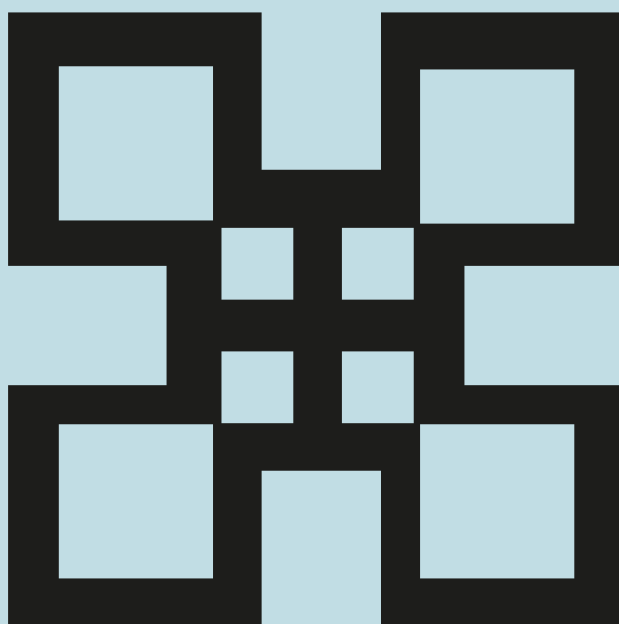


Professional Learning Community Handbook

Additional Mathematics

Year Two



Ghana Education
Service (GES)



**Professional Learning
Community Handbook**

Additional Mathematics

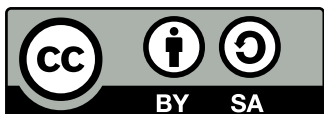
Year Two



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Foreword

As Minister for Education, I am delighted to introduce this handbook on Professional Learning Communities (PLCs). The handbook provides practical guidance and resources for teachers to establish and sustain effective PLCs that will drive quality pedagogy and enhance learning outcomes.

Weekly Professional Learning Community (PLC) sessions are the backbone of this Government's commitment to continuous teacher development in every Senior High School. These PLC sessions enable teachers to come together to master the pedagogy, content and assessment needed to successfully implement Ghana's SHS curriculum.

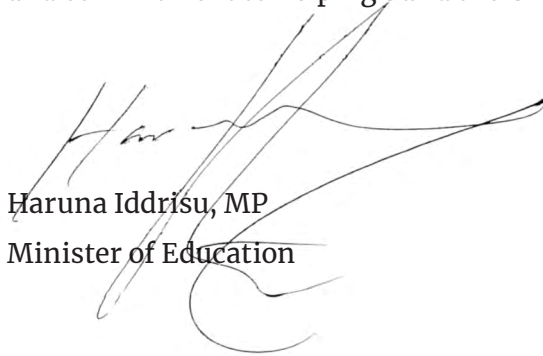
By fostering a culture of collaboration and continuous improvement through PLCs, teachers can enhance their understanding of the new SHS curriculum and effectively facilitate learning in the classroom. This will contribute to our country's resetting agenda by educating a generation of young people with the skills needed to progress to further studies, the world of work and adult life.

PLC sessions are critically important and should be treated with the utmost seriousness. Transforming our education system is a partnership between government, teachers, parents and learners. As teachers gain experience with the new curriculum and assessment regime, PLC sessions can also be tailored to discuss specific issues of concern as a group. It is important that teachers are heard and respected. We have listened to your concerns about PLCs and have factored this feedback into the new Year 2 Subject-Specific PLC Handbooks.

The Handbooks have been designed to be more flexible in structure than those for Year One. Each PLC Handbook is supported by a Subject-Specific App developed by the National Council for Curriculum and Assessment (NaCCA) linked to the revised curriculum. These Apps will help teachers to plan learning activities, assessments and differentiated learning. From our early interactions with teachers to develop and test these Apps we can see the level of excitement about their potential to save teachers time and improve their teaching and learning. These Ghanaian-owned Apps are the first of their kind at this scale anywhere in Africa, helping teachers save time and deliver lessons that truly meet the needs of every learner. I am confident that it will have a significant impact on our education system and ultimately benefit our students, teachers, and communities. All teachers are encouraged to embrace the principles and

practices outlined in this handbook and to work together to build strong, vibrant PLCs that promote enhanced learning outcomes.

I commend the authors and contributors for their tireless efforts in developing this valuable resource, which will enhance the quality of teaching and learning. Thank you to each one of you for your dedication and commitment to helping build the Ghana we want, together.

A handwritten signature in black ink, appearing to read 'Haruna Iddrisu', is written over the printed name and title.

Haruna Iddrisu, MP
Minister of Education

Acknowledgements

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LINKS to APPs

Year One App



<https://www.playlab.ai/project/cmd92w06l04rzh10uj4rc3pwv>

Year Two App



<https://www.playlab.ai/project/cme6fmsbj0fbtnkouz002inv9>

PLC Session 0: Introduction to the Year Two Professional Learning Community Handbook and the Subject Specific App

1.0 Introduction and Purpose of the Handbook (15 minutes)

The purpose of the Year Two Professional Learning Community (PLC) Handbook is to support teachers to effectively deliver the new Senior High School (SHS) curriculum. This Handbook is accompanied by a Subject Specific App tailored to SHS curriculum. The App is designed to assist teachers with lesson planning, delivery and assessment. The Subject Specific App uses information directly from the following materials:

1. Curriculum
2. Teacher Manual
3. Learner Materials
4. Vision and Philosophy of the SHS curriculum
5. 21st century skills and competencies
6. National Teachers' Standards
7. West African Examinations Council Scheme of Assessment and Detailed Syllabus
8. Learning Planning Template
9. Teacher Assessment Manual and Toolkit
10. Socio Emotional Learning
11. National Values
12. Gender Equality and Social Inclusion (GESI), etc.

Learning Outcome (LO): To explore how the Subject Specific App can assist teachers with lesson planning, delivery and assessment (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Use the Subject Specific App to explore the Year Two Curriculum Materials (Teacher Manual and Learner Materials)

Learning Indicator (LI) 2: Discuss the advantages and disadvantages of using the Subject Specific App to design lessons and assessment strategies.

2.0 Exploring the Subject Specific App (65 minutes)

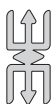
2.1 Scan the QR Code or use the link to access your Subject Specific App – <https://www.playlab.ai/project/cme6fmsbj0fbtnk0uz002inv9>



2.2 Have a chat with the Subject Specific App (NTS 3j).

E.g.

- a. Select a section and the number of lessons you have in a week to start the App
- b. Provide information about your class. For instance, the number of learners in your class, etc.
- c. Select a week you are interested in and continue chatting with your App
- d. Refer to your Teacher Manual and confirm the information provided by the App or otherwise



Note

Always refer to your Teacher Manual to confirm the information the App provides.

2.3 Explore the following key areas using the App (NTS 2b, 2c, 2e and 3a–3q)

E.g.

a. Learning activities

I have a 60 minute lesson in a rural farming community in Lawra without enough tables and chairs. I can have my lesson outside the classroom if possible.

b. Assessments

Based on the recommended assessments for the week how can I assess my learners at level 2 at the end of the lesson. I want to give one question during the lesson and one at the end as homework

c. Differentiation strategies

There are two learners in wheelchairs. Another one cannot hear unless you speak very loudly. Finally, 5 learners are comfortable in the local language than in English. How can they be catered for in the lesson and assessment?

Hint



Remember to ask your App to help you add 21st Century Skills, National Values, GESI and SEL to your learning activities, assessment, etc., where applicable.

2.4 Share your experience with the larger group (NTS 3j).

- a. two things you learnt using the App and how you plan to apply them.
- b. two advantages of using the App
- c. two disadvantages of using the App without the appropriate curriculum materials (e.g. Teacher Manual, etc.)

3.0 Reflection

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

3.2 Remember to read PLC Session 0.5 and bring along your laptop in preparation for next week's session.

PLC SESSION 0.5: Using the Subject Specific App to deliver assessments at appropriate DoK levels

1.0 Introduction (10 minutes)

- 1.1** Read and discuss the purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session

Purpose: The purpose of this session is to refresh our knowledge and understanding of assessment in the SHS curriculum. WAEC's visits to schools show that teachers are generally doing well with setting assessment tasks at DoK Levels 1 and 2 but there are issues with Levels 3 and 4. This session will look at how the subject specific App can assist teachers in developing assessments at all DoK Levels.

Learning Outcome (LO): To strengthen teachers' skills and competencies in developing assessment tasks and items to reflect all the DoK Levels (NTS 3k, 3o-3p).

Learning Indicator (LI) 1: Use the subject specific App to develop assessments linked to the learning indicators and the required DoK levels.

Learning Indicator (LI) 2: Use the subject specific App to review existing assessments to check whether they are linked to the required Learning Indicators and DoK levels.

2.0 Planning and Delivering of Assessment using the Subject Specific App (65 minutes)

- 2.1** Open your App and have a chat with it.

E.g.

- a.** *Select a section and the number of lessons you have in a week to start the App*
- b.** *Provide information about your class. For instance, the number of learners in your class, etc.*

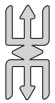
- c. *Select a week you are interested in and continue chatting with your App*
- d. *Refer to your Teacher Manual and confirm the information provided by the App or otherwise.*

2.2 Explore assessment using the App (NTS 3h, 3j and 3o–3q)

E.g.

Select Assessment

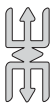
- a. *Look at the LIs for the week and select the appropriate DoK Level or Levels required for the week's lesson. For instance, 'the LI requires modelling, I would like to assess at level 3'*
- b. *Review the responses on the formats from your App, select any that meets your needs or continue chatting with your App to provide other assessment formats.*
- c. *Continue chatting with your App, for instance*
 - i. *'suggest 10 scenario based MCQs'*
 - ii. *'suggest level 3 task taking into consideration the learning activities and differentiation'*
 - iii. *Generate marking scheme for the task and add an explanation why an option is the right answer*



Note

Check that the MCQs are arranged alphabetically, vertically and the options are of similar length

- d. *Now repeat the process for different assessment strategies, for instance*
 - i. *Essay questions at level 3*
 - ii. *Case study questions at level 4*
 - iii. *3 week project task at level 4, etc.*



Note

You may select a different section or week for Activity 2.2d

2.3 Use the subject specific App to review the task or items you developed by having a chat with the App to provide justifications as to why the task is at DoK level 3 or 4 (NTS 3j, 3k, 3m 3o and 3p–3q).

E.g.

Explain why the tasks or items are at DoK level 3.

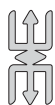


Note

You may repeat this for DoK levels 1, 2 or 4.

3.0 Using your subject specific App to explore one of the key assessment modes

- 3.1** Identify and select an assessment mode you found challenging in the last academic year and explore with your subject specific App how to use this assessment strategy effectively in your lesson delivery (NTS 3k).



Note

- i. *Chatting once may not be enough for the App to provide all that you may need for the tasks.*
- ii. *Remember to ask your App to help you add 21st Century Skills, National Values, GESI and SEL to your learning activities, assessment, etc., where applicable.*

- 3.2** Share your experience with the larger group (NTS 3j).
- a. two things you learnt using the App in developing assessments
 - b. how you plan to apply the experiences
 - c. any challenges you faced in using the App to develop assessments and how you addressed them

4.0 Reflection (15 minutes)

- 4.1** Reflect and share your views on the session (NTS 1a, 1b)

- 4.2** Remember to

- a. read PLC Session 1, Teacher Manual and related Learner Material (NTS 3a).
- b. Bring along your laptop, Teacher Manual and PLC Handbook on Week 1 in preparation for the next session (NTS 3a).

PLC Session 1: De Morgan's Laws of Set Theory

1.0 Introduction (10 minutes)

Read and discuss the purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to populate a learning planner for Week 1 on De Morgan's laws of set theory with the needed areas and use the subject specific App to review the completed learning plan.

Learning Outcome (LO): To populate the learning planner on De Morgan's laws of set theory with essential questions, key notes on differentiation, learning activities and key assessments and to use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner on week 1 using the subject specific App.

Learning Indicator (LI) 2: Enact an activity based on your learning plan.

2.0 Planning and Reviewing of Learning Plan (50 minutes)

2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 1 on De Morgan's laws of set theory (NTS 3a-3q).

E.g.

i. Essential questions

I am planning a 3-hour lesson for 78 learners on Week 1 learning indicators. Craft 3 essential questions which should guide the delivery of the lesson.

ii. Differentiation

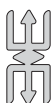
Based on the demands of Week 1 content in the Teacher Manual and activities in the Learner Material, how will I ensure the lesson is differentiated to meet the needs of the 30 slow-paced learners and 15 learners diagnosed with ADHD?

iii. Learning activities

I have manila cards, sticky notes and markers. Suggest 4 learning activities (2 from the Learner Material) that can be used to teach the content in Week 1 to 68 learners in a period of 3 hours.

iv. Assessment tasks

Suggest 3 assessment tasks on De Morgan's laws of set theory that can be assigned as individual class exercises to be completed in 20 minutes. Provide a question each on DoK Levels 1, 2 and 3. Include a mark scheme with step-by-step calculations, etc.



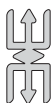
Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks.
- ii. Transfer the information from your SS App into your learning planner template to complete your plans. Click the link or Scan the QR code to download the template.
<https://curriculumresources.edu.gh/wp-content/uploads/2025/09/Year-Two-Lesson-Planner-Template-20.docx>

- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

3.0 Enactment (20 minutes)

- 3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c-3j).
- 3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1 Reflect and share your views on the session (NTS 1a, 1b).
- 4.2 Identify a critical friend to observe your lesson in relation to PLC Session 1 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3 Remember to:
 - a. Read PLC Session 2, Teacher Manual and related Learner Material (NTS 3a).
 - b. Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c. Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 2: Preparing for Student Transcript Portal Assessment – Portfolio

1.0 Introduction (10 minutes)

- 1.1 Share one thing on assessment in PLC Session 1 that you
 - a. applied in your lesson delivery
 - b. found challenging and how you addressed it.
- 1.2 Share one challenge you encountered while populating your learning plan for week 2 before the session that you would like to discuss during this PLC session.
- 1.3 Read and discuss the Purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to use the subject-specific App to

- 1. review the completed learning plan for week 2
- 2. prepare assessment tasks and rubrics for individual portfolio

Learning Outcome (LO): To review the learning plan for Week 2 and address any challenges in planning and developing assessment tasks for the individual portfolio (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Review the learning plan and address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Discuss, develop and review assessment tasks with rubrics for the individual portfolio.

2.0 Reviewing the Learning Plan (20 minutes)

- 2.1 Upload your completed learning plan into the subject-specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Differentiation

Attached is a learning plan for Week 2 to be delivered to 42 learners (3 with visual impairments, 2 with hearing difficulties and 6 fast learners). Review the key notes on differentiation in the plan and suggest areas for improvement to ensure that differentiation strategies effectively address the diverse learning needs and disabilities, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) learning activities
- c) assessment tasks, etc.

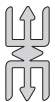
3.0 Prepare to Assign, Assess and Record for the Student Transcript Portal (50 minutes)

- 3.1** Refer to your Teacher Manual for the key assessment to be recorded in the Student Transcript Portal and have a chat with the subject-specific App to review or develop your assessment tasks and mark schemes/rubrics (NTS 2a–2c, 2e–2h and 3j–3q).

E.g.

Individual Portfolio Assessment

Based on Appendix A in the teacher manual, suggest a portfolio assessment task covering concepts to be taught between weeks 3 and 20. The demand of the task should require checkpoints every three weeks on the progress, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

- 3.2** Have a chat with your App to verify the suggested assessment tasks and discuss the suitability of the responses from activity 3.1. Use the

suggestions to refine the assessment tasks (NTS 1a, 2b, 2c and 3e–3q). In doing this activity, consider:

E.g.

i. Task

Are the instructions for the generated assessment task clear for all learners? etc.

ii. Mark scheme and score distribution

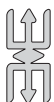
Based on the revision made in the instructions for the assessment task, adjust the marking scheme/rubrics to effectively assess the demands of the task, etc.

iii. Resources needed for assessment administration

Suggest resources that should be made available to learners to be able to undertake this portfolio assessment. Note that the school is a boarding school, learners will be on break only after week 12 and resume when lessons for week 13 begin, etc.

iv. How to provide feedback

Considering a progress check in every three weeks, suggest how to provide individualised feedback to learners and overall feedback after submission of the portfolios at the end of the semester, etc.



Note

Use the responses to complete your plan

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 2 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Mark, record and upload your learners' assessment scores in the Student Transcript Portal (NTS 3j, 3n).
- b.** Read PLC Session 3, Teacher Manual and related Learner Material (NTS 3a).
- c.** Bring along your Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- d.** Identify areas you found challenging in your teaching and administration of the assessment for discussion during the next session.

PLC Session 3: Preparing for Student Transcript Portal Assessment – Group Project

1.0 Introduction (10 minutes)

- 1.1 Share one thing on assessment in PLC Session 2 that you
 - a. applied in your lesson delivery
 - b. found challenging and how you addressed it.
- 1.2 Share one challenge you encountered while populating your learning plan for week 3 before the session that you would like to discuss during this PLC session.
- 1.3 Read and discuss the Purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to use the subject-specific App to

- 1. review the completed learning plan for Week 3
- 2. prepare assessment tasks and rubrics for group project

Learning Outcome (LO): To review the learning plan for Week 3 and address any challenges in planning and developing assessment tasks for the group project (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Review the learning plan and address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Discuss, develop and review assessment tasks with rubrics for the group project.

2.0 Reviewing the Learning Plan (20 minutes)

- 2.1 Upload your completed learning plan into the subject-specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Assessment tasks

I have attached a learning plan for Week 3. Verify if the formative assessment tasks in the plan adequately assess the learning indicators for the week, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) learning activities, etc.

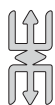
3.0 Prepare to Assign, Assess and Record for the Student Transcript Portal (50 minutes)

- 3.1** Refer to your Teacher Manual for the key assessment to be recorded in the Student Transcript Portal and have a chat with the subject-specific App to review or develop your assessment tasks and mark schemes/rubrics (NTS 2a–2c, 2e–2h and 3j–3q).

E.g.

Group Project

Based on the hint in the Teacher Manual and specifications in the TAMT on the demands of a Group project, develop an assessment task that learners can deliver after 5 weeks, etc.



Note

Chatting once may not be enough for the App to provide all that you may need for the tasks

- 3.2** Have a chat with your App to verify the suggested assessment tasks and discuss the suitability of the responses from activity 3.1. Use the suggestions to refine the assessment tasks (NTS 1a, 2b, 2c and 3e–3q). In doing this activity, consider:

E.g.

i. Task

Are the demands of the group project assessment task clear and appropriate for the diverse learners already described in my plan? etc.

ii. Mark scheme and score distribution

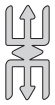
Based on the revised assessment task, modify the rubrics to include scores for presentation as well as report, etc.

iii. Resources needed for assessment administration

Suggest low-cost resources needed to undertake the revised group project and appropriate for the diverse learners, etc.

iv. How to provide feedback

There will be weekly check-in during the project to provide focused-group feedback to learners and whole class feedback after submission of the project. Suggest how to go about it, etc.



Note

Use the responses to complete your plan

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 3 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Mark, record and upload your learners' assessment scores in the Student Transcript Portal (NTS 3j, 3n).
- b.** Read PLC Session 4, Teacher Manual and related Learner Material (NTS 3a).
- c.** Bring along your Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- d.** Identify areas you found challenging in your teaching and administration of the assessment for discussion during the next session.

PLC Session 4: Quadratic Inequalities and Optimisation

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 3
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 4?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

HINT



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for week 4 on Quadratic Inequalities and Optimisation using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 4 on Quadratic Inequalities and Optimisation (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

Suggest 3 essential questions (1 for teacher, 2 for learner) which should serve as a guide as I deliver a lesson on week 4 focal area “Solve quadratic inequalities involving real life problems”. Avoid use of personal pronouns.

ii. Differentiation

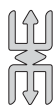
Based on the Week 4 focal areas, what specific differentiation strategies should be included in my learning plan to support 5 visually impaired learners in hands-on graphing activities if there are no assistive devices/technologies?

iii. Learning activities

Based on the Week 4 focal areas and specific activities in the Learner material, suggest 3 learning activities which can be adapted for 5 visually impaired learners in graphing exercises. The school has no assistive devices/technologies.

iv. Assessment tasks

Given the Week 4 focal areas, develop 3 assessment tasks which can be designed as an individual class exercise for 65 learners that accommodates 5 visually impaired learners without requiring assistive devices/technologies, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Learning activities

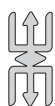
I have 65 learners (5 slow-paced; 5 visually impaired). Review the learning activities in the attached week 4 learning plan in alignment with the teacher manual. Suggest areas for improvement to suit the learners and class size, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment tasks, etc.



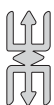
Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

- 2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).
- 2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1 Reflect and share your views on the session (NTS 1a, 1b).
- 4.2 Identify a colleague to observe your lesson in relation to PLC Session 4 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3 Remember to:
 - a. Read PLC Session 5, Teacher Manual and related Learner Material (NTS 3a).
 - b. Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c. Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 5: Polynomial Functions

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 4
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 5?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 5 on Polynomial functions using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 5 on Polynomial functions (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

Provide 3 essential questions (1 for the teacher and 2 for learners) to support the delivery of a lesson on the Week 5 focal area “Finding factors and zeroes of polynomial functions”. Do not use personal pronouns.

ii. Differentiation

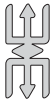
Given the Week 5 learning task on establishing and applying Descartes’ rule of signs theorem, suggest 2 ways I can support 3 learners with ADHD in exploring patterns during the lesson.

iii. Learning activities

In an under-resourced rural Senior High School, suggest 3 learning activities that can be used to achieve the Week 5 learning indicators.

iv. Assessment tasks

I intend engaging learners in a group presentation to achieve the week 5 focal areas. Suggest 5 different assessment tasks I can assign to each of the 5 groups, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Differentiation

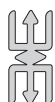
I have developed a learning plan for week 5. Review my key notes on differentiation and verify if they cater to 6 learners with low vision and 4 learners with dyslexia during the lesson, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plans

- a) essential questions
- b) learning activities
- c) assessment tasks, etc.



Note

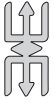
- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

- 2.2** Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

- 2.3** Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1 Reflect and share your views on the session (NTS 1a, 1b).
- 4.2 Identify a colleague to observe your lesson in relation to PLC Session 5 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3 Remember to:
 - a. Read PLC Session 6, Teacher Manual and related Learner Material (NTS 3a).
 - b. Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c. Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 6: Preparing for Mid-Semester Examination

1.0 Introduction (10 minutes)

- 1.1 Share one thing on assessment in PLC Session 5 that you
 - a. applied in your lesson delivery
 - b. found challenging and how you addressed it.
- 1.2 Share one challenge you encountered while populating your learning plan for week 6 before the session that you would like to discuss during this PLC session.
- 1.3 Read and discuss the Purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to use the subject-specific App to

1. review the completed learning plan for Week 6
2. prepare assessment tasks and rubrics for mid-semester examination.

Learning Outcome (LO): To review the learning plan for Week 6 and address any challenges in planning and developing assessment tasks for the mid-semester examination (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Review the learning plan and address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Discuss, develop and review assessment tasks with rubrics for the mid-semester examination.

2.0 Reviewing the Learning Plan (20 minutes)

- 2.1 Upload your learning plan into the subject-specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Assessment tasks

Attached is a learning plan for Week 6 to be delivered in 2 hours. Modify the mark scheme for my formative assessment task such that it is measurable. Include step by step calculations, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

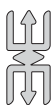
- a) essential questions
- b) learning activities
- c) differentiation, etc.

3.0 Prepare for Mid-Semester Examination (50 minutes)

- 3.1** Refer to your Teacher Manual for the format of the mid-semester examination and use the subject-specific App to review or develop your assessment tasks, mark schemes/rubrics, etc. (NTS 2a–2c, 2e–2h and 3j–3q).

E.g.

- i. *Show me the ToS in Appendix B include all rows and columns.*
- ii. *Based on the structure of the mid-semester examination, develop a new table of test specification covering weeks 1 – 3 only.*
- iii. *Based on the revised ToS, suggest 15 multiple-choice questions, 5 short answer questions and 2 real life application questions (learner answers only 1 from real-life applications) to be completed in 1 hour 30 minutes*



Note

In preparing for mid-semester examination, chatting once may not be enough for the App to provide all you need (DoK levels, structure, distribution across DoK levels, etc.)

- 3.2** Have a chat with your App to review the suggested assessment tasks and discuss the suitability of the responses from activity 3.1. Use the review to refine the responses to complete the set questions (NTS 1a, 2b, 2c and 3e–3q). In doing this activity, consider: *E.g.*

i. Whether the assessment tasks generated follow 30%, 40%, 30% DoK distribution

Do the generated number of assessment tasks for the mid-semester examination meet the 30%, 40%, 30% for DoK Levels 1, 2 and 3 respectively as indicated in the revised ToS?

“Adjust one DoK 1 question to DoK 3, provide the corresponding mark scheme and indicate which question you altered,” etc.

ii. Mark scheme and score distribution

“Identify areas in the mark scheme (excluding original Question 12) where there may be calculation errors, underscoring or overly awarded marks. Suggest areas of improvement”

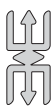
Address the discovered concerns in the scheme for Questions 16, 17, 18, 19 and 22a, etc.

iii. Resources needed for assessment administration

Suggest resources needed for learners to effectively complete the assessment tasks. Include how to administer the tasks while accommodating the needs of 5 approaching proficiency learners, etc.

iv. How to provide feedback

How would you recommend I provide feedback to the 50 learners (5 approaching proficiency) after grading the scripts? Ensure the strategies provided promote SEL and highlights at least 3 national values, etc.



Note

Use the responses to complete your plan

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 6 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

a. Mark, record and upload your learners' assessment scores in the Student Transcript Portal.

b. Read PLC Session 7, Teacher Manual and related Learner Material (NTS 3a).

- c.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- d.** Identify areas you found challenging in your planning and administering of the assessment for discussion during the next session.

PLC Session 7: Tangents and Normals to a Circle

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 6
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 7?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 7 on Tangents and Normals to a Circle using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 7 on Tangents and Normals to a Circle (NTS 1a, 2b, 2c, 2e-2h and 3a-3q).

E.g.

i. Essential questions

Suggest 3 essential questions (2 for learners and 1 for the teacher) that supports the delivery of a lesson on all the week 7 focal areas. Avoid use of personal pronouns.

ii. Differentiation

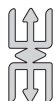
Suggest 3 ways I can support 5 learners with dyscalculia adequately learn the concept “Locus of points equidistant from the centre” in Week 7.

iii. Learning activities

Provide 4 learning activities that learners can be engaged in to achieve the Week 7 learning indicators. My school has a computer lab and 3 projectors easily accessible.

iv. Assessment tasks

With a class size of 35 learners, suggest 3 different assessment tasks that learners can respond to through poster presentation and covers the focal area “Deducing Relation of various Loci under given conditions” in Week 7.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint

Move to Activity 3.0



2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.2** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Learning activities

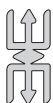
Verify if the crafted learning activities in the attached learning plan for Week 7 promote 21st century skills, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment tasks, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.3 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

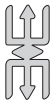
2.4 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 7 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 8, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 8: Transposing Vectors

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 7
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 8?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for week 8 on Transposing Vectors using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 8 on Transposing Vectors (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

I am planning a 1-hour lesson for 66 learners on week 8 learning indicator “Determine the projection of one vector on a given vector”. Craft 2 essential questions which should guide the delivery of the lesson, etc. Do not use personal pronouns.

ii. Differentiation

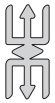
I am developing a learning plan for week 8. Suggest 2 notes each on how to cater for 6 learners with low vision and 4 learners with dyslexia during the lesson.

iii. Learning activities

I have manila cards, transparent plastic sheets, graph paper and coloured paper strips and need to deliver a 1-hour lesson to 66 learners. Suggest 2 learning activities (1 from the Learner Material) that can be used to achieve the indicator “Determine the projection of one vector on a given vector” in Week 8.

iv. Assessment tasks

Suggest 2 assessment tasks on the focal area “Transposing vectors” in week 8 that can be completed in 25 minutes. Provide a question each on DoK Levels 2 and 3. Include a mark scheme with step-by-step calculations, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Learning activities

Review the learning activities in the attached Week 8 learning plan and suggest how to inculcate tolerance as a national value in learners as they partake in the activities, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment tasks, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

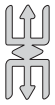
2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 8 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 9, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 9: Determinants and Inverse of Matrices

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 8
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 9?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 9 on Determinants and Inverse of Matrices using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 9 on Determinants and Inverse of Matrices (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

To successfully achieve the Week 9 learning indicators in the Teacher Manual, craft 3 essential questions that should have been addressed by the end of a 3-hour lesson.

ii. Differentiation

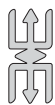
For the Week 9 learning indicators covering matrix types, determinants, and matrix multiplication, what specific differentiation strategies should I use to support learners with low mathematical abilities and slow processing speeds during hands-on matrix operations activities?

iii. Learning activities

I have MS Excel, 3 different coloured markers, scientific calculators, graph sheets and coloured paper strips. Provide 4 learning activities (2 from the Learner Material) that can be used to achieve week 9 learning indicators within 2 hours. Reference the exact activity from the LM by scanning the details of activities in Section 6 of the LM.

iv. Assessment tasks

Suggest 4 assessment tasks on “inverses of matrices” that can be assigned to learners as homework. Provide a question each on DoK Levels 1, 2 and 3. Include a mark scheme with step-by-step calculations, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint

Move to Activity 3.0



2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Essential questions

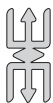
Attached is a Week 9 learning plan, review the essential questions by verifying if they consider the Social and Emotional Learning of learners as we strive to achieve the learning indicators, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) differentiation
- b) learning activities
- c) assessment tasks, etc.



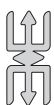
Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

- 2.2** Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).
- 2.3** Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1** Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2** Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3** Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1** Reflect and share your views on the session (NTS 1a, 1b).
- 4.2** Identify a colleague to observe your lesson in relation to PLC Session 9 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3** Remember to:
 - a.** Read PLC Session 10, Teacher Manual and related Learner Material (NTS 3a).
 - b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 10: Solving Systems of Linear Equations Using Matrices

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 9
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 10?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 10 on solving systems of linear equations using matrices using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 10 on solving

systems of linear equations using matrices (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

Suggest an essential question that addresses the learning task “Learners create a simultaneous linear equation while the other pair transforms it into a matrix and vice versa” in Week 10.

ii. Differentiation

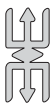
Suggest 2 ways in which differentiation strategies can be applied while going through the task.

iii. Learning activities

Extract two activities in Learner Material Section 6 that satisfy the indicator “Enact and solve problems based on real life situations using matrices” in the Teacher Manual. Refer to the exact activities.

iv. Assessment tasks

I want to assess learners using a case study. Provide 3 assessment tasks for case study which cover week 10 learning indicators in the Teacher Manual. Indicate the DoK levels and include a mark scheme with step-by-step calculations, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Assessment task

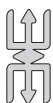
From the attached Week 10 learning plan, verify if the requirements of the case studies accommodate the needs of 4 learners diagnosed with mathematics anxiety. If no, suggest modifications without lowering the standards for other learners, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) learning activities, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

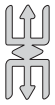
2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 10 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 11, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 11: Univariate and Bivariate Data

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 10
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 11?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for week 11 on Univariate and Bivariate Data using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 11 on Univariate and Bivariate Data (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

Craft 3 essential questions which when fully answered will determine that Univariate and Bivariate Data as well as scatter plot have been treated as stated in Week 11 of the Teacher Manual.

ii. Differentiation

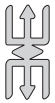
In which ways can I ensure that my 5 low vision learners and 2 wheel-chair users are supported when engaging in learning activities and assessment of week 11 learning indicator “Construct a scatter plot using given dataset and use it to describe the relationship between two variables”.

iii. Learning activities

Suggest 3 activities (1 from Learner Material Section 7) that will assist in achieving the learning indicators of Week 11 on “Univariate and Bivariate Data, Scatter plots” as is in the Teacher Manual. Consider the aforementioned learner needs.

iv. Assessment tasks

I want to assess learners using group practical assessment. Develop 5 DoK level 3 assessment tasks to be assigned 1 to each group on the learning indicator “Construct a scatter plot using given dataset and use it to describe the relationship between two variables”. Include a mark scheme with step-by-step calculations, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint

Move to Activity 3.0



2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Differentiation

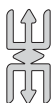
Attached is a Week 11 learning plan. Verify if the key notes on differentiation are sufficient to assist 5 low vision learners and 2 wheel-chair users in partaking in the learning activity “Ghana Data Storytelling with Visual Supports,” etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) learning activities
- c) assessment tasks, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

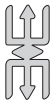
2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 11 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 12, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 12: Preparing for End of Semester Examination

1.0 Introduction (10 minutes)

- 1.1 Share one thing on assessment in PLC Session 11 that you
 - a. applied in your lesson delivery
 - b. found challenging and how you addressed it.
- 1.2 Share one challenge you encountered while populating your learning plan for Week 12 before the session that you would like to discuss during this PLC session.
- 1.3 Read and discuss the Purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to use the subject-specific App to

1. review the completed learning plan for Week 12
2. prepare assessment tasks and rubrics for end of semester examination.

Learning Outcome (LO): To review the learning plan for week 12 and address any challenges in planning and developing assessment tasks for the end of semester examination (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Review the learning plan and address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Discuss, develop and review assessment tasks with rubrics for the end of semester examination.

2.0 Reviewing the Learning Plan (20 minutes)

- 2.1 Upload your learning plan into the subject-specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Essential questions

“I have attached a learning plan for week 12. Verify throughout the lesson if by end of the delivery the essential questions would have been answered,” etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) learning activities
- b) differentiation
- c) assessment tasks, etc.

3.0 Prepare for End of Semester Examination (50 minutes)

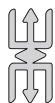
- 3.1** Refer to your Teacher Manual for the format of the end of semester examination and use the subject-specific App to review or develop your assessment tasks, mark schemes/rubrics, etc. (NTS 2a–2c, 2e–2h and 3j–3q).

E.g.

The structure of end of semester examination in the Teacher Manual suggests 30 multiple-choice questions, 5 short answer questions and 4 real life application questions (learner answers only 2 from real-life applications) to be completed in 2 hours.

Use the Table of test specification in Appendix D in the Teacher Manual as reference and

- i. *suggest 30 multiple-choice questions, 5 short answer questions and 4 real life application questions*
- ii. *mark scheme (include step by step calculations and marks to be awarded)*



Note

In preparing for end of semester examination, chatting once may not be enough for the App to provide all you need (DoK levels, structure, distribution across DoK levels, etc.)

- 3.2** Have a chat with your App to review the suggested assessment tasks and discuss the suitability of the responses from activity 3.1. Use the review to refine the responses to complete the set questions (NTS 1a, 2b, 2c and 3e–3q). In doing this activity, consider:

E.g.

- i. Whether the assessment tasks generated follow 30%, 40%, 30% DoK distribution**

Do the generated assessment tasks for the end of semester examination meet the 30%, 40%, 30% proportions for DoK Levels 1, 2 and 3 respectively? If no, revise the tasks”.

Can you justify why you assigned a particular DoK level to each item?

- ii. Mark scheme and score distribution**

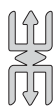
Identify areas in the mark scheme where there may be calculation errors, underscoring or overly awarded marks. Verify if the scheme accommodates different methods of representation of solutions and suggest areas of improvement.

- iii. Resources needed for assessment administration**

I have 40 shading papers, 37 answer booklets, 35 printed question papers. Based on the revised assessment tasks, which other resources should learners be provided with to enable them effectively respond to the tasks? Include guidelines to be followed in administering the end of semester examination to 35 learners if 3 are hyperactive.

- iv. How to provide feedback**

I need to provide feedback after the examination. Suggest strategies for whole-class feedback, individual feedback for different performance levels, and specific approaches for 3 hyperactive learners with accommodations, etc.



Note

Use the responses to complete your plan.

4.0 Reflection (10 minutes)

- 4.1** Reflect and share your views on the session (NTS 1a, 1b).
4.2 Identify a colleague to observe your lesson in relation to PLC Session 12 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a. Mark, record and upload your learners' assessment scores in the Student Transcript Portal (NTS 3j, 3n).
- b. Read PLC Session 13, Teacher Manual and related Learner Material (NTS 3a).
- c. Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- d. Identify areas you found challenging in your planning and administering of the assessment for discussion during the next session.

PLC Session 13: Applying Logarithmic Laws

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 12
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for week 13?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 13 on Applying Logarithmic Laws using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 13 on Applying Logarithmic Laws (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. **Essential questions**

Develop 3 essential questions which promote critical thinking in learners as they go through applications of logarithmic laws and sketches of logarithmic graphs in week 13 of the Teacher Manual.

ii. **Differentiation**

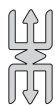
Suggest 3 ways I can ensure that my 8 hyperactive learners' needs are catered to during the lesson on "applications of logarithmic laws and sketches of logarithmic graphs" in Week 13.

iii. **Learning activities**

Based on the suggestions for differentiation, provide 3 learning activities (1 from Learner Material Section 8) that will assist in achieving the learning indicators of Week 13 on "Applying Logarithmic Laws," while ensuring tolerance from other learners.

iv. **Assessment tasks**

What 5 questions can I ask to support reflective practice by learners as a formative assessment? etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks.
- ii. Transfer the information from your SS App into your learning planner template to complete your plans.
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Learning activities

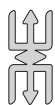
Attached is a learning plan for week 13. Review the learning activities and verify if they assist in adequately answering the essential questions while accommodating diverse needs of learners, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment tasks, etc.



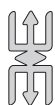
Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

- 2.2** Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).
- 2.3** Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1** Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2** Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3** Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1** Reflect and share your views on the session (NTS 1a, 1b).
- 4.2** Identify a colleague to observe your lesson in relation to PLC Session 13 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3** Remember to:
 - a.** Read PLC Session 14, Teacher Manual and related Learner Material (NTS 3a).
 - b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 14: Trigonometric Identities

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 13
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 14?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 14 on Trigonometric Identities using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 14 on Trigonometric Identities (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

Craft 3 essential questions which promotes inquiry in learners as they learn how to “prove and apply compound angles to derive the identities for multiple angles and half angles” in week 14 of the Teacher Manual.

ii. Differentiation

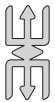
In a school with no assistive devices/technology, suggest 3 ways to cater to the needs of 5 hearing impaired learners as I plan to teach how to “prove and apply compound angles to derive the identities for multiple angles and half angles”.

iii. Learning activities

I need help planning 4 activities on “Proving and applying compound angles to derive the identities for multiple angles and half angles” for 65 learners. We should be able to complete the activities in 2 hours 30 minutes.

iv. Assessment tasks

I will be conducting individual class exercises during the lesson. Develop 4 assessment tasks of the appropriate DoK level stated in the curriculum for the indicator “Prove and apply compound angles to derive the identities for multiple angles and half angles”. Learners should be able to complete the task in 25 minutes. Include step by step calculations and mark scheme, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint

Move to Activity 3.0



2.0B Reviewing the Learning Plan and Addressing Challenges in Planning, Delivering and Assessing Lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Differentiation

From the Week 14 learning plan attached, verify if the key notes on differentiation are appropriate to support learners with hearing impairment in a school without assistive devices/technology. If no, make modifications keeping the corresponding learning activities in mind, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) learning activities
- c) assessment tasks, etc.



Note

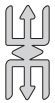
- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans

- iii. *Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.*

- 2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).
- 2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1 Reflect and share your views on the session (NTS 1a, 1b).
- 4.2 Identify a colleague to observe your lesson in relation to PLC Session 14 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3 Remember to:
 - a. Read PLC Session 15, Teacher Manual and related Learner Material (NTS 3a).
 - b. Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c. Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 15: Preparing for Student Transcript Portal Assessment – Individual Project

1.0 Introduction (10 minutes)

- 1.1 Share one thing on assessment in PLC Session 14 that you
 - a. applied in your lesson delivery
 - b. found challenging and how you addressed it.
- 1.2 Share one challenge you encountered while populating your learning plan for Week 15 before the session that you would like to discuss during this PLC session.
- 1.3 Read and discuss the Purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to use the subject-specific App to

- 1. review the completed learning plan for week 15
- 2. prepare assessment tasks and rubrics for individual project

Learning Outcome (LO): To review the learning plan for Week 15 and address any challenges in planning and developing assessment tasks for the individual project (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Review the learning plan and address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Discuss, develop and review assessment tasks with rubrics for the individual project.

2.0 Reviewing the Learning Plan (20 minutes)

- 2.1 Upload your completed learning plan into the subject-specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Learning activities

Attached is a learning plan for Week 15 on trigonometric identities (sine and cosine). Review the learning activities by verifying if they will adequately equip learners to go through the upcoming individual project, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment tasks, etc.

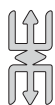
3.0 Prepare to Assign, Assess and Record for the Student Transcript Portal (50 minutes)

- 3.1** Refer to your Teacher Manual for the key assessment to be recorded in the Student Transcript Portal and have a chat with the subject-specific App to review or develop your assessment tasks and mark schemes/rubrics (NTS 2a–2c, 2e–2h and 3j–3q).

E.g.

Individual project

Using Appendix E in the Teacher Manual and TAMT as reference, craft an individual project that can be delivered in 4 weeks, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

- 3.2** Have a chat with your App to verify the suggested assessment tasks and discuss the suitability of the responses from activity 3.1. Use the suggestions to refine the assessment tasks (NTS 1a, 2b, 2c and 3e–3q). In doing this activity, consider:

E.g.

i. Task

Is the recommended task suitable for learners in a boarding school? If not, revise the task to suit the environmental restrictions.

ii. Mark scheme and score distribution

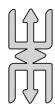
Revise the mark scheme/rubric in Appendix E of the Teacher Manual to suit the demands of the revised task.

iii. Resources needed for assessment administration

Which low-cost resources will be required to undertake the revised individual project?

iv. How to provide feedback

What will be the appropriate strategies to use in providing individualised feedback on the project for 39 learners during the weeks of work and after total grading? etc.



Note

Use the responses to complete your plan

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 15 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Mark, record and upload your learners' assessment scores in the Student Transcript Portal (NTS 3j, 3n).
- b.** Read PLC Session 16, Teacher Manual and related Learner Material (NTS 3a).
- c.** Bring along your Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- d.** Identify areas you found challenging in your teaching and administering of the assessment for discussion during the next session.

PLC Session 16: Differentiation Rules

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 15
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for week 16?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 16 on Differentiation Rules using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 16 on Differentiation Rules (NTS 1a, 2b, 2c, 2e-2h and 3a-3q).

E.g.

i. Essential questions

Provide 3 essential questions (1 for the teacher and 2 for learners) to support the delivery of a lesson on the Week 16 learning indicator “Apply the product and quotient rules to differentiate functions”. Avoid use personal pronouns.

ii. Differentiation

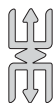
Given the Week 16 learning task “Apply appropriate differentiation rules to obtain the derivatives of given functions”, suggest 2 ways I can support 3 learners with dyscalculia in function and pattern recognition during the lesson.

iii. Learning activities

In an under-resourced rural Senior High School, suggest 3 learning activities that can be used to achieve the Week 16 learning indicator “Identify the rules of differentiation” through inquiry-based and collaborative learning within 2-hours.

iv. Assessment tasks

I will engage learners in a 30 minutes e-quiz to assess the Week 16 focal area “Differentiating functions using differentiation rules”. Suggest 30 multiple-choice questions to be administered to learners in 3 batches, 10 questions per batch, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Assessment task

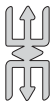
Based on the attached Week 16 learning plan, verify if the assessment tasks for the e-quizz follow the DoK 30%, 40%. 30% distribution in each of the 3 batches. If not, make modifications, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) learning activities, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

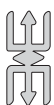
2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 16 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 17, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 17: Differentiating Implicit Functions

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 16
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for week 17?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 17 on Differentiating Implicit Functions using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 17 on Differentiating Implicit Functions (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

I am planning a 3-hour lesson for 45 learners on week 17 learning indicator “Find derivatives of functions and relations that are not functions (Implicit differentiation)”. Craft 2 essential questions which should guide the delivery of the lesson, etc. Do not use personal pronouns.

ii. Differentiation

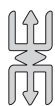
I am developing a learning plan for Week 17. Suggest 2 key notes each on how to cater for 4 learners with ADHD and 3 learners with dyslexia during the lesson.

iii. Learning activities

I have string and pins, cardboard curve cut-outs, algebra tiles, GeoGebra software and graph paper with different scales and planning to deliver a 2-hour lesson to 45 learners. Suggest 4 learning activities (2 from the Learner Material) that can be used to achieve the indicator “Find derivatives of functions and relations that are not functions (Implicit differentiation)” in Week 17.

iv. Assessment tasks

Suggest 3 assessment tasks on the focal area “Differentiating Implicit Functions” in week 17 that can be completed in 35 minutes. Provide 2 questions and 1 question on DoK Levels 2 and 3 respectively. Include a mark scheme with step-by-step calculations, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint

Move to Activity 3.0



2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Essential questions

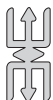
Verify from the attached Week 17 learning plan if the essential questions provide an environment where learners develop self-awareness and improve their decision-making skills. If they do not, modify the questions in line with the aforementioned learner needs and learning activities, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) differentiation
- b) learning activities
- c) assessment tasks, etc.



Note

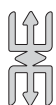
- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans

- iii. *Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.*

- 2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).
- 2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1 Reflect and share your views on the session (NTS 1a, 1b).
- 4.2 Identify a colleague to observe your lesson in relation to PLC Session 17 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3 Remember to:
 - a. Read PLC Session 18, Teacher Manual and related Learner Material (NTS 3a).
 - b. Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c. Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 18: Preparing for Mid-Semester Examination

1.0 Introduction (10 minutes)

- 1.1 Share one thing on assessment in PLC Session 17 that you
 - a. applied in your lesson delivery
 - b. found challenging and how you addressed it.
- 1.2 Share one challenge you encountered while populating your learning plan for Week 18 before the session that you would like to discuss during this PLC session.
- 1.3 Read and discuss the Purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to use the subject-specific App to

1. review the completed learning plan for Week 18
2. prepare assessment tasks and rubrics for mid-semester examination.

Learning Outcome (LO): To review the learning plan for Week 18 and address any challenges in planning and developing assessment tasks for the mid-semester examination (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Review the learning plan and address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Discuss, develop and review assessment tasks with rubrics for the mid-semester examination.

2.0 Reviewing the Learning Plan (20 minutes)

- 2.1 Upload your learning plan into the subject-specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Differentiation

Attached is a learning plan for Week 18. Verify if the key notes on differentiation are achievable given that my classroom has limited resources, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) learning activities
- c) assessment tasks, etc.

3.0 Prepare for Mid-Semester Examination (50 minutes)

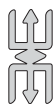
- 3.1** Refer to your Teacher Manual for the format of the mid-semester examination and use the subject-specific App to review or develop your assessment tasks, mark schemes/rubrics, etc. (NTS 2a-2c, 2e-2h and 3j-3q).

E.g.

Based on the structure and guidelines for setting the mid-semester examination and ToS in Appendix F, suggest

1. 20 multiple-choice questions
2. 5 fill-in questions and short answers
3. 2 real-life application questions (learner answers 1 only)
4. mark scheme for all questions generated (include step by step calculations and marks to be awarded)

The examination is for 1 hour 30 minutes, etc.



Note

In preparing for mid-semester examination, chatting once may not be enough for the App to provide all you need (DoK levels, structure, distribution across DoK levels, etc.)

- 3.2** Have a chat with your App to review the suggested assessment tasks and discuss the suitability of the responses from activity 3.1. Use the review to refine the responses to complete the set questions (NTS 1a, 2b, 2c and 3e-3q). In doing this activity, consider:

E.g.

i. Whether the assessment tasks generated follow 30%, 40%, 30% DoK distribution

Do the generated number of assessment tasks for the mid-semester examination meet the 30%, 40%, 30% for DoK Levels 1, 2 and 3 respectively as indicated in the ToS in Appendix F?

Regenerate the entire examination with the correct DoK distribution does not match precisely the ToS in Appendix F.

ii. Mark scheme and score distribution

Identify areas in the revised mark scheme where there may be calculation errors, underscoring or overly awarded marks. Suggest areas of improvement.

Address the discovered concerns in the scheme for Questions 19 and 21c.

iii. Resources needed for assessment administration

Suggest resources needed for learners to effectively complete the assessment tasks. Include how to administer the tasks while accommodating the needs of 6 highly proficient learners.

iv. How to provide feedback

Recommend 3 ways in which I should provide feedback to the 48 learners (5 approaching proficiency) after grading the scripts. Ensure the strategies provided promote SEL and highlights at least 2 national values, etc.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 18 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Mark, record and upload your learners' assessment scores in the Student Transcript Portal (NTS 3j, 3n).
- b.** Read PLC Session 19, Teacher Manual and related Learner Material (NTS 3a).
- c.** Bring along your Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- d.** Identify areas you found challenging in your planning and administering of the assessment for discussion during the next session.

PLC Session 19: Estimating Area Under a Curve

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 18
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 19?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 19 on Estimating Area Under a Curve using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 19 on Estimating Area Under a Curve (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

Craft 3 essential questions (2 for learners and 1 for the teacher) that supports the delivery of a lesson on all the Week 19 focal areas “Partitioning an area with an interval; Area under a curve”. Avoid use of personal pronouns.

ii. Differentiation

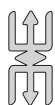
Suggest 3 ways I can support 5 hyperactive learners and 2 others with math anxiety to adequately “Partition intervals for a given step size or number of sub-intervals and find area under curves through graphics” during a 2-hour lesson.

iii. Learning activities

Craft 4 learning activities that learners can be engaged in to achieve the Week 19 learning indicators through group discussion and experiential learning. The resources available for the activities are, graph sheets, strings, pins, cork boards, bottle caps, coins and cardboards.

iv. Assessment tasks

For a class size of 42 learners, suggest 4 different assessment tasks that learners can respond to through group discussion and exhibition and covers the focal areas “Partitioning an area with an interval; Area under a curve” in Week 19, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint

Move to Activity 3.0



2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Learning activities

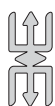
Scan the learning activities in the attached learning plan and verify if they give room for learners to partake in group discussions and experiential learning while achieving the week 19 learning indicators, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment tasks, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

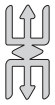
2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 19 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 20, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 20: Fundamental Theorems of Calculus

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 19
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for week 20?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 20 on Fundamental Theorems of Calculus using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 20 on Fundamental Theorems of Calculus (NTS 1a, 2b, 2c, 2e–2h and 3a–3q).

E.g.

i. Essential questions

Develop 2 essential questions that address the learning task “explain the fundamental theorem of calculus” in Week 20.

ii. Differentiation

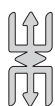
Suggest 3 ways in which 7 slow-paced learners can be supported while going through the learning task “compute estimates for definite integrals for functions, using Riemann sums and areas of rectangles under the corresponding curves”.

iii. Learning activities

Suggest 3 activities (1 in Learner Material Section 11) that satisfy the indicators “Identify and write a definite integral notation and its connection to the limits of the partial sum of areas; Identify integration as a reverse process of differentiation”.

iv. Assessment tasks

I will assess learners formatively using demonstrations. Craft 3 assessment tasks which will be applicable and effective in assessing Week 20’s learning indicators. Indicate the DoK levels and include a mark scheme with step-by-step calculations, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint

Move to Activity 3.0



2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Differentiation

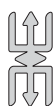
Peruse the key notes on differentiation in the attached learning plan and verify if they are suitable for the identified slow-paced learners in achieving the week 20 learning indicators. If no, suggest modifications, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) learning activities
- c) assessment tasks, etc.



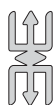
Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

- 2.2** Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).
- 2.3** Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1** Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2** Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3** Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1** Reflect and share your views on the session (NTS 1a, 1b).
- 4.2** Identify a colleague to observe your lesson in relation to PLC Session 20 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3** Remember to:
 - a.** Read PLC Session 21, Teacher Manual and related Learner Material (NTS 3a).
 - b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 21: Classifying Maximum, Minimum and Saddle Point of a Function Using Second Derivative

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 20
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 21?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 21 on Classifying Maximum, Minimum and Saddle Point of a Function Using Second Derivative using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 21 on Classifying Maximum, Minimum and Saddle Point of a Function Using Second Derivative (NTS 1a, 2b, 2c, 2e – 2h and 3a–3q).

E.g.

i. **Essential questions**

Suggest 3 essential questions which promote critical thinking in learners as they “Use the second derivative of a function to classify the maximum, minimum and saddle point of that function and perform curve sketching”.

ii. **Differentiation**

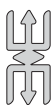
Suggest 4 ways I can ensure that my 8 hyperactive learners’ needs are catered for during the lesson on “Determining the nature of gradients and investigating turning points” in Week 21.

iii. **Learning activities**

Based on the suggestions for differentiation, provide 4 learning activities (1 from Learner Material Section 12) that will assist in achieving the learning indicators of Week 21 on “Determining the nature of gradients, investigating turning points and sketching polynomial functions,” while ensuring tolerance from other learners.

iv. **Assessment tasks**

What 4 questions can I ask during learners’ demonstration of concepts learnt in Week 21 to support reflective practice? etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans.
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Assessment tasks

In the attached Week 21 learning plan, learners will perform demonstrations to determine the depth of concepts learnt. Verify if the follow-up questions outlined are appropriate to ensure learners reflect on their learning and thinking, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) learning activities, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

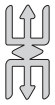
2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 21 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 22, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 22: Applying Differentiation

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 21
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 22?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 22 on Applying Differentiation using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

2.1 Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 22 on Applying Differentiation (NTS 1a, 2b, 2c, 2e – 2h and 3a–3q).

E.g.

i. Essential questions

To successfully achieve the Week 22 learning indicator “Find the maximum and minimum values and points of a function, sketch the functions and solve some real-life problems,” develop 3 essential questions that should have been addressed by the end of a 3-hour lesson.

ii. Differentiation

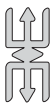
For the Week 22 learning indicator “Find the maximum and minimum values and points of a function, sketch the functions and solve some real-life problems,” what specific differentiation strategies should I use to support learners with 3 ADHD and 4 slow-paced learners during hands-on matrix operations activities?

iii. Learning activities

I have cocoa price charts, population growth, cardboard boxes of different sizes, scientific calculators and graph sheets. Provide 4 well sequenced learning activities (2 from the Learner Material) that can be used to achieve week 22 learning indicator within 2 hours. Reference the exact activity from the LM by scanning the details of activities in Section 12 of the LM.

iv. Assessment tasks

Suggest 4 assessment tasks on “Find the maximum and minimum values and points of a function, sketch the functions and solve some real-life problems” that can be assigned to learners as homework. Provide a question each on DoK Levels 1, 2 and 3. Include a mark scheme with step-by-step calculations, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.



Hint

Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Learning activities

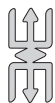
In the attached Week 22 learning plan, verify if the activities ensure collaboration among learners, etc.



Hint

Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment, etc.



Note

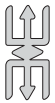
- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans

- iii. *Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.*

- 2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).
- 2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

- 3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).
- 3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).
- 3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

- 4.1 Reflect and share your views on the session (NTS 1a, 1b).
- 4.2 Identify a colleague to observe your lesson in relation to PLC Session 22 to provide feedback on your lesson (NTS 1f, 1g).
- 4.3 Remember to:
 - a. Read PLC Session 23, Teacher Manual and related Learner Material (NTS 3a).
 - b. Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
 - c. Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 23: Axioms and Laws of Probability

1.0 Introduction (5 minutes)

- 1.1 Share one thing you applied in your classroom based on PLC Session 22
 - a. the challenges you faced
 - b. how you addressed them
- 1.2 Have you developed your learning plan for Week 23?
 - a. If you answered **yes**, conduct your PLC Session from Activity 2.0B
 - b. If you answered **no**, conduct your PLC Session from Activity 2.0A

Hint



You cannot conduct PLC on Activity 2.0B if you **have not** prepared your learning plan

2.0A Planning and Reviewing of Learning Plan (50 minutes)

Purpose: The purpose for this session is to populate the learning planner for Week 23 on Axioms and Laws of Probability using the subject specific App.

Learning Outcome (LO): To populate the learning planner with the essential questions, differentiation, learning activities and key assessments and use the subject specific App to review your populated learning plan (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g–3k and 3o).

Learning Indicator (LI) 1: Populate the learning planner using the subject specific App

Learning Indicator (LI) 2: Enact an activity from your reviewed learning plan.

- 2.1** Refer to your Teacher Manual and have a chat with your subject specific App to develop your learning plan for Week 23 on Axioms and Laws of Probability (NTS 1a, 2b, 2c, 2e – 2h and 3a–3q).

E.g.

i. Essential questions

Suggest 3 essential questions which promote exploratory learning of Axioms and laws of probability in Week 23 of the Teacher Manual.

ii. Differentiation

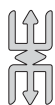
In which 3 ways can I support my 5 hyperactive learners' during the lesson on "Axioms and laws of probability" in week 23 of the Teacher Manual.

iii. Learning activities

Given the suggestions for differentiation, provide 3 learning activities (1 from Learner Material Section 13) that will aid in achieving the learning indicators of week 23 on "Investigate the axioms of probability; Create and solve problems using the axioms and the laws of probability," while ensuring accountability and respect from other learners.

iv. Assessment tasks

I want learners to respectively critique the work of their peers on the learning indicator "Use De Morgan's law in set theory to establish the addition and multiplication laws of probability and apply them to solve real life problems" as formative assessment. Suggest 5 guiding questions that can be used during the critiquing, etc.



Note

- i.** Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii.** Transfer the information from your SS App into your learning planner template to complete your plans.
- iii.** Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

Hint



Move to Activity 3.0

2.0B Reviewing the Learning Plan and Addressing challenges in planning, delivering and assessing lessons (50 minutes)

Purpose: To support teachers address challenges they may have during lesson preparation and delivery.

Learning Outcome (LO): To address specific concerns of teachers in planning, teaching and assessment.

Learning Indicator (LI) 1: Address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Enact an activity in preparation to teach the lesson.

- 2.1** Upload your completed learning plan into the subject specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e–3q).

E.g.

Essential learning

In the attached learning plan, verify if the essential questions effectively address the demands of Week 23 learning indicators in the Teacher Manual, etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) differentiation
- b) learning activities
- c) assessment tasks, etc.



Note

- i. Chatting once may not be enough for the App to provide all that you may need for the tasks
- ii. Transfer the information from your SS App into your learning planner template to complete your plans
- iii. Chat with your App to learn how to integrate National Values, GESI, SEL and 21st century skills in your learning activities, assessment tasks and rubrics/mark scheme.

2.2 Identify a challenging area or issue and chat with your subject specific App for steps on how to address it for effective lesson delivery (NTS 3j).

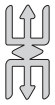
2.3 Share your experience with the group.

3.0 Enactment (25 minutes)

3.1 Enact a teaching activity in your plan (NTS 1b, 1f, 1g, 2c, 2e, 2f and 3c–3j).

3.2 Reflect on the activity enacted to improve lesson delivery (NTS 1a).

3.3 Ask for feedback on the activity enacted (NTS 1a, 1e, 2c and 3o).



Note

You may record the enacted activity.

4.0 Reflection (10 minutes)

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

4.2 Identify a colleague to observe your lesson in relation to PLC Session 23 to provide feedback on your lesson (NTS 1f, 1g).

4.3 Remember to:

- a.** Read PLC Session 24, Teacher Manual and related Learner Material (NTS 3a).
- b.** Bring along your laptop, Teacher Manual and PLC Handbook in preparation for the next session (NTS 3a).
- c.** Identify areas you find challenging in your teaching for discussion during the next session.

PLC Session 24: Preparing for End of Semester Examination

1.0 Introduction (10 minutes)

- 1.1 Share one thing on assessment in PLC Session 23 that you
 - a. applied in your lesson delivery
 - b. found challenging and how you addressed it.
- 1.2 Share one challenge you encountered while populating your learning plan for Week 24 before the session that you would like to discuss during this PLC session.
- 1.3 Read and discuss the Purpose, Learning Outcome (LO) and Learning Indicators (LIs) for the session.

Purpose: The purpose of this session is to use the subject-specific App to

1. review the completed learning plan for Week 24
2. prepare assessment tasks and rubrics for end of semester examination.

Learning Outcome (LO): To review the learning plan for Week 24 and address any challenges in planning and developing assessment tasks for the end of semester examination (NTS 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3k and 3o).

Learning Indicator (LI) 1: Review the learning plan and address challenges in the preparation and delivery of a lesson.

Learning Indicator (LI) 2: Discuss, develop and review assessment tasks with rubrics for the end of semester examination.

2.0 Reviewing the Learning Plan (20 minutes)

- 2.1 Upload your learning plan into the subject-specific App. Have a chat with your App to verify the following and discuss their suitability to reflect the diverse needs of learners in your class (NTS 1a, 2b, 2c and 3e-3q).

E.g.

Learning activities

“Attached is a learning plan for week 24. Review the plans’ learning activities and verify if they collectively achieve the learning indicators for the week,” etc.

Hint



Continue chatting with your App to verify the following and use the responses to complete your plan

- a) essential questions
- b) differentiation
- c) assessment tasks, etc.

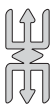
3.0 Prepare for End of Semester Examination (50 minutes)

- 3.1** Refer to your Teacher Manual for the format of the end of semester examination and use the subject-specific App to review or develop your assessment tasks, mark schemes/rubrics, etc. (NTS 2a–2c, 2e–2h and 3j–3q).

E.g.

Based on the structure of the end of semester examination, develop a table of test specification covering weeks 13 – 20 only.

Based on the revised ToS, suggest 30 multiple-choice questions, 5 fill-in and short answer questions and 4 real life application questions (learner answers only 2 from real-life applications) to be completed in 2 hours. Provide the mark scheme to the tasks (include step by step calculations and marks to be awarded)



Note

In preparing for end of semester examination, one prompt may not be enough for the App to provide all you need (DoK levels, structure, distribution across DoK levels, etc.)

- 3.2** Have a chat with your App to review the suggested assessment tasks and discuss the suitability of the responses from activity 3.1. Use the review to refine the responses to complete the set questions (NTS 1a, 2b, 2c and 3e–3q). In doing this activity, consider:

E.g.

i. Whether the assessment tasks generated follow 30%, 40%, 30% DoK distribution

Do the generated number of assessment tasks for the end of semester examination meet the 30%, 40%, 30% for DoK Levels 1, 2 and 3 respectively as indicated in the revised ToS?

Change one DoK 1 question to DoK 2, provide the corresponding mark scheme and indicate which question you altered, etc.

ii. Mark scheme and score distribution

Identify areas in the mark scheme (excluding original Question 28) where there may be calculation errors, underscoring or overly awarded marks. Suggest areas of improvement.

Address the discovered calculation errors in Questions 2c and 4a

iii. Resources needed for assessment administration

I have 52 shading papers, 51 answer booklets, 52 printed question papers. Based on the revised assessment tasks, which other resources should learners be provided with to enable them effectively respond to the tasks? Include guidelines to be followed in administering the end of semester examination to 50 learners if 4 are highly proficient and 6 are approaching proficiency, etc.

iv. How to provide feedback

Suggest 2 strategies for whole-class feedback, focused groups and individual feedback for different performance levels of 50 learners after the exam, etc.

Note

Use the responses to complete your plan

4.0 Reflection (10 minutes)

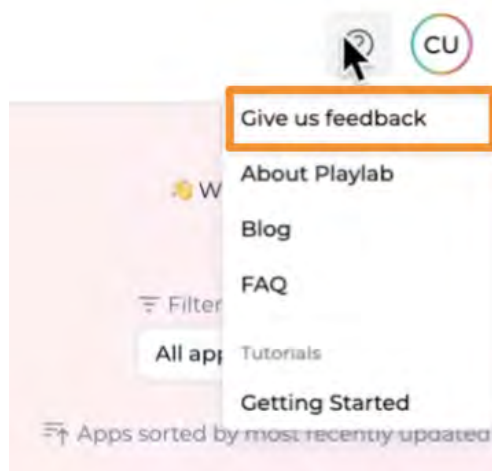
- 3.1** Reflect and share your views on the session (NTS 1a, 1b).
- 3.2** Identify a colleague to observe your lesson in relation to PLC Session 24 to provide feedback on your lesson (NTS 1f, 1g).
- 3.3** Remember to mark, record and upload your learners' assessment scores in the Student Transcript Portal (NTS 3j, 3n).

Appendix 1: Subject Specific App Teaching & Learning Apps – Issue Reporting Guide

How to Report Issues or Get Support

You have three ways to report issues with the subject-specific apps:

1. Email Support
 - For general issues: Send email to: support@playlab.ai
 - Include:
 - Your school name and region
 - Subject app you're using
 - Description of the issue
 - Screenshots or screen recordings (if possible)
 - Best for: School administrators reporting multiple app issues
 - Response time: Within 24 hours
 - If Urgent please include [URGENT] Message Text in your subject line.
2. Submit Feedback in Playlab
 - In the app, Click the “Give us Feedback” link in the menu and share feedback.



- Access the Feedback Form here
- Complete the form and upload any supporting documentation. (The more detailed your submission is, the more helpful support will be)



User Feedback Form

We want to hear your feedback and learn more about how we can improve Playlab for you. *Please complete this form to submit your feedback to the Playlab team.*

Full Name*

Your answer

Email*

Your answer

What is your role?*

Your answer

Please share your feedback

What challenge are you facing? What feature would you like to see?

Your answer

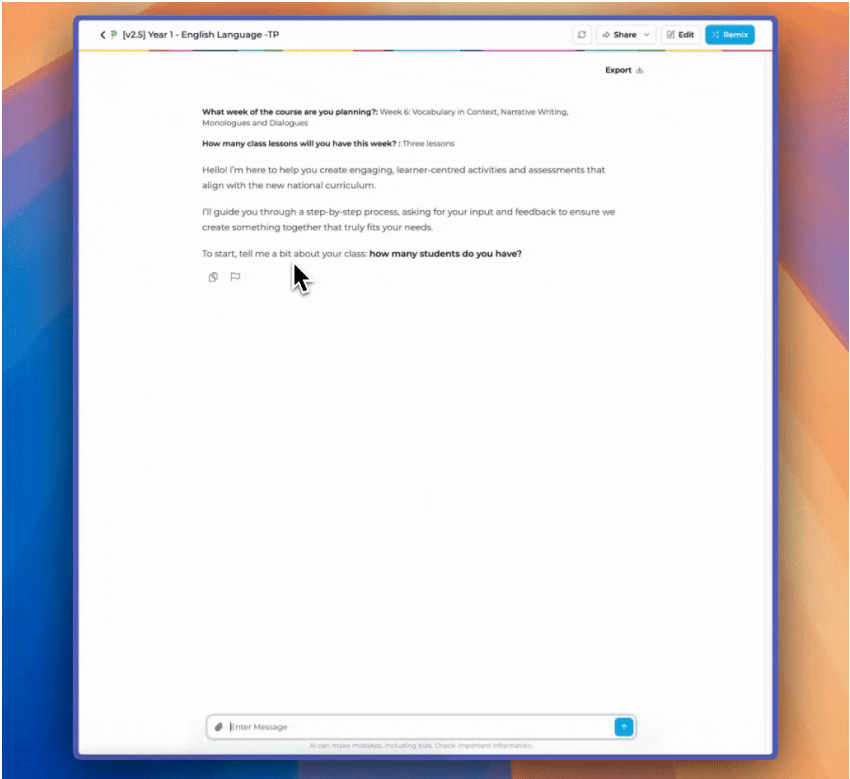
Please share any screenshots or videos that help visualize your feedback.

 **Upload** Size limit: 100 MB. File limit: 10.

Submit

Never submit sensitive personal information, like passwords, through Notion Forms.
[Report abuse](#)

- Best for: Individual teachers reporting specific issues
 - Response time: Within 24–48 hours
3. In-Chat Flagging
- Look for the flag button within your chat conversation



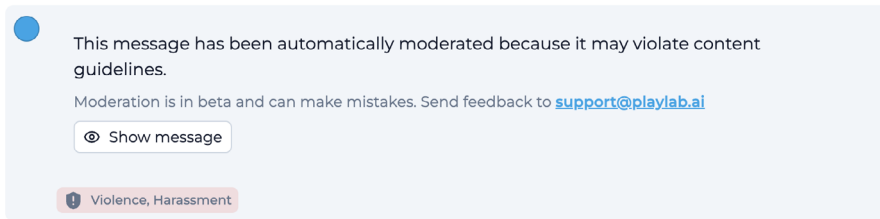
- Click to report biased, inaccurate, or inappropriate messages.
- Best for: Immediate issues with app responses
- There is also in app moderation for both user messages and AI generated responses. You can read more about it here.

What Happens After You Report?

1. The message will be flagged in your user activity. You will see indicators of messages that have been moderated or flagged.

KIPP NYC Restorative Plan Designer	8/21/2025
A3C	7 1
KIPP NYC Restorative Plan Designer	8/21/2025
A3C	5
KIPP NYC Restorative Plan Designer	8/15/2025
M	7 1

2. You can review the messages in activity. By default the message is hidden unless you click “show message”.



Thank you for sharing the details of the incident. Here's the step-by-step analysis and proposed restorative plan based on the provided situation:

3. If something is consistently being flagged, you may want to address it in your implementation, make revisions to the app, or contact support@playlab.ai for more guidance.

Tips for Effective Reporting:

- Be specific about what you were trying to do
- Note which subject app you're using
- Include your school and region information
- Describe what happened versus what you expected

Additional Support Resources

1 App Basics:

- Starting a conversation
 - Scan your QR code to use your app.
- If you encounter a problem, follow the directions for Escalating an issue.

Video Tutorials

- a Lesson Planning Walkthrough: Step-by-step guide using a real subject app with sample conversations
 - Lesson Plan Development
 - Watch a sample conversation here.
 - As you're using the apps, you can provide specifics on how you might want to differentiate for class needs
 - Assessment Development
 - Watch a sample conversation here.

- As you're using the apps, you can adjust the DOK levels as you create assessments at different complexity levels
- b For any additional questions please refer to the learn.playlab.ai page.

Key Reminders

- 1 Apps are supplemental tools to support your PLC Handbook and Teacher Manual—not replace them
- 2 Always refer to official curriculum documents as your primary resource
- 3 Use your professional judgment to adapt app suggestions for your classroom context

Appendix 2: Learning Planner Template

Name of Subject:							
Learning Planner Template Year Two							
Number of Learners in Class		Week		Duration		Form	
Strand							
Sub-Strand							
Content Standard							
Learning Outcome(s)							
Learning Indicator(s)							
Essential Question(s)							
Pedagogical Strategies							
Teaching & Learning Resources							
Key Notes on Differentiation Identify the different learner needs in your class and make notes on how to cater for them during the lesson							
Lesson (complete per number of lessons for the week)							
Refer to the Teacher Manual and Learner Material to complete this section							
Introduction Main Lesson Closure							

Key Assessment	
1.	Formative Assessment Mode: Task: Mark Scheme:
2.	Key Assessment for Student Transcript Portal Assessment Mode: Task: Rubric/Mark Scheme:
Reflection & Remarks	

Appendix 3: Teacher Lesson Observation Form

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

b1. 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 behavior 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

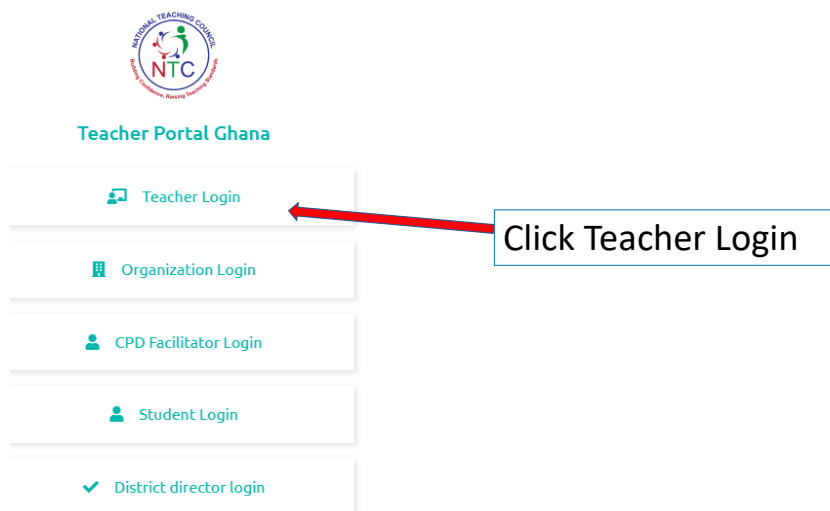
Additional Notes (on teacher's actions, the flow of activities, etc.)

Appendix 4: How to check CPD Points and Training Records on Teacher Portal Ghana

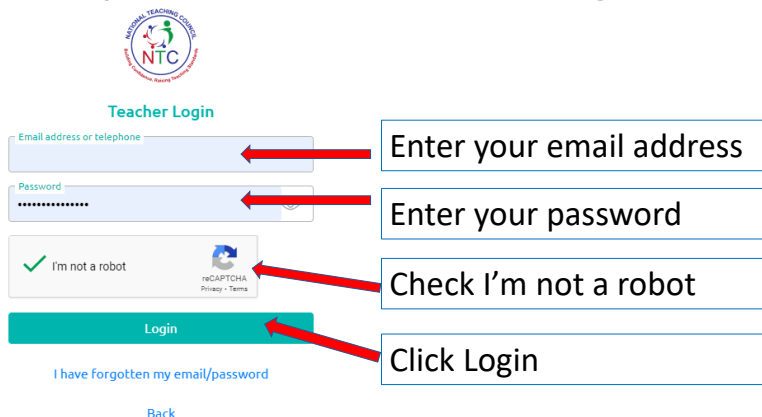
1. Visit *tpg.ntc.gov.gh* and click Login



2. On the Login page, click Teacher Login



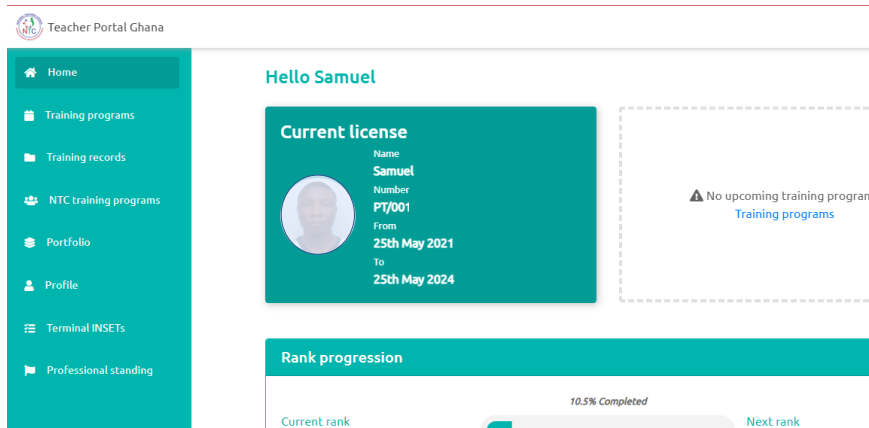
3. On the **Teacher Login** page enter your email address and password and then click **Login**



The image shows the Teacher Login page with the following elements and annotations:

- Teacher Login** (Page Title)
- Email address or telephone** (Input field) → **Enter your email address**
- Password** (Input field) → **Enter your password**
- I'm not a robot** (Captcha) → **Check I'm not a robot**
- Login** (Button) → **Click Login**
- [I have forgotten my email/password](#)
- [Back](#)

4. After a successful login you will get access to your **TPG account** (Check image below)



The image shows the Teacher Portal Ghana dashboard for a user named Samuel. The dashboard includes the following sections:

- Header:** Teacher Portal Ghana
- Left Sidebar:**
 - Home
 - Training programs
 - Training records
 - NTC training programs
 - Portfolio
 - Profile
 - Terminal INSETs
 - Professional standing
- Main Content Area:**
 - Hello Samuel**
 - Current license**
 - Name: Samuel
 - Number: PT/001
 - From: 25th May 2021
 - To: 25th May 2024
 - Rank progression**
 - Current rank
 - 10.5% Completed
 - Next rank
 - No upcoming training program** (Warning message with [Training programs](#) link)

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)

The screenshot shows the 'Teacher Portal Ghana' interface. On the left is a teal sidebar menu with options: Home, Training programs, Training records, NTC training programs, Portfolio, Profile, Terminal INSETs, and Professional standing. A red arrow points from the 'Training records' option to a text box. The main content area is titled 'Training records' and shows 'Records for training programs registered and/or attended'. It lists three programs: 'Sensitization on Education Policies' (Marked as absent), 'Differentiated Learning' (Processed, Credits: 1.32), and 'Advanced Mobile Learning with Multimedia (AMLJM)' (Processed, Credits: 0.5788). A red bracket on the right groups these programs, with an arrow pointing to a text box. The total points are 1.8988.

Teacher Portal Ghana

Training records

Records for training programs registered and/or attended

Total points: 1.8988

Program	Status	Credits
Sensitization on Education Policies	Marked as absent	
Differentiated Learning	Processed	1.32
Advanced Mobile Learning with Multimedia (AMLJM)	Processed	0.5788

Click to view training records

List of training programs

THANK YOU

