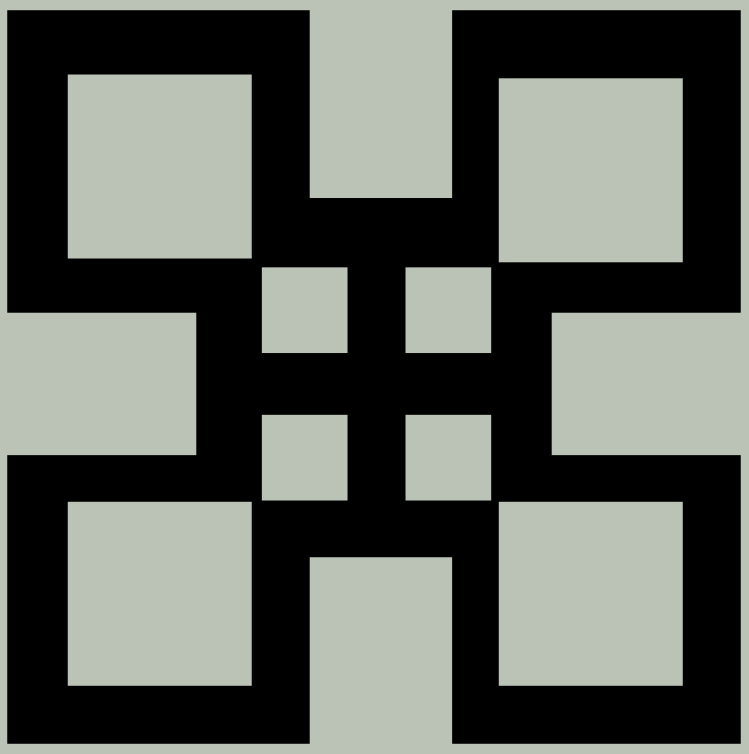
Secondary Education Professional Development Programme

Professional Learning Community Handbook

Biology

Year One



Ghana Education Service (GES)

NaCCA
NATIONAL COUNCIL FOR CURRICULUM AND ASSESSMENT

NTC

Professional Learning Community Handbook

Biology

Year One

REPUBLIC OF GHANA

Contents

Introduction

This Professional Learning Community (PLC) Handbook is designed to enable teachers to deliver effective lessons for Year One of the new Biology Curriculum. 'Effective' is defined as meaning that each lesson:

i. Has a weekly learning plan which is aligned with the content and pedagogy set out in the relevant Teacher Manual;

ii. Incorporates the relevant Learner Material which are available on the curriculum microsite;

iii. Contains assessment strategies which are aligned with the Teacher Manual, Learner Material and Transcript Assessment Guidance;

iv. Is delivered by the teacher in close adherence (Fidelity of Implementation) with i.) to iii.) above.

The PLC Handbook has a strong focus on assessment, outlining structured approaches to assessment derived from the Teacher Assessment Manual and Toolkit (TAMT), emphasising the attainment of learning outcomes, timely feedback to learners and recording learning outcomes accurately.

Additionally, this Handbook prescribes nine (9) main assessment events which teachers should score and record to constitute each learner's academic transcript for the academic year as follows: Two (2) Class exercises or Homework, one (1) Individual Portfolio, one (1) Group Project, two (2) Mid-semester examinations (in first and second semesters), two (2) End of Semester examinations (in first and second semester) and one (1) Individual project. It also promotes continuous weekly assessment for learning across all DoK levels, supporting teachers to deliver an all-inclusive education by inculcating 21st century skills, ICT, national values and support to special needs learners.

The TAMT identifies six modes of assessment which cover the nine events described above. The modes are:

a) Portfolio assessment has been recommended in PLC Sessions 1 and turned in by Session 22.

b) Group project should be given during PLC Session 2 and turned in by Session 7.

c) Homework and Class Exercise PLC Sessions 7 and 20 respectively.

d) Individual project in PLC Session 14 and turned in by Session 21.

e) Mid-Semester Examination have been recommended in PLC Sessions 6 and 18.

f) End of Semester Examination have been recommended in PLC Sessions 12 and 24.

PLC SESSION 0: Internal Assessment Structure and Transcript System for SHS/SHTS and STEM Schools

1. Introduction (20 minutes)

This Professional Learning Community (PLC) session focuses on enhancing internal assessment and transcript system to ensure it aligns with the new Senior High School, Senior High Technical School and Science, Technology, Engineering and Mathematics curriculum and effectively supports student learning.

In this session, you will discuss the structure and frequency of assessments, strategies for involving learners in the assessment process, methods for providing constructive feedback and the implementation of a robust transcript system.

1.1 Share two ways in which you have used assessment in the past to support teaching and learning.

1.2 Share your observation on how a colleague used assessment in the past to support teaching and learning.

2. Internal assessment structure and frequency (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session.

Purpose

The purpose of the session is to strengthen teachers' understanding and competence in assessment techniques to effectively teach and assess the new SHS, SHTS and STEM Curriculum.

Learning Outcome

To ensure teachers understand the assessment structure and acquire the skill to design, administer and provide feedback of the assessments that accurately reflect the learning outcomes for each week.

Learning Indicators

1. Discuss the formative and summative assessment strategies recommended for the new curriculum.
2. Discuss in detail, the relevance and structure of the assessment transcript system and its use/implementation.

2.2 Discuss *formative assessment strategies* which can be used in your subject area.

E.g.

Questioning, etc.

2.3 Discuss *summative assessment strategies* which can be used in your subject area.

E.g.

End of Semester Examinations, etc.

2.4 Discuss as a subject group how you would administer a given assessment strategy.

E.g.

Class Exercise:

i. *Inform learners ahead of time*

ii. *Write the questions on the board, etc.*

2.5 Discuss methods of providing constructive feedback to learners on their performance.

E.g.

Provide individual comments on learners' work, etc.

2.6 Discuss as a subject group some of the do's and don'ts of constructing assessment items/tasks.

E.g.

Do: Align the purpose of the assessment with the task, etc.

Don't: Do not give clues in the stem, etc.

2.7 Discuss as a subject group the main assessments that would be recorded in the transcript system in the academic year.

E.g.

Class exercise, etc.

2.8 Discuss how and where you would record and submit learners' assessments for the transcript system.

E.g.

Record learners scores immediately, etc.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session.

3.2 Remember to:

a) read PLC Session 1 and related Learner Material

b) bring along your Teacher Manual, PLC Handbook and learning plan on *week 1* in preparation for the next session.

PLC SESSION 1: Importance of Biology, its various Branches and Applications in Everyday Life

1. Introduction (20 minutes)

1.1 Share two things you did in the classroom based on your experience in the various PLC sessions you have attended (NTS1a, 1b and 2a-2e).

1.2 Share your observation on what a colleague did by way of application of lessons learned from previous PLC sessions attended (NTS 1a, 1b and 2a-2e).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session.

Purpose

The purpose of the session is to review the learning plan for *week 1* by aligning the plan with the Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 1* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 1* in your learning plan, identify activities that align with those in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan

2.3 Develop assessment tasks/items based on the learning indicator(s) for the week. This week's recommended mode of assessment is **class exercise** (NTS 3k, 3p).

E.g.

a) what is Biology?

b) Mention the three (3) major branches of Biology.

Refer to Teacher Manual pages 13 and 14 and Learner Material section 1 for more task examples

Hint

*Give portfolio Assessment to the learners to be done individually. The portfolio will be submitted in week 22. See **Appendix A** for a sample Portfolio assessment.*

Note

i. *The assessment tasks may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities in the learning plan*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k, 3p).

E.g.

*a) Learners' ability to define biology. Look out for the following keywords: study of living things, interaction, environment - (**2 marks**).*

b) The three (3) major branches of Biology are

i. botany

ii. zoology

iii. microbiology

*1 mark for each mention of the branch of biology – **(3 marks)***

Total – 5 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

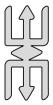
a) Define the learning outcomes, etc.

Refer to the Teacher Assessment Manual and Toolkit pages 80-82 for more information on how to administer class exercise.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS3 l-3n).

E.g.

Provide constructive feedback to the learners on the areas they need to improve and encourage them to continue with what they have done well



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 1 to provide feedback on your lesson (NTS1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) read PLC Session 2 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 2* in preparation for the next session (NTS 3a).

Appendix A: Portfolio for Performance based Assessment (for Individual learners)

Task: *Build a portfolio of your academic progress for the academic year to include evidence of your academic work.*

Portfolio Artefact

E.g.

Evidence of academic work to be included in the Portfolio.

i. Learner's individual homework and class exercise

ii. A copy of learners' practical work

iii. A copy of individual project(s).

iv. A copy of 1and 2 mid-semester examination

v. A copy of group project work in session 2

Structure and organisation of the Portfolio

a) Cover Page (Header, Learner name, Class level, Subject area, Submission date)

b) Table of Contents (Introduction, learning goals, Subject area, Assessments given and grades/marks, feedback, reflections, concluding remarks etc.)

Rubrics for scoring

a) Designing the cover page to include the header, learner's name, class level, subject area and submission - (5 marks)

b) Writing a reflection of hundred words to include personal growth, strengths and areas for improvement - (10 marks)

c) Arranging the artefact in the portfolio in an orderly manner in which it was collected by indicating the dates - (10 marks)

d) Writing learning goals of 100 words - (10 marks)

e) Align selected works to the overall goal of the portfolio showing a consistent focus on achieving these goals - (5 marks)

f) Evidence of adaptability and growth highlighted by reflections and work that demonstrate how the learner has overcome challenges and improved over time - (10 marks), etc.

Total – 40 marks

How to Administer

a) Make the purpose, benefits and components of the portfolio clear to the learners (Assessment, reflection, showcase of skills, etc.)

b) Provide clear guidelines on what to include and how to organise the portfolio (What type of evidence of work should be included, how often should entries be added, what format should the portfolio take etc.)

c) Assist learners with useful information on how to collect various evidence of academic work such as assignments, projects, tests and reflections for their portfolios.

d) Set clear checkpoints and implement scheduled inspections of the progress of work on these checkpoints (Weekly, Bi-weekly, Monthly, Quarterly, End of semester, etc.)

e) Assess the effectiveness of the portfolio in meeting the stipulated goals and objectives from the feedback you have received from the learners and make adjustments for future instructions on portfolio assessments.

f) Encourage learners to submit their final portfolios for scoring, recording and feedback on the 22nd week of the second semester, etc.

Feedback

Detailed written/oral feedback on the entire portfolio should be given to individual learners, highlighting their overall performance, etc.

PLC SESSION 2: Solving Everyday Problems Using Scientific Methods

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 1* delivered last week that:

a) went well (NTS 1a, 1b and 2a–2e).

b) you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 1* that supported learning (NTS 2e, 2f, 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 2* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 2* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 2* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **group presentation** (NTS 3k, 3p).

E.g.

Discuss and present the basis on which the Scientific method is built, and how the steps it outlines are employed in solving problems in the school environment and the community at large.

Refer to the Teacher Manual page 17 and Leaner Material for more information on the Scientific Method.

Hint

*Give group project work this week to be submitted in week 8. See **Appendix B** below for detail information and rubrics on the group project work.*

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k,3p).

E.g.

*a) The scientific method is a systematic process used for investigating phenomena, acquiring new knowledge, or correcting and integrating previous knowledge (2 **marks**). The scientific method consists of several key steps such as:*

i. *Observation: Gathering data and noting phenomena of interest (3 **marks**).*

ii. *Question: Formulating a question or identifying a problem based on the observations (3 **marks**).*

iii. *Hypothesis: Proposing a tentative explanation or prediction that can be tested (3 **marks**).*

iv. *Experimentation: Designing and conducting experiments to test the hypothesis (3 **marks**).*

v. *Analysis: Analysing the data collected from the experiments (3 **marks**).*

vi. *Conclusion: Drawing conclusions based on the data and analysis (3 **marks**).*

vii. *Communication: Sharing the results with the scientific community for review and validation (**3 marks**).*

*Systematic arrangement of steps **2 marks***

Total – 25 marks

b) In a school setting, the scientific method can be used to solve various problems and enhance learning such as:

*Improving Academic Performance (**1 mark**):*

i. *Observation: Teachers notice a decline in students' Biology scores (**2 marks**).*

ii. *Question: What factors are contributing to the decline in math scores? (**2 marks**)*

iii. *Hypothesis: Students are not understanding key concepts due to insufficient practice (**2 marks**).*

iv. *Experimentation: Implement additional practice sessions and monitor changes in scores (**2 marks**).*

v. *Analysis: Compare test scores before and after the intervention (2 **marks**).*

vi. *Conclusion: Determine if additional practice sessions improved scores (2 **marks**).*

vii. *Communication: Share findings with other teachers and develop a best practice guideline **(2 marks**)*

Total = 15 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Clearly outline the purpose of the presentation and specify the criteria for assessment, including content, delivery, teamwork, and use of, etc.

Refer to Teacher Assessment Manual and Toolkit pages (66-68) for further notes on how to administer presentations

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Provide constructive feedback on the strengths and weakness of learners to help them improve on their skills for future presentations, etc.

Refer to Teacher Assessment Manual and Toolkit page (68) for further notes on how to provide feedback to learners

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 2 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l–3n).

b) read PLC Session 3 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 3* in preparation for the next session (NTS 3a).

Appendix B: Group Project Work

Project Task

Demonstrate how to use Scientific Method to solve a major Biological challenge in your locality.

Project Outline

1. Introduction to the Scientific Method
    - Observation (Identify a problem)
    - Hypothesis (Form a possible solution)
    - Experiment (Test the hypothesis)
    - Data Collection (Gather information)
    - Analysis (Interpret the results)
    - Conclusion (Draw conclusions based on the evidence)

Objective

Introduce the importance of applying biological concepts to improve your environment and community.

2. **Step 1**: Identify a major biological or environmental challenge in your area that relates to biology.
3. **Step 2**: Conduct research to understand the problem better. You may interview local residents, community leaders, etc. to gather more information.
4. **Step 3**: Based on your research, develop a testable hypothesis. This should be a statement predicting a possible solution to the problem.
5. **Step 4:** Design an experiment to test your hypothesis. Describe the steps you would take, the materials you would need, and how you would measure the results.

    Key Components of the Experiment:

    Independent variable: The factor you are changing (e.g., water filtration, mosquito treatment).

    Dependent variable: The factor you are measuring (e.g., pollutant levels, mosquito population).

    Controlled variables: Factors that must stay the same to ensure a fair test (e.g., time of observation, location).
6. **Step 5**: Record your observations and data systematically over a set period (e.g., a week or a month) using tables, charts, or graphs, etc.
7. **Step 6**: Analyse the data you've gathered, comparing your results to your hypothesis.

8. **Step 7**: Draw conclusions from your data. If the hypothesis was supported, discuss how the solution could be implemented on a larger scale and if the hypothesis wasn't supported, propose alternative solutions that might be more effective.

Presentation Requirements

i. Create a presentation to explain your project to your classmates. Include:

ii. The biological problem you identified

iii. The research you conducted

iv. Your hypothesis and how you tested it

v. The data you collected

The conclusion and your recommendations for the community

Materials Needed

i. Research materials (biology textbooks, internet access)

ii. Materials specific to the experiment (e.g., water filtration kits, data recording sheets, mosquito traps)

iii. Notebook or computer for recording data

iv. Graph paper or computer software for data visualisation

Timeline for the Project

i. Week 1: Identify the problem and conduct research

ii. Week 2: Formulate a hypothesis and design the experiment

iii. Week 3: Conduct the experiment (or develop a hypothetical one) and collect data

iv. Week 4: Analyse the data and write your conclusion

v. Week 5: Prepare your report and presentation

Scoring Criteria

Identification of the problem:

- If the learner identifies and explain the local biological challenge well, score **4 marks**
- If the learner identifies the challenge but does not explain the challenge well, score **3 marks**,
- if the learner identifies the challenge without explanation, score **1 mark**.

Research and hypothesis:

- If the learner state hypothesis based on sound biological principles such as "If stagnant water is drained or treated, the population of mosquitoes will be reduced," score **4 marks,**
- If the hypothesis stated is not based on sound biological principles, score **3 marks,**
- and if the learner does not state any hypothesis at all, score **1 mark**.

Experiment design:

- If the learner is able to design feasible experiment such as (indicating the steps to take, the materials needed, and how to measure the results), score **4 marks**,
- if a learner indicates the steps to take, the materials needed but not how to measure the results, score **3 marks**
- and if a learner indicates the steps to take but without the materials needed and how to measure the results, score **1 mark.**

Data collection and analysis:

- If the learner is able to collect data in tables, charts, graphs, etc. and analyse correctly, score **4 marks,**
- if the learner is able to collect data in tables, charts, graphs, etc. but did not analyse it correctly, score **3 marks**,
- if the learner is able to collect data in tables, charts, graphs, etc. but did not analyse, score **1 marks.**

Conclusion and recommendations:

- When the learner draw conclusions and based on the evidence, score **4 marks**,
- when the learner draws conclusions not based on evidence, score **3 marks** and
- if a learner is not able to draw any meaning conclusion from the experiment, score **1 mark**

Total score- 20 marks

Presentation:

- Was the project presented clearly and effectively such as (ability to explain the project to classmates including: the biological problem identified, the research you conducted, hypothesis and how you tested, how data was collected, conclusion and recommendations for the community), score **5 marks,**
- (ability to explain the project to classmates including: the biological problem identified, the research you conducted, hypothesis and how you tested but not how data was collected, conclusion and recommendations for the community), score **4 marks**
- if a learner is able to explain the project to classmates including: the biological problem identified, the research you conducted, but not how hypothesis was tested, how data was collected, conclusion and recommendations for the community, **3 marks**
- and if a learner is able to explain the project to classmates including: the biological problem identified, but not how the research you conducted, hypothesis was tested, how data was collected, conclusion and recommendations for the community, **1 mark**

Total score – 5 marks

Total = 20 marks

How to administer

- Align the research work to the learning outcomes to allow learners to demonstrate their understanding of the course material and to develop the skills that are being taught, etc.
- Refer to the teacher manual and assessment toolkits pages 107–108 for more information on how to administer group project work.

Feedback

Provide feedback on the strength and weakness of the learners and encourage them to do better next time and reward those who did well.

PLC SESSION 3: Exploration of Biological Structures and Microscopy

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 2* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 2* that supported learning (NTS 2e, 2f, 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 3* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 3* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 3* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3).

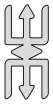
Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **practical work – group** (NTS 3k,3p).

E.g.

Sample 5 to 10 biological specimens (e.g. fruits, flowers, and leaves of orange, crotalaria and allamanda, insects such as cockroaches, butterflies) from your environment, identify and label them



Note

i. *Safety measures must be observed while sampling and handling specimens*

ii. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

iii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k,3p).

E.g.

a) *Providing five specimens for instant cockroach – **5 marks***

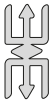
b) *Labelling of specimen on lab Bench or table for instant a cockroach with a masking tape with the inscription, cockroach and its scientific name (Periplaneta americana) =**5 marks***

c) *Following presentation outline correctly such as Introduction, Main content, Discussion, Conclusion =**5 marks***

d) *Writing of scientific terms correctly for instant cockroach (Periplaneta americana) or (Periplaneta americana) = 5 **marks***

e) *Application 21st century competencies such as collaboration and communication, self-confidence, scientific literacy, creativity and Innovation, time management = **(5 marks).***

Total =25 marks



Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n–3p).

E.g.

Encourage teamwork and effective communication within the groups during task, etc.

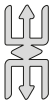
Refer to the Teacher Assessment Manual and Toolkit pages 46–48 for more information on practical.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l–3n).

E.g.

Let learners share their opinions after the presentations from groups and should be supported with clear corrections from teacher, if necessary, etc.

Refer to the Teacher Assessment Manual and Toolkit page (48) for more information on how to give feedback on practical work.



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 3 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l–3n).

b) read PLC Session 4 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on week 4 in preparation for the next session (NTS 3a).

PLC SESSION 4: Biological Practices in Fish Production

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 3* delivered last week that:

a) went well (NTS 1a, 1b and 2a-2e).

b) you found challenging (NTS1a, 1b and 2a-2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 3* that supported learning (NTS 2e, 2f, 3d-3).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 4* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 4* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 4* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **peer assessment** (NTS 3k, 3p).

E.g.

List four biological practices that are required in nursery and grow-out stages to improve fish production

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k, 3p).

E.g.

Any four (4) biological practices that are required in nursery and grow-out stages to improve fish production such as:

a) *Stocking*

b) *Feeding*

c) *Water quality management*

d) *Disease prevention and management*

e) *Monitoring and record keeping*

2 marks for each mention of biological practices

Total – 8 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

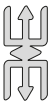
Let learners assess or review what has been taught to open them up to the assessment to be conducted, etc.

Refer to the Teacher Assessment Manual and Toolkit page 91 for more information on how to administer the assessment task

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Provide feedback to learners after exercise and correct mistakes in relation to biological practices that are required in nursery and grow-out stages to improve fish production, etc.



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS1a,1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 4 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) read PLC Session 5 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 5* in preparation for the next session (NTS 3a).

PLC SESSION 5: Movement of Substances across the Cell Membrane

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 4* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 4* that supported learning (NTS 2e, 2f, 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 5* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 5* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 5* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **discussion – group** (NTS 3k, 3p).

E.g.

Describe with an illustration, the structure of the cell membrane and state the key features in relation to the movement of substances in and out of cells. Explain why it is important that the cell cytoplasm is kept in homeostasis.

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k, 3p).

E.g.

a) Accept a diagram showing the structures such as:

i. *phospholipid Bilayer,*

ii. *protein,*

iii. *cholesterol,*

iv. *carbohydrate, etc. 1 mark each* ***(5 marks)***

b) *key features such:*

i. *selective permeability*

ii. *passive Transport,*

iii. *Active Transport, et. 2 marks each for* ***10 marks***

c) *Accept reasons for homeostasis such as:*

i. *enzyme function,*

ii. *osmotic Balance,*

iii. *waste removal, etc. 2 marks each for* ***(10 marks)***

Total marks = 25 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

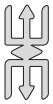
Put learners in mixed-ability, gender responsive appropriate groups depending on the size of the class, etc.

Refer to the Teacher Assessment Manual and Toolkit pages (66-68) for more information on how to administer discussion.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS3l-3n).

E.g.

Provide feedback by clarifying any misconception or correcting mistakes in relation to movement of substances across the cell membrane.



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 5 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS3l-3n).

b) read PLC Session 6 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 6* in preparation for the next session (NTS3a).

PLC SESSION 6: Preparing for Mid-Semester Examination

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 5* delivered last week that:

a. went well (NTS 1a, 1b and 2a-2e).

b. you found challenging (NTS 1a, 1b and 2a-2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 5* that supported learning (NTS 2e, 2f, 3d-3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 6* lessons and mid-semester examination by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 6* and prepare for mid-semester examination considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 6* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **mid-semester examination** NTS3k,3p).

E.g.

This mid-semester examination should cover sessions 1-5 and consist of 10 multiple choice questions, 3 essay/short answer types for learners to answer one, and 1 practical compulsory test/test of practical.

a) *Multiple Choice*

Which of these steps in the Scientific method involves making a guess based on observations?

A. Conclusion

B. Experiment

C. Hypothesis

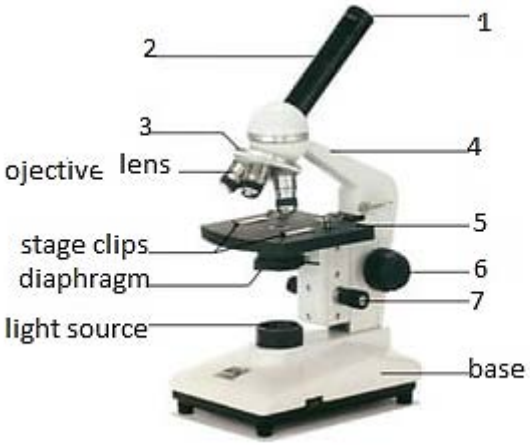
D. Observation

b) *Essay*

Describe three (3) management practices of fish populations in their natural habitats

c) *Practical*

Label the parts of the microscope correctly using the numbers 1-7 and state three (3) ways to care for the microscope.



*Refer to **Appendix B** of this session for more information on the mid-semester examination and the Table of Specification*

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k, 3p).

E.g.

a) MCQ:

Option C

1 mark for each correct answer (10 questions)

Total - 10 marks.

b) *Essay question*

Four Management Practices of Fish Populations in Their Natural Habitats

i. ***Regulation of Fishing Activities*** *which may also include the following: Implementing laws and regulations, type of fishing and any other relevant idea (5 marks)*

ii. ***Habitat Protection and Restoration:*** *lookout for the following: Protecting and restoring habitats or any other important idea (5 marks)*

iii. ***Stock Enhancement Programs*** *look out for increasing fish populations (artificial) and any other relevant information (5 marks)*

iv. ***Monitoring and Research:*** *studying fish populations for informed management decisions and any other relevant idea. (5 marks)*

Any three of the above points – ***total (15 marks)***

c) *Practical test.*

Part of the Microscope

1. *eyepiece*
2. *body tube*
3. *revolving nosepiece*
4. *arm*
5. *stage*
6. *coarse adjustment*
7. *fine adjustment*

Score 1 mark for each correct labelling of the parts of the microscope

Total – 7 marks

Ways to care for the microscope include the following precautions and steps:

i. *Do not touch the glass parts of the lenses with your fingers. Use lens tissue to clean the lens.*

ii. *Always carry the microscope with both hands with one hand supporting the base.*

iii. *Cover when not in use.*

iv. *Store in a clean, dry place.*

Score 1 mark for each correct response

Total - 3 marks.

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Set questions across the weeks covered i.e. weeks 1 - 5, which should include multiple choices, essay and practical test.

Refer to the Teacher Assessment Manual and Toolkit pages 83-85 for more information on how to administer examination.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Provide constructive feedback to learners after marking and distribution to track the performance of learners and address their challenges as well as reflect on his/her methods of teaching.

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 6 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) read PLC Session 7 and related Learner Material. (NTS 3a)

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 7* in preparation for the next session (NTS 3a).

Appendix B: Table of Specification for Mid-Semester Examination

Nature

The mid-semester examination will cover from weeks 1 – 5. Questions will be from DoK levels 1-3. The mid-semester will consist of 10 multiple choice items, 3 essay, 2 to be selected by learners and 1 test of practical knowledge (compulsory)

Resources

Answer booklets

Pencils (HB)

Mathematical instruments

Time: 1 hour

Sample items

1. **Multiple Choice**

   Which of these steps in the Scientific method involves making a guess based on observations?

   A. Conclusion

   B. Experiment

   C. Hypothesis

   D. Observation

2. **Essay**

   Describe three (3) management practices of fish populations in their natural habitats

3. **Practical**

   Label the parts of the microscope correctly using the numbers 1-7 and state three (3) ways to care for the microscope.

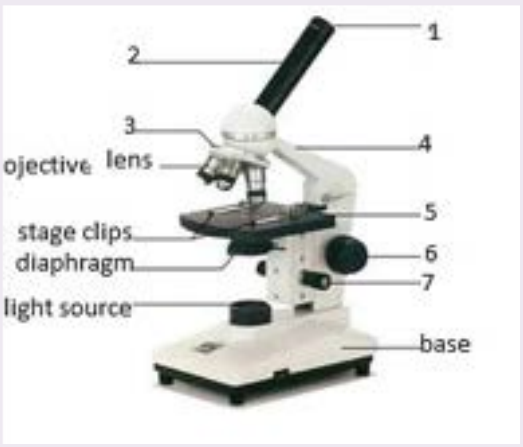


Table of Specification for Mid-Semester Examination

Weeks	Focal Area(s)	Type of Questions	DoK Levels				Total
			1	2	3	4	
1	Importance of Biology, its branches and their application in everyday life.	*Multiple Choice*	1	–	1	–	2
		Essay	–	1	–	–	1
2	The Scientific method	*Multiple Choice*	1	–	1	–	2
		Essay	–	–	1	–	1
3	Exploring Biological Structures and Microscopy	*Multiple Choice*	1	–	1	–	2
		Practical	–	–	1	–	1
4	Biological practices in Fish Production	*Multiple Choice*	1	1	–	–	2
		Essay	–	–	1	–	1
5	Introduction to the Cell Membrane	*Multiple Choice*	1	1	–	–	2
		Practical	–	1	–	–	1
	Total		**5**	**4**	**6**		**15**

PLC SESSION 7: Classification of Lower Organisms

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 6* and mid-semester examination that:

a. went well (NTS 1a, 1b and 2a-2).

b. you found challenging (NTS 1a, 1b and 2a-2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 6* that supported learning (NTS 2e, 2f, 3d-3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 7* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 7* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 7* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **homework** (NTS3k, 3p).

E.g.

Identify the key factors required in creating a system for the identification and classification of simple living things.

Refer to the Teacher Manual pages (55-56) and Learner Material for more task examples.

Note

i. *This homework should score and recorded for submission as one of the nine recommended assessments.*

ii. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

iii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k, 3p).

E.g.

Identification of the factors for creating system for classification of simple living things such as

i. *morphology*

ii. *physiology*

iii. *genetic information*

iv. *ecological information*

Learners' ability to mention each of the factors - 1 mark

Learners' ability to mention with examples – 2 marks

Total – 12 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS3n-3p).

E.g.

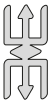
Write/project the task on the marker board for learners to copy.

Refer to the Teacher Manual and Assessment Toolkit (pages 57-59) for more information on how to administer homework.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Provide constructive feedback to learners after marking and distribution to track the performance of learners and address their challenges as well as reflect on methods of teaching.



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 7 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate. (NTS 3l-3n).

b) read PLC Session 8 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 8* in preparation for the next session (NTS 3a).

PLC SESSION 8: Life Processes and Economic Importance of the Micro-Organisms

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 7* delivered last week that:

a. went well (NTS 1a, 1b and 2a-2e).

b. you found challenging (NTS 1a, 1b and 2a-2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 7* that supported learning (NTS 2e, 2f, 3d-3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 8* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 8* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 8* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

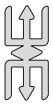
Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **individual practical** (NTS 3k, 3p).

E.g.

Observe and discuss the life processes of Amoeba, Euglena and Spirogyra using the microscope. Draw what you observed under the microscope.



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

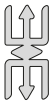
2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k, 3p).

E.g.

To score the task above, be guided by the rubric below.

Excellent (5)	Very good (4)	Good (3)	Satisfactory (2)
Drawing with outline, guideline, label, proportionality, magnification *(adhering to all the rules)*	*Drawing with outline, guideline, label, proportionality, without the magnification (adhering to all the rules*	*Drawing with outline, guideline, label, without the proportionality, magnification (adhering to all the rules*	*Drawing with outline, guideline, without the label, proportionality, magnification (adhering to all the rules*

Total score – 12 marks



Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Discuss the instruction of the practical assessment with learners, pointing out the safety precautions associated with practical assessment, etc.

Refer to the Teacher Assessment Manual and Toolkit (pages 46-48) for more information on how to administer practical.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n)).

E.g.

Provide constructive feedback to learners after marking and distribution to track the performance of learners and address their challenges as well as reflect on methods of teaching.

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 8 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) read PLC Session 9 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 9* in preparation for the next session (NTS 3a).

PLC SESSION 9: Importance of Ecological Concepts in Named Habitats

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 8* delivered last week that:

a. went well (NTS1a, 1b and 2a–2e).

b. you found challenging (NTS1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 8* that supported learning (NTS 2e, 2f, 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 9* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 9* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 9* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan. (NTS2 a – 2f, 3a – 3j)

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **poster assessment** (NTS 3k, 3p).

E.g.

Organise the concepts of ecology using visual tools such as concept maps, Venn diagrams, or flowcharts

Refer to the Teacher Manual page (69) and Learner Material for more task examples.

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS 3k, 3p).

E.g.

a) *Accurate presentation of content, lookout for Biosphere, Biomes, Ecosystem, Population, Community, Habitats, Niche, etc.-5 marks*

b) *Visible display of either the Venn diagrams, flowcharts or concept maps appropriately - 5 marks.*

Total – 10 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

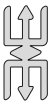
Guide learners to create good assessment posters. Emphasise the use of graphics, images, and concise text, etc.

Refer to the Teacher Assessment Manual and Toolkit page 98 for more information on how to administer the task.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS3l-3n).

E.g.

Provide constructive feedback on the weakness and strength of learners after marking and distribution and address their challenges as well as reflect on methods of teaching.



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 9 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) read PLC Session 10 and related Learner Material (NTS 3a).

c) bring along your Teacher Manual, PLC Handbook and learning plan on *week 10* in preparation for the next session (NTS 3a).

PLC SESSION 10: Interdependency of Living Organisms in their Habitats

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 9* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 9* that supported learning (NTS 2e, 2f, 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 10* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 10* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 10* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **class discussion** (NTS 3k, 3p).

E.g.

Discuss at least four (4) habitats and make a list of three (3) living things and three (3) non-living things that interact together and are interdependent on one another

Refer to (page 76 & 78) of the Teacher Manual and the Learner Material section 10 for more task examples.

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

a) *Identification of 4 distinct habitats, such as rainforest, savanna, coastal, wetlands (**2 marks each**).*

b) *Stating appropriate living thing for each habitat such rainforest - giant snails **(1 marks each)***

c) *Stating non-living things for each habitat such as savanna: soil, grass, and sunlight **(2 marks each)***

Total – 5 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

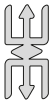
E.g.

Give prepared questions to guide the discussion and establish discussion guidelines or rules, etc,

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Provide constructive feedback to learners on their performance and address their challenges



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 10 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n)

b) Read PLC Session 11 and related Learner Material (NTS 3a)

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 11* in preparation for the next session (NTS 3a).

PLC SESSION 11: Ecological Tools and Sampling Techniques for Estimating Population Size and Density

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 10* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 10* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 11* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 11* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 11* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS: 2a – 2f, 3a – 3j).

Note

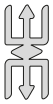
The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **demonstration** (NTS 3k, 3p).

E.g.

Select areas in the school compound or nearby community to estimate the population of various organisms using a quadrant, pitfall trap, sweep net and pooter, etc.

Refer to pages 80-81 of the Teacher Manual and the Leaner Material for more task examples.



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

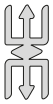
a) *Selecting an appropriate area for sampling such as one of these; grassy field, wooded area, pond, etc* ***(s)***

b) *Selecting an appropriate instrument for the selected area such as quadrants for sampling organism on land pitfall traps for small crawling organisms, etc.* ***(2 marks).***

c) *Estimating and presenting evidence of organism by the use of the instrument* ***(2 marks)***

d) *Writing a report on the sampling of the organisms in the area selected* ***(4 marks)***

Total – 10 marks



Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

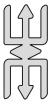
Evaluate the assessment outcome based on the assessment criteria with the learners, etc.

Refer to page 47 of the Teacher Assessment Manual and Toolkit for more information on how to administer practical test.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Reflect and modify teaching and learning strategies and resources based on feedback received



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 11 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n)

b) Read PLC Session 12 and related Learner Material (NTS 3a)

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 12* in preparation for the next session (NTS 3a).

PLC SESSION 12: Preparing for End of Semester Examination

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 11* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 11* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 12 lessons and end of semester examination* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 12 and prepare for end of semester examination* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 12* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **end of semester examination** (NTS 3k, 3p).

E.g.

The examination should cover sessions 1-11 and consist of 30 multiple choice questions, 6 essay type questions for learner answer any 4 and 1 compulsory test of practical/practical test.

a) *Multiple choice*

All the following are biological practices employed in the out -grow stage of fish production ***except*** *...*

A. *Disease prevention and management*

B. *Gut examination*

C. *Stocking*

D. *Water quality management*

b) *Essay type*

i. Describe how you will use a named ecological tool to estimate the population size and species diversity effectively ***(3 marks)***

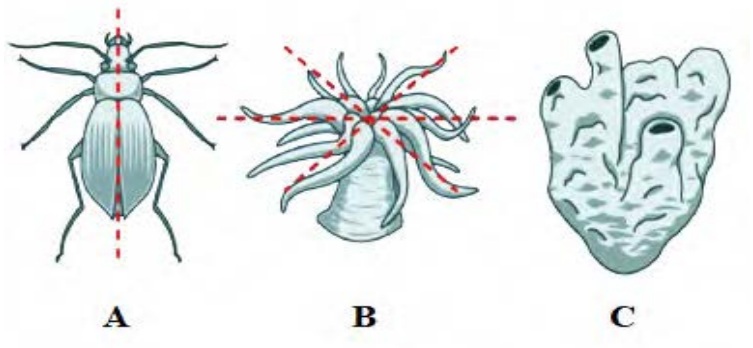
*ii. State the five major groups of living things (****5 marks).***

*iii. Mention two importance of biology (****2 marks).***

c) *Test of Practical*

i. *State the body symmetry of specimens A, B & C below and*

ii. *Give two (2) organisms each that have the same symmetry as A & B.*



Refer to the ***Appendix C*** *below for more information on the end of semester and the table of specification.*

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

a) *MCQ correction is B*

Score 1 mark for each correct answer (30 question)

Total – 30 marks

b) *Essay*

*Pooter: A pooter, also known as a suction sampler, is a small device used to collect very small invertebrates without harming them. It consists of two tubes—one is used to gently suck air, and the other tube collects the insect into a container (**5 marks**), etc.*

Score 10 marks for each question (for any two of the questions selected)

Total – 20 marks

c) *Practical*

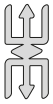
*A ---- bilateral symmetry and 2 examples (Humans and butterfly) **(3 marks)***

*B----- radial symmetry and 2 examples (star fish and sea anemones) **(3 marks)***

*C---- asymmetrical **(2 mark)***

*Stating the symmetry correctly award 1 mark and giving 2 examples each award (**2 marks**) for A & B.*

Total – 10 marks



Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

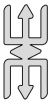
Decide what you want to assess (focus on key concepts that were taught recently)

Refer to page 83-85 for more information on examination

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Return the scored exam papers to learners and discuss common mistakes.



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a,1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 12 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) Read PLC Session 13 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 13* in preparation for the next session (NTS 3a).

Appendix C: End of Semester Examination

Nature

The end of semester examination will cover from weeks 1 – 12. Questions will be from DoK levels 1-3. The end of semester will consist of 20 multiple choice items, 3 essay, 2 to be selected by learners and 1 test of practical knowledge (compulsory)

Resources

i. Answer booklets

ii. Pencils (HB)

iii. Mathematical instruments

Time: 1 hour: 30 minutes

Sample Items

1. ***Multiple choice***

   All the following are biological practices employed in the out -grow stage of fish production ***except*** *...*

   A. *Disease prevention and management*

   B. *Gut examination*

   C. *Stocking*

   D. *Water quality management*

2. ***Essay type***

   i. *Describe how you will use a named ecological tool to estimate the population size and species diversity effectively* ***(3 marks)***

   ii. *State the five major groups of living things-* ***(5 marks).***

   iii. *Mention two importance of biology* ***(2 marks).***

3. ***Test of Practical***

   iii. *State the body symmetry of specimens A, B & C below and*

   iv. *Give two (2) organisms each that have the same symmetry as A & B.*

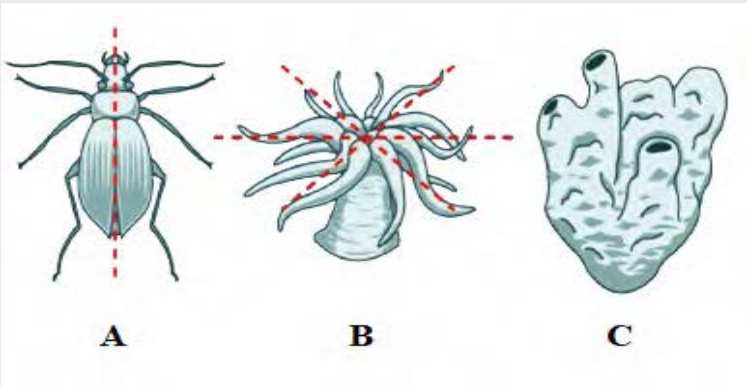


Table of Specification for End of Semester Examination

Weeks	Focal Area(s) End of Semester Examination.	Type of Questions	DoK Levels				Total
			1	2	3	4	
1	Importance of Biology, its branches and their application in everyday life.	*Multiple Choice*	1	1	1	–	3
		Essay	–	1	–	–	1
2	The Scientific method	*Multiple Choice*	1	1	1	–	3
		Essay	–	–	1	–	1
3	Exploring Biological Structures and Microscopy	*Multiple Choice*	1	–	1	–	2
		Practical	–	1	–	–	1
4	Biological practices in Fish Production	*Multiple Choice*	1	1	–	–	2
		Essay	–	–	1	–	1
5	Introduction to the Cell Membrane	*Multiple Choice*	1	1	–	1	3
		Essay	–	–	1	–	1
6	Biological keys, how to make them and use	*Multiple Choice*	1	1	1	–	3
7	How lower organisms are classified into their taxonomic groups	*Multiple Choice*	1	1	–	–	2
		Essay	1	–	–	–	1
8	Life processes and economic importance of micro-organisms	*Multiple Choice*	1	1	–	1	3
9	Knowledge of ecology	*Multiple Choice*	1	2	–	–	3
10	Interdependency of living organisms in their habitats	*Multiple choice*	–	1	–	–	1
11	Ecological tool and sampling techniques for estimating population size and density	*Multiple choice*	2	2	1	–	5
		Essay	–	1	–	1	
	Total		12	14	9	2	37

PLC SESSION 13: Methods to Determine Pyramids of Numbers, Biomass, and Energy

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 12* and end of semester examination that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 12* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 13* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 13* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 13* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **test of practical knowledge -TPK** (NTS 3k, 3p).

E.g.

Technique	*Flow of energy*
Direct counting	*Provides information on energy*
Gut examination	*Provides population level data*
Radioactive /tracer method	*Offer insight into feeding relationship*
	Shows the flow of energy at each trophic level

Refer to the Teacher Manual week 13 and the Learner Material for more task examples.

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

Direct counting	*Provides information on energy transfer*
Gut examination	*Provides population level data*
Radioactive/ tracer method	*Offer insight into feeding relationship*
	Shows the flow of energy at each trophic level.

*If a learner is able to match a technique to the flow of energy correctly, score **2 marks** each.*

Total score – 6 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n–3p).

E.g.

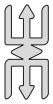
Provide clear instructions and resources needed for the tasks

Refer to pages 41–43 of Teacher Assessment Manual and Toolkit for more information on how to administer test of practical knowledge.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l–3n).

E.g.

Return the graded work to learners and discuss common mistakes and correct answers



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 13 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l–3n).

b) Read PLC Session 14 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 14* in preparation for the next session (NTS 3a).

PLC SESSION 14: The Transmission, Causes, Symptoms, and Control of Common Diseases

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 13* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 13* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 14* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 14* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 14* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **homework** (NTS 3k, 3p).

E.g.

Explain 5 ways waterborne diseases are transmitted and provide an example

Refer to the Teacher Manual for examples of task.

Hint

*Individual project work should be given in this session and should be submitted in week 20. See **Appendix C** below for information on the project.*

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

Five ways waterborne disease can be transmitted; Such as

a) *Direct injection of contaminated water*
b) *Contaminated food*
c) *Faecal matter*
d) *Recreational water activities*
e) *Contaminated environment*

Any other relevant points

5 marks	4 marks	3 marks	2 marks
Mentioning any five ways of transmitting waterborne disease with good examples	*Mentioning any five ways of transmitting waterborne disease without good examples*	*Mentioning any four ways of transmitting waterborne disease without good examples*	*Mentioning of any three ways of transmitting waterborne disease without good examples*

Total – 20 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Refer to the Teacher Assessment Manual and Toolkit page 57-59 for information on how to administer homework.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Share the results of the assignment with learners

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a,1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 14 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) Read PLC Session 15 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 15* in preparation for the next session (NTS 3a).

Appendix C: Individual Project Work

Project Task

Identify 10–15 living organisms in your local environment and classify them as either bilaterally symmetrical, radially symmetrical, or asymmetrical, providing reasons for each classification.

Materials Needed

i. Notebook and pen for recording observations

ii. Smartphone or camera (optional) for taking pictures of the organisms

iii. Biology textbook or reference material (optional)

iv. Internet access for additional research (optional)

Procedure

1. Go around your environment (such as your school, home, or local park) and observe various living organisms. This can include plants, animals, or other organisms like fungi.

   Identify at least 10–15 different organisms. You may use common names for them (e.g., cat, butterfly, mushroom, etc.)

   Write down the name of each organism in your notebook.

2. For each organism, examine its body structure to determine if it is bilaterally symmetrical, radially symmetrical or asymmetrical.

   Bilateral Symmetry: If the organism can be divided into two mirror-image halves along one plane (left and right sides), classify it as bilaterally symmetrical.

   Radial Symmetry: If the organism's body can be divided into multiple similar sections around a central axis, classify it as radially symmetrical.

   Asymmetrical: neither bilateral nor radial. Their body structure is irregular, and there is no way to divide them into two equal halves along any plane e.g. Sponges

3. Create a table or list to present your findings in an organised manner. The table should include the name of the organism, type of symmetry and reason for your classification

Sample Table

Name of organism	Type of symmetry	Reason for classification
1. Butterfly	Bilateral Symmetry	butterfly can be divided into two mirror-image halves along a vertical plane through its body.
2. Starfish	Radial Symmetry	The starfish has body parts arranged around a central axis, allowing it to be divided into similar sections.

Name of organism	Type of symmetry	Reason for classification
3. Human	Bilateral Symmetry	Humans can be divided into two equal halves along a vertical plane through the body.
4. Sponges	do not exhibit any form of symmetry (neither bilateral nor radial)	Their body structure is irregular, and there is no way to divide a sponge into two equal halves along any plane
5. Earthworm	Bilateral Symmetry	The earthworm's body is elongated and can be split into two equal halves down the middle.

Scoring Criteria

Identification of 10-15 animals

a) If a learner is able to identify between 10-15 animals, score 5 marks

b) If the learner identifies 5-9 animals, score 3 marks

c) And if the learner identifies 4-1 animals, score 2 marks

d) Correct classification of each organism

e) If a learner correctly classifies each organism as bilaterally, radially symmetrical or asymmetrical, score 7 marks

f) If a learner is able to correctly classify each organism as bilaterally or radially symmetrical score 5 marks

g) When the learner is only able to correctly classify an animal as bilaterally, score 2 marks

Logical and accurate reasoning for each classification

a) If a learner logically and accurately classifies each organism with reason, score 5 marks.

b) If the information is logical but not accurate, score 3 marks and

c) If the information logical and accurate, score 2 marks.

d) Neat and organised presentation of the findings

e) For neat and organised as below, score 3 marks otherwise, score 2 marks.

Total score -20 marks

How to administer

Design the research work and provide a description that is in line with learning outcomes and specific tasks to be undertaken in developing the research.

Refer to the Teacher Assessment Manual and Toolkit pages 107-108 for more information on how to administer project work.

Feedback

Provide feedback and revisions using the assessment rubrics.

PLC SESSION 15: Relating the External and Internal Features of Mammals to their functions

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 14* delivered last week that:

a) went well (NTS 1a, 1b and 2a–2e).

b) you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 14* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 15* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 15* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 15* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

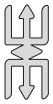
The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **demonstration** (NTS 3k, 3p).

E.g.

Demonstrate how the functions of the sense organs are crucial to the survival of a named mammal, etc.

Refer to pages 22-23 of Teacher Manual book2 and the Learner Material for more task examples.



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

*African lion (Panthera leo) as our named mammal (1 **mar**k) for naming a mammal.*

a) ***(Eyes) vision for hunting**: Lions rely heavily on their vision to spot and stalk prey, especially during dawn and dusk when they are most active. Their eyes are adapted to low-light conditions, giving them an advantage in these times **(3 marks)**.*

b) ***(Ear) hearing for detecting prey**: Lions have critical hearing that allows them to detect the movements of prey animals even when they are not in sight. This is particularly useful in dense vegetation where visual detection is limited **(3 marks).***

c) ***(Nose) smell for detecting prey and predators**: A strong sense of smell helps lions detect prey over long distances and also sense the presence of potential dangers such as humans or rival predators **(3 marks)**.*

d) ***(skin) touch for hunting and handling Prey**: Whiskers (vibrissae/ sensory hair) around a lion's face are highly sensitive and help in detecting the proximity and movement of prey during a hunt, especially in low visibility conditions (3 **marks**).*

e) ***(Tongue)taste for diet selection**: Taste helps lions discern the quality of their food, ensuring they consume nutrient-rich prey which is essential for their energy needs and overall health (**3 marks**).*

*Teamwork, effective communication, time management, etc. (**4 marks)***

Total – 20 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Give prepared questions to guide the discussion, etc.

Refer to The Teacher Assessment Manual and Toolkit pages 62-65 for information on how to administer demonstration.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Acknowledge and celebrate learners' achievements to boost motivation and self-esteem

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 15 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) Read PLC Session 16 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 16* in preparation for the next session (NTS 3a).

PLC SESSION 16: Comparison Between the Digestive Systems and Associated Organs of Different Groups of Mammals

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 15* delivered last week that:

a) went well (NTS 1a, 1b and 2a–2e).

b) you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 15* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 16* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 16* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 16* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

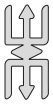
The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **experiment** (NTS 3k, 3p).

E.g.

Compare the digestive systems and associated organs of 2 different groups of mammals such as sheep and human, etc.

Refer to the Teacher Manual book 2 pages 25-26 and the Learner Material for more task examples.



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

The digestive systems and associated organs of sheep (ruminants) and humans (omnivores).

Key Differences

*a) Stomach Structure (**1 mark**)*

i. *Sheep have a multi-chambered stomach adapted for fermenting tough plant material (**2.5 marks**)*

ii. *Humans have a single-chambered stomach focused on acidic digestion (**2.5 marks**)*

*b) Digestion Process (**1 mark**)*

*i. Sheep rely heavily on microbial fermentation to break down cellulose in the rumen (**2.5 marks**)*

*ii. Humans use enzymatic digestion with less reliance on fermentation (**2.5 marks**)*

*c) Diet and Teeth (**1 mark**)*

*i. Sheep are herbivores with dental adaptations for grazing (**2.5 marks**).*

*ii. Humans are omnivores with teeth for a varied diet including meat and plant material (2.**5 marks**).*

*d) Intestinal Length (**1 mark**)*

*i. Sheep have a longer small intestine relative to their body size to maximise nutrient absorption from fibrous diets (**2.5 marks**)*

ii. *Humans have a shorter small intestine but a well-developed large intestine for water absorption and faeces formation* (***2.5 marks***)

Total = 24 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Guide learners to complete the assigned task(s) within the stipulated time, etc.

Refer to the Teacher Assessment Manual and Toolkit pages 41-43 for information on how to administer the task.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Acknowledge and celebrate learners' achievements to boost motivation and self-esteem

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 16 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) Read PLC Session 17 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 17* in preparation for the next session (NTS 3a).

PLC SESSION 17: Features and Functions of Monocotyledonous and Dicotyledonous Plants

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 16* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 16* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 17* by aligning the learning plan with Learner Material and appropriate assessment strategies.

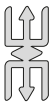
Learning Outcome

Review your learning plan for *week 17* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 17* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS2a – 2f, 3a – 3j).



Note

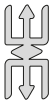
The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **practical work - group** (NTS 3k, 3p).

E.g.

Collect 5 different plants from your environment and group them into monocotyledonous and dicotyledonous plants, and state the basis or reasons for the grouping, etc.

Refer to pages 30–31 of the Teacher Manual and Learner Material for more task examples.



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

Grouping of Collected Plants into Monocotyledonous and Dicotyledonous Plants

Monocotyledonous Plants.

a) *Corn (Zea mays)*

i. *Basis for Grouping:*

- *Leaves are long and narrow with parallel veins.*
- *Fibrous root system.*
- *Stems have scattered vascular bundles.*
- *Floral parts in multiples of three, etc.*

Dicotyledonous Plants

b) *Bean (Phaseolus spp.)*

i. *Basis for Grouping:*

- *Leaves are broad with net-like veins.*
- *Taproot system.*
- *Branched stems with vascular bundles arranged in a ring.*
- *Floral parts in multiples of five, etc.*

Correct mention of plant (2 marks)

Appropriate classification (2 marks)

Reason for the classification (1 mark)

Total – 5 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Reviewing the theoretical concept, etc.

Refer to the Teacher Assessment Manual and Toolkit pages 46-48 for more information on how to administer practical assessment.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Share the rubrics with learners and encourage them to use it for self and peer assessment, etc.

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a,1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 17 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) Read PLC Session 18 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 18* in preparation for the next session (NTS 3a).

PLC SESSION 18: Preparing for Mid- Semester Examination

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 17* delivered last week that:

a) went well (NTS 1a, 1b and 2a-2e).

b) you found challenging (NTS 1a, 1b and 2a-2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 17* that supported learning (NTS 2e, 2f and 3d-3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 18 lessons and mid-semester examination by* aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 18 and prepare for mid-semester examination* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 18* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **mid-semester examination** (NTS 3k, 3p).

E.g.

a) *Multiple Choice Questions*

which part of the mammalian digestive system is primarily responsible for nutrient absorption?

A. *Large intestine*

B. *Oesophagus*

C. *Small intestine*

D. *Stomach*

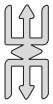
b) *short answer*

Name three diseases that are commonly transmitted through contaminated water

c) ***Test of practical***

i. *Provide learners with 5 plants and ask them to group the plants into dicotyledonous and monocotyledonous plants*

ii. *State the reasons for your answer above.*



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

a) *MCQ*

option C

score 1 mark for each correct answer for (20 questions)

Total – 20 marks

b) *short answers*

(Cholera, typhoid fever, Hepatitis A),

1 mark for each correct mention

Total - 3 marks

c) *Test of Practical (Essay)*

Grouping of Collected Plants into Monocotyledonous and Dicotyledonous Plants with reasons. 2 marks for each correct classification.

Monocots (Corn)	*Dicots (Bean)*
Have one seed leaf	*Have two seed leaf*
Leaves have parallel veins	*Leaves have net-like veins*
Floral parts are in multiples of three	*Floral parts are in multiples of five*
Have fibrous root system	*Have taproot system*
Vascular bundles are scattered	*Vascular bundles are arranged in ring*

Total – 10 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Design the practical using the theoretical concept, etc.

Refer to the Teacher Assessment Manual and Toolkit pages (83-96) for information on how to administer examination.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Share the results of the examination to learners and discuss the marking scheme, etc.

*Refer to **Appendix D** for more information*

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 18 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l–3n).

b) Read PLC Session 19 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 19* in preparation for the next session (NTS 3a).

Appendix D: Table of Specification for Mid-Semester Examination

Nature

The mid-semester examination will cover from weeks 13 – 18. Questions will be from DoK levels 1-3. The mid-semester will consist of 20 multiple choice items, 3 essays, 2 to be selected by learners and 1 test of practical knowledge (compulsory).

Resources

i. Answer booklets

ii. Pencils (HB)

iii. Mathematical instruments

Time: 1 hour: 30 minutes

Table of Specification

weeks	Focal Area(s)	Type of Questions	DoK Levels				Total
			1	2	3	4	
13	Methods Used in Determining Energy Flow in An Ecosystem	*Multiple Choice*	1	–	1	–	2
		Essay	–	1	–	–	1
		Practical	–	–	–	–	–
14	Some Common Diseases Based on the Causative Organisms, their Transmission Cycle, Effects and Control/Prevention.	*Multiple Choice*	1	–	1	–	2
		Essay	–	–	1	–	1
		Practical	–	–	–	–	–
15	External Organs/Features of Mammals to their Functions	*Multiple Choice*	1	1	–	–	2
		Essay	–	–	1	–	1
		Practical	–	–	–	–	–
16	Digestive Systems and Associated Organs of Herbivores, Carnivores and Omnivores	*Multiple Choice*	1	1	–	1	2
		Essay	–	–	–	–	–
		Practical	–	1	–	–	1
17	Morphology of Flowering Plants.	*Multiple Choice*	1	2			3
		Essay				2	
		Practical					
18	Features that Distinguish Angiosperms from Other Plants	*Multiple Choice*	2	2			4
		Essay				1	
		Practical			1		
total			**7**	**8**	**4**	**5**	**25**

PLC SESSION 19: Monocotyledonous Plants and Dicotyledonous Plants

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 18* and mid-semester examination that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 18* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 19 by* aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 19* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 19* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **discussion-group** (NTS 3k, 3p).

E.g.

Describe five ways in which monocotyledonous plants and dicotyledonous plants differ

Refer to Teacher Manual book 2 (page 36) for more examples of task.

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

Differences between monocots and dicots (2 marks each)

Monocots	*Dicots*
Have one seed leaf	*Have two seed leaf*
Leaves have parallel veins	*Leaves have net-like veins*
Floral parts are in multiples of three	*Floral parts are in multiples of five*
Have fibrous root system	*Have taproot system*
Vascular bundles are scattered	*Vascular bundles are arranged in ring*

Total – 10 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

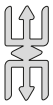
Develop a discussion guidelines or rules (let learners know what is expected of them, the content of the discussion and the format of the discussion i.e., individual, small or whole class), etc.

Refer to the Teacher Assessment Manual and Toolkit (pages 66-68) for information on how to administer discussion

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

The teacher and the learners should reflect on the discussion in relationship to the expected learning outcomes to check whether the learning outcomes have been achieved.



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 19 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) Read PLC Session 20 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 20* in preparation for the next session (NTS 3a).

PLC SESSION 20: Internal Structures and Functions of a Monocotyledonous Root

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 19* delivered last week that:

a) went well (NTS 1a, 1b and 2a–2e).

b) you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 19* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 20 by* aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 20* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 20* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **class exercise** (NTS 3k, 3p).

E.g.

Describe the functions of 3 internal structures of monocotyledonous roots.

Refer to page 38 of the Teacher Manual book 2 and the Leaner Material for more task examples.

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k,3p).

E.g.

Expected answer:

3 Internal Structures of Monocotyledonous Roots and Their Functions

a) *Root Cap: Protects the delicate apical meristem as the root pushes through the soil. It also secretes mucilage to lubricate the root's passage through the soil*

b) *Epidermis: The outermost layer of cells, which absorbs water and minerals from the soil. It often has root hairs that increase the surface area for absorption*

c) *Cortex: A layer of parenchyma cells located between the epidermis and the vascular tissue. It stores food and transports water and nutrients from the epidermis to the vascular tissue. The cortex also helps in the diffusion of oxygen to the inner tissues*

Score 1 for the mention of the internal structure of the monocotyledonous roots

Score 3 for each mention of the internal structure and the description of its functions

Total – 9 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Design/ Create a well-structured assignment with clear instructions and expectations, etc.

Refer to the Teacher Assessment Manual and Toolkit page 57 for information on how to administer homework assessment.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Share the outcome of the homework with learners and encourage them to improve upon their performance, etc.

Refer Teacher Assessment Manual and Toolkit (page 57) for more information on feedback about homework.

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a,1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 20 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

b) Read PLC Session 21 and related Learner Material (NTS 3a).

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 21* in preparation for the next session (NTS 3a).

PLC SESSION 21: Internal Structures of a Monocotyledonous Leaf

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 20* delivered last week that:

a) went well (NTS 1a, 1b and 2a–2e).

b) you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 20* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 21 by* aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 21* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 21* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

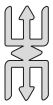
2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **discussion** (NTS 3k, 3p).

E.g.

Discuss the adaptations of a monocotyledonous leaf to its functions, etc.

Refer to pages 43-44 of the Teacher Manual and Learner Material for more task examples.

Individual project work should be collected, scored and submitted as one of the nine recommended assessments.



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

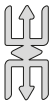
Expected answer

Thick Cuticle: Monocotyledonous leaves often possess a thicker cuticle compared to dicotyledonous leaves. The thick cuticle acts as a barrier, reducing water loss and protecting the leaf from excessive evaporation, especially in dry and windy conditions), etc.

*Describing the characteristics of monocotyledonous leave – **2 marks***

*Identifying the functions of monocotyledonous leave – **3 marks***

*Total – **5 marks***



Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

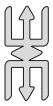
Develop discussion guidelines or rules (let learners know what is expected of them, the content of the discussion and the format of the discussion i.e., individual, small or whole class), etc.

Refer the Teacher Assessment Manual and Toolkit page 68 for more information on how to discussion.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Reflect on the discussion in relationship to the expected learning outcomes to check whether the learning outcomes have been achieved



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 21 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n)

b) Read PLC Session 22 and related Learner Material (NTS 3a)

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 22* in preparation for the next session (NTS 3a).

PLC SESSION 22: Internal Structure and Functions of a Dicotyledonous Root

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 21* delivered last week that:

a) went well (NTS 1a, 1b and 2a–2e).

b) you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 21* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 22 by* aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 22* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 22* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **group class exercise** (NTS 3k, 3p).

E.g.

List 3 internal structures of a dicotyledonous root and give their functions.

Refer to Teacher Manual page 45 and Learner Material for more task examples.

Hint

Individual portfolio should be collected in this week.

Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

*Ability to state the structure and its function award **(2 marks).***

*For instance; Xylem tissue: This transports water and mineral salts absorbed by the root from the soil to other parts of the plant for photosynthesis and metabolism (3 **marks**)*, etc.

Total – 5 marks

Refer to the teacher manual pages 46 for more information on the internal structures of a dicotyledonous root, and give their functions

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scorings.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

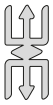
Walk around the classroom and observe learners as they work on the exercise, etc

Refer to the teacher assessment manual and toolkits pages 80-82 for information on how to administer class exercise.

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Reflect on the class exercise in relationship to the expected learning outcomes to check whether the learning outcomes have been achieved



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session. (NTS 1a, 1b)

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 22 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n)

b) Read PLC Session 23 and related Learner Material (NTS 3a)

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 23* in preparation for the next session (NTS 3a).

PLC SESSION 23: Internal Structures and Functions of the Dicotyledonous Leaf

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 22* delivered last week that:

a) went well (NTS 1a, 1b and 2a–2e).

b) you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 22* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 23 by* aligning the learning plan with Learner Material and appropriate assessment strategies.

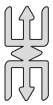
Learning Outcome

Review your learning plan for *week 23* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 23* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS 2a – 2f, 3a – 3j).



Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **pop quiz** (NTS 3k, 3p).

E.g.

a) *Multiple choice*

Which part of the plant is responsible for absorbing water and minerals?

A. *Flower*

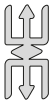
B. *Leaf*

C. *Root*

D. *Stem*

b) ***True/False:***

The leaves of monocotyledonous plants have parallel venation. (True/False) ...?



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3k, 3p).

E.g.

Expected answers

a) *MCQ*

option C ***(1 mark)*** *for 5 questions*

c) *True/False*

true ***(1 mark)*** *for 5 questions*

Total – 10

notes:

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

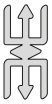
E.g.

Select the Format (Choose between multiple-choice, true/false, short answer, or a mix of question types)

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Reflect on the short quiz in relationship to the expected learning outcomes to check whether the learning outcomes have been achieved



Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a, 1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 23 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to:

a) Provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n)

b) Read PLC Session 24 and related Learner Material (NTS 3a)

c) Bring along your Teacher Manual, PLC Handbook and learning plan on *week 24* in preparation for the next session (NTS 3a).

PLC SESSION 24: Preparing for End of Semester Examination

1. Introduction (20 minutes)

1.1 Share one thing on the lesson for *week 23* delivered last week that:

a. went well (NTS 1a, 1b and 2a–2e).

b. you found challenging (NTS 1a, 1b and 2a–2e).

1.2 Share your experience in conducting and/or recording the assessment for the previous week.

1.3 Share your observation on what a colleague did by way of application of lessons learned from the previous session for *week 23* that supported learning (NTS 2e, 2f and 3d–3j).

2. Review of Learning Plans (60 minutes)

2.1 Read the purpose, learning outcome and learning indicators for the session:

Purpose

The purpose of the session is to review the learning plan for *week 24 lessons and end of semester examination* by aligning the learning plan with Learner Material and appropriate assessment strategies.

Learning Outcome

Review your learning plan for *week 24 and prepare for mid-semester examination* considering the cross-cutting issues (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicators

1. Review the activities in the Learner Material and identify appropriate activities based on the pedagogical approaches in the Teacher Manual that can support your lesson for the week.
2. Discuss and develop assessment tasks and rubrics/marking scheme for the learning indicators for the week.

2.2 Review the pedagogical approaches proposed for teaching *week 24* in your learning plan, identify activities that align with these in the Learner Material. Indicate the activity(ies) in your learning plan (NTS2a – 2f, 3a – 3j).

Note

The selected activities should be included in the teacher/learner activity section of the learning plan.

2.3 Develop assessment tasks/items based on the learning indicator(s) on assessment for the week. This week's recommended mode of assessment is **end of semester examination** (NTS 3k, 3p).

E.g.

This examination should cover sessions 13-23 and consist of 20 Multiple Choice Questions, 4 Essay/short answer types and 1 practical test/test of practical.

a) Multiple choice

Which part of the plant is responsible for absorbing water and minerals?

A. Flower

B. Leaf

C. Root

D. Stem

Etc.

b) short answer

Mention 2 diseases under the following:

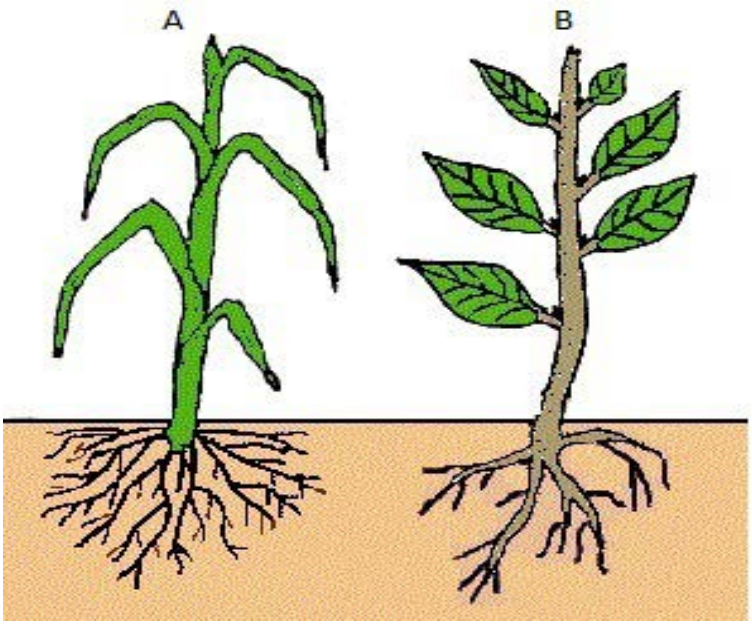
i. *Water-borne.*

ii. *Air-borne*

iii. *Vector-borne*

iv. *Practical*

Group the plants A and B into monocot and dicot and state 3 differences between them.



Note

i. *The assessment tasks/items may cover levels 1 to 4 where appropriate to ensure that assessment is differentiated for all.*

ii. *The selected activities should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/learner activities of the learning plan.*

2.4 Discuss (and agree as a subject group) how you will develop the marking scheme/ rubrics for scoring the assessment task(s)/item(s) for the week's recommended assessment (NTS3n,3p).

E.g.

a) MCQ

The correct option is C 1 mark each.

b) short

expected answers

*two examples of waterborne diseases are Cholera and Typhoid fever (**4 marks**)*

*two examples of Air-borne diseases are Influenza and Tuberculosis (4 **marks**)*

*two examples of Vector-borne diseases are Malaria and Dengue Fever (4 **marks**)*

Total – 12 marks

c) Practical

Expected answers

*A is a monocot (**1 mark**)*

*B is a dicot (**1 mark**)*

Three differences between monocots and dicots 2 marks each.

Monocots	*Dicots*
Have fibrous root system	*Have taproot system*
Have parallel venation	*Have netted venation*
Leaves have narrow shape	*Leaves have broad shape*

Total – 8 marks

Note

i. *The marking scheme and rubrics for scoring the assessment tasks/items should be included in the 'Assessment DoK aligned to Curriculum and TM' section below teacher/ learner activities in the learning plan.*

ii. *Take into consideration different modes of responses provided by learners.*

iii. *Discuss how you will observe and integrate character qualities, national values and 21st century skills that align with the lesson for the week and include these in your scoring.*

2.5 Discuss how you will administer the assessment task(s)/item(s) as a subject group (NTS 3n-3p).

E.g.

Distribute the number of test items among course content and instructional objectives or behaviours, etc.

*Refer to **Appendix E** for the table 2 of specification for end of semester examination*

2.6 Discuss how to provide feedback, and where appropriate, record and submit the assessment scores for each learner in the class (NTS 3l-3n).

E.g.

Provide constructive feedback to learners on each question and encourage learners to reflect on their strengths and areas they need to improve on, etc.

Note

In giving feedback on assessment tasks/items, guide learners to make the necessary corrections that will improve learning.

3. Reflection (10 minutes)

3.1 Reflect and share your views on the session (NTS 1a,1b).

3.2 Identify a critical friend to observe your lesson in relation to PLC Session 24 and provide feedback on your lesson (NTS 1f, 3g).

3.3 Remember to provide constructive feedback to learners and record their assessment scores in the required format and document where appropriate (NTS 3l-3n).

Appendix E: Table of Specification for End of Semester

Nature

The end of semester examination will cover from weeks 13 – 24. Questions will be from DoK levels 1-3. The end of semester will consist of 20 multiple choice items, 3 essay, 2 to be selected by learners and 1 test of practical knowledge (compulsory)

Resources

i. Answer booklets

ii. Pencils (HB)

iii. Mathematical instruments

Time: 1 hour: 30 minutes

Table of Specification

Weeks	Focal Area(s) End of Semester Examination	Type of Questions	DoK Levels				Total
			1	2	3	4	
13	Methods used in Determining Energy Flow in an Ecosystem	*Multiple Choice*	1	1	1	–	3
		Essay	–	1	–	–	1
		Practical	–	–	–	–	–
14	Common Diseases Based on the Causative Organisms, their Transmission Cycle, Effects and Control/Prevention.	*Multiple Choice*	1	1	1	–	3
		Essay	–	1	–	–	1
		Practical	–	–	–	–	–
15	Relate Some External Organs/ Features of Mammals to their Functions	*Multiple Choice*	1	–	1	–	2
		Essay	–	–	–	–	–
		Practical	–	1	–	–	1
16	Digestive Systems and Associated Organs of Herbivores, Carnivores and Omnivores.	*Multiple Choice*	1	1	–	–	2
		Essay	–	–	1	–	1
		Practical	–	–	–	–	–
17	Morphology of Flowering Plants.	*Multiple Choice*	1	1	–	1	3
		Essay	–	–	1	–	1
		Practical	–	–	–	–	–
18	Features that Distinguish Angiosperms from Other Plants	*Multiple Choice*	1	1	1	–	3
		Essay	–	–	–	–	–
		Practical	–	–	–	–	–

Weeks	Focal Area(s) End of Semester Examination	Type of Questions	DoK Levels				Total
			1	2	3	4	
19	Morphological Features that Distinguish Monocotyledonous Plants from Dicotyledonous Plants	*Multiple Choice*	1	1	–	–	2
		Essay	1	–	–	–	1
		Practical	–	–	–	–	–
20	Internal Structures and Functions of a Monocotyledonous Root and stem	*Multiple Choice*	1	1	–	1	3
		Essay	–	–	–	–	–
		Practical	–	–	–	–	–
21	Internal Structures of a Monocotyledonous Leaf	*Multiple Choice*	1	2	–	–	3
		Essay	–	–	–	–	–
		Practical	–	–	–	–	–
22	Internal Structure and Functions of a Dicotyledonous Root	*Multiple choice*	–	1	–	–	1
		Essay	–	–	–	–	–
		Practical	–	–	–	–	–
23	Internal Structures and Functions of the Dicotyledonous Leaf	*Multiple choice*	2	2	1	–	5
		Essay	–	–	1	–	1
		Practical	–	–	–	–	–
24	Factors that Affect Growth and Development in Flowering Plants	*Multiple choice*	–	–	–	–	–
		Essay	–	–	–	–	–
		Practical	–	–	–	–	–
	Total		**12**	**14**	**9**	**2**	**37**

Appendix 1: Structure of The Senior High School Internal Assessment and Transcript System

Introduction

This document provides details on the structure of the internal assessment and transcript system for effective implementation of the standards-based curriculum at the SHS level. The structure of the internal assessment involves a comprehensive and systematic approach to evaluating learners' performance and learning progress. The frequency of assessment is carefully planned to ensure regular and consistent monitoring, typically occurring at multiple points throughout the academic term. It is crucial to capture learner assessment scores promptly and accurately for the transcript. Therefore, guidance has been provided to ensure that each assessment is recorded in a timely manner. Effective management of the transcript system requires meticulous organisation and updated technology to handle and store data efficiently. Capacity building and training on effective internal assessment are essential for teachers, heads, assessments officers, providing them with the skills and knowledge to conduct assessments that are fair, ethical and align with learning outcomes for valid results. Engaging learners in internal school assessments fosters a sense of responsibility and self-awareness, encouraging them to take an active role in their educational journey through prompt and effective feedback.

A. Structure

Formative Assessment

This assessment may be conducted during a class period, after completing or during a practical activity, or after a teacher completes a sub-strand, strand, or a learning indicator(s). Distinct types of assessment tools can be used for Formative Assessment. These include:

- Observation during in-class activities
- Standard homework exercise for class discussion
- Question and answer sessions (formal and informal)
- Quizzes (e.g. class pop-ups)
- In-class activities and presentations (individuals and groups)
- Project work (individuals and groups)
- Practical assessments
- Field trips/Presentation of Reports

- Class assignments/Self/Peer Assessments
- Class tests
- Portfolios
- Performance assessments (roleplay, demonstration oral/aural)

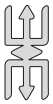
Summative Assessment

Summative Assessment is conducted at the end of the learning sequence (end of semester). It records the learners' overall achievement/performance at the end of the learning sequence. The type of tools used may include:

- Mid-semester examination
- End of semester examination
- Project work/Portfolio/Research/Practical assessments

TABLE 1: *Proposed Structure, assessment activities and marks distribution*

	Mode of Assessment	Contribution/ Weight	Submission per Year
1	Class Assessments (e.g., Classwork, Quizzes, Homework, Debate, Presentation, Drama & Roleplay, Case Study)	10 %	2
2	Mid-Semester Examination (Assessment/Project/ Research)	10%	2
3	Practical or Portfolio or Performance Assessment (Individual)	10 %	1
4	Group Projects, Research, or Case Studies, Practical/Lab work, Workshops, Performances, Presentations (Out of Class)	10 %	1
5	Individual Projects, Research, or Case Studies, Practical/Lab work, Workshops, Performances, Presentations (Out of Class)	20%	1
6	Supervised Individual Semester Assessment/Project/ Research/ End of Semester Examination	40 %	2
	Total	100 %	9



Note

Character Qualities/National, Values, 21st Century Skills: Teachers should make a conscious effort to observe these soft skills as learners go about their activities in the class, take notes, and award marks appropriately. Assessment of these skills should be deliberately embedded in the various modes of assessment outlined in the table above.

B. Frequency of Assessment

Table 2 provides a suggested schedule of internal assessment for SHS. It is important to note that whilst assessments should comply with the specific learning outcomes of the subject area, they should cover the 21st century skills and competencies, GESI, SEL and National values as espoused in the TAMT using diversity in assessment modes as suggested in Table 1. Teachers may increase the frequency of assessments using other assessment strategies. The schedules presented should serve as **milestones** for schools to comply with.

Table 2: *Suggested schedules of internal assessment for SHS*

	Semester One													
SN	Modes of Assessment	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Individual Class Assessment(s)				→										
2	Practical or Portfolio** or Performance Assessments (Individual)					→	→	→	→	→	→				
3	Group Projects, Research or Case Studies (out of class)	→	→	→	→	→	→	→	→	→	→				
4	Supervised Individual Semester Assessment													→	→

	Semester Two														
SN	Modes of Assessment	15	16	17	18	19	20	21	22	23	24	25	26	27	28
5	Individual Class Assessment(s)				→										
6	Group work or Exercises						→	→	→						
7	Practical or Portfolio or Performance Assessments (Individual)	→	→	→	→	→	→	→	→						
8	Individual Project work or Research or Case Study		→	→	→	→	→	→	→	→	→				
9	Supervised Individual Semester Assessment													→	→

Note: How and when to capture learner assessment scores for the Transcript.

1. **Individual Class Assessment:** This can include individual classwork. This assessment can begin before week 4, but the evaluation scores should be ready by weeks 4 and 18.
2. **Individual Practical/Performance Assessment:** This form of assessment should include orientation of learners at the beginning to provide enough information

concerning the deliverables, progress review, and feedback processes. The assessment score should be ready by the end of weeks 5 through 10, and 15 through 22.

3. **Group Projects/ Research/Case Studies:** Learners should be grouped to work on a common project, case study or research-based problem. The learners should be given orientation concerning the rubrics and ethical or professional conduct concerning the assessment. The problems, projects, research assignments, or case studies should be related to the learners' environment. The assessment score should be ready by week 10.
4. **Supervised Individual Semester Assessment:** This may be a written examination or project work. It must be noted that regardless of the mode of assessment, there should be supervision throughout. This assessment should be completed by weeks 13/14 and 27/28.
5. **Individual Project Work/Research/Case Study:** This can include mini-design assignments, investigative or case studies or research-based assignments. The assessment score should be ready by week 24.

Assessments should cover the scope of the 21st century skills and competencies, GESI, SEL and national values espoused in the TAMT. Table 3 gives examples of the scope. Refer to the TAMT for a comprehensive list of the scope.

Table 3: *Examples of 21st Century skills and competencies, GESI, SEL and National Values to be covered by scope of assessment*

21st Century Skills & Competencies	GESI & SEL	National Values
· Critical Thinking and Problem Solving · Creativity · Innovation · Collaboration · Communication · Global and Local Citizenship · Learning for life · Leadership · Analytic skills · Digital Literacy	· Gender Equality and Social Inclusion · Self-Awareness · Self-Management · Social Awareness · Relationship Skills · Responsible Decision Making · Tolerance	· Respect · Truth and Integrity · Tolerance · Respect · Equity · Communality · Appreciation · Stewardship · Time Management

Table 4 shows the recommended assessment strategies for the scope in Table 3.

Table 4: *Recommended assessment strategies for 21st century skills and competencies*

21st Century Skills & Competencies	Assessment Strategies
Critical Thinking, Problem Solving, Analytical skills	· Debates · Analysis of Case Studies based on learners' environment. · Research & Project work. · Objective and Essay type questions/items
Creativity and Innovation	· Individual and group projects · Analysis of Case Studies based on learners' environment. · Design & product creation to solve societal problems
Communication and Collaboration	· Debates · Group projects. · Presentations · Drama & Role play
Global and Local Citizenship	· Research & Project work. · Analysis of Case Studies based on cultural and global issues
Leadership and learning for life	· Individual and Group projects · Presentations
Digital Literacy	· Research & Project work. · Presentations using ICT tools. · individual and group projects

The TAMT details the rubrics for the assessment strategies suggested in Table 3. A combination of the assessment strategies could provide diversity and ensure that the assessment scope is effectively covered during formative and summative assessments. It is important to note that the GESI, SEL and National values espoused in the TAMT should be incorporated into the assessment strategies.

C. Learner Involvement

What should learners contribute?

Learners' involvement in the internal assessment processes in schools offers valuable insights into how the learner perceives and experiences of the assessment process. This engagement process grants learners the opportunity to explain areas of confusion, frustration, or unfairness, and these help teachers refine their assessment approaches.

Again, learner involvement fosters communication between teachers and students. This can help clarify expectations, address concerns, and create a more positive learning environment.

When to involve learners

As part of the initial needs assessment for teacher training, gather learner input on areas needing improvement in the Internal Assessment Score (IAS) process. This helps to incorporate learner feedback in developing appropriate teacher training materials.

How should learners be involved?

Teachers should organise focus group sessions, to gather learner feedback on past assessments. This feedback can be used to inform future training sessions for teachers. e.g., Mock assessments and Co-creation of rubric.

Guide learners on the learning outcome expected. Involve them in the development of the assessment rubrics, and checklists to evaluate their progress and identify areas for improvement. Learners would demonstrate respect for diverse perspectives and the ability to work cooperatively with others.

Reflection

Integrate reflective activities such as journaling or discussions where students can analyse their learning experiences and identify areas for growth.

By actively involving teachers and learners in the SBA process, we create a dynamic learning environment. This empowers students to take ownership of their learning journey while equipping teachers with the tools to effectively guide and assess student progress.

Transparency and Setting Goals

At the beginning of a lesson, communicate clearly, the assessment criteria to the learners using appropriate language and structure. Present the information in an organised and coherent manner.

Self-assessment

Incorporate opportunities for self-assessment throughout the learning process. Learners can use rubrics or checklists to evaluate their progress and identify areas for improvement. Learners would demonstrate respect for diverse perspectives and the ability to work cooperatively with others.

Goal Setting

Encourage learners to set achievable learning goals aligned with the assessment criteria. This empowers them to take ownership of their learning journey.

Peer Assessment

Strategically incorporate peer assessment activities where students evaluate each other's work based on established criteria. This fosters critical thinking and collaboration skills.

Student-led presentations or projects

Provide opportunities for students to display their learning through presentations or projects. This allows them to develop communication and presentation skills.

By actively involving teachers and learners in the SBA process, we create a dynamic learning environment. This empowers students to take ownership of their learning journey while equipping teachers with the tools to effectively guide and assess student progress.

D. Feedback Mechanism

A feedback mechanism is a systematic approach for providing learners with information about their performance. This information helps them understand their strengths, identify areas for improvement, and achieve their learning goals. In the multi-subject environment of senior high school, timely and constructive feedback is crucial.

Timely means that feedback is provided soon enough for learners to act upon it after each assessment. Here are suggested general timelines to consider for the following types of assessments:

Type of Assessment	Expected Timeline for Feedback
Individual class assessments (mostly written)	1–3 days
Group assignments	1 week, with interim check-ins for assignments over extended periods of time.
Project work/Semester paper/End of Semester examinations	after key milestones and a final comprehensive review upon completion

For feedback to be constructive, it should focus on the task and not the learner's personality. It should be specific, actionable, and delivered in a way that motivates improvement.

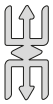
In providing feedback, use the sandwich method (CCC), which starts with a positive aspect of the work (***compliment***), followed by constructive criticism (***correction***), and concludes with another positive note (***compliment***). To set the stage for effective feedback, clearly communicate the learning objectives, expectations, and scoring rubrics before any assessment.

Learners must maintain an "assessment portfolio" where they compile all their assignments, reports, and feedback. Parents and other stakeholders review this portfolio during open days, parent-teacher meetings, or monitoring activities.

Feedback can be delivered using different methods after the assessment is done and marked. The choice of delivery should be guided by best practices and constraints that may exist, such as available time and class sizes. The following are some delivery methods to consider:

- **Whole Class Feedback:** The teacher facilitates a discussion about the assessment with all the learners. During the discussion, the teacher should highlight common strengths and weaknesses, provide clarifications, and share best practices.

- **Individual Feedback:** The teacher gives learners personalised (one-on-one) guidance or written comments. Provide ***prompts to guide learners*** to self-correct their wrong responses.



Note

Provide checklists or rubrics that learners can use to assess their own work before submitting it. This helps them independently identify errors and make the necessary adjustments.

- **Group Feedback:** The teacher groups learners facing similar challenges for targeted instruction and provides them with feedback.
- **Peer Review Feedback:** The teacher allows learners to learn from one another by giving constructive feedback to peers.
- **Self-Reflection:** After receiving feedback, the teacher should encourage learners to analyse their work, identify areas for improvement, and set goals using rubrics as a guide.
- **External Feedback:** In specific cases, the teacher should consider feedback from subject experts, teachers from other institutions, parents, and other stakeholders.

Regardless of the chosen feedback mechanism, note that self-reflection is essential. This allows learners to internalise feedback, set personal targets for improvement, and develop a growth mindset. Following the feedback, teachers are to provide opportunities for learners to correct mistakes through targeted exercises and reassessments.

By implementing these feedback strategies, teachers can empower senior high school learners to become active participants in their learning journey.

E. Transcript System

Effective data management is crucial for informed decision-making in today's dynamic educational landscape. The computerised transcript system achieves this purpose by offering second-cycle institutions with a comprehensive record of learner performance. The transcript system is a centralised repository for learner information. It gathers key details such as learner profiles, semester information, subjects taken with their respective scores (including continuous assessments and end of semester examination), credits, grades, semester, and overall Grade Point Averages (GPAs). Additionally, a dedicated section captures brief descriptions of learners' character qualities at the end of each semester.

There should be at least three individual class assessments, at least one group work and at least one project work.

Appendix 2: Excerpts from The Teacher Assessment Manual and Toolkit

A. Principles of Effective Assessment

As a process of determining the nature and extent of learning and development among learners, it is important to ensure that the assessment process meets the following principles:

1. Validity
2. Reliability
3. Fairness and ethics
4. Transparency
5. Inclusivity
6. Practicability
7. Assessment utility

Developing a valid assessment (Validity of Assessment Results)

To ensure that assessment scores or results are useful and interpreted appropriately, the teacher should:

i. Clearly state the purpose of the assessment (e.g., what the test will be used for).
ii. Create a learning and assessment plan (i.e., table of test specification tots)
iii. Write assessment items or tasks that measure important learning outcomes of the curriculum (e.g., Skills, competencies, collaborative efforts, and lifelong learning).
iv. Clearly define the performance criteria or standards/schemes/rubrics (i.e., define the specific knowledge, skill or behaviour that learners should demonstrate
v. Score or grade assessment task based on the performance criteria to avoid biases, stereotyping, among others.
vi. Ensure that the content of the assessment aligns closely with the defined criteria (thus, the assessment questions, tasks, or activities should directly measure what they want to assess).
vii. Interpret the assessment results based on the purpose and the performance criteria.

Reliability (Consistency of Assessment Results)

In assessment, consistent standards of teacher assessment and fairness are important goals to aim for. The 'connoisseur' approach to assessment; that is, 'I know it when I see it, but I can't put it into words' is not acceptable. Reliable results must be dependable for decision making.

For an Assessment result to be reliable, the teacher should:

i. Clearly identify the learning outcomes to be assessed.

ii. Give learners work or completed assessment tasks and activities to other teacher(s) to review.

iii. Use multiple assessment strategies to measure the same or similar learning outcomes (e.g., giving the tasks or items of a class exercise as another class exercise or homework or group project) or using different item formats to assess learning outcomes.

iv. Prepare scoring rubrics or marking schemes with specific weighting (marks)

v. allocated to the items and use it consistently.

vi. Give rubrics of tasks/activities in the case of performance or practical assessment ahead of time.

vii. Ensure that the load or the length of the tasks are appropriate to the level of the learner (e.g., 25 minutes for 20 items; a project for a week or the term/ semester).

viii. Administer assessment in a conducive environment that minimise disruption (e.g., noise, lightening, ventilation, among others) and devoid of any cheating.

Fairness and Ethics

Assessment strategies should give learners equitable opportunity to demonstrate what they know and can do taking into consideration their ability, learning styles, gender, special educational needs (SEN), among others. The teacher should:

i. Ensure that the assessment tasks/activities align with the learning outcomes and content covered in class.

ii. Use different forms of assessment tasks to assess learning outcomes (e.g., oral assessment, class exercises, class tests, homework, assignments, written tests, projects, and practical demonstrations as well as the end-of-term/ semester assessment).

iii. Provide clear and detailed instructions to learners about the assessment's format, expectations, and criteria for evaluation.

iv. Identify learners with SEN and make the necessary adaptation by providing extra time, alternative formats and other necessary accommodations.

v. Avoid using culturally biased or discriminatory content, unfamiliar words, questioning, or examples in assessments.

vi. Communicate the assessment plan in advance. For example, date, time, location, and any other relevant logistics.

Transparency

Transparency in assessment refers to making the assessment process and criteria clear and understandable to learners. The teacher should:

i. Make learners aware of the demand of the assessment tasks.
ii. Share performance criteria and indicate what will constitute the pass mark.
iii. Readily share assessment results with the appropriate stakeholders (learners, parents/guidance, teachers).
iv. Provide opportunity for leaners to seek review and redress.
v. Share the learning outcomes the assessment is designed to measure with learners.
vi. be ready to share assessment criteria or rubrics when the need arises.

Inclusivity

Inclusivity in assessment will allow teachers to create assessment practices that are fair and accessible to ALL learners (GESI, SEL and SEN).

The teacher should:

i. Familiarise with the section of inclusivity on the national pre-tertiary learning and assessment framework (NPLAF, page 32).
ii. Select assessment strategies that are appropriate for different learning needs.
iii. Assign workload in connection with the developmental and learning needs of learners.
iv. Work with special education experts in the school system to adapt and accommodate assessment to the needs of all learners (i.e., extra time, alternative formats, or other necessary accommodations should be available).
v. Make use of different formats (braille, oral translation, text-to-speech, ai, sign language interpretation and other assistive technology forms).
vi. Develop rubrics that are inclusive (taking into consideration grammar, vocabulary, handwriting, presentation of ideas).

Practicability

For assessment strategies or processes to be feasible, convenient, efficient and successful. The teacher should:

i. Ensure that appropriate and adequate assessment materials, resources and security are available.
ii. Consider appropriate assessment format to match the learning outcome(s), class size, age and ability levels.
iii. Consider the time available to develop, administer, score and give constructive feedback.

Assessment Utility (utilisation and benefits)

To enhance the usefulness and practical value of assessment tasks/activities, the teacher should:

i. Clearly state the intended use of the assessment results.
ii. Identify the essential learning outcome(s) to be covered in the assessment.
iii. Construct assessment tasks/activities that are well aligned to real-life situations.
iv. Select and allocate the appropriate resources for the assessment activities.
v. Provide constructive feedback to learners on their performances.
vi. Provide credible information that are useful to learners and other stakeholders (teachers, parent/guardians).
vii. Weigh and indicate the benefits and the cost of the assessment strategies
viii. to be used.
ix. Justify the selection of a particular assessment format over the others (objective-type, essay, project, portfolio, demonstration, etc.).

B. Ethical considerations in Assessment

1. Designing and Developing the Assessment

i. Identify the specific learning outcome(s) to be assessed.
ii. State clearly the purpose of the assessment(s).
iii. Specify the content area (i.e. Content Standards and/or Indicators) to be assessed and align them to the learning outcome(s).
iv. Select appropriate format or strategy that should be in line with the learner's characteristics, learning outcome(s) and resources.
v. Design different versions (differentiated assessment) of the assessment including the use of alternative strategies of assessment.
vi. Avoid biassed assessment tasks (e.g., task favouring a group of learners such as males among others).
vii. Avoid using unfamiliar language and materials in writing the assessment tasks.
viii. Adapt different versions to suit the needs of all learners. For example, make provision for learners with visual impairment by enlarging the font sizes of the assessment instrument and providing braille versions.
ix. Develop the marking scheme/ scoring rubrics when developing the assessment task.
x. Include mark allocation on the individual questions that are given when necessary.
xi. Ensure that the assessment task is stored securely.
xii. Provide clear direction for administration of the assessments.
xiii. Consider logistics.

2. Administering the Assessment

i. Communicate the assessment nature/structure/format, time, content coverage and location of the assessment tasks clearly to learners.

ii. Ensure the setting is suitable and conducive for the assessment (e.g., lighting, ventilation, less noise among others).

iii. For learners with SEN establish rapport and communicate in simple and clear language. Provide alternative settings for learners with SEN to meet their specific needs. (e.g., providing individualised accommodations such as writing the assessment in a separate room).

iv. Provide needed logistics (e.g., answer booklets, first aid, pens and pencils among others) for the assessment task.

v. For learners with SEN make room for the use of translators, assistive devices such as hearing aids, braille, computers, recorders, and other technologies that are relevant to their needs.

vi. Administer assessments within appropriate time limits to enhance validity and to minimise the chance for cheating. Provide additional time for learners with SEN.

vii. For learners with SEN, make room for varied modes such as oral, written, the use of a computer (text-to-speech and speech-to-text) among others.

viii. Avoid anxiety, intimidating language, and unnecessary announcements.

ix. Provide learners with anonymous identifiers and codes instead of names to enhance reliability and validity.

x. In the case of practical/performance assessments, share rubrics and marking schemes with learners.

xi. Ensure controlled and supervised distribution of assessment materials to avoid leaks or unauthorised sharing.

3. Scoring the Assessment

i. Consistently make use of the marking scheme/ scoring rubrics.

ii. Ensure multiple ratings or scoring/grading are done where necessary (e.g., for essay-type questions, practical/performance assessment).

iii. Focus on the content (i.e., what is being assessed) instead of handwriting, spelling, punctuations, concord, and vocabulary when scoring.

iv. For learners with SEN considerations should be made for vocabulary, spelling, and grammar especially in the English language.

v. Provide opportunity for remarking, review, or redress where necessary.

vi. Record the actual scores/grades of learners as a reflection of their performance. Do not add or subtract marks based on personal influences.

vii. Keep assessment results of the learners safe (either manually or digitally).

viii. Consider the use of professional scorers, judges, or raters in the case of External Assessments.

4. Reporting and Feedback in Assessment

i. Ensure that the learner is aware of those who will be receiving the report.

ii. Communicate results to authorised persons such as parents/guardians and other teachers.

iii. Seek permission (informed consent) from the learner or parent/guardian if a third party may be involved.

iv. Ensure that the true performance of the learner is reported (do not manipulate or distort the results).

v. Present assessment results without stereotyping or biases.

vi. Use language and terminology that is respectful and GESI responsive when reporting reports.

vii. Provide clear and meaningful interpretation of the assessment results.

viii. Adhere to legal requirements, ethical guidelines and institutional policies governing the reporting of assessment results.

5. Feedback

i. Provide constructive feedback timely and promptly.

ii. Emphasise the learner's strengths and opportunities for improvement rather than focusing solely on weaknesses.

iii. Ensure that the feedback given to the learner, parents/guardians and other teachers reflects the performance of the learner.

iv. Consider and adjust the mode of providing feedback to suit the needs of learners (consider GESI and SEN issues).

v. Provide feedback based on the assessment criteria and not on personal influence.

vi. Avoid displaying and announcing learners' performance unofficially.

vii. Create opportunities for learners to readily access their results through creation of portals, portfolios and files for individual learners and other stakeholders.

viii. Ensure collaborative assessment by sharing and taking the learner's information.

ix. Create opportunities for learners to reflect on their own assessment results and learning.

x. Give written comments to learners in formative assessment to help the learner track their errors and make the necessary corrections.

6. Interpreting and Using the Assessment Results

i. Provide clear and detailed criteria including criterion/pass mark for interpreting the assessment results.

ii. Avoid biases in interpreting the assessment results. Ensure result interpretation is not influenced by gender, religion, ethnicity, personal liking among others.

iii. Use simple and clear language in the interpretation of the assessment results.

iv. Interpret assessment results based on evidence and sound assessment practices.

v. Ensure that the interpretation of the results accurately reflects the learner's ability, skills, competencies and knowledge.

vi. Ensure the learner is aware of the assessment process and the consequence of the results.

vii. Ensure assessment results are used for their INTENDED PURPOSE, aligning with the learning outcomes.

viii. Seek the consent of the learner and parents/guardians before using the assessment results for any purpose.

ix. Ensure that assessment informs the teaching and learning process in a fair and unbiased manner and provide remediation where necessary.

x. Ensure that assessment results are confidentially kept and only shared with relevant stakeholders, such as the learner, parents/guardians, and school administrators.

xi. Avoid using assessment results to label (name-calling), stereotype and discriminate among learners.

xii. Ensure that results are stored and used in a secured manner.

xiii. Avoid discussing the learner's results and performance unofficially with others (e.g., with other teachers, staff, learners and among others).

C. Differentiated Assessment

Differentiated assessment adapts strategies to diverse learning needs, strengths, and interests of all learners. Teachers tailor assessments to accommodate varying levels of readiness, learning styles, and preferences that ensure that all learners have equitable opportunities to demonstrate their understanding and skills.

To implement differentiated assessment, teachers should consider the following:

i. *Varied assessment formats:* provide a range of assessment options, such as written assignments, oral presentations, projects, or multimedia presentations. This allows learners to exhibit their knowledge and skills using formats that align with their abilities and strengths.

ii. *Flexible deadlines:* give learners the opportunity to complete assessments within a flexible timeframe. This considers different learning paces and allows learners to manage their time appropriately.

iii. *Varying tasks:* Vary levels of difficulty for assessment tasks, allowing learners to choose the one that best suits their needs and challenges them appropriately.

iv. *Accommodations:* Provide necessary accommodations for learners with unique learning needs, such as extended time, modified formats, or additional resources to support their assessment process.

v. *Individualised feedback:* Provide individualised and constructive feedback that addresses the learner-specific needs and areas for improvement. Tailoring feedback to specific standards and learning outcomes can help learners understand their strengths and areas for improvement.

vi. *Learner involvement:* Involve learners in the assessment process by encouraging self-reflection, self-assessment, and goal setting. Engaging learners in dialogue about their learning and assessment promotes

D. Guidelines on how to Construct Multiple Choice Questions (attachment)

1. Clearly define the purpose of the test/assessment
2. Define the learning outcome (i.e. knowledge, comprehension, skills, or competencies) you want learners to demonstrate through MCQs.
3. Prepare a table of test specifications or blueprints.
    i. List topics and subtopics covered during the instructional period
    ii. Distribute the number of test items among course content and instructional objectives or behaviours.
4. Write the test items (note: it should match the content and DoK levels stated in the table of test specification).
    i. The central issue of the items should be in the question statement (stem).
    ii. The options should be plausible and homogeneous in content.
    iii. All options must follow syntax and punctuation rules.
    iv. Repetition of words in the options should be avoided.
    v. Vary the placement of the correct option (appropriately, arrange options in alphabetical order, ascending or descending or in order of magnitude if using numbers or dates).
    vi. Stems and options should be stated positively. However, a negative stem could be used sparingly, and the word should be emphasized either by underlining it or writing it in capital form (e.g. **not,** NOT, not**; except**, EXCEPT, except).
5. Write clear directions/instructions. (e.g. Answer All Questions. All questions carry equal marks, Select/Choose from the alternative lettered A-D the correct answer).
6. Review the test items (go through items again after construction i.e. after a few days to week).

7. Prepare scoring key (scoring keys should be prepared concurrently with item construction).

E. Common Assessment Used in the Classroom

Class Exercise As An Assessment Strategy

Description: Class exercise as an assessment strategy are tasks designed to evaluate learner's understanding, knowledge, and skills related to a particular subject to gauge how well learners are grasping a content being taught.

Teachers should mainly use class exercises for formative purposes to assess learners across all subject areas, which can take various forms, such as quizzes, problem-solving tasks, group discussions, reflective questions, case studies, question and answer and practical activities, performance, observation, checklist/rubrics and demonstration providing valuable insights into the learning process.

Purpose: Class exercises can be used to:

i. Help identify learning gaps in comprehension, retention, application of knowledge, values and attitudes.
ii. Allow for immediate feedback and clarification of concepts.
iii. Encourage active participation of learners for deeper understanding.
iv. Modify teaching and learning techniques, strategies, and resources based on learning outcomes.
v. Gradually build learners performance in a lesson over time to reduce summative test anxiety.
vi. Help identify learners who may require special educational support.
vii. Accommodate different learning styles and abilities, including group work and multiple representations for learners with special educational needs.

Settings

i. Classroom
ii. Laboratory/Workshops/Resource Centres/Libraries
iii. Studios
iv. Field (school park/garden or community spaces)
v. Online learning platforms/Virtual classrooms e.g. Zoom, Class WhatsApp pages, Google classrooms.

Time frame: Class exercises often take place in a lesson and may be conducted before, during and after a lesson depending on the learning outcome and the duration of the lesson.

Class size: Class exercises may be conducted for learners either individually, as a group or whole class.

Steps

Before

The teacher should:

i. Define the learning outcomes.
ii. Design exercises using simple and clear language.
iii. Select relevant exercises based on nature of the class exercise and desired skills/ knowledge to be attained. E.g.quizzes, case studies etc.
iv. Develop and discuss assessment criteria with learners.
v. Set a reasonable time frame for completion of exercises to maintain focus and efficiency.
vi. Clearly communicate instructions, including format, length, and resources.

The learner should:

i. Read and understand instructions to ensure a thorough understanding of the exercise provided.
ii. Collect all available required resources and tools for the task/exercise.

During

The teacher should:

i. Assign task/exercise based on the learning outcome as well as learners with special needs.
ii. Walk around the classroom and observe learners as they work on the exercise.

The learner should:

i. Organise and set up their work area to facilitate a smooth workflow.
ii. Plan how to approach the exercise, considering instructions and steps or techniques to employ.
iii. Commence class exercise timely and promptly to work within the given time for completion of the task.

After

The teacher should:

i. Evaluate the assessment outcome based on the assessment criteria with the learners.
ii. Provide constructive feedback for learners' performance for discussions.

NB: Teachers should pay attention to learners with special educational needs.

Reflect and modify teaching and learning strategies and resources based on feedback received.

The learner should:

i. Reflect, self and peer assess their exercises and provide constructive feedback.
ii. Use the feedback to improve on their work/exercises.

Homework As An Assessment Strategy

Description: Homework or assignments as an assessment strategy involve the use of structured tasks or projects that learners complete outside of regular class time to evaluate their understanding, knowledge and skills gained in a specific learning outcome. This assessment strategy can take various forms, such as written assignments, projects, research papers, problem sets, essays, or creative tasks.

Some concepts that can be assessed using homework/ assignments include menu planning and recipe development, problem solving exercises in mathematics, hands-on experiments and observations, creative writing assignments and art projects, map development and application of GIS in locating places.

Purpose: The key purposes of using homework/assignment as an assessment strategy by the teacher include:

i. Assessment of Understanding
ii. Application of Knowledge
iii. Reinforcement of Learning
iv. Independent Study
v. Provision of valuable feedback
vi. Skill Development
vii. Assessment of Diverse Abilities

Settings

i. Classroom
ii. Field work
iii. Online platforms
iv. Home

Class Size: Depending on the intended learning outcomes, assignments/ homework can be structured for either:

i. Small class sizes
ii. Large class sizes

Time Frame: The time frame for conducting assignments can be adjusted based on the desired learning outcomes and the complexity of the task.

i. Short-term Assignments (Daily or nightly homework and weekly assignments)
ii. Medium-term Assignments (Bi-weekly or monthly assignments)

iii. Long-term Assignments (Semester/ term-long assignments)

Steps

Before

The teachers should:

i. Clearly define the learning outcomes intended to be achieved
ii. Design/ Create a well-structured assignment with clear instructions and expectations.
iii. Adapt to the needs of diverse learners especially those with special needs
iv. Provide Resources such as textbooks, online materials, or reference materials, to support learners in completing the assignment successfully.

During

The teachers should:

i. Keep track of learners' progress on the assignment.
ii. Be available to answer questions and provide clarification during the assignment phase.
iii. Provide formative feedback and guidance to help students improve their work.
iv. Teach learners how to properly cite sources and use information ethically/ avoid plagiarism.

The learner should:

i. Seek clarification about the task from teachers or peers where necessary
ii. Actively work on the homework, focusing on comprehension
iii. Manage their time effectively
iv. Learners can reach out to their parents/guardians, peers, or online resources for guidance and clarification in responding to the tasks

After

The teacher should:

i. Evaluate the completed assignments using clear and consistent grading criteria
ii. Analyse student performance to identify common strengths and areas for improvement.
iii. Discuss feedback with learners
iv. Reflect on the outcomes of the assignment.
v. Share the results of the assignment with learners
vi. Acknowledge and celebrate learners' achievements to boost motivation and self-esteem.

The learner should:

i. Review their work to identify errors or areas for improvement.
ii. Reflect on what they have learned
iii. Bring up questions that were confusing for class discussion.
iv. Use feedback to learn from their mistakes and improve performance.

Discussion As An Assessment Strategy

Description: Discussion is a formative assessment strategy that involves using verbal communication and group interaction to assess learners' understanding, knowledge, and skills. The teacher is to observe and assess learners' contributions, ability to analyse and synthesise information, and provide feedback based on their performance. It can be used for both formative and summative assessments.

Discussion can be used in all subject areas of the secondary education curriculum depending on the purpose of the assessment and learning outcomes under consideration.

Purpose: The following are the purposes of discussion as an assessment strategy:

i. Build knowledge and develop a learner's critical and creative thinking.
ii. Develop learners' communication skills.
iii. Increase the depth of the learner's understanding and eliminate misconceptions.
iv. Engage learners in active participation in the lesson.

Setting

i. A classroom
ii. Small groups
iii. Seminars
iv. Online learning platforms (virtual classroom and discussion forum)
v. Fieldwork

Time frame: Appropriately, discussion as an assessment strategy can last for a lesson depending on the learning outcomes and learning indicator.

Class size: The class sizes appropriate for discussion as an assessment strategy can vary from small class to large/whole class.

Steps

Before

The teacher should:

i. Determine the learning outcomes to be assessed.
ii. Specify the content to be learnt that aligns with the learning outcome.
iii. Give prepared questions to guide the discussion (i.e., make use of open- ended questions, adaptive to the diverse/abilities of learners)

iv. Establish discussion guidelines or rules (let learners know what is expected of them, the content of the discussion and the format of the discussion i.e., individual, small or whole class)

The learner should:

i. Read any assigned readings, watch videos, or engage with other course materials related to the discussion topic.

ii. Take notes while reviewing the materials on important concepts, arguments, or evidence.

iii. Reflect on their own experiences, prior knowledge, or relevant examples that relate to the discussion topic.

iv. Seek clarification if needed.

During

The teacher should:

i. Start and facilitate the discussion (ensure that all learners could participate and encourage learners to engage in critical thinking and reflective thinking).

ii. Monitor and assess learner's participation (encourage self and peer assessment).

iii. Provide constructive feedback on learners' responses and contributions. NB. Teachers are advised to manage all learners' responses and accommodate them but must be fair and ethical.

The learner should:

i. Pay attention, maintain eye contact, and be open to different viewpoints and contributions from mates.

ii. Share their own unique perspectives, insights, and experiences related to the discussion topic.

iii. Take notes during the discussion to capture key points, new understanding, or questions that arise.

iv. Ask follow-up questions, seek clarification, or offer alternatives or suggestions respectfully.

After

The teacher and the learners reflect on the discussion in relationship to the expected learning outcomes to check whether the learning outcomes have been achieved.

Case Study As An Assessment Strategy

Description: A case study can be used as an assessment and or pedagogical strategy. Usually, it is used as an assessment strategy to examine a learner's ability to apply acquired knowledge, skills and experiences by carefully investigating a particular circumstance or scenario to provide solutions to real-life situations. Usually, it will have the following components:

1. Theme
2. Case description
3. Study of the case
4. Class Discussions
5. Conclusion and reflection

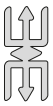
Types of case studies

i. Descriptive case studies: The teacher should ask learners to analyse and explain the key features and characteristics of the case.

ii. Explanatory case studies: The teacher should ask learners to give detailed information on the case by identifying and explaining the factors that contributed to the situation.

iii. Exploratory case reports: The teacher should ask learners to gather information, analyse data, and draw conclusions about a topic where limited information is available

iv. Cumulative case studies: The teacher should encourage learners to synthesise and integrate their learning across different subjects



Note

Any of these can be done individually or as a group depending on the class size. For large class sizes, a group of 3 to 5 members should be used.

Purpose: The purpose of a case study is for learners to apply acquired knowledge, concepts and theories to solve real-life situations. What should the teacher consider before using a case study as an assessment strategy?

i. The complexity of the content standard

ii. The availability of resources

iii. Ability level of learners

iv. Time

v. Class size

Steps: To ensure a well-structured and quality case study, it is important for the teacher to consider the following:

Before

The teacher should:

i. Clearly define the learning outcomes to be assessed.

ii. Identify appropriate issues or cases to be investigated.

iii. Determine the format of the case study (e.g., written document, a multimedia presentation, a video, or a combination of these), depending on the resources available.

iv. In form the learner on what to do, time frame, and expectations.
v. Provide materials (i.e., text, videos, pictures etc.) for the case study discussion.
vi. Develop and provide a clear scoring rubric that outlines or defines quality
vii. work to learners.

During

The teacher should:

i. Create and maintain a sound environment for the case study discussion.
ii. Bring the whole class together and invite each group to share their findings,
iii. solutions, or recommendations.
iv. Ask open-ended questions on the issue of discussion to clarify any misconception.
v. Incorporate peer assessment or peer grading as part of the process.

After

The teacher should:

i. Provide constructive feedback on learners' responses.
ii. Ask the learners to reflect on their learning process, such as what they learned, what they found difficult, or what they would do differently.
iii. Summarise the main points and lessons learned from the case study and link them to the learning outcomes and content.

Ethical Considerations: In the use of case study as an assessment strategy, the teacher should:

i. Discuss ethical considerations with learners, especially in cases that involve sensitive or potentially controversial topics (e.g., gender, cultural, social, emotional, political and religious issues) when selecting and discussing a case.

Documentation and Record-Keeping: The teacher should keep records of assessments and learners' submissions to maintain transparency and fairness (e.g., portfolio)

Portfolio Assessment- General

Description: A portfolio assessment is an evaluative tool to measure learners' understanding in a comprehensive manner, looking at the overall progress instead of individual marks from tests and quizzes.

Purpose: Portfolio assessment is used to establish various cognitive achievements as well as practical competencies. Portfolio assessment could be used for the different levels of Depth of Knowledge (Levels 1 – 4). It helps teachers identify areas where the learner may need additional support or resources to improve learning and provide a wide variety of learners' mastery of a particular standard and growth over a defined time.

Types of Portfolio Assessments: A portfolio is a systematic collection of learners' work that represents learner's activities, actions, and achievements over a specific period in one or more areas of the curriculum. There are three main types of portfolios:

1. Assessment Portfolios
2. Teaching and Learning or Working portfolios
3. Showcase portfolios

Assessment Portfolios

Assessment portfolios, also known as evaluative portfolios, contain work that has been evaluated according to set standards or criteria. These portfolios demonstrate a learner's ability to meet specific learning standards. They often contain rubrics, test results, learner reflections, teacher's notes, and graded assignments. For instance, in a science class, an assessment portfolio may contain lab reports, results from class tests, assessed projects, and the learner's reflection on their learning throughout the term/semester/year.

Teaching and Learning or Working Portfolios

Teaching and learning or working portfolios are formative in nature. They allow a learner to demonstrate his or her ability to perform a particular skill. For example, a working portfolio may include a collection of lab reports during a semester (term) that highlight a learner's improving ability to create hypotheses.

Showcase Portfolios

Showcase portfolios are summative in nature. They include samples of a learner's best work to demonstrate mastery at the end of a unit of study, semester or school year. The showcase portfolio allows the learner to select their most outstanding work, hence demonstrating their highest level of learning and achievement. It can contain final drafts of assignments, projects, or any piece of work that the learner is particularly proud of, demonstrating the learner's mastery of the relevant skills.

What is in a Portfolio?

A portfolio contains the following:

1. Completed assignments and evaluations (e.g., Self-Assessment, Peer- Assessment)
2. Journal writings (daily report – Date, Time and Activities)
3. Reflections on discussions
4. Photos, sketches, and other visuals
5. A summary statement made at different points regarding what has been learned/ achieved.

Setting: The portfolio assessment strategy can be used in the following settings:

1. Project-Based Learning
2. Independent Study and Research Projects
3. Classroom-based assessment
4. Field Work

5. Exhibitions/ Fairs
6. Problem-based Learning
7. Laboratory environment
8. Studio
9. Resource Centres

For all approaches, the portfolio must demonstrate clear and close adherence to specific learning outcomes in the curriculum.

Steps

Before

The Teacher should:

i. Determine the purpose of the portfolio. Decide how the results of a portfolio evaluation will be used to inform the subject.

ii. Identify the learning outcomes the portfolio will address.

iii. Decide what learners will include in their portfolio. Portfolios can contain a range of items–plans, reports, essays, resumes, checklists, self-assessments, references from employers or supervisors, and audio and video clips. Limit the portfolio to 3-4 pieces of learner's work and one reflective essay/memo.

iv. Identify or develop the scoring criteria (e.g., a rubric) to judge the quality of the portfolio.

v. Establish standards of performance and examples (e.g., examples of a high, medium, and low-scoring portfolio).

vi. Create learner instructions that specify how learners collect, select, reflect, format, and submit.

vii. It is the teacher's responsibility to help learners by explicitly tying subject assignments to portfolio requirements.

During

The learner should:

i. Collect evidence related to the outcomes being assessed.

ii. Select the best and appropriate evidence and label each piece of evidence according to the learning outcome being demonstrated.

iii. Be guided on how to write a one or two-page reflective essay/memo that explains why they selected the particular examples, how the pieces demonstrate their achievement of the program outcomes, and/or how their knowledge/ability/attitude changed.

iv. Be guided on how to format requirements (e.g., type of binder, font and style guide requirements, online submission requirements).

v. Be given submission (and pickup) dates and instructions.

After

The teacher should:

i. Clearly establish the criteria for evaluating/scoring in a consistent manner
ii. Mark and record learners' performances
iii. Reflect on the activity and learner performances
iv. Provide constructive feedback to the learner
v. Identify learners with SEN who may need extra support

The learner should:

i. Reflect on the feedback received
ii. Revise their work for final submission

Time Frame: Deciding on a time frame for Portfolio assessment depends on and includes the following:

i. Nature of project/problem or assignment
ii. Class size
iii. Resources

However, based on the learning outcome(s) the appropriate time frame for this portfolio is a week for minor activity and a term for extended projects, especially in Art and Design or Performing Arts.

Form

i. Individual learner's portfolios when the class size is relatively small.
ii. Group portfolio when the size is relatively large.
iii. Whole class/ school

Research As An Assessment Strategy

Description: Research as an assessment strategy is a systematic process of inquiry and investigation that aligns with a particular learning outcome to develop knowledge and understand a phenomenon. It involves identifying an issue in need of investigation, collecting and analysing data, conducting experiments, and drawing conclusions based on the findings. Once learners have completed their research work, they will write a report and do a presentation on their findings.

Purpose: Research as an assessment strategy is used to assess learner's ability to:

i. Identify a problem and gather information (data) from a variety of sources.
ii. Evaluate the credibility and accuracy of information.
iii. Analyse and synthesise information from multiple sources.
iv. Communicate their findings clearly and concisely.

Setting

i. Classrooms
ii. Factories/ Industries
iii. School farms
iv. School communities
v. Libraries
vi. Homes.
vii. Fieldwork
viii. Workshops

Class Size: As a teacher, depending on the number of learners in your class, individual or group research-based assessment can be used. However, teachers can create large groups for complex research, where different members can focus on specific aspects of the research.

Time Frame: The time frame for conducting a research-based assessment can vary depending on the complexity of the learning outcomes (skill to be achieved) may be:

i. Short-term
ii. Medium-term
iii. Long term

Steps

Before

The teacher should:

i. Define the learning outcomes.
ii. Develop a theme in line with learning outcomes.
iii. Design the research work and provide a description that is in line with learning outcomes.
iv. Define specific tasks to be undertaken in developing the research.
v. create a timeline.
vi. Select resources and materials needed.
vii. Provide guidance and support for learners.
viii. Develop clear assessment rubrics.
ix. Provide feedback and revisions.

During

The teacher should:

i. Provide clear guidelines for developing the research and how to assess it.
ii. Design and plan the research work to align with the learning outcomes.

iii. Provide necessary resources, materials, and support to help learners succeed in their research work.

iv. Guide learners in reflecting on their research-based assessments and help them develop metacognitive skills.

After

The teacher should:

i. *Alignment with learning outcomes*: The research work should be aligned with the learning outcomes of the content standards. This means that the research work should allow learners to demonstrate their understanding of the course material and to develop the skills that are being taught.

ii. *Originality*: The research work should be original and not simply a rehash of existing information. Learners should be encouraged to develop their ideas and to come up with their conclusions.

iii. *Critical thinking:* The research work should demonstrate that learners can conceptualise, apply, analyse, synthesise and evaluate the information they have gathered and come out with an action plan.

iv. *Communication skills:* The research work should be well-written and well- organised. Learners should be able to communicate their findings clearly and concisely.

Practical Assessments

Description: Practical assessment gauges a student's capacity to use their knowledge and abilities in practical and hands-on settings. It involves evaluating learners' ability to perform specific tasks and demonstrate practical skills. It includes laboratory experiments, simulations, demonstrations or projects.

The exact nature of the assessment will depend on the subject or area a teacher is interested in.

Purpose: The purpose of conducting a practical assessment is to:

i. Evaluate learners' proficiency, problem-solving capacity, and aptitude for carrying out tasks.

ii. Create and deliver tests that ask learners to complete real-world assignments, experiments, or demonstrations.

Setting: Teachers can use practical assessment in the following settings:

i. Classroom

ii. Laboratory

iii. Field

iv. School farms/gardens/community

v. Technical workshops

vi. Science fair

vii. Virtual/Digital/Remote

viii. Co-curricular activities and clubs

ix. Outdoor spaces

x. Workplace

xi. Team project

Time Frame: Based on the learning outcome and the skills to be acquired, a Practical assessment can be done in a week, at the end of a term or year depending on the project.

Class size: Class size suitable for practical assessment can be individual, group or whole class

Steps

Before

Learners can understand the content and theory being used by;

i. Reviewing the theoretical concept

ii. Familiarising themselves with the concept under assessment

Choosing experimental design, learners are required to;

i. Design an experiment using the theoretical concept.

ii. Outline the stages/process for the experiment and formulate hypotheses.

Gathering materials

i. Make a list of the tools and supplies you will need.

ii. Ensure that the necessary materials are available

During

Choosing experimental procedure:

i. Learners are required describe the step-by-step process in detail including how to control extraneous factors, along with any safety precautions.

Gathering and analysing data

With support from teachers, learners are required to:

i. Measure the dependent variable appropriately at various factor values to collect data.

ii. Analyse the data meaningfully.

iii. Sort, examine, and derive conclusions from the data analysis

After

Display of findings

i. Give a concise visual summary of the results.

ii. Address any restrictions or mistakes.

Reflection and improvement

i. Consider your advantages and disadvantages.

ii. Improve the design of upcoming experiments.

iii. Throughout the process, place a strong emphasis on ethics, integrity, and seeking advice as appropriate.

iv. Encourage a critical and inquisitive outlook on learning.

Debate As An Assessment Strategy

Description: Debate as an assessment strategy involves structured arguments and discussions to evaluate learners' knowledge and understanding of issues/ideas. It encourages research and articulation of views; it can be used for formative or summative assessments. Types of debates include formal debates with rules and roles and informal debates, which are more flexible.

Purpose: Using debate as an assessment strategy offers a comprehensive evaluation of learners' ability to generate ideas based on their knowledge and understanding of concepts and confidence in supporting their own ideas.

Settings

i. Classroom

ii. Performance spaces (e.g. dining hall, assembly hall, laboratory)

iii. Electronic platforms

iv. Music and drama theatre

Class Size: Depending on the learning outcomes to be achieved debates can be organised in:

i. Small classes

ii. Large classes

Time frame: The teacher can conduct a debate within a single class session, it can also span over several class sessions or weeks.

Steps

Before

The teacher should:

i. Select appropriate motion/ topic, ensuring it is relevant to the learning outcome

ii. Offer resources and materials to support learners

iii. Assign roles /create teams or pairings

iv. Establish rules and procedures

The learner should:

i. Undertake research regarding the debate's topic or motion
ii. Play an active role as a team member (in team-based debates)

During

The teacher should:

i. Host the debate
ii. Ensure effective time management
iii. Monitor and take notes

The learner should:

i. Participate in the debate
ii. Listen and take notes
iii. Counter argue when necessary

After

The teacher should:

i. Facilitate a debriefing session (Teachers should utilise the debriefing sessions to address any misunderstandings or questions that come up from the debate. They should also highlight the key concepts and important lessons based on the learning outcome)
ii. Implement peer assessments.
iii. Organise follow-up activities as necessary.

The learners should:

i. Reflect on their performance and the debate as a whole.
ii. Assess their peers' performances based on established criteria.

The Test of Practical Knowledge (TPK) Assessment Strategy

Description: This assessment is tailored to evaluate a learner's capacity to apply acquired knowledge in real-life situations by engaging in hands-on tasks or simulations that mirror real-world scenarios, assessing practical skills, problem-solving abilities, and the application of practical knowledge theoretically. It aims to gauge how effectively learners can employ their knowledge to solve problems or accomplish tasks.

Purposes: The general purpose of the test of practical knowledge is to assess learners' ability to apply practical knowledge in theory to:

i. Evaluate their application-based understanding.
ii. Assess their problem-solving skills.
iii. Measure the learner's practical knowledge and its use in real-life situations.
iv. Provide insights into a learner's ability to transfer practical knowledge into theoretical actions.

Setting: The Test of Practical Knowledge is conducted in environments that simulate real-life situations relevant to the learning outcome and the context being assessed. This could be a

i. Classroom
ii. Laboratory
iii. Field
iv. School farms/gardens/community
v. Technical workshops
vi. Science fair
vii. Virtual/Digital/Remote
viii. Outdoor spaces
ix. Workplace
x. Team Project

Class Size: The size of the class can vary based on resources and the nature of the practical tasks. It could be individual, smaller groups, or whole class.

Time Frame: The timing for assessing the Test of Practical Knowledge can range from a single session to multiple sessions, depending on the complexity of tasks and skills being assessed.

Steps

Before

The teacher should:

Provide clear instructions and resources needed for the tasks.

Clarify any doubts about the assessment task.

The learner should:

i. Seek clarification from the teacher or other relevant persons before starting the assessment.
ii. Familiarise themselves with theoretical concepts beforehand.

During

The teacher should encourage teamwork and effective communication if tasks involve group work.

The learner should

i. Focus on applying learned concepts to solve problems or complete tasks accurately within the given context.
ii. Manage time efficiently to complete tasks within allocated timeframes.

After

The teacher should encourage learners to reflect on their performance, review their work, and identify areas for improvement.

Performance Assessment Strategy

Description: In its simplest terms, a performance assessment is one which requires learners to demonstrate that they have mastered specific skills and competencies by performing or producing something. It is important that the task be meaningful and engaging to learners. When learners perform tasks that are meaningful and engaging to them, they can take ownership of their learning and effectively work, either independently or in collaboration, depending on the requirement of the task. Performance assessment can be used as either formative or summative tool.

Purpose: The main purpose of this assessment strategy is to provide learners with the opportunity to demonstrate their knowledge and understanding about a concept and communicate that understanding through a performance task.

Setting: Performance assessment can be used in the following settings:

i. Classroom
ii. Laboratory/workshops
iii. Field
iv. Theatre

Time Frame: Teachers should note that the learning outcome and learners' achievement expectations may inform the appropriate time frame for the use of performance assessment. However, the designated time of completion of the assessment task should not be too short or two long.

Class Size: Performance assessment works best for all forms of class size. Teachers should, however, be strategic in making learners work individually or in moderate/large groups depending on the unique situation.

Steps: To develop and implement performance assessment, teachers should:

Before

The teacher should:

i. State the purpose of the assessment.
ii. Specify the learning outcome to be assessed using the performance assessment strategy.
iii. Make learners aware whether they will work individually or as groups (e.g., group of 2-5).
iv. Design a performance task which requires the learners to demonstrate the intended skills and knowledge required of them.
v. Discuss with learners the rules of engagement which includes the performance criteria that specifies the extent to which learners have mastered the skills and knowledge.

vi. Discuss with learners the available resources to be used.

The learner should:

i. Make ready the available resources that will help them perform the assessment task.

ii. Seek for clarification on the performance task to be performed when necessary.

During:

The teacher should:

i. Monitor and ensure serenity of the environment for learners to work effectively as individuals or groups as in the case of a laboratory/field/workshop exercise.

ii. Guide learners to complete the assigned task(s) within the stipulated time.

The learner should:

i. Design the artifact or the idea using the available resources.

ii. Should submit the performance product to class at the stimulated time for evaluation.

After:

The teacher should:

i. Collaborate with learners to evaluate the performance task(s) outcome.

ii. Communicate constructive feedback of the assessment to the learners.

iii. Provide information on how the assessment feedback would be used.

The learner(s) should:

i. Offer constructive feedback on their colleague's work.

ii. Self-reflect and make use of constructive feedback to shape his/her work.

Demonstration As An Assessment Strategy

Description: Demonstration as an assessment strategy offers a practical and effective way to evaluate learners' knowledge, skills, and abilities by observing their performance in a real or simulated context. This may include a presentation, a practical experiment, a role-play, a performance, or a project.

Purpose: The main purpose of using demonstration as an assessment strategy is to allow learners to showcase their skills and competencies through practical application. Some of the areas in which learners can demonstrate their proficiencies are:

i. Problem-solving skills

ii. Critical thinking abilities

iii. Communication

Settings

i. Classroom
ii. Laboratory/ Workshop /Studio
iii. Simulation studio/environment
iv. Field or real-world settings (e.g., field trips, community projects, or internships)
v. Performance spaces (e.g., theatre, music room, or sports field/studio/rooms)
vi. Online/remote/virtual platform

Time Frame: The time frame for conducting demonstration as an assessment strategy depends on the following:

i. Learning outcome(s)
ii. Complexity of the task to be performed
iii. Resources

NB: The teacher should provide the learner enough time to demonstrate their abilities and ensure the assessment process is managed within the constraints of the learning environment.

Class size: Demonstration can be used for individuals or groups (large or small groups) for the reasons of attention, support, and prompt feedback on factors such as assessors, resources and equipment, learning outcome and the assessment environment.

Steps

Before

The teacher should

i. Set clear expectations of the learning outcomes, specific skills, knowledge and competencies.
ii. Provide instructions for the demonstration to include safety precautions, criteria for assessment and time.
iii. Provide learners the opportunity to rehearse the task or the activity to be demonstrated.
iv. Provide the needed materials and resources to be used for the demonstration.
v. Address the concerns of the learners raised after the rehearsals.
vi. Distribute the task to the learner(s) considering Special Education Needs - SEN)

The learner should:

i. Understand the learning outcomes, specific skills, knowledge, and competencies expected of them.
ii. Take the necessary steps to prepare for the demonstration by reviewing the instructions and rehearsing the expected knowledge, skills, and competencies.

iii. Seek clarification about the instructions and materials to be used for the demonstration.

iv. Take the opportunity to practice and refine their skills or knowledge before the demonstration.

v. Reflect on their previous learning and experiences related to the skills or knowledge being assessed.

During

The teacher should:

i. Observe the learner's performance of the task demonstrated.

ii. Provide continuous guidance to learner(s) on the task especially when they are working with or in hazardous situations.

iii. Monitor the progress of the learner(s) on the task.

iv. Pace the timing of the demonstration such that differentiation is considered.

v. Assess the performance of the learners on the task.

vi. Take notes of critical issues such as learners' strengths and areas for improvement

The learner should:

i. Focus on the demonstration and actively listen to the instructions and explanations provided.

ii. Carefully watch the demonstration, noting the steps, techniques, and key details being shown.

iii. Take notes of important points, steps, or tips during the demonstration to refer to later.

iv. Request feedback from the demonstrator or peers to ensure they are on the right track and identify areas for improvement.

After

The teacher should:

i. Provide constructive feedback to the learners based on observations highlighting areas of improvement, reinforcing correct techniques, and encouraging further practice.

ii. Review notes to consider where learners have performed well and areas that need improvement

iii. Provide support to learners who may be struggling with the demonstrated skills. This can involve additional explanations, demonstrations, or one-on- one assistance.

The learner should:

i. Reflect on their own performance during the demonstration and assess their understanding and execution of the demonstrated skills or techniques.

ii. Share their performance and ask for feedback to improve their learning.

iii. Identify specific areas where they need further assistance or practice; they can seek out additional resources such as tutorials, online courses, or books to support their learning and assessment.

Questioning As An Assessment Strategy

Description: Questioning as an assessment strategy is the practice of engaging learners in an interactive dialogue or a series of carefully crafted questions to evaluate their understanding, knowledge, skills, and critical thinking abilities. Teachers can use questioning as an assessment strategy in all learning areas or subjects.

Purpose: Questioning as an assessment strategy can be used by the teacher to:

1. Identify learning gaps through the assessment of the level of comprehension, retention and application of knowledge, and skills gained by learners in achieving a learning outcome of a given content.
2. Actively engage leaners in the teaching and learning process.
3. Assess if a concept taught has been well grasped as learners' feedback provides valuable feedback to them and the teacher.
4. Clarify concepts leading to deeper understanding or seek additional information in solving real-world or imaginary issues.
5. Promote the acquisition of critical thinking and problem-solving skills.
6. Encourage immediate or real-time feedback from leaners leading to deeper thinking.
7. Investigate misconceptions for clarification.
8. Accommodate diverse learning styles to achieve a specific learning outcome.

Types: The following are various types of questioning techniques based on the Depth of Knowledge (DoK) levels that the teacher can use in assessment:

i. Closed-ended questions – DoK 1: have a limited number of predetermined answers and are designed to gather specific information requiring "yes" or "no", "True or False"

ii. Open-ended Questions - DoK 2 and 3: allow for a more detailed and

iii. Comprehensive response, which begins with words like "what," "why," or "how."

iv. Funnel Questions- DoK 2 and 3: used to gradually narrow down a topic, starting with broader questions and proceeding to more specific ones. This technique helps gather information in a logical and structured manner.

v. Probing Questions - DoK 2 and 3: used to explore a topic in more detail or to gain deeper insights. They are often used to dig deeper into a previous response or to uncover hidden information,

vi. Leading Questions - DoK 2 and 3: used to steer learners towards a particular answer or viewpoint. They may imply an expected or desired response.

vii. Hypothetical Questions- DoK 3 and 4: These questions often involve speculative or creative thinking. They require learners to make connections, apply knowledge, and think beyond the immediate context.

Settings

i. Classroom
ii. Co-curricular activities, e.g. School Clubs and Games
iii. Field trips/work, e.g., Factories/industries, school farms/gardens/ pantries(kitchen)
iv. Laboratory/Resource Centre
v. Workshops/studios/theatres

Time Frame: Teachers can use questioning in their daily teaching and learning activities. However, it should be used based on the learning outcome of the subject matter under consideration. It can specifically be used:

i. Throughout the teaching and learning process (Formative Assessment): before, during and after the teaching of a lesson.
ii. In summative assessment, questioning can be used together with other forms of assessment such as oral/aural(listening) assessment at the end of a unit or content and programme.

Class size: Individual, small group or whole class

Steps: In using questioning as an assessment strategy, the teacher and learner can employ the following steps:

Before

The teacher should:

i. Define the Learning Outcomes to be achieved and develop key questions before class based on the outcomes.
ii. Select appropriate question type(s) that align with the content standard/ indicators to be taught and the DoK levels to be achieved. The questions to be asked should be clear, relevant, concise, and free from ambiguity and biases.
iii. Design valid questions that will suit the type of questioning strategy to be used to achieve the learning outcomes.

NB: Avoid or minimise the use of questions that will yield Yes/No or True/False responses but make more use of questions that allow for explanatory responses.

Plan question sequence and adapt questioning techniques to meet the diverse learning needs and abilities of their learners to promote active participation.

During

The Teacher should:

i. Select the context and provide relevant information to give learners the basis for the questions.

ii. Vary the form of questions: those that gauge knowledge, require diagnosis, or challenge conclusions considering the learner's background characteristics to promote inclusivity.

iii. Ask one question at a time and wait for responses from learners to allow time to think through responses critically.

iv. Encourage active engagement of all learners.

v. Monitor learners' performance and learning process to identify areas where learners may need additional support or clarification or to plan appropriate remediation where appropriate.

vi. Acknowledge all responses/answers- repeat so the class can hear and/or write them on the board.

vii. Provide constructive and timely feedback; teachers are advised to accommodate learners' varied responses as well as be fair and ethical.

viii. Use assessment data to modify their teaching techniques, strategies and resources.

ix. Move around the classroom or learning centre

The learner should:

i. Ensure they gain an understanding of the learning outcomes and work towards achieving them through self and peer assessment.

ii. Actively participate in the questioning process by listening carefully to the questions, thinking critically about their responses, and providing thoughtful answers.

iii. Self and peer assess themselves using a questioning assessment strategy when learning to enable them to reflect on their learning.

iv. Own their learning by adapting strategies to improve their learning outcomes, skills and competencies.

After

The teacher should:

i. Analyse responses

ii. Provide constructive feedback

iii. Modify teaching and learning processes

iv. Document assessment data

v. Reflect and adapt questioning techniques, strategies and resources to check if expected learning outcomes have been achieved.

vi. Teachers and learners reflect on responses to check if expected learning outcomes have been achieved.

Peer/Self Assessment Strategy

Description: Peer/self-assessment is a type of performance monitoring and evaluation related to a learning outcome done by or among learners under the supervision of a teacher to track their learning progress. It can be used as both formative and summative assessment. However, it is predominately used for formative assessment purposes.

Purpose: Peer/self-assessment provides an opportunity for learners to reflect and provides insight, leading to meaningful feedback on their or other learners' work (behaviours, competencies and experiences). Peer/self-assessment enhances deep learning and understanding among learners and trains learners to track their progress and areas for improvement.

Setting

i. Classroom-based environment
ii. Fieldwork
iii. Laboratory i.e., Science Resources Centres
iv. Studio
v. Workshop

Class size: Peer assessment strategy can be done in small groups or whole class.

Time Frame: The time frame depends on the complexity of the assignment, the estimated period of the lesson stated in the curriculum and how learners have been adequately prepared. However, the time should neither be too short nor too long.

Steps

Before

The teacher should:

i. Set clear expectations of the learning outcome, skills and competencies
ii. Decide the structure and format of the assessment e.g.: written or oral
iii. Introduce the learners to the assignment to be assessed
iv. Develop the assessment criteria and scoring rubrics with learners.

During

The teacher should

i. Model peer/self-assessment by letting learners assess or review what he has taught to open them up to the assessment to be conducted.
ii. For peer assessment, lead the pairing or grouping for the assessment. in doing this, the teacher should consider mixed groupings, and avoid inter- pairing and pairing amongst friends. (fairness and transparency)
iii. In self-assessment, the teacher should guide learners with special educational needs in their assessment through questioning
iv. Provide constructive feedback to learners after the assessment

The learner should:

i. Work and submit assignments
ii. Assess their assignments or that of other learners and give constructive feedback
iii. Reflect on the feedback received and revise the work for final submission

After

The teacher should:

i. Grade the assignments (summative)
ii. Reflect on the activity with learners
iii. Offer help or intervention in areas learners need help
iv. Work on areas that need improvement

NB: The teacher should be a mediator between arguing learners and should also consider and guide learners in their approach to providing feedback. (Be conscious of gender, cultural, social and religious sensitive comments and issues)

Teacher should also provide multiple opportunities or formats for learners to assess to accommodate all learn.

Appendix 3: Teacher Lesson Observation Form

Name of School: .....

Subject being observed: .....

Class

Year 1 ☐ Year 2 ☐ Year 3 ☐

Sex of the teacher

Male ☐ Female ☐

1. Is the purpose of the lesson clearly stated in the lesson plan and focused on learners achieving the lesson learning outcomes?

   Yes ☐ In Part ☐ No ☐ NA ☐

1b. Please provide an explanation to your answer in Q1 above

.....

2. Are the unique needs of female learners, male learners, and learners with special education needs adequately catered for in the lesson plan? For example, the choice of teaching methods and learning activities reflects/does not reflect the learning needs of all learners.

   For example, the choice of teaching methods, and learning activities.

   Yes ☐ In Part ☐ No ☐ NA ☐

2b. Please provide an explanation to your answer in Q2 above

.....

3. Does the teacher manage behaviour well, maintaining a positive and non-threatening learning environment throughout the lesson?

   Yes ☐ In Part ☐ No ☐ NA ☐

3b. Please provide an explanation to your answer in Q3 above

.....

4. Are appropriate teaching and learning materials and other resources (including ICT, books, desks) available, accessible and being used to support learning of all females, males and learners with special education needs?

   Yes ☐ In Part ☐ No ☐ NA ☐

4b. Please provide an explanation to your answer in Q4 above

.....

5. Are learners engaged on tasks that challenge them in line with the content standards? Does the teacher take into consideration the uniqueness of learners?

Yes ☐ In Part ☐ No ☐ NA ☐

5b. Please provide an explanation to your answer in Q5 above

6. Is there evidence that students are learning?

Yes ☐ In Part ☐ No ☐ NA ☐

6b. Please provide an explanation to your answer in Q6 above

7. Is teaching differentiated to cater for the varied needs of all learners (i.e., male learners, female learners, learners with special education needs) and those with poor literacy and/ or numeracy proficiency?

Yes ☐ In Part ☐ No ☐ NA ☐

7b. Please provide an explanation to your answer in Q7 above

.....

8. Does the teacher use real life examples which are familiar to learners to explain concepts?

Yes ☐ In Part ☐ No ☐ NA ☐

8b. Please provide an explanation to your answer in Q8 above

.....

9. Does the teacher point out or question traditional gender roles when they come up during the lessons as appropriate?

Yes ☐ In Part ☐ No ☐ NA ☐

9b. Please provide an explanation to your answer in Q9 above

.....

10. Does the lesson include appropriate interactive and creative approaches e.g., group work, role play, storytelling to support learners achieving the learning outcomes?

If yes, give examples of the issues and skills that have been so integrated.

Yes ☐ In Part ☐ No ☐ NA ☐

10b. Please provide an explanation to your answer in Q10 above

.....

11. Have cross-cutting issues and /or 21st century skills been integrated into the lesson to support learners in achieving the learning outcomes e.g., problem-solving, critical thinking, communication? If yes, give examples of the issues and skills that have been so integrated.

Yes ☐ In Part ☐ No ☐ NA ☐

11b. If yes, give examples of the issues and skills that have been so integrated.

.....

12. Does the teacher incorporate ICT into their practice to support learning?

Yes ☐ In Part ☐ No ☐ NA ☐

12b. Please provide an explanation to your answer in Q12 above

.....

13. Does the teacher encourage all female male and male learners (including those who may be shy or afraid to speak) to ask questions, answer questions, participate in group work, etc. during the lesson?

Yes ☐ In Part ☐ No ☐ NA ☐

13b. Please provide an explanation to your answer in Q13 above

.....

14. Is assessment evident in the lesson? If yes, does it include assessment as, for or of learning and go beyond recall?

If yes, did it include assessment of, for or as learning and go beyond recall?

Yes ☐ In Part ☐ No ☐ NA ☐

14b. Please provide an explanation to your answer in Q14 above

.....

15. Do learners make use of feedback from teacher and peers?

Yes ☐ In Part ☐ No ☐ NA ☐

15b. Please provide an explanation to your answer in Q15 above

.....

16. Does the teacher sum up the lesson and evaluate the lesson against the learning outcomes with the learners?

Yes ☐ In Part ☐ No ☐ NA ☐

16b. Please provide an explanation to your answer in Q16 above

.....

17. Does the teachers' planning of lessons taught before the one observed show how they plan for learning over time, considering individual and group needs?

Yes ☐ In Part ☐ No ☐ NA ☐

17b. Please provide an explanation to your answer in Q17 above

.....

18. Does the teacher pay attention to the composition of females and males during group work and assigns females leadership roles.

Yes ☐ In Part ☐ No ☐ NA ☐

18b. Please provide an explanation to your answer in Q18 above

.....

19. Does the teacher provide constructive verbal feedback to both females and males and learners with special education needs?

Yes ☐ In Part ☐ No ☐ NA ☐

19b. Please provide an explanation to your answer in Q19 above

.....

20. Does the teacher provide constructive written feedback to both females and males and learners with special education needs in their exercise book?

Yes ☐ In Part ☐ No ☐ NA ☐

20b. Please provide an explanation to your answer in Q20 above

.....

21. Key strengths in the lesson

.....

22. Areas for development

.....

23. Next steps for teacher

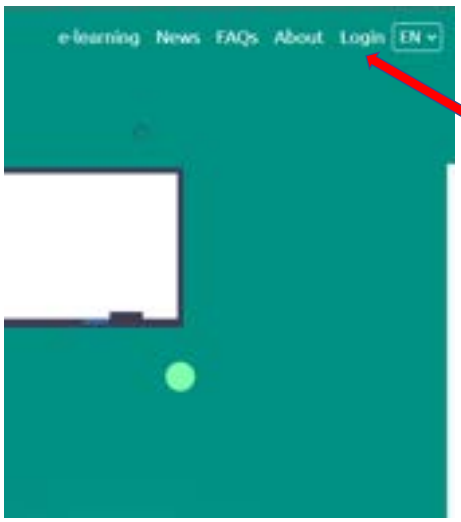
.....

24. Additional Notes (on teacher's actions, the flow of activities, etc.)

.....

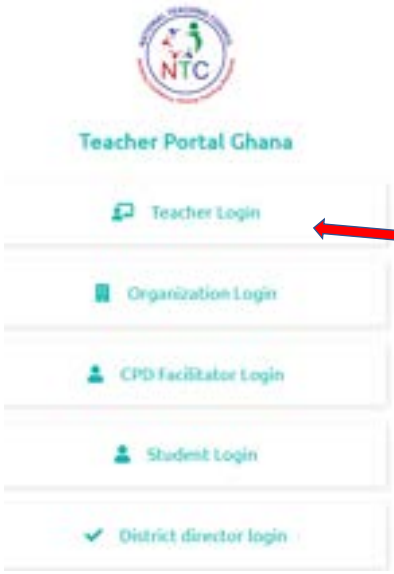
Appendix 4: How to Check CPD Points and Training Records on Teacher Portal Ghana

1. Visit *tpg.ntc.gov.gh* and click Login



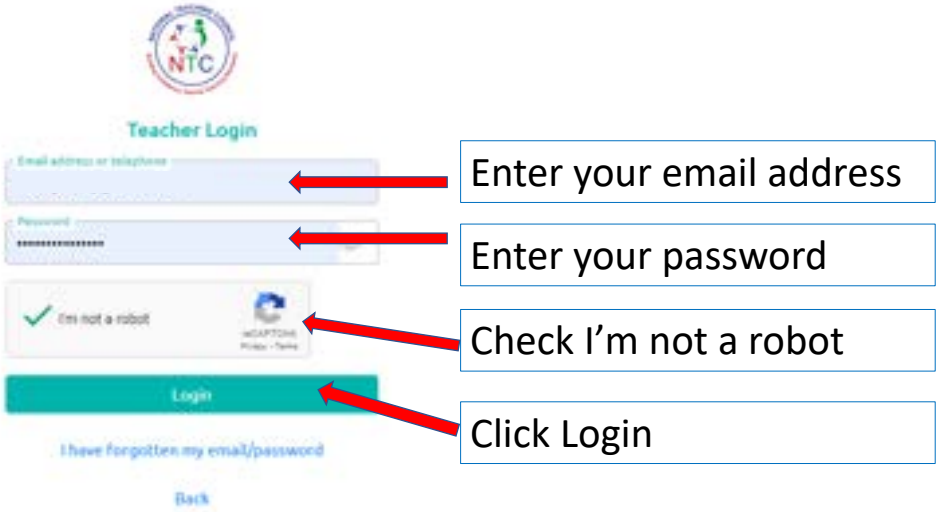
Click Login on the TPG homepage

2. On the Login page, click Teacher Login

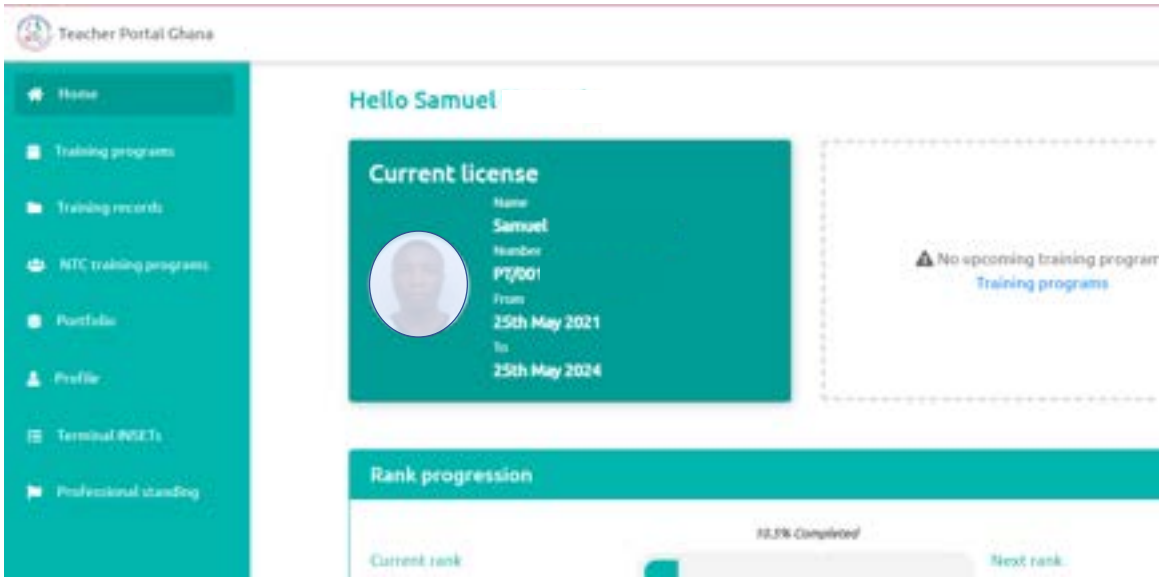


Click Teacher Login

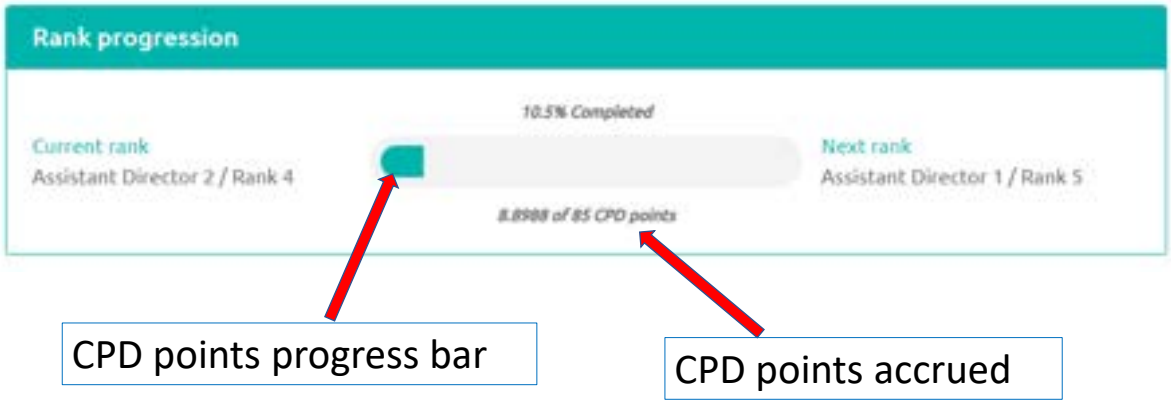
3. On the Teacher Login page enter your email address and password and then click Login



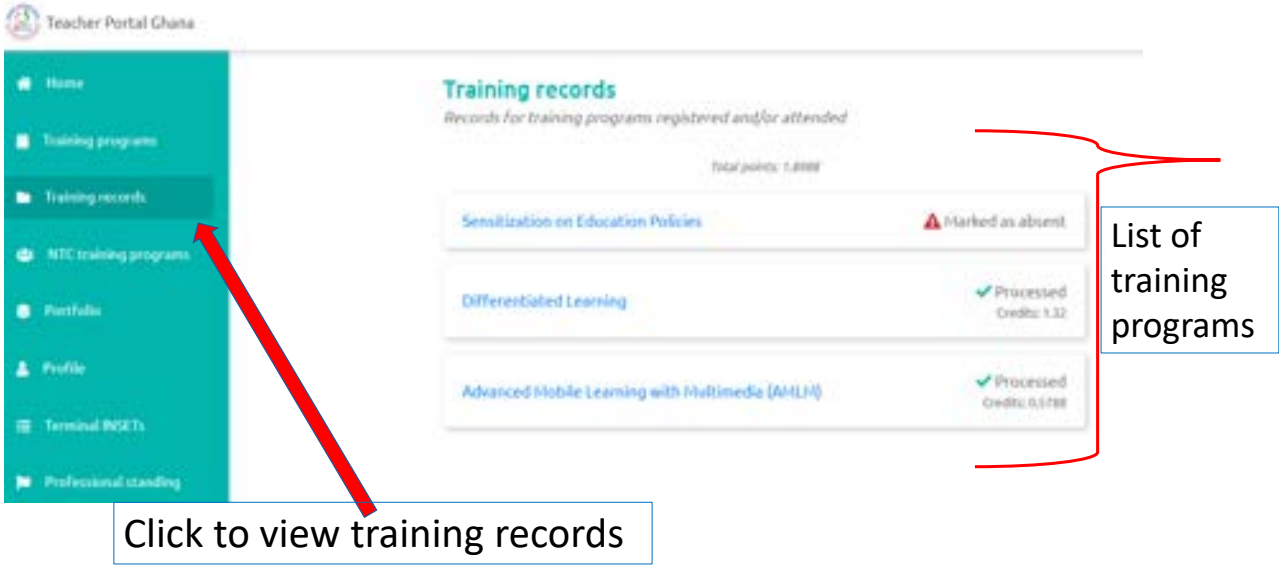
4. After a successful login you will get access to your TPG account (Check image below)



5. To check CPD points, scroll down to Rank progression. You will see the CPD points progress bar and actual points accrued (Check image below)



6. To view training records, from the side menu tap on Training records (Check image below)



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