities as well as those that strengthen muscle and bone, at least three days a week.

Fig. 10.1: *Adolescents engaged in physical activities*

iv. Adults aged 18–64 years

People in this category should do at least 150–300 minutes of moderate intensity aerobic physical activity, at least 75–150 minutes of vigorous intensity aerobic physical activity or a combination of moderate and vigorous intensity activities throughout the week.

v. Adults aged 65 years and above

As per adults aged 18-64 years.

As part of their weekly physical activity, adults in this age group should engage in varied multi-component physical activity that emphasises functional balance and strength training at moderate or greater intensity on three or more days a week to enhance functional capacity and prevent falls.

vi. Pregnant and postpartum women

All pregnant and postpartum women with the ability should:

- Complete at least 150 minutes of moderate intensity aerobic physical activity throughout the week.
- Incorporate a variety of aerobic and muscle strengthening activities.
- Limit activities that lead to a sedentary lifestyle. Physical activity of any intensity (including light intensity) should replace sedentary time.

vii. People living with chronic conditions

As their condition allows, people with conditions such as hypertension, type 2 diabetes, HIV and cancer should:

- Exercise at least 150–300 minutes of moderate intensity aerobic physical activity throughout the week.
- Do at least 75–150 minutes of vigorous intensity aerobic physical activity or a combination of moderate and vigorous intensity activities throughout the week.

viii. Children and adolescents living with disability

People in this category should:

- Complete an average of 60 minutes per day of moderate to vigorous intensity, mostly aerobic physical activity. However, the number of repetitions and duration depends on the individual's ability.
- Incorporate vigorous intensity aerobic activities as well as those that strengthen targeted muscles and bones.

Fig. 10.2: *Adolescents with disabilities engaged in physical activities*

ix. Adults living with disability

Adults in this group should:

- Exercise at least 150–300 minutes of moderate intensity aerobic physical activity, the number of repetitions and duration depends on the individual's ability.
- Alternatively, they can train for 75–150 minutes of vigorous intensity aerobic physical activity or an equivalent combination of moderate and vigorous intensity activity within a week.

Fig. 10.3: *Adults with disabilities engaged in physical activities*

c. Health risks of sedentary behaviour

Lives are becoming increasingly sedentary through the use of motorised transport and the increased use of screens for work, education and recreation. This gives rise to health risks such as:

i. increased adiposity/obesity (weight gain)
ii. poor cardiometabolic health
iii. poor fitness

iv. reduced sleep duration
v. cardiovascular disease
vi. cancer
vii. type 2 diabetes

Learning Tasks

a. Prepare a concept map/diagram to showcase the importance of physical activity for the following categories of people:
   i. Adolescents
   ii. Pregnant women
   iii. Adults (18-64 years)

b. Apply the WHO guidelines and recommendations for physical activity requirements to your daily physical activity practices as an adolescent and provide written feedback after a week.

c. Design a three-day physical activity schedule for a pregnant and postpartum woman taking into consideration duration and intensity of activities.

d. Plan a weekly physical activity schedule with moderate and vigorous intensity activities for adolescents.

Pedagogical Exemplars

a. Collaborative Learning:

Place learners in mixed-ability groups to discuss the importance of physical activity. Design and display a flyer that contains different side effects of an inactive lifestyle. Encourage learners to openly share their ideas whilst you guide the class discussion. Advance by showing other flyers which contain different physical activities for an open, guided class discussion. Support each group to discuss the importance of physical activity for healthy living. Ensure all learners in a group have an assigned task.

b. Activity-based Learning:

In groups, provide learners with the opportunity to further research WHO guidelines/ recommendations for physical activity, share ideas and present their group work for class discussions. Be conscious of learners with additional needs e.g. learners with mobility, vision, hearing, speech, etc. impairments and provide support as required.

Task groups to design a personal physical activity schedule for a week. Encourage learners with additional needs to participate in the design process through learner-teacher activities/ engagement.

Support learners in creating their schedules with the aim of coming up with an agreed group schedule. Create an enabling environment for each group member to be motivated to present their work in class.

Encourage learners to respect individual differences in beliefs, religions, abilities, temperaments, cultures, etc.

c. Project-based Learning:

In mixed-ability and mixed-gender groupings, learners identify at least one activity that leads to a sedentary lifestyle and suggest a campaign to combat it in their communities. Provide groups with recommended resource material on at least one sedentary lifestyle activity to guide them

in designing an appropriate plan for implementation in their community. Ensure each learner in a group takes up a task during the design process. Provide individual and group support to learners. Create an environment conducive to brainstorming and communication between groups and ensure respect for individual opinions.

Key Assessments

Level 2: Explain the importance of physical activity for an adolescent.

Level 2: State any two physical activity requirement guidelines recommended for an adolescent.

Level 2: State two reasons why we must avoid sedentary behaviours.

Level 3: Describe why people living with chronic diseases and disabilities need to engage in moderate intensity physical activities.

Level 4: Justify why it is important for adolescents to engage in at least 60 minutes per day of moderate to vigorous intensity of physical activity.

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Week 11

Learning Indicator: *Apply the concept of physical activity in everyday life*

Theme or Focal Area 1: Application of the concept of physical activity in everyday life

PHYSICAL ACTIVITY IN EVERYDAY LIFE

a. Planning physical Activity

i. Set specific short-term goals that you can track
ii. Think of the days and times you could do the activity
iii. Choose activities you enjoy doing, e.g. gardening, dancing, cycling, tennis, etc.
iv. Keep to the routine
v. Start slowly and increase as fitness improves

b. How to overcome barriers to physical activity

i. **Lack of time**

- Do a few minutes (e.g. 10 mins) of your favourite physical activity at a time
- Add a few minutes' walk or activity that you will stick to in your lunch break or after dinner
- Make activity part of your daily routine, etc.

ii. **Lack of interest**

- Switch it up by trying new activities
- Make it social by involving family, friends, community in a planned physical activity schedule
- Seek support from experts who will inspire and guide you to keep going

iii. **Bad weather conditions**

- Wear the right exercise gear/kit
- Find a place indoors to stay active with activities such as aerobics, skipping, squash, tennis etc.

iv. **Cost of kit and equipment**

- Choose physical activities that do not require specialist gear/kit, specialist skills, specialist equipment etc.
- Perform local activities such as gardening, household chores etc.

c. Designing a physical activity plan

Sample weekly physical activity plan with interesting activities to be adapted in the school, by an individual, a class, family, community or a club.

OUTSIDE SCHOOL			
Week	**Tuesday**	**Thursday**	**Saturday**
1	Skipping	Adapted squash tennis	Aerobic
2	Aerobic	Skipping	Circuit training
3	Gardening	Adapted squash tennis	Aerobic
4	Circuit training	Gardening	Skipping

IN SCHOOL		
Week	**Day 1**	**Day 2**
1	Football	Flexibility training
2	Circuit training	Agility training
3	Aerobics	Handball
4	Speed training	Strength training

Table 11.1: *Physical activity plan*

Note: Take learners through practical lessons on the above activities for acclimatisation and adaptation.

d. How to promote participation in physical activity

i. **Schools**

- Pre-schools, basic schools and senior high schools should provide quality and attractive physical education and health lessons/activities that enhance all learner's participation to develop behaviour patterns that will keep them physically active throughout their lives.
- Form physical activity clubs and draw activity plans to follow.
- In their various clubs, include sensitisation/campaign on needs and benefits of regular physical activity participation to families and communities and draw schedule to execute it.

ii. **Families**

- Education on the need and benefits for engaging in regular physical activity.
- Assist families to choose activities they will enjoy doing best and create a plan help them achieve.
- Engage in the activities as a whole family.
- Organise periodic intra and inter family physical activity challenge festivals

iii. **Communities**

- Sensitisation/campaign drive to communities on the needs and benefits of regular participation in physical activity.
- Formation of keep-fit clubs in the community to drive and sustain interest.
- Organise periodic intra and inter community clubs' physical activity challenge festivals.

Learning Tasks

a. Discuss five ways of being physically active.

b. Group performance of selected physical activities.

c. Designing a physical activity plan that will motivate regular engagement in performing the activities.

Pedagogical Exemplars

a. Group Discussion:

Learners engage in mixed-ability and gender groupings to discuss ways of being physically active and write them in their jotters.

The levels and needs of all learners should be taken into consideration such that:

i. Learners who can contribute substantial ideas to the discussion are motivated to do so.
ii. Learners who can provide a limited number of ideas to the discussion are also encouraged to do so.
iii. Learners who need some additional assistance are supported by the teacher or their colleagues to contribute their ideas to the discussion.

b. Activity-based Learning:

Engage learners in mixed-ability, gender, interest etc. groupings to select activities of their choice and perform them in the class. The skills, endurance, fitness levels and needs of all learners should be taken into consideration such that:

Learners who are very skillful and fit are motivated to perform at their required intensity and repetitions for a maximum effect. They can also help their colleagues.

Learners who are moderately skillful and fit are encouraged to perform at their required intensity and repetitions for a maximum effect. They can be motivated to improve upon their base levels at their own pace, being mindful of safety.

Learners who are less skillful and fit are encouraged to perform at their required intensity and repetitions for a maximum effect. They can be assisted by the teacher or their colleagues to improve upon their base levels at their own pace, being mindful of safety.

c. Project-Based Learning:

Place learners into appropriate groupings. Learners create a plan with attractive physical activities that will motivate them to regularly engage in performing the activities. Learners should keep a record of their performance in a portfolio for evaluation and assessment. The proximity of learners should be taken into consideration such that:

Learners who are close to each other are put in a group to create their plan and follow it regularly while keeping a record of their performance for submission. In the group, learners who are advanced, very skillful and fit can support their colleagues who need assistance to perform the activities at their own pace.

Groups that are made of learners who are at the moderate level of knowledge, skills and fitness are supported with websites that have related videos on the activities for them to access and use for their activities.

Groups that are made of learners who are at low level of knowledge, skills and fitness are supported with related videos on the activities for them to use for their activities.

Note: Be conscious of and consider:

i. The safety of learners when performing the activities.
ii. The special needs of learners e.g. physically challenged, hearing impaired, speech impaired, etc. and provide appropriate support.
iii. Learners Socio-emotional learning (SEL) needs, by encouraging learners to respect individual differences, beliefs, religions, abilities, temperaments, cultures, etc.
iv. The use of other appropriate approaches to engage learners.
v. Researching and adding to the few examples given.

Key Assessments

Level 1: List three strategies and three activities that can motivate individuals to engage in regular physical activity.

Level 2: Suggest three ways to motivate physical activity routines in schools, families, communities etc.

Level 3: Design a physical activity/training plan for the school's sports team to use as their training plan toward an inter-school competition.

Level 4: Create an exciting physical activity that will motivate the following groups to engage in routine physical activity:

a. A class
b. A family
c. A community club

Level 4: Perform physical activities with any of the following groups and create a portfolio on the engagements for submission:

a. A class
b. A family
c. A community club

References

1. Elective SHS / SHTS / STEM Curriculum
2. World Health Organisation (2022): *Global Recommendations on Physical Activity for* Health.

Reflection and Review

1. Lack of time, interest, training kits/equipment etc. can create barriers to physical activity routines.
2. To overcome these barriers, make physical activity part of your daily routine.
3. Switch it up by trying new activities.
4. Chose physical activities that do not require specialist gear/kits, specialist skills.

Teaching/Learning Resources: From The Curriculum

1. Charts/pictures of professionals, coursebooks, videos
2. ICT tools e.g. laptops, phones, projectors, portfolio's
3. Task sheets/assessment reports

SECTION 4: TRAINING PRINCIPLE FOR SPORTS PERFORMANCE

Strand: **Physical Education**

Sub-Strand: Training Principles for Sports Performance

Learning Outcome: *Discuss the training principles of sports performance*

Content Standard: Demonstrate knowledge and understanding of the principles in sports performance

INTRODUCTION AND SECTION SUMMARY

In this section we will enhance psychomotor, cognitive, and affective learning through physical activity and movement exploration to promote health, physical fitness and sports excellence. This enables learners to enjoy and succeed in many kinds of physical activity including the development of a wide range of skills and the ability to use tactics, strategies, principles and compositional ideas to perform successfully. The section covers interrelated areas including training principles and the application of the training principles for sports performance. These focus on improving learners understanding and application of the training principles for conditioning towards participation in organised sports performance.

The weeks covered by this section include the following:

Week 12: Explain the training principles for sports performance

Week 13: Apply the training principles for sports performance

SUMMARY OF PEDAGOGICAL EXEMPLARS

Teachers are expected to use appropriate teaching approaches to enhance the attainment of the content by learners. The following approaches are proposed for adaptation. The use of think-pair-share, group work, collaborative learning, etc. to engage learners in the various learning tasks of the lesson. The use of ability, mixed-ability, mixed-gender and gender groupings where necessary in both theory and practical sessions should be appropriately applied taking into consideration, the nature of the activity involved. Special attention should also be given to learners with additional needs such as social emotional needs (SEN), hearing impairment, speech impairment, etc. for them to benefit from the lesson. Encourage learners to respect individual differences, (beliefs, religions, abilities, temperaments, cultures, etc.).

ASSESSMENT SUMMARY

Learners' achievement in a lesson delivery is essential, this is measured through assessment. Teachers are expected to employ appropriate assessment modes to achieve this. The following are suggested modes for adaption. They include:

Assessment based on Recall in which learners reproduce key concepts/information such as what the type of training and training principles are. It can be presented be orally or in writing for differing categories of learners.

Assessment based on Skills of Conceptual Understanding in which learners describe or explain and provide examples of training principles as their response. This can also be presented orally or writing for differing categories of learners.

In addition, assessment based on Strategic Reasoning should be employed. This involves learners thinking strategically, synthesising and creating new ideas, activities, plans etc. out of what they have learned. For example, using any or some of the training principles to design a training programme,

Week 12

Learning Indicator: *Explain the training principles for sports performance*

Theme or Focal Area: Identify and analyse the concept of sports training principles for sports performance

TRAINING PRINCIPLES FOR SPORTS PERFORMANCE

a. Concept of sports training principles

The process of preparing athletes based on scientific principles that are aimed at improving and maintaining higher performance capacity in different sports activities.

b. Types of sports training

i. **Aerobic training:** Training that strengthens the heart and lungs and improves muscle function. This includes endurance type exercises that increases heart and breathing rate over a sustained period e.g. jogging, cycling, swimming, etc.

ii. **Anaerobic training**: A short, intense burst of high-intensity physical activity, which is fueled by energy stored within the muscles. e.g. jumping, sprinting, heavy weightlifting etc.

iii. **Strength training:** Training that is performed to improve an athlete's strength e.g. push-ups, sit-ups, weightlifting etc.

iv. **Flexibility training:** Training that aims to increase a joint's range of motion (ROM) e.g. stretching such as the figure of four stretch, sit and reach, etc.

Note: There are four general methods of stretching used to develop flexibility:

- Static
- Ballistic
- Proprioceptive neuromuscular facilitation (PNF)
- Dynamic

Fig. 12.1: *Dynamic stretching*

c. Methods of Sports Training

i. **Continuous training:** Training that is designed to increase endurance. It involves completing a set number of repetitions at a low intensity, with very little or no rest between repetitions.

ii. **Circuit training:** A form of body conditioning that involves endurance training, resistance training, high-intensity aerobics, and exercises performed in a circuit.

iii. **Interval training:** A type of training that involves alternating between high and low-intensity exercises.

iv. **Plyometric training:** A high-intensity training used to improve an athlete's explosiveness. It involves a series of rapid and repetitive movements that help to increase the power and speed of the athlete.

v. **Flexibility training:** A planned set of exercises that can gradually help expand the range of motions of a joint or set of joints.

vi. **Weight training:** The use of weights to strengthen and tone the muscle's mass and improve strength.

d. Sports training principles

To get the best out of training the trainee must apply the basic principles of training. These include overload, reversibility, progression, individualisation, periodisation and specificity.

i. **Overload:** To progress and improve *fitness*, the trainee must put their body under additional stress. Applying this training principle will cause long-term adaptations, enabling the body to work more efficiently to cope with the higher level of performance.

Note: Overloading can be achieved by following the acronym **FITT – Frequency, Intensity, Time and Type as a guide**.

ii. **Specificity:** Relates to the type of training that is specific to the individual and their chosen sport. The athlete predominantly trains the energy system which they use. e.g. A long distance runner would not train on weightlifting but extensive running, skipping, stairs climbing etc. which will improve the cardiorespiratory endurance.

Fig. 12.2: *The principle of specificity (for long distance running)*

iii. **Reversibility:** If training is not maintained the trainees can lose what they have gained. If they stop training, then the improvements made will be reversed. So, if they do not train for a period, or reduce the amount they train, they may not be able to resume training to the same level as before.

iv. **Individualisation**: All individuals are unique in their exercise programming needs. Personal, environmental and behavioral factors should be considered and assessed when planning to engage in a physical sports training regimen (American College of Sports Medicine, 2013).

v. **Progression:** With this principle, a greater than normal stress or load on the body is required for training adaptation to take place. The body will adapt to this stimulus. Once the body has adapted then a higher stimulus is required to continue the change. For a muscle to increase strength, it must be gradually stressed by working against a load greater than it is used to.

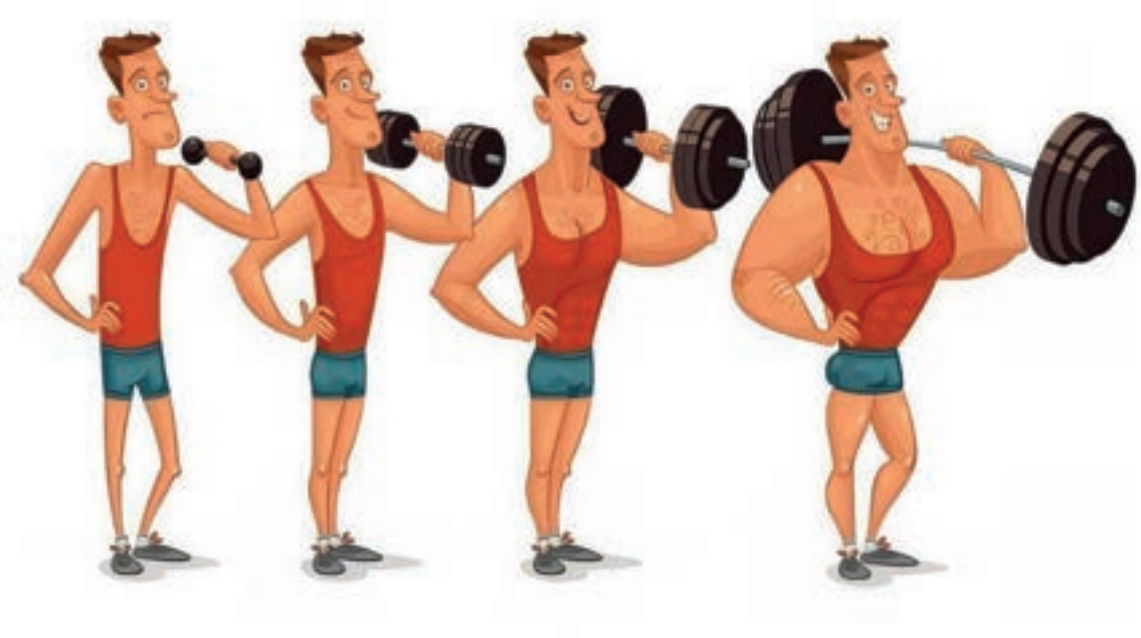

Fig. 12.3: *The principle of progression*

vi. **Adaptation:** How the body 'programmes' muscles to remember particular activities, movements, or skills. By repeating that skill or exercise, the body adapts to the stress and the skill becomes easier to perform.

Learning Tasks

1. Identify the types of sports training.
2. Describe the methods of training.
3. Discuss and prepare a presentation on the training principles for sports performance and present in class.

Pedagogical Exemplars

1. **Think-Pair-Share:**

   Engage learners to think-pair-share their ideas on types of sports training and note down a summary. Each pair should then share their summary with the whole class. The levels and needs of all learners should be taken into consideration such that they are paired in mixed-ability groups where:

   a. Learners who can think and provide substantial ideas are motivated to do so.

   b. Learners who can provide a limited number of ideas are encouraged to do so

c. Learners who will need some additional assistance are support by the teacher or their classmates to contribute their ideas.

2. **Group Work:**

Engage learners in mixed-ability and gender groups to research from the internet, books, and other available sources. Learners should gather information about methods of sports training and write them in to their jotters. The levels and needs of all learners should be taken into consideration such that:

a. Learners who can use multiple search engines and other sources to find the information and compare the outcomes for authentic results are encouraged to do so.

b. Learners who can use only one source of their choice to search for the information are also encouraged in that effort.

c. Learners who need assistance with adaptive platforms, website links and/or materials that take them directly to the information source are given such support by the teacher or by their colleagues.

3. **Collaborative Learning:**

Place learners in mixed groupings to discuss and prepare a presentation on the training principles for sports performance. Groups present for whole class discussion. Again, the various levels and needs of the learners should be taking into consideration such that:

a. Learners who can prepare and present orally with written evidence adding pictures, diagrams, videos, practical demonstrations etc. and, use PowerPoint (or similar) where available in their presentations for better understanding are encouraged to do so.

b. Learners who can prepare and present orally with written evidence but without pictures, diagrams, videos, practical demonstrations etc. are motivated to do so.

c. Learners who require assistance to prepare and present either orally or written with guided outlines, templates, images, charts or diagrams to help them understand and organise their thoughts or the content for the presentation are supported in that regard by the teacher or their colleagues.

Key Assessment

Level 1:

1. State at least two types of sports training.
2. Identify at least two methods used to develop flexibility.

Level 2:

3. Describe at least three principles of training for sports performance.
4. Explain at least two training elements an athlete can follow to achieve the training principle of overload.

Level 3:

5. Using at least two principles of training for sports performance, describe with examples how an athlete can improve their muscle strength through strength training.
6. Design a concept map with the FITT acronym of the principle of overload in sports training using practical examples.

Reflection and Review

Sports training: A process of preparing athletes based on scientific principles.

The principles of sports performance include:

a. Overload
b. Reversibility
c. Progression
d. Individualisation
e. Periodisation
f. Specificity

Additional Reading

1. Phases in periodisation training cycle

Teaching/Learning Resources: From The Curriculum

Charts/pictures of professionals, Course books Videos, ICT tools e.g., Laptops, phones, projectors

References

1. American College of Sports Medicine, (2013). ACSM's guidelines for exercise testing and prescription. Lippincott Williams & Wilkins.
2. Elective SHS / SHTS / STEM Curriculum
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