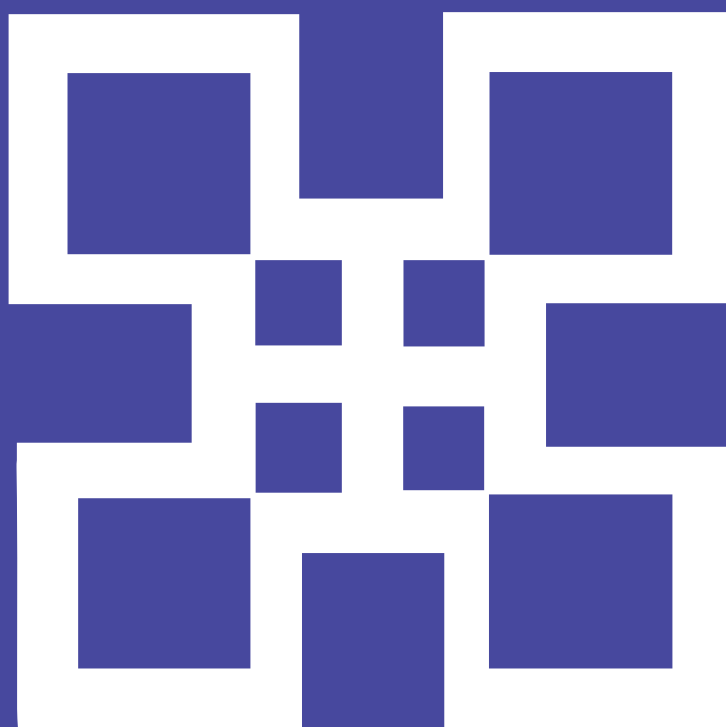


Departmental Professional Learning Community Handbook

APPLIED TECHNOLOGY

HANDBOOK FOR COORDINATORS



Wisdom, Knowledge
and Prudence



Ghana Education
Service (GES)



NATIONAL COUNCIL FOR
CURRICULUM & ASSESSMENT





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**DEPARTMENTAL PROFESSIONAL LEARNING
COMMUNITY HANDBOOK**

APPLIED TECHNOLOGY

Coordinator Version

DEPARTMENTAL PROFESSIONAL LEARNING COMMUNITY HANDBOOK

This Departmental Professional Learning Community Handbook will help teachers to familiarise themselves with the details of the new Senior High School (SHS), Senior High Technical (SHTS) and Science, Technology, Engineering and Mathematics (STEM) curriculum ahead of national roll-out in 2024/25.

Professional Learning Community (PLC) sessions were introduced across all SHS and SHTS in Ghana in June 2023 and the first two PLC Handbooks were designed to be used by teachers in mixed departmental groups.

This Departmental Professional Learning Community Handbook signals a shift in approach as we focus on providing more detailed information and guidance to teachers ahead of the roll-out of the new SHS, SHTS and STEM curriculum. This Handbook is therefore intended to be used by teachers working in departmental groupings and should be used in conjunction with subject-specific Year One Teacher Manuals.

The Handbook will guide teachers and help to familiarise them with the Weekly Learning Planner and Teacher Manuals as they develop their own Learning Plans for each subject.

The Handbook contains a total of 13 Sessions covering all 24 weeks in Year One of the new SHS, SHTS and STEM curriculum. In each Session of the Handbook teachers will be expected to collectively prepare 2 weeks of Learning Plans using the information provided in their subject-specific Teacher Manuals. The structure of this Handbook is:

Session 1: Reviewing Knowledge on previous PLC sessions

Session 2: Learning Plans for weeks 1 & 2

Session 3: Learning Plans for weeks 3 & 4

Session 4: Learning Plans for weeks 5 & 6

Session 5: Learning Plans for weeks 7 & 8

Session 6: Learning Plans for weeks 9 & 10

Session 7: Learning Plans for weeks 11 & 12

Session 8: Learning Plans for weeks 13 & 14

Session 9: Learning Plans for weeks 15 & 16

Session 10: Learning Plans for weeks 17 & 18

Session 11: Learning Plans for weeks 19 & 20

Session 12: Learning Plans for weeks 21 & 22

Session 13: Learning Plans for weeks 23 & 24

Schools must ensure that they complete all 13 Sessions within a maximum of 16 weeks so that the Handbook has been completed by the end of the 2023/24 academic year.

The Handbook will ensure that teachers continue to enhance their professional practice skills and competencies, familiarising themselves with the details of the new curriculum, enabling them to help learners develop the 21st Century skills and competencies that will prepare them for further studies, the world of work and adult life.

This Handbook also provides opportunities for peer-to-peer transfer of knowledge and encourages teachers to use their subject specialisms and unique experiences to make connections between the subjects within their departments, enhancing learning experiences.

Prof Edward Appiah

Director-General

National Council for Curriculum and Assessment (NaCCA)

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CONTENTS

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DPLC Session 1: Review knowledge on previous PLC sessions.			
<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session.	Guidance Notes on Teacher Activity during the DPLC Session.	Time in session
1. Introduction: Review of previous learning using ideas from the last PLC session, and introducing the Departmental PLC Handbook	1.1. Introduce the session with a starter or warm-up. 1.2 Ask teachers to share their expectations regarding what they hope to gain from the Departmental Professional Learning Community (DPLC) activities (NTS 1a, 1b). E.g. a) <i>Equip teachers with some strategies to teach Applied Technology and Design Communication Technology</i> b) <i>They will be able to prepare and use varieties of resources needed to teach.</i> c) <i>Help teachers explore effective assessment strategies for Applied Technology and Design Communication Technology strands.</i> d) <i>Help teachers to collaborate with colleagues to create supportive learning environment integration national value, GESI, SEL, ICT, differentiation and 21st century skills.</i>	1.1. Introduce the session with an icebreaker. 1.2 Share your expectations regarding what you hope to gain from the Departmental Professional Learning Community (DPLC) activities (NTS 1a, 1b). E.g. <i>Equip teachers with some strategies to teach Applied Technology and Design Communication Technology</i>	10 mins

	1.3 Ask a teacher to read the purpose of the DPLC Handbook. Purpose: The Departmental Professional Learning Community (DPLC) Handbook is intended to serve as the 'bridge' between the handbook introducing the Senior High School (SHS), Senior High Secondary Technical School (SHTS) and Science, Technology, Engineering and Mathematics (STEM) curriculum and the one supporting all teachers to plan and teach the year one subjects in the SHS, SHTS and STEM curriculum. The main purpose of DPLC is to: a) Build on Session 12 on <i>the learning planner</i> of the PLC Handbook on the <i>Introduction of the SHS, SHTS and STEM Curriculum</i> to enable teachers to consolidate their understanding and application of the learning planner. b) Support teachers to use the year one teacher manuals to develop learning plans for all year one lessons in the SHS, SHTS and STEM curriculum using the learning planner. c) Provide opportunities for teachers to discuss the year one learning plans and align them with the year one teacher manuals.	1.3 Read the purpose of the DPLC Handbook. Purpose: The Departmental Professional Learning Community (DPLC) Handbook is intended to serve as the 'bridge' between the handbook introducing the Senior High School (SHS), Senior High Technical (SHTS) and Science, Technology, Engineering and Mathematics (STEM) curriculum and the one supporting all teachers to plan and teach the year one subjects in the SHS, SHTS and STEM curriculum. The main purpose of DPLC is to: a) Build on Session 12 on <i>the learning planner</i> of the PLC Handbook on the <i>Introduction of the SHS, SHTS and STEM Curriculum</i> to enable teachers to consolidate their understanding and application of the learning planner. b) Support teachers to use the year one teacher manuals to develop learning plans for all year one lessons in the SHS, SHTS and STEM curriculum using the learning planner. c) Provide opportunities for teachers to discuss the year one learning plans and align them with the year one teacher manuals.	
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	d) To give teachers enough time to study the year one subjects in the SHS, SHTS and STEM curriculum and how these will be taught effectively and efficiently. The Handbook is thus principally aimed at helping Applied Technology and Design Communication Technology teachers to continue to enhance their professional practice, skills and competencies whilst guiding them to help learners to develop 21st century skills and competencies that will prepare them for further studies, the world of work and adult life. The Handbook will provide opportunities for peer-to-peer transfer of knowledge, and Applied Technology and Design Communication Technology teachers will be encouraged to use their subject specialist and context specific teaching experience to make connections between the teaching and learning of the related subjects in their Department. The Handbook contains 13 topics which cover all the 24 weekly learning plans in year one as follows: 1. Reviewing knowledge and skills acquired from previous PLC Sessions	d) To give teachers enough time to study the year one subjects in the SHS, SHTS and STEM curriculum and how these will be taught effectively and efficiently. The Handbook is thus principally aimed at helping Applied Technology and Design Communication Technology teachers to continue to enhance their professional practice, skills and competencies whilst guiding them to help learners to develop 21st century skills and competencies that will prepare them for further studies, the world of work and adult life. The Handbook will provide opportunities for peer-to-peer transfer of knowledge, and Applied Technology and Design Communication Technology teachers will be encouraged to use their subject specialist and context specific teaching experience to make connections between the teaching and learning of the related subjects in their Department. The Handbook contains 13 topics which cover all the 24 weekly learning plans in year one as follows: 1. Reviewing knowledge and skills acquired from previous PLC Sessions	
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	2. Learning planners for Weeks 1 & 2 3. Learning planners for Weeks 3 & 4 4. Learning planners for Weeks 5 & 6 5. Learning planners for Weeks 7 & 8 6. Learning planners for Weeks 9 & 10 7. Learning planners for Weeks 11 & 12 8. Learning planners for Weeks 13 & 14 9. Learning planners for Weeks 15 & 16 10. Learning planners for Weeks 17 & 18 11. Learning planners for Weeks 19 & 20 12. Learning planners for Weeks 21 & 22 Learning planners for Weeks 23 & 24	2. Learning planners for Weeks 1 & 2 3. Learning planners for Weeks 3 & 4 4. Learning planners for Weeks 5 & 6 5. Learning planners for Weeks 7 & 8 6. Learning planners for Weeks 9 & 10 7. Learning planners for Weeks 11 & 12 8. Learning planners for Weeks 13 & 14 9. Learning planners for Weeks 15 & 16 10. Learning planners for Weeks 17 & 18 11. Learning planners for Weeks 19 & 20 12. Learning planners for Weeks 21 & 22 Learning planners for Weeks 23 & 24	
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask a teacher to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: The purpose of this session is to help the teachers in <i>Applied Technology</i> Department to review their knowledge and understanding on the previous PLC sessions to ensure consolidation of the acquired skills needed to prepare learning planners for various strands in Applied Technology and Design Communication Technology taking into consideration National issues, GESI, SEL, ICT,	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: The purpose of this session is to help the teachers in <i>Applied Technology</i> Department to review their knowledge and understanding on the previous PLC sessions to ensure consolidation of the acquired skills needed to prepare learning planners for various strands in Applied Technology and Design Communication Technology taking into consideration National issues, GESI, SEL, ICT, differentiation and 21 st	60 mins

	differentiation and 21st century skills (cross-cutting issues). LO 1: Apply skills acquired from the previous PLC sessions on appropriate resources, concepts, pedagogical and assessment strategies needed for effective teaching in applied technology, incorporating cross-cutting issues (NTS 1a, 2c, 2e, 2f, 3a, 3e, 3g and 3j). LI 1.1 Analyse the various features of the learning planner with reference to last PLC sessions. LI 1.2 Examine the differentiated pedagogical strategies learnt in the last PLC session needed to prepare learning planners in Applied Technology. LI 1.3 Examine the differentiated assessment strategies learnt in the last PLC session needed to prepare learning planners in Applied Technology and Design Communication Technology. LI 1.4 Examine National values, GESI, SEL, ICT and 21st Century skills required for teaching Applied Technology and Design Communication Technology in an all-inclusive environment.	century skills (cross-cutting issues). LO 1: Apply skills acquired from the previous PLC sessions on appropriate resources, concepts, pedagogical and assessment strategies needed for effective teaching in applied technology, incorporating cross-cutting issues (NTS 1a, 2c, 2e, 2f, 3a, 3e, 3g and 3j). LI 1.1 Analyse the various features of the learning planner with reference to last PLC sessions. LI 1.2 Examine the differentiated pedagogical strategies learnt in the last PLC session needed to prepare learning planners in Applied Technology. LI 1.3 Examine the differentiated assessment strategies learnt in the last PLC session needed to prepare learning planners in Applied Technology and Design Communication Technology. LI 1.4 Examine National values, GESI, SEL, ICT and 21st Century skills required for teaching Applied Technology and Design Communication Technology in an all-inclusive environment.	
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	2.2 Ask teachers in their groups to discuss features of the learning planners. E.g. a) <i>Content standard</i> b) <i>Learning outcome</i> c) <i>Learning indicator</i> d) <i>Week</i> e) <i>Assessment (DoK)</i> f) <i>Key notes on differentiation</i> g) <i>Teaching and learning resources</i> h) <i>Pedagogical strategies</i> i) <i>Form</i> j) <i>Starter</i> k) <i>Main lesson (teacher activities & learner activities)</i> l) <i>Essential question on knowledge hierarchy</i> m) <i>Reflection and remarks</i> 2.3 Ask teachers to use think-pair share to discuss the differentiated pedagogical strategies learnt in the last PLC session indicating how they applied strategies in their lessons (NTS 2a, 2c, 3e, 3g, 3h and 3j). E.g. a) <i>Use videos, online resources and tools to provide different levels of support and challenge to learners in Applied Technology lessons. Allow learners to use simulation to learn complex concepts in Applied technology lessons.</i> b) <i>Project work: Provide feedback on learners' performance. It helps</i>	2.2 In groups, discuss features of the learning planners. E.g. <i>Content standard</i> 2.3 Use think-pair-share to discuss the differentiated pedagogical strategies learnt in the last PLC session indicating how the strategies were applied in the lessons (NTS 2a, 2c, 3e, 3g, 3h and 3j). E.g. <i>Use videos, online resources and tools to provide different levels of support and challenge to learners in Applied Technology lesson. Allow learners to use simulation to learn complex concepts Applied technology lesson.</i>	
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	<i>learners to identify their strength, weaknesses and to make progress.</i> <i>c) Collaborative learning: Encourage active participation and address questions.</i> <i>d) Role play: The role play will help learners to develop critical thinking, problem-solving, and communication skills.</i> <i>e) Hands-on learning: promote active learning by allowing learners to engage in real-life experiences and experiment with Applied technology concepts.</i> <i>f) Experiential learning: It enables learners to apply theoretical concepts to real-life situations and use their perception and critical thinking skills to solve problems. E.g., case studies, simulations and games.</i>		
	2.4 Ask teachers to think-pair-share to discuss differentiated assessment strategies learnt at the last PLC session and how they applied strategies in their lesson (NTS 1a, 3f and 3g). E.g. <i>a) Use varied questioning techniques to engage all learners, providing opportunities for visual, verbal and written responses</i> <i>b) Analyse individual learners' performance in the quizzes to identify</i>	2.4 Think-pair-share to discuss differentiated assessment strategies learnt at the last PLC session and how you applied strategies in the lesson taught (NTS 1a, 3f and 3g). E.g. <i>Use varied questioning techniques to engage all learners, providing opportunities for both verbal and written responses</i>	

	<i>areas of strength and areas that require further support.</i> c) <i>Use a checklist or rubric to assess students' contributions to discussions, considering both the quality of their responses and active participation.</i> d) <i>Providing different sets of questions, by varying the number of question or giving learners different amounts of time to complete the assessment.</i> e) <i>Use a combination of quizzes, tests, projects, presentations, and portfolios to assess learners</i> f) <i>Provide learners with different deadlines (time) to complete their project works.</i> 2.5 Ask teachers to share how they have incorporated national values, GESI, SEL, ICT and 21st century skills into their Applied Technology and Design Communication Technology lessons since the last PLC session (NTS 1a, 2c, 2e, 2f, 3a, 3g and 3i). <i>E.g.</i> a) <i>National values:</i> i. <i>Discuss the importance of honesty in handling materials, tools and equipment in the Applied Technology workshop.</i> ii. <i>Assist learners to respect each other's</i>	2.5 Share how national values, GESI, SEL, ICT and 21st century skills were incorporated into Applied Technology and Design Communication Technology lessons since the last PLC (NTS 1a, 2c, 2e, 2f, 3a, 3g and 3i). <i>E.g.</i> a) <i>National values:</i> <i>Discuss the importance of honesty in handling materials, tools and equipment in the Applied Technology workshop.</i>	
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	<i>views during discussion and group activities.</i> <i>b) GESI:</i> <i>i. Create a safe and inclusive learning environment for all learners, regardless of their gender, ethnicity, or sexual orientation.</i> <i>ii. Use gender-neutral language in Applied Technology and Design Communication Technology lessons.</i> <i>iii. Help learners to appreciate the importance of diversity and inclusion in Applied Technology and Design Communication Technology fields.</i> <i>iv. Highlight the contributions of women in STEM</i> <i>c) SEL:</i> <i>i. Create awareness of importance of socio-emotional learning such as self-awareness, self-management, and empathy.</i> <i>ii. Create opportunities for learners to practice social-emotional learning such that during collaborative work, there should be respect for each other's views.</i> <i>iii. In Applied Technology workshops, there should</i>	<i>b) GESI:</i> <i>Create a safe and inclusive learning environment for all learners, regardless of their gender, ethnicity, or sexual orientation.</i> <i>c) SEL:</i> <i>Create awareness of importance of socio-emotional learning such as self-awareness, self-management, and empathy.</i>	
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	<i>be responsible decision making.</i> d) <i>ICT:</i> i. <i>Help learners to use ICT tools to surf internet about real-world problems in Applied Technology and Design Communication Technology fields.</i> ii. <i>Teach learners about the ethical use of technology (e.g., AutoCAD, Multisim etc.)</i> e) <i>21st century skills:</i> i. <i>Help learners to develop critical thinking, problem-solving and decision-making skills through assigned project works in Applied Technology.</i> ii. <i>Help learners to be creativity and innovation.</i> iii. <i>Assist learners to collaborate and develop teamwork skills through group work.</i> iv. <i>Assist learners to develop communication skills through group presentation, brainstorming, discussion, question and answer, role play.</i>	d) <i>ICT:</i> <i>Help learners to use ICT tools to surf internet about real-world problems in Applied Technology and Design Communication Technology fields.</i> e) <i>21st century skills:</i> <i>Help learners to develop critical thinking skills, such as problem-solving and decision-making through assigned project works in Applied Technology.</i>	
3. Modelling a teaching activity, promoting character values, GESI, SEL, ICT and 21st century skills	3.1 Ask a teacher to model a teaching activity in the lesson on application of the knowledge on any topic of their choice in Applied Technology taking into account character values,	3.1 Model a teaching activity in the lesson on application of the knowledge on any topic of their choice in Applied Technology taking into account character values, GESI, SEL, ICT and	10 mins

	GESI, SEL, ICT and 21 st century skills (NTS 3a, 3c-3j). 3.2 Ask teachers to reflect and give feedback on the modelled lesson (NTS 1a, 2c, 3h).	21 st century skills (NTS 3a, 3c-3j). 3.2 Reflect and give feedback on the modelled lesson (NTS 1a, 2c, 3h).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session with the larger group (NTS 1a, 1b). 4.2 Remind teachers to, where possible, identify a critical friend to observe their lesson and provide feedback. (NTS 3n, 3o). 4.3 Remind teachers to read DPLC Session 2 on developing lesson plans for Weeks 1 and 2, and bring along the teacher manual, NTS handbook, curriculum, and a laptop in preparation for the next session (NTS 1a, 1b).	4.1 In your group reflect, write and share one thing you have learnt at this session with the larger group (NTS 1a, 1b). 4.2 Identify a critical friend to observe your next lesson and provide feedback. (NTS 3n, 3o). 4.3 Remember to read DPLC Session 2 on developing lesson plans for Weeks 1 and 2 and bring along teacher manual, NTS handbook, curriculum, and a laptop in preparation for the next session (NTS 1a, 1b).	10 mins

DPLC Session 2: Developing learning plans for Weeks 1 and 2

<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 1, <i>Reviewing knowledge on previous PLC sessions</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 1, <i>reviewing knowledge on previous PLC sessions</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 1, <i>Reviewing knowledge on previous PLC sessions</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 1, <i>reviewing knowledge on previous PLC sessions</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 1 and 2 learning plans for the following lessons: a) <i>Applied technology: Workshop safety</i> b) <i>Design Communication Technology: Concept sketches</i>	2.1 Read the Purpose, Learning Outcomes (Los) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 1 and 2 learning plans for the following lessons: a) <i>Applied technology: Workshop safety</i> b) <i>Design Communication Technology: Concept sketches</i>	60 mins

	LO 1: Develop learning plans for Weeks 1 and 2 on general safety and concept sketches in Applied Technology and <i>Design Communication Technology</i> incorporating cross-cutting issues (NTS 3c, 3-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 1 and 2 lessons in Applied Technology Department, considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 1 and 2 lessons in Applied Technology Department, considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans for Weeks 1 and 2 in Applied Technology and Design Communication Technology (NTS 3c, 3e - 3g and 3j). LI 2.1 Discuss the learning plans for Weeks 1 and 2 lessons in Applied Technology and Design Communication Technology. LI 2.2 Team-review learning plans for Weeks 1 and 2 in the Applied Technology and Design Communication Technology Teacher Manual.	LO 1: Develop learning plans for Weeks 1 and 2 on general safety and concept sketches in Applied Technology and <i>Design Communication Technology</i> incorporating cross-cutting issues (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 1 and 2 lessons in Applied Technology Department, considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 1 and 2 lessons in Applied Technology Department, considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans for Weeks 1 and 2 in Applied Technology and Design Communication Technology (NTS 3c, 3e – 3g and 3j). LI 2.1 Discuss the learning plans for Weeks 1 and 2 lessons in Applied Technology and Design Communication Technology. LI 2.2 Team-review learning plans for Weeks 1 and 2 in Applied Technology and Design Communication Technology Teacher Manual.	
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	2.2 Ask teachers in groups to identify and share aspects of Weeks 1 and 2 lessons in Applied Technology Department lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>a) Learning indicator(s)</i> <i>b) Learning outcome(s)</i> <i>c) Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 1 and 2 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 1):</i> <i>i. How can learners be assisted to identify safety precautions in the workshop?</i> <i>ii. How can learners be assisted to demonstrate the safe use of machine tools in the workshop?</i> <i>iii. How can learners use the content of Safety at the Applied Technology workshop in real life situations? etc.</i> <i>b) Design Communication Technology:</i> <i>i. In what ways can learners be assisted to explain concept sketches?</i> <i>ii. How can learners be assisted to list types of sketches?</i>	2.2 In your groups, identify and share aspects of Weeks 1 and 2 lessons in Applied Technology Department in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 1 and 2 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 1):</i> <i>How can learners be assisted to identify safety precautions in the workshop? etc.</i> <i>b) Design Communication Technology:</i> <i>In what ways can learners be assisted to explain concept sketches? etc.</i>	
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	iii. <i>In what ways can learners be assisted to Explain line consistency and line weight? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 1 and 2 Applied Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 1):</i> i. <i>Learning Task:</i> ▪ <i>Recall any two. safety precaution in the workshop?</i> ▪ <i>Demonstrate the safe use of machine tools in the workshop?</i> ▪ <i>Demonstrate how to use the content of Safety at the Applied Technology workshop in real life situations? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Talk for learning approaches: Guide learners through watching a video of an operational workshop, to co-operatively brainstorm the meaning of health and safety in the workshop with open-mindedness. The teacher should pull all students back in for whole-class feedback</i>	2.4 Think-pair-share key notes on differentiation in Weeks 1 and 2 Applied Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 1):</i> i. <i>Learning Task:</i> <i>Recall any two. safety precaution in the workshop? etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>Talk for learning approaches: Guide learners through watching a video of an operational workshop, to co-operatively brainstorm the meaning of health and safety in the workshop with open-mindedness. The teacher should pull all students back in for whole-class feedback</i>	
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	<i>and to collect definitions</i> ▪ <i>Group work/collaborative learning: Place learners into mixed ability groups and task them to co-operatively discuss the causes of accidents in the workshop with open-mindedness and patience. HP learners can be tasked with also supporting groups in discussion like the teacher</i> ▪ <i>Role play: The teacher should model to learners' safe use of tools in the classroom workshop and ask students questions to ensure understanding of safe use of machine tools. From here students can use role play to practice safe use of machine tools prior to using the actual equipment. As teachers assess learners' confidence, they can move to demonstrating safe use of machine tools on the equipment, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 1: List two items of safety equipment used on machine in the workshop.</i> ▪ <i>Level 2: How can accidents be prevented by the safe use of</i>	<i>and to collect definitions, etc</i> <i>iii. Key Assessment:</i> <i>Level 1: List two items of safety equipment used on machine in the workshop? etc.</i>	
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	<i>machine tools in the workshop?</i> ▪ <i>Level 3: Why is it necessary to ensure protection of the eyes when using machinery? etc.</i> a) <i>Design Communication Technology (Week 2):</i> i. <i>Learning Task:</i> ▪ <i>Explain concept sketches?</i> ▪ <i>List types of sketches?</i> ▪ <i>Explain line consistency and line weight? etc.</i> ii. <i>Pedagogical Exemplars</i> ▪ <i>Managing Talk for Learning: In mixed-ability groups present to learner's different types of sketches, allow learners to observe the sketches and present their findings in a whole class discussion. Ensure the groups consist of both the AP, P and HP learners</i> ▪ <i>In their groups assist learners to use internet surf, relevant videos and charts, to research and discuss concept sketches, types of sketches, their application in the design process, as well as tools and materials used for sketching</i> ▪ <i>Ensure the AP and P learners participate in the research and discussions</i>	a) <i>Design Communication Technology (Week 2):</i> i. <i>Learning Task:</i> <i>Explain concept sketches? etc.</i> ii. <i>Pedagogical Exemplars</i> <i>Managing Talk for Learning: In mixed-ability groups present to learner's different types of sketches, allow learners to observe the sketches and present their findings in a whole class discussion. Ensure the groups consist of both the AP, P and HP learners, etc.</i>	
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	<i>Assist learners to present their findings in a group presentation, allow the P learners to lead the presentation, etc.</i> iii. Key Assessment: ▪ Level 1: List three types of sketches? ▪ Level 2: Explain concept sketches through any medium? ▪ Level 2: Explain the following? etc. 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 1 and 2 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	iii. Key Assessment: Level 1: List three types of sketches, etc. 2.5 Complete the learning planner templates for teaching Weeks 1 and 2 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. • Reviewing planner to ensure alignment between course manual and learning planner based on the templates provided.	3.1 Ask teachers to peer-review the learning plans for Weeks 1 and 2 (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) Alignment of essential questions with the teacher manual. b) Key differentiation c) Differentiated pedagogical and assessment strategies. d) Alignment of essential questions with the teacher manual. e) Use of GESI, SEL and national values, 21st century skills in the lessons.	3.1 Peer-review the learning plans for Weeks 1 and 2 (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) Alignment of essential questions with the teacher manual. b) Key differentiation c) Differentiated pedagogical and assessment strategies. d) Alignment of essential questions with the teacher manual. e) Use of GESI, SEL and national values, 21st century skills in the lessons.	10 mins

	3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 3 on developing lesson plans for Weeks 3 and 4, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	4.1 Write one thing you have learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 3 on developing lesson plans for Weeks 3 and 4 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 3: Developing learning plans for Weeks 3 and 4.

<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 2, <i>developing learning plans for Weeks 1 and 2</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 2, <i>developing learning plans for Weeks 1 and 2</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 2, <i>developing learning plans for Weeks 1 and 2</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 2, <i>developing learning plans for Weeks 1 and 2</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manual and learning planners to effectively develop Weeks 3 and 4 learning plans for the following lessons: a) <i>Applied Technology: Introduction to engines and Construction stakeholders</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manual and learning planners to effectively develop Weeks 3 and 4 learning plans for the following lessons: a) <i>Applied Technology: Introduction to engines and construction stakeholders</i>	60 mins

	<i>b) Design Communication Technology: Basic shapes, forms as well as rendering techniques in designing.</i> LO 1: Develop learning plans for Weeks 3 and 4 on the introduction to engines, Construction stakeholders and basic shapes, forms as well as rendering techniques in designing (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 3 and 4 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 3 and 4 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 3 and 4 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 3 and 4 lessons in applied technology.	<i>b) Design Communication Technology: Basic shapes, forms as well as rendering techniques in designing.</i> LO 1: Develop learning plans for Weeks 3 and 4 on the introduction to engines, Construction stakeholders and basic shapes, forms as well as rendering techniques in designing (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 3 and 4 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 3 and 4 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 3 and 4 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 3 and 4 lessons in applied technology.	
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	LI 2.2 Team review learning plans for Weeks 3 and 4 in Applied Technology. 2.2 Ask teachers in groups to identify and share aspects of Weeks 3 and 4 lessons in Applied Technology Department lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>a) Learning indicator(s)</i> <i>b) Learning outcome(s)</i> <i>c) Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 3 and 4 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 3):</i> <i>i. How can learners be assisted to differentiate between internal and external combustion engines?</i> <i>ii. In what ways can learners be introduced to modern layout of internal combustion engines?</i> <i>iii. How can learners differentiate between petrol and diesel engines for clear understanding of the two types of engines? etc.</i>	LI 2.2 Team review learning plans for Weeks 3 and 4 in Applied Technology. 2.2 In your groups, identify and share aspects of Weeks 3 and 4 lessons in Applied Technology Department in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 3 and 4 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 3):</i> <i>How can learners be assisted to differentiate between internal and external combustion engines? etc</i>	
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	<i>(Week 4):</i> <i>i. How can learners be assisted to differentiate areas of discipline of Stakeholders in the building construction industry?</i> <i>ii. How can learners be made aware of the major concerns of stakeholders in the building construction industry?</i> <i>iii. How can learners be made aware of the functions of stakeholders in the building construction industry? etc</i> <i>b) Design Communication Technology (Week 3):</i> <i>i. How can learners be assisted to state rendering techniques that are used in artwork?</i> <i>ii. How can learners be assisted to Select basic shapes and use them to create an object and use rendering techniques to render the object created? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 3 and 4 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions. E.g.</i>	<i>(Week 4):</i> <i>How can learners be assisted to differentiate areas of discipline of Stakeholders in the building construction industry? etc.</i> <i>b) Design Communication Technology (Week 3):</i> <i>How can learners be assisted to state rendering techniques that are used in artwork? etc.</i> 2.4 Think-pair-share key notes on differentiation in Weeks 3 and 4 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions. E.g.</i>	
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	a) <i>Applied technology (Week 3):</i> i. <i>Learning Task:</i> ▪ <i>Identify two (2) types of engines use in motor vehicle?</i> ▪ <i>Describe three (3) functions of the motor vehicle engine?</i> ▪ <i>Arrange and evaluate five (5) features each of petrol and diesel engines? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Problem-based learning: Guide learners in working groups with the aid of real objects, videos, models of engines (Petrol and diesel engines) to co-operatively brainstorm to identify types of engines use in motor vehicle with open-mindedness. The teacher should pull all students back in for whole-class feedback and to collect definitions</i> ▪ <i>Group work/collaborative Learning: Place learners into mixed ability groups and task them to co-operatively describe functions of the motor vehicle engine. with open-mindedness and respect for each other's view. HP learners can be</i>	a) <i>Applied technology (Week 3):</i> i. <i>Learning Task:</i> <i>Identify two (2) types of engines use in motor vehicle? etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>Problem-based learning: Guide learners in working groups with the aid of real objects, videos, models of engines (Petrol and diesel engines) to co-operatively brainstorm to identify types of engines use in motor vehicle with open-mindedness. The teacher should pull all students back in for whole-class feedback and to collect definitions, etc.</i>	
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	<i>tasked with also supporting groups in discussion like the teacher</i> ▪ <i>Experiential learning: Teacher should task learners to arrange and evaluate with passion the features of petrol and diesel engines, using real objects, videos and internet surfing. The teacher should supervise to ensure that the whole class participate in the lesson. The teacher should pull all students back in for whole-class feedback, etc.</i>		
	<i>iii. Key Assessment:</i> ▪ <i>Level 1: Identify two (2) types of engines use in motor vehicle?</i> ▪ <i>Level 2: Describe three (3) functions of the motor vehicle engine?</i> ▪ <i>Level 3: Arrange and evaluate five (5) features each of petrol and diesel engines?</i> <i>(Week 4):</i> <i>i. Learning tasks:</i> ▪ <i>Outline the different stakeholder groups one is likely to encounter on a building project?</i> ▪ <i>How do stakeholder groups such as the design team and the</i>	<i>iii. Key Assessment:</i> <i>Level 1: Identify two (2) types of engines use in motor vehicle, etc.</i> <i>(Week 4):</i> <i>i. Learning tasks:</i> <i>Outline the different stakeholder groups one is likely to encounter on a building project? etc.</i>	

	<i>civil society contribute to the success of construction projects they associate with?</i> ▪ <i>What strategies do stakeholders put in place to ensure that the project becomes sustainable?</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Experiential learning: conduct experiential learning by organising field trips to construction sites or offices of Stakeholders where learners will observe constructional activities and interact with relevant personnel in order to gain understanding of the concept of a Stakeholder of any building construction projects</i> ▪ <i>Digital learning: Encourage research on the Internet to help Learners have deeper understanding of the categories of stakeholders involved in building construction projects</i> ▪ <i>Collaborative learning: Deliberately place Learners in mixed-ability groupings where the different needs of learners Approaching Proficiency, the Proficient and Highly</i>	ii. <i>Pedagogical Exemplars: Experiential learning: conduct experiential learning by organising field trips to construction sites or offices of Stakeholders where learners will observe constructional activities and interact with relevant personnel in order to gain understanding of the concept of a Stakeholder of any building construction projects, etc.</i>	
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	<i>Proficient will be met and where they will all be encouraged to engage in critical thinking and brainstorming to explain the relevance of stakeholders, etc.</i> iii. Key Assessment. ▪ <i>Level 1: Identify five different groups of stakeholders one can find on a building construction project?</i> ▪ <i>Level 2: Describe how different stakeholder groups, such as the client entity and the building team, contribute to a successful construction project.</i> ▪ <i>Level 3: Discuss a scenario where statutory authorities might need to withhold a building permit due to safety concerns? etc.</i> b) <i>Design Communication Technology (Week 3):</i> i. <i>Learning Task:</i> ▪ <i>State rendering techniques that are used in artwork.</i> ▪ <i>Select basic shapes and use them to create an object and use rendering techniques to render the object created? etc.</i>	iii. Key Assessment: <i>Level 1: Identify five different groups of stakeholders one can find on a building construction project, etc.</i> b) <i>Design Communication Technology (Week 3):</i> i. <i>Learning Task:</i> <i>State rendering techniques that are used in artwork? etc.</i>	
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	ii. <i>Pedagogical Exemplars:</i> ▪ <i>In convenient groups, task learners to use relevant resources such as photographs, videos, drawings and board illustrations to identify and record the various rendering techniques used in designing, assist the AP and P learners by attending to them regularly</i> ▪ <i>Guide learners to use freehand sketches to draw and render various shapes and forms with one or more of the rendering techniques they are familiar with. Encourage learners to draw both organic and inorganic objects. Assist learners to paste their art works on the classroom walls to create a gallery and encourage learners to appreciate each other's art works, allow the AP and P learners past their art works first followed by the HP learners.</i> iii. <i>Key Assessment</i> ▪ <i>Level 1: State three rendering techniques that are used in artwork.</i> ▪ <i>Level 3: Select two basic shapes and use them to create an object and use two or</i>	ii. <i>Pedagogical Exemplars:</i> <i>In convenient groups, task learners to use relevant resources such as photographs, videos, drawings and board illustrations to identify and record the various rendering techniques used in designing, assist the AP and P learners by attending to them regularly, etc.</i> iii. <i>Key Assessment</i> <i>Level 1: State three rendering techniques that are used in artwork? etc.</i>	
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	<i>more rendering techniques to render the object created? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 3 and 4 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	2.5 Complete the learning planner templates for teaching Weeks 3 and 4 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. • Reviewing planner to ensure alignment between course manual and learning planner based on the templates provided.	3.1 Ask teachers to peer-review the learning plans for lessons for Weeks 3 and 4 (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> <i>Conformance to the learning plan structure.</i> <i>Alignment of essential questions with the teacher manual.</i> <i>Key differentiation</i> <i>Suitability of selected resources and feasibility of executing the learning plan.</i> <i>Integration of GESI, SEL and national values.</i> <i>Application of 21st century skills."</i> <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	3.1 Peer-review learning plans for Weeks 3 and 4 (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> <i>Conformance to the learning plan structure.</i> <i>Alignment of essential questions with the teacher manual.</i> <i>Key differentiation</i> <i>Suitability of selected resources and feasibility of executing the learning plan.</i> <i>Integration of GESI, SEL and national values.</i> <i>Application of 21st century skills."</i> <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	10 mins

4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 4 on developing lesson plans for Weeks 5 and 6, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 4 on developing lesson plans for Weeks 5 and 6 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins
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DPLC Session 4: Developing learning plans for Weeks 5 and 6			
<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 3, <i>developing learning plans for Weeks 3 and 4</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 3, <i>developing learning plans for Weeks 3 and 4</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 3, <i>developing learning plans for Weeks 3 and 4</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 3, <i>developing learning plans for Weeks 3 and 4</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 5 and 6 learning plans for the following lessons: <i>a) Applied Technology: Safety in the use of electricity and safe use of hand tools in the metalwork shop</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 5 and 6 learning plans for the following lessons: <i>a) Applied Technology: Safety in the use of electricity and safe use of hand tools in the metalwork shop</i>	60 mins

	<i>b) Design Communication Technology: Principles of perspective drawing and proportion in designing.</i> LO 1: Develop learning plans for lessons in Weeks 5 and 6 on the safety in the use of electricity, safe use of hand tools in the metalwork shop and principles of perspective drawing as well as proportion in designing (NTS 1a, 1b, 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for Weeks 5 and 6 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 5 and 6 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 5 and 6 in Applied Technology and Design Communication Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 5 and 6 lessons in Applied Technology and Design Communication Technology.	<i>b) Design Communication Technology: Principles of perspective drawing and proportion in designing.</i> LO 1: Develop learning plans for lessons in Weeks 5 and 6 on the safety in the use of electricity, safe use of hand tools in the metalwork shop and principles of perspective drawing as well as proportion in designing (NTS 1a, 1b, 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for Weeks 5 and 6 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 5 and 6 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 5 and 6 in Applied Technology and Design Communication Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 5 and 6 lessons in Applied Technology and Design Communication Technology.	
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	LI 2.2 Team-review learning plans for Weeks 5 and 6 in Applied Technology and Design Communication Technology. 2.2 Ask teachers in groups to identify and share aspects of Weeks 5 and 6 lessons in Applied Technology Department lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>a) Learning indicator(s)</i> <i>b) Learning outcome(s)</i> <i>c) Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 5 and 6 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 5):</i> <i>i. How can learners be assisted to observe safety at the electrical workshop?</i> <i>ii. What safety measures should be taken when working with electrical appliances or equipment to minimise the risk of electrical shocks?</i> <i>iii. In what ways can learners be assisted to explain safety precautions to be followed when dealing with high-voltage electrical systems, such</i>	LI 2.2 Team-review learning plans for Weeks 5 and 6 in Applied Technology and Design Communication Technology. 2.2 In your groups, identify and share aspects of Weeks 5 and 6 lessons in Applied Technology Department in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 5 and 6 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 5):</i> <i>How can learners be assisted to observe safety at the electrical workshop? etc.</i>	
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	<i>as power substations? etc.</i> <i>(Week 6):</i> <i>i. In what ways can learners be assisted to ensure the safe and responsible use of metalwork tools?</i> <i>ii. How can learners be assisted to classify metalwork tools?</i> <i>iii. How can I provide opportunities for learners to practice and apply metalwork tool in the workshop? etc.</i> <i>b) Design Communication technology (Week 5):</i> <i>i. How can learners be assisted to explain perspective and proportion and their relationship to designing?</i> <i>ii. In what ways can learners be assisted to select an interesting scene from your environment and sketch, making use of perspectives and proportions? etc.,</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 5 and 6 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i>	<i>(Week 6):</i> <i>In what ways can learners be assisted to ensure the safe and responsible use of metalwork tools? ? etc</i> <i>b) Design Communication technology (Week 5):</i> <i>How can learners be assisted to explain perspective and proportion and their relationship to designing? Etc.</i> 2.4 Think-pair-share key notes on differentiation in Weeks 5 and 6 Applied Technology and Design Communication lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i>	
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	E.g. a) <i>Applied technology (Week 5):</i> i. <i>Learning Tasks</i> ▪ <i>What are the common sources of electric shock in household settings?</i> ▪ <i>How can faulty electrical appliances lead to electric shock?</i> ▪ <i>What are some of the effects of electric shock on the human body? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Talk for learning Approaches: Engage the entire class in a discussion aimed at encouraging learners to actively participate and collectively brainstorm to define electric shock, delve into its root causes, and analyse its effects</i> ▪ <i>Groupwork/collaborative learning: In small mixed-ability groups, task learners to identify protective clothing needed when working with electricity. Encourage learners to pool their knowledge and skills to brainstorm and research for the necessary protective clothing needed when working with electricity</i>	E.g. a) <i>Applied technology (Week 5):</i> i. <i>Learning Tasks</i> <i>What are the common sources of electric shock in household settings? etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>Talk for learning Approaches: Engage the entire class in a discussion aimed at encouraging learners to actively participate and collectively brainstorm to define electric shock, delve into its root causes, and analyse its effects, etc.</i>	
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	▪ <i>Experiential Learning: Engage learners in an experiential learning process by inviting them to engage in role-playing scenarios depicting how to treat a victim of an electric shock. Following this, challenge them to identify essential precautions to observe in such situations, such as always switching off circuits before beginning any task., etc.</i> iii. <i>Key Assessment:</i> ▪ <i>Level 1: Identify four dangerous situations and behaviours likely to cause electric shocks?</i> ▪ <i>Level 2: Why do we have insulation around electrical workshop tools?</i> ▪ <i>Level 3: How can a severe electric shock cause damage to internal organs and tissues? etc.</i> (Week 6): i. <i>Learning Tasks:</i> ▪ <i>Define measuring tools, marking out tools, holding tools, striking tools and cutting tools used in metalwork?</i> ▪ <i>Identify at least three tools for each of the</i>	iii. <i>Key Assessment:</i> <i>Level 1: Identify four dangerous situations and behaviours likely to cause electric shocks? etc.</i> (Week 6): i. <i>Learning Tasks:</i> <i>Define measuring tools, marking out tools, holding tools, striking tools and cutting tools used in metalwork? etc.</i>	
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	<i>following: measuring, marking-out, holding, striking and cutting tools and present their answers with the aid of sketches, orally or in writing?</i> ▪ <i>Describe the process of using a particular tool in measuring, marking out, holding, striking and cutting? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Pre-Assessment: Begin by conducting a pre-assessment with oral questions to understand the prior knowledge, skills and experiences of each learner regarding hand tools in metalwork. This will help the teacher tailor instructions to meet the specific needs of individual learners or groups of learners</i> ▪ <i>Research and Collaboration: Learners in mixed ability groups and in a fair manner are shown samples of measuring tools, marking out tools, holding tools, striking tools and cutting tools in metalwork and tasked to brainstorm their uses</i>	ii. <i>Pedagogical Exemplars: Pre-Assessment: Begin by conducting a pre-assessment with oral questions to understand the prior knowledge, skills and experiences of each learner regarding hand tools in metalwork. This will help the teacher tailor instructions to meet the specific needs of individual learners or groups of learners, etc.</i>	
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	▪ <i>Group work/collaborative learning: The teacher can create mixed-ability groups where learners can learn from and support each other or can group learners homogeneously for targeted instruction based on their skill levels. Guide learners to discuss effectively with respect for other, the various ways of avoiding accidents in the workshop, tools, materials and machines, etc.</i>		
	iii. <i>Key Assessment</i> ▪ <i>Level 1: Identify at least three tools for each of the following: measuring, marking-out, holding, striking and cutting tools and present their answers with the aid of sketches, orally or in writing?</i> ▪ <i>Level 2: Describe the process of using a particular tool in measuring, marking out, holding, striking and cutting?</i> ▪ <i>Level 3: Discuss the applications of measuring, marking-out, holding, striking and cutting tools at the workshop in completing a given project? etc.</i>	iii. <i>Key Assessment</i> <i>Level 1: Identify at least three tools for each of the following: measuring, marking-out, holding, striking and cutting tools and present their answers with the aid of sketches, orally or in writing? etc.</i>	

	<i>b) Design Communication technology.</i> <i>i. Learning Task:</i> ▪ <i>Explain perspective and proportion and their relationship to designing?</i> ▪ <i>Select an interesting scene from your environment and sketch, making use of perspectives and proportions? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Project-Based Learning: In mixed ability groupings, task learners to discuss the concept of perspective and proportion related to drawing, using board illustrations, pictures, relevant videos and charts. Ensure the groups consist of both AP, P and HP learners</i> ▪ <i>In their groups, learners go on a nature walk in the school environment to observe scenes, guide them to sketch the scene making correct use of perspective and proportion. Ensure the AP, P and HP participate</i> ▪ <i>Assist learners to paste their drawings on the classroom walls as a gallery and encourage learners to appreciate each</i>	<i>b) Design Communication technology.</i> <i>i. Learning Task:</i> <i>Explain perspective and proportion and their relationship to designing? etc.</i> <i>ii. Pedagogical Exemplars:</i> <i>Project-Based Learning: In mixed ability groupings, task learners to discuss the concept of perspective and proportion related to drawing, using board illustrations, pictures, relevant videos and charts. Ensure the groups consist of both AP, P and HP learners, etc.</i>	
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	<i>other's drawings. Allow the AP and P learners paste their drawings first followed by the HP learners, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 2: Explain perspective and proportion and their relationship to drawing?</i> ▪ <i>Level 3: Sit under a tree and sketch an interesting scene making use of perspective, proportion and rendering? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 5 and 6 lessons (NTS 3a, 3e-3g and 3k). <i>Note: Emphasis should be on essential questions and key notes on differentiation.</i>	<i>iii. Key Assessment:</i> ▪ <i>Level 2: Explain perspective and proportion and their relationship to drawing? etc,</i> 2.5 Complete the learning planner templates for teaching Weeks 5 and 6 lessons (NTS 3a, 3e-3g and 3k). <i>Note: Emphasis should be on essential questions and key notes on differentiation.</i>	
3. Peer-review of learning planners. Reviewing planner to ensure alignment between course manual and learning planner based on the templates provided.	3.1 Ask teachers to peer-review the learning plans for Weeks 5 and 6 lessons (NTS 1a, 2c and 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and</i>	3.1 Peer-review the learning plans for Weeks 5 and 6 lessons (NTS 1a, 2c and 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and</i>	10 mins

	<i>feasibility of executing the learning plan.</i> <i>e) Integration of GESI, SEL and national values.</i> <i>f) Application of 21st century skills.</i> <i>g) Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	<i>feasibility of executing the learning plan.</i> <i>e) Integration of GESI, SEL and national values.</i> <i>f) Application of 21st century skills.</i> <i>g) Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 5 on developing lesson plans for Weeks 7 and 8, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 5 on developing lesson plans for Weeks 7 and 8 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 5: Developing learning plans for Weeks 7 and 8			
<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 4, <i>developing learning plans for Weeks 5 and 6</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 4, <i>developing learning plans for Weeks 5 and 6</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 4, <i>developing learning plans for Weeks 5 and 6</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 4, <i>developing learning plans for Weeks 5 and 6</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 7 and 8 learning plans for the following lessons: a) <i>Applied technology: Timber and constructional as well as operational differences between petrol and diesel engines.</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 7 and 8 learning plans for the following lessons: a) <i>Applied technology: Timber and constructional as well as operational differences between petrol and diesel engines.</i>	60 mins

	<i>b) Design Communication technology: Object manipulation</i> LO 1: Develop learning plans for Weeks 7 and 8 on the timber, differences between petrol and diesel engines and object manipulation (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 7 and 8 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 7 and 8 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 7 and 8 in Applied Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 7 and 8 lessons in Applied Technology and Design Communication Technology. LI 2.2 Team review learning plans for Weeks 7 and 8 in Applied Technology and Design Communication Technology.	<i>b) Design Communication technology: Object manipulation</i> LO 1: Develop learning plans for Weeks 7 and 8 on the timber, differences between petrol and diesel engines and <i>object manipulation</i> (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 7 and 8 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 7 and 8 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 7 and 8 in Applied Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 7 and 8 lessons in Applied Technology and Design Communication Technology. LI 2.2 Team review learning plans for Weeks 7 and 8 in Applied Technology and Design Communication Technology.	
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	2.2 Ask teachers in groups to identify and share aspects of Weeks 7 and 8 lessons in Applied Technology Department lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. a) <i>Learning indicator(s)</i> b) <i>Learning outcome(s)</i> c) <i>Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 7 and 8 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology (Week 7):</i> i. <i>How can learners be assisted to identify different items made of wood in our environment?</i> ii. <i>How can learners be assisted to describe a typical cross section of a tree trunk?</i> iii. <i>In what ways can learners be assisted to differentiate between the anatomical structure of hardwood and softwood and give two examples each.? etc.</i> (Week 8): i. <i>In what ways can learners be assisted to explain how a petrol engine generates power in its cylinder?</i>	2.2 In your groups, identify and share aspects of Weeks 7 and 8 lessons in Applied Technology Department in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 7 and 8 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology (Week 7):</i> <i>How can learners be assisted to identify different items made of wood in our environment? etc.</i> (Week 8): <i>In what ways can learners be assisted to explain how a petrol engine generates power in its cylinder?</i>	
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	ii. <i>How can learners be assisted to describe how burning is initiated in a diesel engine?</i> iii. <i>How can I provide opportunities for learners to illustrate with sketches the operation of four-stroke cycle CI engine? etc.</i> b) <i>Design Communication technology (Week 7):</i> i. <i>How can learners be assisted to identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by using photographs, videos and real objects?</i> ii. <i>How can learners be assisted to describe the various tools and techniques that can be used in object manipulation in the free-hand drawing?</i> iii. <i>How can learners be assisted to examine and generate a manual/digital annotated album of tools and techniques that can be used in object manipulation in free-hand drawing? etc.</i>	b) <i>Design Communication technology (Week 7): Identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by using photographs, videos and real objects? etc.</i>	
	2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 7 and 8 Applied Technology lessons that cater for the	2.4 Think-pair-share key notes on differentiation in Weeks 7 and 8 Applied Technology lessons that cater for the diverse needs of	

	diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 7):</i> i. <i>Learning Tasks:</i> ▪ <i>Identify the three main parts of the living tree?</i> ▪ <i>Explain what is meant by the terms pored woods and non-pored woods?</i> ▪ <i>Differentiate between the anatomical structure of hardwood and softwood and give three examples each? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Critical thinking and talk for learning approaches: Guide learners through a video demonstration of a timber conversion process in action, to co-operatively brainstorm the meaning and methods of conversion of timber with open-mindedness and faithfulness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners</i> ▪ <i>Group work/collaborative learning /digital</i>	lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 7):</i> i. <i>Learning Tasks:</i> <i>Identify the three main parts of the living tree? etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>Critical thinking and talk for learning approaches: Guide learners through a video demonstration of a timber conversion process in action, to co-operatively brainstorm the meaning and methods of conversion of timber with open-mindedness and faithfulness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners, etc.</i>	
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	<i>literacy learning:</i> Place learners into mixed ability groups and task them to co-operatively discuss the differences between hardwoods and softwoods with open-mindedness, patience and work ethics. HP learners can be tasked with also supporting groups in discussion like the teacher ▪ <i>Experiential learning:</i> Display samples of different types of wood species and task learners in mixed ability groups to carefully identify and passionately explain softwoods and hardwoods with open-mindedness. As teachers assess learners' confidence, they can use magnifying lens to differentiate between the anatomical structure of hardwood and softwood with the wood samples, etc.		
	iii. <i>Key Assessment:</i> ▪ <i>Level 1: Identify different items made of wood in our environment?</i> ▪ <i>Level 2: Describe a typical cross section of a tree trunk?</i> ▪ <i>Level 3: Differentiate between the</i>	iii. <i>Key Assessment:</i> <i>Level 1: Identify different items made of wood in our environment? etc.</i>	

	<i>anatomical structure of hardwood and softwood and give two examples each? etc.</i> <i>(Week 8):</i> <i>i. Learning Tasks</i> ▪ <i>Explain briefly how a petrol engine generates power in its cylinder?</i> ▪ <i>Describe how burning is initiated in a diesel engine?</i> ▪ <i>Illustrate with sketches the operation of four-stroke cycle CI engine?</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Problem-based learning: Guide learners in working groups with the aid of real objects, videos, models of engines (Petrol and diesel engines) to co-operatively brainstorm to differentiate between the construction of petrol and diesel engines. The teacher should target questions to learners as they discuss with one another, to encourage them to contribute to the discussion. The teacher should pull all students back in for whole-class feedback</i> ▪ <i>Group work/collaborative learning: Place students in mixed-ability groups and give them the assignment of</i>	<i>(Week 8):</i> <i>i. Learning Tasks</i> <i>Explain briefly how a petrol engine generates power in its cylinder? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Problem-based learning: Guide learners in working groups with the aid of real objects, videos, models of engines (Petrol and diesel engines) to co-operatively brainstorm to differentiate between the construction of petrol and diesel engines. The teacher should target questions to learners as they discuss with one another, to encourage them to contribute to the discussion. The teacher should pull all students back in for whole-class feedback, etc.</i>	
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	<i>respectfully and openly differentiating between the operation systems of petrol and diesel engines. It is possible to assign HP students to assist groups in discussions in addition to the teacher</i> ▪ <i>Experiential learning: Using real objects, videos and internet surfing, teacher should task learners to describe the operation of the two-stroke petrol engine. The teacher should supervise to ensure that the whole class participate in the lesson. The teacher should pull all students back in for whole-class feedback, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 1: Explain briefly how a petrol engine generates power in its cylinder?</i> ▪ <i>Level 2. Describe how burning is initiated in a diesel engine?</i> ▪ <i>Level 3. Illustrate with sketches the operation of four-stroke cycle CI engine? etc.</i> <i>b) Design Communication technology (Week 7):</i> <i>i. Learning Tasks:</i> ▪ <i>Identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by</i>		
		<i>iii. Key Assessment:</i> <i>Level 1: Explain briefly how a petrol engine generates power in its cylinder? etc.</i> <i>b) Design Communication technology (Week 7):</i> <i>i. Learning Tasks:</i> <i>Identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by using photographs,</i>	

	<i>using photographs, videos and real objects?</i> ▪ <i>Describe the various tools and techniques that can be used in object manipulation in the free-hand drawing?</i> ▪ <i>Examine and generate a manual/digital annotated album of tools and techniques that can be used in object manipulation in free-hand drawing? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Managing Talk for Learning: consider placing learners in mixed groups, and task them to use the appropriate resources to identify and record the concept of object manipulation and manipulation techniques in free-hand drawing.</i> ▪ <i>Collaborative/Group learning: In mixed groups, let learners examine the various tools and techniques that can be used in object manipulation in the free-hand drawing</i> ▪ <i>Project Based-Learning: let learners work individually/in groups to generate a manual or digital pictorial table/chart of the various tools and techniques that can be</i>	<i>videos and real objects? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Managing Talk for Learning: consider placing learners in mixed groups, and task them to use the appropriate resources to identify and record the concept of object manipulation and manipulation techniques in free-hand drawing, etc.</i>	
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	<i>used in object manipulation in free-hand drawing, etc.</i> iii. <i>Key Assessment:</i> ▪ <i>Level 1: Explain the concept of object manipulation and manipulation techniques in free-hand drawing?</i> ▪ <i>Level 2: Develop a table/chart of tools and techniques that can be used in object manipulation in the free-hand drawing?</i> ▪ <i>Level 3: Generate a manual or digital pictorial table/chart of the various tools and techniques that can be used in object manipulation in free-hand drawing? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 7 and 8 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	iii. <i>Key Assessment:</i> ▪ <i>Level 1: Explain the concept of object manipulation and manipulation techniques in free-hand drawing? etc.</i> 2.5 Complete the learning planner templates for teaching Weeks 7 and 8 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. Reviewing planner to ensure alignment between course manual and learning	3.1 Ask teachers to peer-review the learning plans for Weeks 7 and 8 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> <i>a) Conformance to the learning plan structure.</i>	3.1 Peer-review the learning plans for Weeks 7 and 8 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> <i>a) Conformance to the learning plan structure.</i>	10 mins

planner based on the templates provided.	b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in your learning plans based on the feedback from your colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 6 on developing lesson plans for Weeks 9 and 10, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 6 on developing lesson plans for Weeks 9 and 10 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session (NTS 1a, 1b).	10 mins

DPLC Session 6: Developing learning plans for Weeks 9 and 10			
<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 5, <i>developing learning plans for Weeks 7 and 8</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 5, <i>developing learning plans for Weeks 7 and 8</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 5, <i>developing learning plans for Weeks 7 and 8</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 5, <i>developing learning plans for Weeks 7 and 8</i>, supported learning (NTS 1a-1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 9 and 10 learning plans for the following lessons: a) <i>Applied technology: Roles of stakeholders in building construction projects and Concept of power generation, transmission as well as</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 9 and 10 learning plans for the following lessons: a) <i>Applied technology: Roles of stakeholders in building construction projects and Concept of power generation, transmission as well as</i>	60 mins

	<i>distribution in electricity supply.</i> <i>b) Design Communication technology: Tools as well as techniques used to manipulate specific objects.</i> LO 1: Develop learning plans for Weeks 9 and 10 on the roles of stakeholders in building construction projects, power generation, transmission as well as distribution in electricity supply and tools as well as techniques used to manipulate specific objects (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 9 and 10 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 9 and 10 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 9 and 10 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o).	<i>distribution in electricity supply.</i> <i>b) Design Communication technology: tools as well as techniques used to manipulate specific objects.</i> LO 1: Develop learning plans for Weeks 9 and 10 on the roles of stakeholders in building construction projects, power generation, transmission as well as distribution in electricity supply and tools as well as techniques used to manipulate specific objects (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 9 and 10 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 9 and 10 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 9 and 10 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o).	
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	LI 2.1 Discuss the learning plans for Weeks 9 and 10 lessons in applied technology. LI 2.2 Team review learning plans for Weeks 9 and 10 in applied technology. 2.2 Ask teachers in groups to identify and share aspects of Weeks 9 and 10 lessons in Applied Technology Department lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. c) <i>Learning indicator(s)</i> d) <i>Learning outcome(s)</i> e) <i>Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 9 and 10 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology (Week 9):</i> b) <i>How can learners be assisted to explain the relevance of the Stakeholders' forum?</i> c) <i>How can learners be assisted to categorized stakeholders into the groups of those who function directly and those who do not function directly on design and construction?</i> d) <i>In what ways can learners be assisted to</i>	LI 2.1 Discuss the learning plans for Weeks 9 and 10 lessons in applied technology. LI 2.2 Team review learning plans for Weeks 9 and 10 in applied technology. 2.2 In your groups, identify and share aspects of Weeks 9 and 10 lessons in Applied Technology Department in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 9 and 10 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology (Week 9):</i> <i>How can learners be assisted to explain the relevance of the Stakeholders' forum?</i>	
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	<i>identify strategies client, design and building teams put in place to have a good price, good quality and good time duration for the building project?</i> <i>(Week 10):</i> <i>a) How can learners be assisted to identify methods of electrical power generation used in Ghana?</i> <i>b) How can learners be assisted to explain how thermal power plant work, and what are its key components?</i> <i>c) In what ways can learners be assisted to describe the process of power distribution from substations to residential and industrial consumers? etc.</i> <i>b) Design Communication technology (Week 9):</i> <i>▪ How can learners be assisted to identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by using photographs, videos and real objects?</i> <i>▪ How can learners be assisted to describe the characteristics of organic and inorganic shapes and forms?</i> <i>▪ How can learners be assisted to use the</i>	<i>(Week 10):</i> <i>How can learners be assisted to identify methods of electrical power generation used in Ghana? etc.</i> <i>b) Design Communication technology (Week 9):</i> <i>How can learners be assisted to identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by using photographs, videos and real objects?</i>	
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	<i>available tools and techniques used in freehand drawing to generate a simple manipulation of organic and inorganic objects? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 9 and 10 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 9):</i> i. <i>Learning Tasks:</i> ▪ <i>Explain the relevance of the Stakeholders' Forum?</i> ▪ <i>Categorise the stakeholders into the group of those who function directly on design and construction and into the group of those who do not function directly on design and construction?</i> ▪ <i>What strategies do the Client, Design and Building Teams put in place to have a good price, good quality and good time duration for the building project? etc.</i>	2.4 Think-pair-share key notes on differentiation in Weeks 9 and 10 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 9):</i> <i>Learning Tasks:</i> <i>Explain the relevance of the Stakeholders' Forum? etc.</i>	
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	ii. <i>Pedagogical Exemplars:</i> ▪ <i>Conduct experiential learning by organising field Trips to Construction Sites or offices of stakeholders where learners will observe constructional activities and interact with relevant personnel in order to gain understanding of the roles played by different Stakeholders on building construction projects</i> ▪ <i>Encourage research using the internet to help learners have deeper understanding of the different roles played by different stakeholders involved in building construction projects both directly through design and construction as well as indirectly through contributions such as serving as advocates or watchdogs</i> ▪ <i>Deliberately place learners in mixed-ability groupings where the different needs of learners will be met and where they will all be encouraged to engage in critical thinking and brainstorming about activities of different stakeholders in the construction industry leading to cost and time savings as well as how various</i>	ii. <i>Pedagogical Exemplars:</i> <i>Conduct experiential learning by organising field Trips to Construction Sites or offices of stakeholders where learners will observe constructional activities and interact with relevant personnel in order to gain understanding of the roles played by different Stakeholders on building, etc.</i>	
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	<i>stakeholders can contribute to the sustainability of the projects, etc.</i> iii. <i>Key Assessment:</i> iv. <i>Level 1: List the various stakeholders and the roles they play in the building construction industry?</i> v. <i>Level 2: Distinguish between the stakeholders involved in building construction projects directly through design and construction from those not involved directly through design and construction?</i> vi. <i>Level 3: Discuss the different roles different stakeholders can play to bring about a good price, good quality and good time for the building design and construction project? etc.</i> <i>(Week 10):</i> a) <i>Learning Tasks:</i> ▪ <i>Identify at least two methods of electrical power generation used in the Ghana today?</i> ▪ <i>How does a thermal power plant work, and what are its key components?</i> ▪ <i>How is alternating current (AC) used for long distance power transmission, and why is it preferred over direct current (DC)?</i>	iii. <i>Key Assessment:</i> <i>Level 1: List the various stakeholders and the roles they play in the building construction industry? etc.</i> <i>(Week 10):</i> a) <i>Learning Tasks:</i> <i>Identify at least two methods of electrical power generation used in the Ghana today?</i>	
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	<i>b) Pedagogical Exemplars:</i> ▪ <i>Talk for learning: through a whole class discussion, guide learners to discuss the fundamental aspects of power generation, distribution, and transmission networks, emphasizing their significance in our daily lives</i> ▪ <i>Experiential learning and collaborative learning: engage learners in mixed ability groupings and use videos from google search engine (YouTube) to list typical transmission voltages e.g., 132kv, 275kv, 400kv and distribution voltages in Ghana and state the application of each e.g., 33KV, 11KV, 415/240V</i> ▪ <i>Experiential learning: Embark on a field trip to any of the energy providers (ECG or NEDCO) to have a look at their substations in order to describe a distribution substation and list some equipment at the substation and the systems of power distribution e.g., single phase, 3-phase, etc.</i> <i>c) Key Assessment:</i> ▪ <i>Level 1: Identify two companies responsible for electrical power</i>		
		<i>c) Key Assessment:</i> <i>Level 1: Identify two companies responsible for electrical power transmission and</i>	

	<i>transmission and distribution in the Northern and Southern Ghana?</i> ▪ <i>Level 2: Describe the differences and similarities between transmission and distribution substations?</i> ▪ <i>Level 3: Describe the major challenges faced during the transmission of electrical power over long distances? etc.</i> <i>d) Design Communication technology (Week 9):</i> <i>i. Learning Tasks:</i> ▪ <i>Identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by using photographs, videos and real objects?</i> ▪ <i>Describe the characteristics of organic and inorganic shapes and forms?</i> ▪ <i>To use the available tools and techniques used in freehand drawing to generate a simple manipulation of organic and inorganic objects? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Managing Talk for Learning: consider placing learners in</i>	<i>distribution in the Northern and Southern Ghana?</i> <i>d) Design Communication technology (Week 9):</i> <i>i. Learning Tasks:</i> <i>Identify and record the concept of object manipulation and manipulation techniques in free-hand drawing. by using photographs, videos and real objects? etc.</i>	
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	<i>mixed groups, and task them to examine how tools and techniques have been used to manipulate specific objects through free-hand drawing. This can be done with the aid of photographs/drawings and sketches, videos, real objects</i> ▪ <i>Collaborative/Group learning: In small groups, let learners discuss how various designers have used the available tools and techniques in free-hand drawing to generate a simple/complex manipulation of objects</i> ▪ <i>Project Based-Learning: let learners work individually/in groups to use the available tools and techniques used in freehand drawing to generate a simple manipulation of objects, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 2: Use photographs, videos, drawings sketches and real objects, to explain how tools and techniques have been used to manipulate specific</i>		
		<i>iii. Key Assessment:</i> <i>Level 2: Use photographs, videos, drawings sketches and real objects, to explain how tools and techniques have been used to manipulate specific objects through free-hand drawing</i>	

	<i>objects through free-hand drawing?</i> ▪ <i>Level 3: Use photographs, videos, drawings sketches and real objects, to explain how various designers have used the available tools and techniques in free-hand drawing to generate a simple/complex manipulation of objects?</i> ▪ <i>Level 3: Use available tools and techniques to manipulate simple forms and shapes through freehand drawing? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 9 and 10 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	2.5 Complete the learning planner templates for teaching Weeks 9 and 10 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. ▪ Reviewing planner to ensure alignment between course manual and learning planner based on the templates provided.	3.1 Ask teachers to peer-review the learning plans for Weeks 9 and 10 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i>	3.1 Peer-review the learning plans for Weeks 9 and 10 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i>	10 mins

	d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3l). 4.3 Remind teachers to read DPLC Session 7 on developing lesson plans for Weeks 11 and 12, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3l). 4.3 Remember to read DPLC Session 7 on developing lesson plans for Weeks 11 and 12 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 7: Developing learning plans for Weeks 11 and 12			
<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 6, <i>developing learning plans for Weeks 9 and 10</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 6, <i>developing learning plans for Weeks 9 and 10</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 6, <i>developing learning plans for Weeks 9 and 10</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 6, <i>developing learning plans for Weeks 9 and 10</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 11 and 12 learning plans for the following lessons: a) <i>Applied technology: Ferrous as well as non-ferrous metals and Processing phases of timber.</i> b) <i>Design Communication technology: Concept</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 11 and 12 learning plans for the following lessons: a) <i>Applied technology: Ferrous as well as non-ferrous metals and Processing phases of timber.</i> b) <i>Design Communication technology: Concept</i>	60 mins

	<i>associated with objects as well as shapes.</i> LO 1: Develop learning plans for Weeks 11 and 12 on the ferrous as well as non-ferrous metals, processing phases of timber and <i>concept associated with objects as well as shapes</i> (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 11 and 12 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 11 and 12 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 11 and 12 in applied technology. (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 11 and 12 lessons in Applied Technology and Design Communication Technology. LI 2.2 Team review learning plans for Weeks 11 and 12 in Applied Technology and Design Communication Technology.	<i>associated with objects as well as shapes.</i> LO 1: Develop learning plans for Weeks 11 and 12 on the ferrous as well as non-ferrous metals, processing phases of timber and <i>concept associated with objects as well as shapes</i> (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 11 and 12 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 11 and 12 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 11 and 12 in applied technology. (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 1.1 Discuss the learning plans for Weeks 11 and 12 lessons in Applied Technology and Design Communication Technology. LI 2.2 Team review learning plans for Weeks 11 and 12 in Applied Technology and Design Communication Technology.	
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	2.2 Ask teachers in groups to identify and share aspects of Weeks 11 and 12 lessons in Applied Technology Department lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>a) Learning indicator(s)</i> <i>b) Learning outcome(s)</i> <i>c) Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 11 and 12 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 11):</i> <i>i. How can I help learners to differentiate between ferrous and non-ferrous metals?</i> <i>ii. How can I help learners to show the advantages and disadvantages of ferrous and non-ferrous metals?</i> <i>iii. In what ways can I help learners to select ferrous and non-ferrous metals in engineering applications? etc.</i> <i>(Week 12):</i> <i>i. How can the appearance of timber be described to the understanding of the learner?</i> <i>ii. How does the processing of timber affect the quality of the finished product?</i>	2.2 In your groups, identify and share aspects of Weeks 11 and 12 lessons in Applied Technology Department in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 11 and 12 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 11):</i> <i>How can I help learners to differentiate between ferrous and non-ferrous metals? etc.</i> <i>(Week 12):</i> <i>How can the appearance of timber be described to the understanding of the learner?</i>	
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	iii. <i>In what ways can learners be assisted to differentiate between the method of conversion of timber? etc.</i> b) <i>Design Communication technology (Week 11):</i> i. <i>How can learners be assisted to examine the various Concepts, symbolism, metaphors, and narratives associated with objects and shapes?</i> ii. <i>How can learners be assisted to analyse the various tools and techniques that can be used in object manipulation in the free-hand drawing?</i> iii. <i>How can learners be assisted to generate a manual/digital annotated album of shapes and forms showing the concepts, symbolism, metaphors, and narratives associated with each of the shapes and forms? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 11 and 12 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 11):</i> i. <i>Learning Tasks:</i>	b) <i>Design Communication technology (Week 11):</i> <i>How can learners be assisted to examine the various Concepts, symbolism, metaphors, and narratives associated with objects and shapes? etc.</i> 2.4 Think-pair-share key notes on differentiation in Weeks 11 and 12 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 11):</i> i. <i>Learning Tasks:</i>	
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	▪ <i>Describe the properties of ferrous metals, non-ferrous metals and non-metallic materials (plastics)?</i> ▪ <i>Describe at least five engineering applications of each of ferrous metal, non-ferrous metals and non-metallic materials (plastics)?</i> ▪ <i>Discuss the advantages and disadvantages of ferrous and non-metal and non-metallic materials? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Talk for learning: the teacher provides information about ferrous and non-ferrous metals using a variety of instructional modalities. This can include visual aids such as charts, diagrams, and videos, hands-on demonstrations with actual metal samples and verbal explanations</i> ▪ <i>Scaffolded learning: the teacher breaks down complex concepts about ferrous and non-ferrous metals into smaller, manageable chunks. Provide scaffolding such as guided notes, graphic organizers, and step-by-step instructions to support students as they learn about the properties, uses and</i>	<i>Describe the properties of ferrous metals, non-ferrous metals and non-metallic materials (plastics)? etc.</i> <i>ii. Pedagogical Exemplars:</i> <i>Talk for learning: the teacher provides information about ferrous and non-ferrous metals using a variety of instructional modalities. This can include visual aids such as charts, diagrams, and videos, hands-on demonstrations with actual metal samples and verbal explanations, etc.</i>	
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	<i>characteristics of these metals</i> ▪ <i>Project-based learning: learners are guided to use the appropriate charts or samples of items made of ferrous and non-ferrous metals to identify and fairly discuss the various types. Assist learners to discuss the properties of various ferrous and non-ferrous metals using charts or real objects and present report, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 2: State the difference between ferrous and non-ferrous metals?</i> ▪ <i>Level 3: Name one uses of aluminium and explain why its properties make suitable for that use.</i> ▪ <i>Level 3: Describe at least five engineering applications for Ferrous metals? etc.</i> <i>(Week 12):</i> <i>i. Learning Tasks:</i> ▪ <i>Identify the three phases of timber processing in the woodwork industry?</i> ▪ <i>With the aid of a sketch, show which method of conversion of timber brings out the best figure of timber?</i> ▪ <i>Describe why is seasoning necessary? etc.</i>	<i>iii. Key Assessment:</i> <i>Level 2: State the difference between ferrous and non-ferrous metals? etc.</i> <i>(Week 12):</i> <i>i. Learning Tasks:</i> <i>Identify the three phases of timber processing in the woodwork industry? etc.</i>	
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	ii. <i>Pedagogical Exemplars:</i> ▪ <i>Critical Thinking and talk for learning approaches: Guide learners through a video demonstration of the three phases of timber processing in the woodwork industry, to co-operatively brainstorm the meaning of the phases of timber processing in the woodwork industry with open-mindedness and faithfulness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners</i> ▪ <i>Experiential learning: Teacher take learners on a trip to a woodwork industry to observe the log yard activities, conversion of timber, seasoning kilns, artefact production etc. and task learners in mixed ability groups to carefully identify and passionately explain phases of timber processing in the woodwork industry with open-mindedness. HP learners can be tasked with also supporting groups in discussion like the teacher</i> ▪ <i>Group work/Collaborative learning /Digital literacy learning: Place learners into mixed ability groups and task them to co-operatively discuss the</i>	ii. <i>Pedagogical Exemplars: Critical Thinking and talk for learning approaches: Guide learners through a video demonstration of the three phases of timber processing in the woodwork industry, to co-operatively brainstorm the meaning of the phases of timber processing in the woodwork industry with open-mindedness and faithfulness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners, etc.</i>	
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	<i>technological properties (surface quality, working qualities, mechanical properties, defects and preservation methods) with open-mindedness, patience and work ethics. HP learners can be tasked with also supporting groups in discussion like the teacher, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 1: Name the three-processing phases of timber in the woodwork industry?</i> ▪ <i>Level 2: Describe the meaning of the term 'conversion' when referring to timber?</i> ▪ <i>Level 3: Describe, with the aid of sketches, the natural method of seasoning? etc.</i> <i>b) Design Communication technology (Week 11):</i> <i>i. Learning Tasks</i> ▪ <i>Examine the various Concepts, symbolism, metaphors, and narratives associated with objects and shapes?</i> ▪ <i>Analyse the various tools and techniques that can be used in object manipulation in the free-hand drawing?</i> ▪ <i>Generate a manual/digital annotated album of shapes and forms</i>	<i>iii. Key Assessment:</i> <i>Level 1: Name the three-processing phases of timber in the woodwork industry? etc.</i> <i>b) Design Communication technology (Week 11):</i> <i>i. Learning Tasks</i> <i>Examine the various Concepts, symbolism, metaphors, and narratives associated with objects and shapes? etc.</i>	
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	<i>showing the concepts, symbolism, metaphors, and narratives associated with each of the shapes and forms? etc.</i> ii. <i>Pedagogical Exemplars</i> ▪ <i>Managing Talk for Learning: consider placing learners in mixed groups, and task them to examine the concept, symbolism, metaphors, and narratives associated with objects and shapes. This can be done with the aid of photographs/drawings and sketches, videos, real objects</i> ▪ <i>Collaborative/Group learning: In small groups, let learners discuss how various designers have used the available tools and techniques in freehand drawing to generate a simple/complex manipulation of objects in line with the concepts, symbolism, metaphors, and narratives associated with those objects</i> ▪ <i>Project-Based Learning: let learners work individually/in groups to use the available tools and free-hand drawing techniques to generate a simple manipulation of objects in line with the concept,</i>	ii. <i>Pedagogical Exemplars</i> ▪ <i>Managing Talk for Learning: consider placing learners in mixed groups, and task them to examine the concept, symbolism, metaphors, and narratives associated with objects and shapes. This can be done with the aid of photographs/drawings and sketches, videos, real objects, etc.</i>	
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	<i>symbolism, metaphors, and narratives associated with those objects, etc.</i> iii. <i>Key Assessment</i> ▪ <i>Level 2: Explain how tools and techniques have been used to manipulate specific objects through free-hand drawing?</i> ▪ <i>Level 3: Explain how designers have used the available tools and techniques in freehand drawing to generate a simple/complex manipulation of objects in line with the concepts, symbolism, metaphors, and narratives associated with those objects?</i> ▪ <i>Level 4: Generate a simple freehand drawing in line with the concepts, symbolism, metaphors, and narratives associated with shapes and forms? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 11 and 12 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	iii. <i>Key Assessment</i> <i>Level 2: Explain how tools and techniques have been used to manipulate specific objects through free-hand drawing? etc.</i> 2.5 Complete the learning planner templates for teaching Weeks 11 and 12 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. • Reviewing planner to ensure	3.1 Ask teachers to peer-review the learning plans for Weeks 11 and 12 lessons_(NTS 1a, 2c, 3h).	3.1 Peer-review the learning plans for Weeks 11 and 12 lessons (NTS 1a, 2c, 3h).	10 mins

alignment between course manual and learning planner based on the templates provided.	<i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	<i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation activities</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 8 on developing lesson plans for Weeks 13 and 14, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 8 on developing lesson plans for Weeks 13 and 14 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 8: Developing learning plans for Weeks 13 and 14

<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 7, <i>developing learning plans for Weeks 11 and 12</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 7, <i>developing learning plans for Weeks 11 and 12</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 7, <i>developing learning plans for Weeks 11 and 12</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 7, <i>developing learning plans for Weeks 11 and 12</i>, supported learning (NTS 1a- 1c).	10 mins
3. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 13 and 14 learning plans for the following lessons: a) <i>Applied technology: Personal protective equipment and Professionals in the building construction industry.</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 13 and 14 learning plans for the following lessons: a) <i>Applied technology: Personal protective equipment and Professionals in the building construction industry.</i>	60 mins

	<i>b) Design Communication technology: Plane geometrical figures</i> LO 1: Develop learning plans for Weeks 13 and 14 on personal protective equipment, professionals in the building construction industry and plane geometrical figures integrating cross-cutting issues (NTS 3c, 3e-3g and 3j). LI 1 .1 Develop learning plans for teaching Weeks 13 and 14 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 13 and 14 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 13 and 14 in Applied Technology and Design Communication Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 13 and 14 lessons in Applied	<i>b) Design Communication technology: Plane geometrical figures</i> LO 1: Develop learning plans for Weeks 13 and 14 on personal protective equipment, professionals in the building construction industry and plane geometrical figures integrating cross-cutting issues (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 13 and 14 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 13 and 14 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 13 and 14 in Applied Technology and Design Communication Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 13 and 14 lessons in Applied	
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	Technology and Design Communication Technology. LI 2.2 Team review learning plans for week 13 and 14 in Applied Technology and Design Communication Technology 2.2 Ask teachers in groups to identify and share aspects of Weeks 13 and 14 lessons in Applied Technology and Design Communication Technology lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>a) Learning indicator(s)</i> <i>b) Learning outcome(s)</i> <i>c) Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 13 and 14 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 13):</i> <i>i. How can learners be assisted to outline personal protective equipment (PPE) used in a vehicle servicing and repair workshop?</i> <i>ii. How can learners be assisted to explain the general safety rules and regulations that ensures personal, customer and</i>	Technology and Design Communication Technology. LI 2.2 Team review learning plans for week 13 and 14 in Applied Technology and Design Communication Technology. 2.2 In your groups, identify and share aspects of Weeks 13 and 14 lessons in Applied Technology and Design Communication Technology in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 13 and 14 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 13):</i> <i>How can learners be assisted to outline personal protective equipment (PPE) used in a vehicle servicing and repair workshop? etc.</i>	
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	<i>vehicle safety in the workshop?</i> <i>iii. In what ways can learners be assisted to put into practise, various safety measures in the vehicle repairs and maintenance workshop? etc.</i> <i>(Week 14):</i> <i>i. How can learners be assisted to differentiate between the pre-contract and the post-contract stages of a building construction project?</i> <i>ii. How can learners be made aware of the functions or roles played by Clients, Architects, Quantity Surveyors, Structural, Electrical and Mechanical Engineers at the pre-contract stage of the project?</i> <i>iii. How can learners be made aware of the functions or roles played by Clients, Architects, Quantity Surveyors, Structural, Electrical and Mechanical Engineers at the post-contract stage of the project? etc.</i> <i>b) Design Communication technology (Week 13):</i> <i>i. In What ways can learners be assisted to explain the fundamental principles of plane geometry?</i> <i>ii. In what ways can learners be assisted to list some plane</i>	<i>(Week 14):</i> <i>How can learners be assisted to differentiate between the pre-contract and the post-contract stages of a building construction project? etc.</i> <i>b) Design Communication technology (Week 13):</i> <i>In What ways can learners be assisted to explain the fundamental principles of plane geometry? etc.</i>	
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	<i>geometrical figures, properties and their application?</i> iii. <i>How can the principles of plane geometry be applied to solve real-life problems.? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 13 and 14 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 13):</i> i. <i>Learning Tasks:</i> ▪ <i>Outline personal protective equipment (PPE) used in a vehicle servicing and repair workshop?</i> ▪ <i>Explain the general safety rules and regulations that ensures personal, customer and vehicle safety in the workshop?</i> ▪ <i>Visit an efficient vehicle repair and maintenance shop and observe safety measures in their operations and present a report?</i>	2.4 Think-pair-share key notes on differentiation in Weeks 13 and 14 Applied Technology and Design Communication Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 13):</i> i. <i>Learning Tasks:</i> <i>Outline personal protective equipment (PPE) used in a vehicle servicing and repair workshop? etc.</i>	
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	ii. <i>Pedagogical Exemplars:</i> ▪ <i>Problem-Based learning: Place learners in groups to voluntarily develop a list of personal protective equipment (PPEs) utilized in a vehicle repair and maintenance business by using real objects and videos. To induce students to participate in the discussion, the teacher should direct questions at them while they are having the discussion amongst themselves. When the class is back together, the teacher should gather all of the learners for feedback</i> ▪ <i>Group work/Collaborative learning: Place students in mixed-ability groups and assign them to explain the general safety rules and regulations that ensure personal, customer, and vehicle safety in the workshop in a respectful and open manner. It is possible to assign HP students to assist groups in discussions in addition to the teacher</i>	ii. <i>Pedagogical Exemplars:</i> <i>Problem-Based learning: Place learners in groups to voluntarily develop a list of personal protective equipment (PPEs) utilized in a vehicle repair and maintenance business by using real objects and videos. To induce students to participate in the discussion, the teacher should direct questions at them while they are having the discussion amongst themselves. When the class is back together, the teacher should gather all of the learners for feedback, etc.</i>	
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	▪ <i>Experiential learning: Guide learners in GESI responsive groups of five (5) to an efficient vehicle repair and maintenance shop, observe safety measures in their operations, and present a report. The teacher should ensure that learners obey and abide by the rules and regulations of the workshop, as well as provide feedback to learners on their reports and emphasize the application of safety measures in real-life situations, etc.</i>		
	iii. <i>Key Assessment:</i> ▪ <i>Level 1: Outline five items of personal protective equipment (PPE) used in a vehicle servicing and repair workshop?</i> ▪ <i>Level 2: Explain three general safety rules and regulations that ensures personal, customer and vehicle safety in the workshop?</i> ▪ <i>Level 3: Present a report on safety measures and</i>	iii. <i>Key Assessment:</i> ▪ <i>Level 1: Outline five items of personal protective equipment (PPE) used in a vehicle servicing and repair workshop? etc.</i>	

	<i>operations following a visit to a vehicle repair and maintenance shop? etc.</i> <i>(Week 14):</i> <i>i. Learning Tasks:</i> ▪ <i>Explain the steps to take to become a professional in the building construction industry?</i> ▪ <i>Outline the major professions practising in the Ghanaian building construction industry.</i> ▪ <i>Discuss how professionals acting in the building construction industry can influence good price, good quality and good time for building construction projects? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Conduct experiential Learning by organizing field trips to construction Sites or Offices of consultants where learners will interact with the professionals and understand professional practice</i> ▪ <i>Encourage research on the Internet to help learners have deeper understanding of different professional practices applicable to the Ghanaian building construction industry</i>	<i>(Week 14):</i> <i>i. Learning Tasks:</i> <i>Explain the steps to take to become a professional in the building construction industry? etc.</i> <i>ii. Pedagogical Exemplars:</i> <i>Conduct experiential Learning by organizing field trips to construction Sites or Offices of consultants where learners will interact with the professionals and understand professional practice, etc.</i>	
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	▪ <i>Deliberately place learners in mixed-ability groupings where the different needs of learners Approaching Proficiency, the Proficient and Highly Proficient would be met and where they will all be encouraged to engage in critical thinking and brainstorming about professional practice in Ghana, etc.</i> iii. <i>Key Assessment:</i> ▪ <i>Level 1: List the major steps to be taken for an individual to become a professional in the building construction industry?</i> ▪ <i>Level 2: Explain how Professional Bodies control their members by subjecting them to codes of professional conduct?</i> ▪ <i>Level 3: Describe the effects of using Codes of Professional Conduct in the building construction industry? etc.</i> b) <i>Design Communication technology (Week 13):</i> i. <i>Learning Tasks:</i> ▪ <i>Explain the concept of plane geometry and give at least two examples</i> ▪ <i>In a tabular form, list four plane geometrical figures, list their</i>	iii. <i>Key Assessment:</i> <i>Level 1: List the major steps to be taken for an individual to become a professional in the building construction industry? etc.</i> b) <i>Design Communication technology (Week 13):</i> i. <i>Learning Tasks:</i> <i>Explain the concept of plane geometry and give at least two examples</i>	
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	<i>properties and their application in real life</i> ▪ <i>Using the principles of plane geometry, design a warning sign to be placed in the school compound? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Environmental observation, collaboration and discussion: With the aid of relevant pictures, cardboard charts and objects in the school environment, draw on learners' previous knowledge on plane geometry from basic 9 in an inclusive whole class discussion to explain plane geometry in their own words</i> ▪ <i>In mixed ability groups, help learners to identify examples of plane geometrical figures and explain their properties with given examples. And present their findings in a whole class discussion, ensure the AP and P learners participate in the discussions</i> ▪ <i>In mixed ability group discussions with not more than 6 members, assist learners to use any plane geometrical figure to design a warning sign that</i>	ii. <i>Pedagogical Exemplars:</i> <i>Environmental observation, collaboration and discussion: With the aid of relevant pictures, cardboard charts and objects in the school environment, draw on learners' previous knowledge on plane geometry from basic 9 in an inclusive whole class discussion to explain plane geometry in their own words, etc.</i>	
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	would be placed anywhere in the classroom. Ensure the groupings consist of AP, P and HP learners, etc. iii. Key Assessment: - Level 1: Explain the concept of plane geometry? - Level 2: In a tabular form, list four plane geometrical figures, list their properties and their application in real life? - Level 3: Using the principles of plane geometry, design a warning sign to be placed in the school compound? etc. 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 13 and 14 lessons (NTS 3a, 3e-3g and 3k). Note: Emphasis should be on essential questions and differentiation activities.	iii. Key Assessment: Level 1: Explain the concept of plane geometry? etc. 2.5 Complete the learning planner templates for teaching Weeks 13 and 14 lessons (NTS 3a, 3e-3g and 3k). Note: Emphasis should be on essential questions and differentiation activities.	
3. Peer-review of learning planners. Reviewing planner to ensure alignment between course manual and learning planner based on the	3.1 Ask teachers to peer-review the learning plans for Weeks 13 and 14 lessons (NTS 1a, 2c, 3h). Hint Areas to consider for review: a) Conformance to the learning plan structure. b) Alignment of essential questions with the teacher manual. c) Key differentiation	3.1 Peer-review the learning plans for Weeks 3 and 4 lessons (NTS 1a, 2c, 3h). Hint Areas to consider for review: a) Conformance to the learning plan structure. b) Alignment of essential questions with the teacher manual. c) Key differentiation	10 mins

templates provided.	d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 9 on developing lesson plans for Weeks 15 and 16, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 9 on developing lesson plans for Weeks 15 and 16 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 9: Developing learning plans for Weeks 15 and 16

<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 8, <i>developing learning plans for Weeks 13 and 14</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 8, <i>developing learning plans for Weeks 13 and 14</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 8, <i>developing learning plans for Weeks 13 and 14</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 8, <i>developing learning plans for Weeks 13 and 14</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 15 and 16 learning plans for the following lessons: <i>a) Applied technology: Power transmission as well as distribution in electricity supply and Gas welding (tools and equipment).</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 15 and 16 learning plans for the following lessons: <i>a) Applied technology: Power transmission as well as distribution in electricity supply and Gas welding (tools and equipment).</i>	60 mins

	<i>b) Design Communication technology: Constructing an ellipse as a plane geometrical figure.</i> LO 1: Develop learning plans for Weeks 15 and 16 on the power transmission as well as distribution in electricity supply, gas welding (tools and equipment) and construction of an ellipse as a plane geometrical figure (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 15 and 16 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 15 and 16 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 15 and 16 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 15 and 16 lessons in applied technology.	<i>b) Design Communication technology: Constructing an ellipse as a plane geometrical figure</i> LO 1: Develop learning plans for Weeks 15 and 16 on the power transmission as well as distribution in electricity supply, gas welding (tools and equipment) and construction of an ellipse as a plane geometrical figure (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 15 and 16 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 15 and 16 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 15 and 16 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 1.1 Discuss the learning plans for Weeks 15 and 16 lessons in applied technology.	
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	LI 2.2 Team review learning plans for Weeks 15 and 16 in applied technology. 2.2 Ask teachers in groups to identify and share aspects of Weeks 15 and 16 lessons in Applied Technology and Design Communications Technology lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> a) <i>Learning indicator(s)</i> b) <i>Learning outcome(s)</i> c) <i>Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 15 and 16 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> a) <i>Applied technology (Week 15):</i> i. <i>In what ways can learners be assisted to explain how overloading a circuit affect the current flowing through it?</i> ii. <i>How can learners be assisted to describe potential consequences of overloading a circuit in terms of overheating and fire hazards?</i> iii. <i>In what ways can learners be assisted to explain how predictive analytics and modeling be used to assess the impact of future load</i>	LI 2.2 Team review learning plans for Weeks 15 and 16 in applied technology. 2.2 In your groups, identify and share aspects of Weeks 15 and 16 lessons in Applied Technology and Design Communications Technology in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 15 and 16 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> a) <i>Applied technology (Week 15):</i> <i>In what ways can learners be assisted to explain how overloading a circuit affect the current flowing through it? etc.</i>	
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	<i>growth on distribution network capacity? etc.</i> <i>(Week 16):</i> <i>How can learners be assisted to explain the uses of acetylene cylinders in gas welding?</i> <i>How can learners be assisted to explain the uses of pressure regulators in gas welding?</i> <i>In what ways can learners be assisted to distinguish between acetylene cylinders and oxygen cylinders? etc.</i> <i>b) Design Communication technology (Week 15):</i> <i>How can learners be assisted to identify objects that are made of elliptical shapes that can be found in their environment?</i> <i>How can learners be assisted to construct an Archimedean spiral?</i> <i>How can learners be assisted to design an elliptical tabletop to be used in the home? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 15 and 16 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i>	<i>(Week 16):</i> <i>How can learners be assisted to explain the uses of acetylene cylinders in gas welding? etc.</i> <i>b) Design Communication technology (Week 15):</i> <i>How can learners be assisted to identify objects that are made of elliptical shapes that can be found in their environment? etc.</i> 2.4 Think-pair-share key notes on differentiation in Weeks 15 and 16 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i>	
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	E.g. a) <i>Applied technology (Week 15):</i> i. <i>Learning Tasks:</i> ▪ <i>What happens to the voltage across a circuit when it is overloaded?</i> ▪ <i>What are the potential consequences of overloading a circuit in terms of overheating and fire hazards?</i> ▪ <i>How does overloading affect the reliability and stability of the distribution system? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Talk for learning approaches: Guide learners through watching a video to demonstrate the consequences of overloading the distribution network. Teachers should pull all learners back in for whole-class feedback and to collect ideas</i> ▪ <i>Experiential learning: In mixed-ability groups, guide learners to explore the simulation of an overloaded network using a VPLab software and present their findings to gain insights into the challenges of</i>	E.g. a) <i>Applied technology (Week 15):</i> i. <i>Learning Tasks:</i> <i>What happens to the voltage across a circuit when it is overloaded? etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>Talk for learning approaches: Guide learners through watching a video to demonstrate the consequences of overloading the distribution network. Teachers should pull all learners back in for whole-class feedback and to collect ideas, etc.</i>	
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	overloading distribution networks ▪ Learners should be given more time to finish a task. During presentations, make sure that everyone is encouraged to speak on behalf of the groups, regardless of background, such as gender, physical capabilities, or intellectual ability. Any individual can be chosen as the group's leader, etc. iii. Key Assessment: ▪ Level 1: What are the potential safety hazards and risks associated with illegal gas connections? ▪ Level 2: What measures can be implemented to raise public awareness about the negative consequences of illegal connections? ▪ Level 3: Task learners to discuss their observation during simulation period and present their findings. (Week 16): i. Learning Tasks: ▪ Explain the uses of acetylene cylinders in gas welding? ▪ Explain the uses pressure regulators in gas welding?	iii. Key Assessment: Level 1: What are the potential safety hazards and risks associated with illegal gas connections? etc. (Week 16): i. Learning Tasks: Explain the uses of acetylene cylinders in gas welding? etc	
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	▪ <i>Distinguish between acetylene cylinders and oxygen cylinders? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Pre-Assessment: The teacher begins by assessing learners' prior knowledge and experience with gas welding tools and equipment. Use pre-assessment tools such as quizzes, surveys, or informal discussions to gauge learners' familiarity with welding processes, safety protocols and equipment usage</i> ▪ <i>Group work/collaborative learning: Learners in mixed-ability groups are given appropriate charts and guided to brainstorm to identify with safety guidelines the precise gas welding tools and equipment. Group learners homogeneously for targeted instruction and practice sessions based on their proficiency in tools and equipment used in gas welding</i> ▪ <i>Varied instructional modalities: The teacher provides instruction using a variety of modalities to accommodate different learning</i>	ii. <i>Pedagogical Exemplars:</i> ▪ <i>Pre-Assessment: The teacher begins by assessing learners' prior knowledge and experience with gas welding tools and equipment. Use pre-assessment tools such as quizzes, surveys, or informal discussions to gauge learners' familiarity with welding processes, safety protocols and equipment usage, etc.</i>	
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	<i>styles (visual aids etc). Offer hands-on demonstrations and practice opportunities for learners and use verbal explanations and discussions to achieve the target in the use of tools and equipment for gas welding. etc.</i> iii. Key Assessment: ▪ <i>Level 3: Distinguish between the acetylene regulator and the oxygen regulator?</i> ▪ <i>Level 3: How are the hoses connected to the gas cylinders taking into consideration the colour of the hoses?</i> ▪ <i>Level 3: Explain the function of the blowpipe?</i> b) <i>Design Communication technology (Week 15):</i> i. <i>Learning Task: Based on your knowledge acquired from construction of Archimedean spiral and orthographic projection from basic 9. Design a functional spiral stair plan for a two-storey domestic building? etc.</i> ii. <i>Pedagogical Exemplars</i> ▪ <i>With the aid of cut shapes, You Tube videos or pictures, show learners different forms of</i>	iii. Key Assessment: <i>Level 3: Distinguish between the acetylene regulator and the oxygen regulator? etc.</i> b) <i>Design Communication technology (Week 15):</i> i. <i>Learning Task: Based on your knowledge acquired from construction of Archimedean spiral and orthographic projection from basic 9. Design a functional spiral stair plan for a two-storey domestic building? etc.</i> ii. <i>Pedagogical Exemplars</i> <i>With the aid of cut shapes, You Tube videos or pictures, show learners different forms of Archimedean spiral</i>	
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	<i>Archimedean spiral that exist naturally and those that are designed</i> ▪ <i>In mixed ability groups, let learners observe their immediate environment to observe some forms of Archimedean spiral that exist naturally and those designed, guide learners in a whole class discursion to mention some objects they came across during their observation make sure the AP learners participate in the discursions by asking them leading questions</i> ▪ <i>With the use of drawing instruments and board illustration, demonstrate to learners the construction of Archimedean spiral, give additional support to the AP and P learners while the HP learners should be given extended task</i> ▪ <i>Use the concept of drawing Archimedean spiral and the knowledge of orthographic projections from basic 9 to design the plan of objects</i>	<i>that exist naturally and those that are designed</i>	
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	<i>in a spiral form. Support AP learners and P learners in their designing and HP learners should be made to work on their own, etc.</i> iii. Key Assessment: ▪ <i>Level 1: Name three objects that are made of elliptical shapes that you can find in your environment.</i> ▪ <i>Level 2: Construct an Archimedean spiral of radius 75mm?</i> ▪ <i>Level 3 Design an elliptical tabletop to be used in the home?</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 15 and 16 lessons (NTS 3a, 3e-3g and 3k). <i>Note: Emphasis should be on essential questions and differentiation activities.</i>	iii. Key Assessment: <i>Level 1: Name three objects that are made of elliptical shapes that you can find in your environment.</i> 2.5 Complete the learning planner templates for teaching Weeks 15 and 16 lessons (NTS 3a, 3e-3g and 3k). <i>Note: Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. Reviewing planner to ensure alignment between course manual and learning planner based on the	3.1 Ask teachers to peer-review the learning plans for Weeks 15 and 16 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i>	3.1 Peer-review the learning plans for Weeks 15 and 16 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i>	10 mins

templates provided.	c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 10 on developing lesson plans for Weeks 17 and 18, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 10 on developing lesson plans for Weeks 17 and 18 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 10: Developing learning plans for Weeks 17 and 18

<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 9, <i>developing learning plans for Weeks 15 and 16</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 9, <i>developing learning plans for Weeks 15 and 16</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 9, <i>developing learning plans for Weeks 15 and 16</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 9, <i>developing learning plans for Weeks 15 and 16</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 17 and 18 learning plans for the following lessons: a) <i>Applied technology: types of manufactured boards and components of vehicle transmission system.</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 17 and 18 learning plans for the following lessons: a) <i>Applied technology: types of manufactured boards and components of vehicle transmission system.</i>	60 mins

	<i>b) Design Communication technology: Perspective drawing.</i> LO 1: Develop learning plans for Weeks 17 and 18 on types of manufactured boards, components of vehicle transmission system and perspective drawing integrating cross-cutting issues (NTS 3c, 3e-3g and 3j). LI 1 .1 Develop learning plans for teaching Weeks 17 and 18 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 17 and 18 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 17 and 18 in Applied Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 17 and 18 lessons in applied technology. LI 1.2 Team review learning plans for week 17 and 18 in applied technology.	<i>b) Design Communication technology: Perspective drawing.</i> LO 1: Develop learning plans for Weeks 17 and 18 on types of manufactured boards, components of vehicle transmission system and perspective drawing integrating cross-cutting issues (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 17 and 18 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 17 and 18 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 17 and 18 in Applied Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 17 and 18 lessons in applied technology. LI 1.2 Team review learning plans for week 17 and 18 in applied technology.	
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	2.2 Ask teachers in groups to identify and share aspects of Weeks 13 and 14 lessons in Applied Technology and Design Communications Technology lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> a) <i>Learning indicator(s)</i> b) <i>Learning outcome(s)</i> c) <i>Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 17 and 18 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> a) <i>Applied technology (Week 17):</i> i. <i>How can learners be assisted to identify significant features of veneers in plywood?</i> ii. <i>In what ways can learners be assisted to explain significant features of veneers in plywood?</i> iii. <i>How can learners be assisted to differentiate between laminboard, blockboard and battenboard? etc.</i> <i>(Week 18):</i> i. <i>How can learners be assisted to define vehicle transmission system?</i> ii. <i>How can learners be assisted to identify</i>	2.2 In your groups, identify and share aspects of Weeks 13 and 14 lessons in Applied Technology and Design Communications Technology in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 17 and 18 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> a) <i>Applied technology (Week 17):</i> <i>How can learners be assisted to identify significant features of veneers in plywood? etc.</i> <i>(Week 18):</i> <i>How can learners be assisted to define vehicle transmission system? etc.</i>	
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	<i>components of the vehicle transmission system?</i> iii. <i>In what way can learners be assisted to explain the function of the components of the vehicle transmission system? etc.</i> b) <i>Design Communication technology (Week 17):</i> i. <i>How can learners be assisted to explain the concept of drawing objects in perspective?</i> ii. <i>How can learners be assisted to construct solid geometrical figures in one-point and two-point perspectives?</i> iii. <i>In what ways can learners be assisted to apply the principle of perspective in real life situation? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 17 and 18 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 17):</i> i. <i>Learning Task:</i> ▪ <i>Identify any two significant features of veneers in plywood?</i>	a) <i>Design Communication technology (Week 17):</i> <i>How can learners be assisted to explain the concept of drawing objects in perspective? etc.</i> 2.4 Think-pair-share key notes on differentiation in Weeks 17 and 18 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 17):</i> i. <i>Learning Task:</i> <i>Identify any two significant features of veneers in plywood? etc.</i>	
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	▪ <i>Explain three significant features of veneers in plywood?</i> ▪ <i>Differentiate between laminboard, blockboard and battenboard? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Critical Thinking and Talk for Learning Approaches: Guide learners through a video demonstration of the types of manufactured boards made from wood and non-wood residues, to co-operatively brainstorm the meaning of the manufactured boards with open-mindedness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners</i> ▪ <i>Group work/collaborative learning /digital literacy learning: Place learners into small mixed ability groups and task them to co-operatively discuss the types and characteristics of manufactured boards with open-mindedness, patience and work ethics. HP learners can be tasked with also supporting groups in</i>	ii. <i>Pedagogical Exemplars: Critical Thinking and Talk for Learning Approaches: Guide learners through a video demonstration of the types of manufactured boards made from wood and non-wood residues, to co-operatively brainstorm the meaning of the manufactured boards with open-mindedness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners, etc.</i>	
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	<i>discussion like the teacher</i> ▪ <i>Experiential learning: Teacher take learners on a trip to a manufactured board industry to observe activities involve in the manufactured board process and task learners in mixed ability groups to carefully identify and passionately explain types and characteristics of manufactured boards with open-mindedness, etc.</i> iii. <i>Key Assessment:</i> ▪ <i>Level 1: Give four types of manufactured boards made from Wood and non-wood residues?</i> ▪ <i>Level 2: Sketch any three types of manufactured board?</i> ▪ <i>Level 3: Discuss the uses of engineered wood in the Ghanaian infrastructure industry? etc.</i> <i>(Week 18):</i> i. <i>Learning Task:</i> ▪ <i>Define vehicle transmission system?</i> ▪ <i>List types of vehicle transmission system/?</i>	iii. <i>Key Assessment:</i> <i>Level 1: Give four types of manufactured boards made from Wood and non-wood residues? etc.</i> <i>Week 18):</i> i. <i>Learning Task:</i> <i>Define vehicle transmission system? etc.</i>	
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	▪ <i>Identify components of the vehicle transmission system? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Problem-Based Learning: Place learners in groups to define and list types of vehicle transmission system. To induce students to participate in the discussion, the teacher should direct questions at them while they are having the discussion amongst themselves. When the class is back together, the teacher should gather all of the learners for feedback</i> ▪ <i>Group work/Collaborative Learning: Place students in mixed-ability groups and assign them to identify components of the vehicle transmission system in a respectful and open manner. It is possible to assign HP students to assist groups in discussions in</i>	ii. <i>Pedagogical Exemplars:</i> <i>Problem-Based Learning: Place learners in groups to define and list types of vehicle transmission system. To induce students to participate in the discussion, the teacher should direct questions at them while they are having the discussion amongst themselves. When the class is back together, the teacher should gather all of the learners for feedback., etc.</i>	
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	<i>addition to the teacher</i> ▪ <i>Experiential learning: Guide learners in GESI responsive groups of five (5) to visit an efficient vehicle repair and maintenance shop to explain the function of the components of the vehicle transmission system and present a report. Provide feedback to learners on their reports and emphasize the application of the safety measures in real-life situations, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 2: Define vehicle transmission system?</i> ▪ <i>Level 2: List types of vehicle transmission system?</i> ▪ <i>Level 2: Identify components of the vehicle transmission system? etc.</i> <i>b) Design Communication technology (Week 17):</i> <i>i. Learning Task:</i> ▪ <i>Explain the concept of drawing objects in perspective.?</i>	<i>iii. Key Assessment:</i> <i>Level 2: Define vehicle transmission system? etc.</i> <i>b) Design Communication technology (Week 17):</i> <i>i. Learning Task:</i> <i>Explain the concept of drawing objects in perspective.? etc.</i>	
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	▪ <i>Construct solid geometrical figures in one-point and two-point perspectives?</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>With relevant pictures and videos show learners how objects appear in perspective. Using think pair share let learners observe and present their findings in a whole class discussion. Encourage the AP and P learners to participate in the discursion</i> ▪ <i>Using sketches and board illustrations, demonstrate to learners the principles used in drawing objects in one-point perspective at different eye levels, support the AP and P learners by asking them leading questions</i> ▪ <i>Using sketches and board illustrations, demonstrate to learners the principles used in drawing objects in two-point perspective at different eye levels, support the AP and P learners by asking them leading questions, etc.</i>	ii. <i>Pedagogical Exemplars:</i> <i>With relevant pictures and videos show learners how objects appear in perspective. Using think pair share let learners observe and present their findings in a whole class discursion. Encourage the AP and P learners to participate in the discursion, etc.</i>	
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	iii. Key Assessments: ▪ <i>Level 1: Explain the principles used in drawing objects in one-point and two-point perspective?</i> ▪ <i>Level 3: Construct the square block in one-point and two-point perspectives? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 17 and 18 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	iii. Key Assessments: <i>Level 1: Explain the principles used in drawing objects in one-point and two-point perspective? etc.</i> 2.5 Complete the learning planner templates for teaching Weeks 17 and 18 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. Reviewing planner to ensure alignment between course manual and learning planner based on the templates provided.	3.1 Ask teachers to peer-review the learning plans for Weeks 17 and 18 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i>	3.1 Peer-review the learning plans for Weeks 17 and 18 lessons (NTS 1a, 2c, 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st “century skills.”</i> g) <i>Differentiated instruction and assessment, etc.</i>	10 mins

	3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	3.2 Make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 11 on developing lesson plans for Weeks 19 and 20, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 11 on developing lesson plans for Weeks 19 and 20 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 11: Developing learning plans for Weeks 19 and 20			
<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 10, <i>developing learning plans for Weeks 17 and 18</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 10, <i>developing learning plans for Weeks 17 and 18</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 10, <i>developing learning plans for Weeks 17 and 18</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 10, <i>developing learning plans for Weeks 17 and 18</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 19 and 20 learning plans for the following lessons: a) <i>Applied technology: concept of electrical as well as electronics circuits and tools as well</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 19 and 20 learning plans for the following lessons: a) <i>Applied technology: concept of electrical as well as electronics circuits and tools as well</i>	60 mins

	<i>as equipment for electric arc welding.</i> <i>b) Design Communication technology: Surface development of prisms.</i> LO 1: Develop learning plans for Weeks 19 and 20 on the concept of electrical as well as electronics circuits, tools as well as equipment for electric arc welding and surface development of prisms (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 19 and 20 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 19 and 20 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 19 and 20 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 19 and 20 lessons in applied technology.	<i>as equipment for electric arc welding.</i> <i>b) Design Communication technology: Surface development of prisms</i> LO 1: Develop learning plans for Weeks 19 and 20 on the concept of electrical as well as electronics circuits, tools as well as equipment for electric arc welding and surface development of prisms (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 19 and 20 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 19 and 20 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 19 and 20 in Applied Technology (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 19 and 20 lessons in applied technology.	
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	LI 2.2 Team review learning plans for Weeks 19 and 20 in applied technology. 2.2 Ask teachers in groups to identify and share aspects of Weeks 19 and 20 lessons in Applied Technology and Design Communications Technology lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. a) <i>Learning indicator(s)</i> b) <i>Learning outcome(s)</i> c) <i>Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 19 and 20 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology: (Week 19):</i> i. <i>How can learners be assisted to define what an electronic circuit is and how it differs from an electrical circuit?</i> ii. <i>In what ways can learners be assisted to describe how the voltage and current levels differ between electrical and electronic circuits?</i> iii. <i>How can learners be assisted to explain how the components used in electrical</i>	LI 2.2 Team review learning plans for Weeks 9 and 10 in applied technology. 2.2 In your groups, identify and share aspects of Weeks 19 and 20 lessons in Applied Technology and Design Communications Technology in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 19 and 20 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology: (Week 19):</i> <i>How can learners be assisted to define what an electronic circuit is and how it differs from an electrical circuit? etc.</i>	
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	<i>circuits differ from those used in electronic circuits? etc.</i> <i>(Week 20):</i> <i>i. In what ways can learners be assisted to define electric arc welding?</i> <i>ii. How can learners be assisted to explain with line diagrams tools and equipment used in arc welding process?</i> <i>iii. How can learners be assisted to explain arc welding machine? etc.</i> <i>b) Design Communication technology (Week 19):</i> <i>i. In what ways can learners be assisted to explain the principles used to develop the surfaces of prisms?</i> <i>ii. How can learners be assisted to construct the surface development of prisms</i> <i>iii. How can learners be assisted to design and construct, the surface development of a product package for a company? etc.</i> 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 19 and 20 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j).	<i>(Week 20):</i> <i>In what ways can learners be assisted to define electric arc welding? etc.</i> <i>b) Design Communication technology (Week 19):</i> <i>In what ways can learners be assisted to explain the principles used to develop the surfaces of prisms? etc.</i> 2.4 Think-pair-share key notes on differentiation in Weeks 19 and 20 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j).	
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	<i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> <i>E.g.</i> <i>a) Applied technology: (Week 19):</i> <i>i. Learning tasks</i> ▪ <i>Define what an electronic circuit is and how it differs from an electrical circuit?</i> ▪ <i>Explain how both types of circuits use resistors, capacitors, and inductors in their designs?</i> ▪ <i>How does the voltage and current levels differ between electrical and electronic circuits? etc.</i> <i>ii. Pedagogical Exemplars:</i> ▪ <i>Talk for learning approaches: Guide learners through watching a video of an electronic circuit and electrical circuit, to co-operatively brainstorm the meaning of electronic circuit and how it differs from an electrical circuit with open-mindedness. The teacher should pull all students back in for whole-class feedback and to collect definitions</i> ▪ <i>Group work/collaborative learning: Place learners into mixed</i>	<i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> <i>E.g.</i> <i>a) Applied technology: (Week 19):</i> <i>i. Learning tasks:</i> <i>Define what an electronic circuit is and how it differs from an electrical circuit? etc.</i> <i>ii. Pedagogical Exemplars:</i> <i>Talk for learning approaches: Guide learners through watching a video of an electronic circuit and electrical circuit, to co-operatively brainstorm the meaning of electronic circuit and how it differs from an electrical circuit with open-mindedness. The teacher should pull all students back in for whole-class feedback and to collect definitions, etc.</i>	
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	<i>ability groups and task them to co-operatively discuss the description of voltage and current levels that differ between electrical and electronic circuits with open-mindedness and patience. HP learners can be tasked with also supporting groups in discussion like the teacher</i> ▪ <i>Experiential learning: Learners undertake educational visit to a local electrical and electronic workshop or go to the school's workshop where learners observe components used in electrical circuits and electronic circuits, then task them to explain the differences between them, etc.</i> <i>iii. Key Assessment:</i> ▪ <i>Level 1: Explain the key differences between electrical circuits and electronic circuits in terms of components used and their applications?</i> ▪ <i>Level 2: What role does semiconductor technology play in electronic circuits, and why is it not as prevalent in electrical circuits?</i>		
		<i>iii. Key Assessment:</i> <i>Level 1: Explain the key differences between electrical circuits and electronic circuits in terms of components used and their applications? etc.</i>	

	▪ <i>Level 3: Compare the complexity and intricacy of electrical and electronic circuits in terms of design and functionality? etc.</i> <i>(Week 20):</i> i. <i>Learning tasks</i> ▪ <i>What is electric arc welding?</i> ▪ <i>Explain with line diagrams at least five (5) tools and equipment used in arc welding process?</i> ▪ <i>Explain arc welding machine? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Experiential learning: Learners undertake educational visit to a local welding workshop or go to the school's workshop where the set up and the use of tools and equipment are explained to them fairly. Learners are further guided to make appropriate reference to the equipment used in electric arc welding using relevant resources</i> ▪ <i>Small Group Instruction: Teacher group learners in mixed-ability based on their proficiency levels, prior experience and learning preferences</i>	<i>(Week 20):</i> i. <i>Learning tasks</i> <i>What is electric arc welding? etc.</i> ii. <i>Pedagogical Exemplars: Experiential learning: Learners undertake educational visit to a local welding workshop or go to the school's workshop where the set up and the use of tools and equipment are explained to them fairly. Learners are further guided to make appropriate reference to the equipment used in electric arc welding using relevant resources, etc.</i>	
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	<i>for targeted instruction and practice sessions tailored to their skill levels in electric arc welding. Encourage discussions, feedback and sharing of experiences within groups</i> ▪ <i>Scaffolded Learning: Provide ample opportunities for learners to practice welding techniques under supervision. Scaffold the learning process by breaking down complex welding concepts and techniques into manageable steps, etc.</i> iii. <i>Key Assessment:</i> ▪ <i>Level 4: Explain the differences between generator welding machine and the transformer welding machine?</i> ▪ <i>Level 4: Describe with the aid of a diagram at least three (3) of the electrode holder tools used in arc welding and demonstrate their uses?</i> ▪ <i>Level 4: Describe with the aid of a diagram the welding helmet tools used in arc welding and demonstrate their uses, etc.</i>		
		iii. <i>Key Assessment:</i> <i>Level 4: Explain the differences between generator welding machine and the transformer welding machine? etc.</i>	

	<i>b) Design Communication technology (Week 19):</i> <i>i. Learning Task:</i> ▪ <i>Explain the principles used to develop the surfaces of prisms?</i> ▪ <i>Construct the surface development of prisms?</i> ▪ <i>Design and construct, the surface development of a product package for a food company that will come out on 1st January of next year, the product has a height of 150 and width of 50 and length 80 (dimensions are optional), etc.</i> <i>ii. Pedagogical Exemplars</i> ▪ <i>Communication, critical thinking, discussion and individual learning: In mix-ability groupings, learners cut open a water bottle, milk tin, toothpaste box and matches box and spread it out to observe the surfaces formed. Make sure the AP and P also participate in the activity</i> ▪ <i>In their groups, learners sketch the surfaces formed and present their sketches in a whole class discussion. Encourage the AP and P learners to lead the discussion</i> ▪ <i>With the use of models, pictures and charts, guide learners to</i>	<i>b) Design Communication technology (Week 19):</i> <i>i. Learning Task:</i> <i>Explain the principles used to develop the surfaces of prisms? etc.</i> <i>ii. Pedagogical Exemplars</i> <i>Communication, critical thinking, discussion and individual learning: In mix-ability groupings, learners cut open a water bottle, milk tin, toothpaste box and matches box and spread it out to observe the surfaces formed. Make sure the AP and P also participate in the activity, etc.</i>	
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	<i>clearly explain the principles of developing the surfaces of prisms, etc.</i> iii. Key Assessments ▪ <i>Level 1: Explain the principles of developing surfaces of prisms?</i> ▪ <i>Level 1: Construct the surface development of a rectangular prism of sides 30 by 50 and height 80?</i> ▪ <i>Level 1: Design and construct the surface development of a product package for a food company? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 19 and 20 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	iii. Key Assessments <i>Level 1: Explain the principles of developing surfaces of prisms? etc.</i> 2.5 Complete the learning planner templates for teaching Weeks 19 and 20 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. • Reviewing planner to ensure alignment between course manual and learning planner based on the templates provided.	3.1 Ask teachers to peer-review the learning plans for Weeks 5 and 6 lessons (NTS 1a, 2c and 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility</i>	3.1 Peer-review the learning plans for Weeks 5 and 6 lessons (NTS 1a, 2c and 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility</i>	10 mins

	<i>of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st century skills.</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	<i>of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st century skills.</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in your learning plans based on the feedback from your colleagues (NTS 1b).	
5. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I). 4.3 Remind teachers to read DPLC Session 12 on developing lesson plans for Weeks 21 and 22, and bring along the teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I). 4.3 Remember to read DPLC Session 12 on developing lesson plans for Weeks 21 and 22 and bring along teacher manual, NTS handbook, and a laptop in preparation for the next session. (NTS 1a, 1b).	10 mins

DPLC Session 12: Developing learning plans for Weeks 21 and 22

<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Ask teachers to share two things they implemented based on the DPLC Session 11, <i>developing learning plans for Weeks 19 and 20</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 11, <i>developing learning plans for Weeks 19 and 20</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 11, <i>developing learning plans for Weeks 19 and 20</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 11, <i>developing learning plans for Weeks 19 and 20</i>, supported learning (NTS 1a- 1c).	10 mins
3. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 21 and 22 learning plans for the following lessons: a) <i>Applied technology: Uses of manufactured boards and components of braking system.</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use the teacher manual and learning planners to effectively develop Weeks 21 and 22 learning plans for the following lessons: a) <i>Applied technology: Uses of manufactured boards and components of braking system.</i>	60 mins

	<i>b) Design Communication technology: Introduction to fractal geometry.</i> LO 1: Develop learning plans for Weeks 21 and 22 on the uses of manufactured boards, components of braking system and introduction to fractal geometry (NTS 3c, 3e-3g and 3j). LI 1 .1 Develop learning plans for teaching Weeks 21 and 22 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 2 and 22 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 21 and 22 in Applied Technology and Design Communications Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 21 and 22 lessons in Applied Technology and Design Communications Technology LI 2.2 Team review learning plans for Weeks 21 and 22 in Applied Technology and	<i>b) Design Communication technology: Introduction to fractal geometry.</i> LO 1: Develop learning plans for Weeks 21 and 22 on the uses of manufactured boards, components of braking system and introduction to fractal geometry (NTS 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 21 and 22 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 21 and 22 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 21 and 22 in Applied Technology and Design Communications Technology (NTS 3c, 3e-3g and 3j). LI 2.1 Discuss the learning plans for Weeks 21 and 22 lessons in Applied Technology and Design Communications Technology LI 2.2 Team review learning plans for Weeks 21 and 22 in Applied Technology and	
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	Design Communications Technology. 2.2 Ask teachers in groups to identify and share aspects of Weeks 21 and 22 lessons in Applied Technology and Design Communications Technology lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. a) <i>Learning indicator(s)</i> b) <i>Learning outcome(s)</i> c) <i>Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 21 and 22 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology (Week 21):</i> i. <i>How can learners be assisted to identify two uses of manufactured boards made from wood and non-wood residues?</i> ii. <i>How can learners be assisted to explain three uses of manufactured boards made from wood and non-wood residues?</i> iii. <i>In what ways can learners be assisted to describe four uses of manufactured boards made from wood and non-wood residues? etc.</i>	Design Communications Technology. 2.2 In your groups, identify and share aspects of Weeks 21 and 22 lessons in Applied Technology and Design Communications Technology in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). E.g. <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 21 and 22 (NTS 1a, 2c, 2e, 2f, 3d-3g). E.g. a) <i>Applied technology (Week 21):</i> <i>How can learners be assisted to identify two uses of manufactured boards made from wood and non-wood residues? etc.</i>	
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	(Week 22): i. How can learners be assisted to explain the primary functions of a vehicle's braking system? ii. In what ways can learners be introduced to the types of vehicle brakes and the main components of the braking system? iii. How will learners be helped to describe the various means of actuating vehicle brakes? etc. b) Design Communication technology (Week 21): i. How can learners be assisted to identify three types of fractal geometry and how they can be applied in real life situations? ii. How can learners be assisted to explain the concept of fractal geometry? iii. In what ways can learners be assisted to explain three applications of fractal geometry? etc. 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 21 and 22 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). Note: Refer to the teacher manual for more examples on differentiation questions.	(Week 21): How can learners be assisted to explain the primary functions of a vehicle's braking system? etc. b) Design Communication technology (Week 21): How can learners be assisted to identify three types of fractal geometry and how they can be applied in real life situation? etc. 2.4 Think-pair-share key notes on differentiation in Weeks 21 and 22 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). Note: Refer to the teacher manual for more examples on differentiation questions.	
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	E.g. a) <i>Applied technology (Week 21):</i> i. <i>Learning Task:</i> ▪ <i>Identify two uses of manufactured boards made from wood and non-wood residues?</i> ▪ <i>Explain three uses of manufactured boards made from wood and non-wood residues?</i> ▪ <i>Describe four uses of manufactured boards made from wood and non-wood residues? etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Critical Thinking and Talk for Learning Approaches: Guide learners through a video demonstration of manufactured boards (Engineered wood), to co-operatively brainstorm the uses of manufactured boards (Engineered wood) with open-mindedness and faithfulness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners</i> ▪ <i>Group work/Collaborative Learning /Digital Literacy learning: Place learners into mixed ability groups</i>	E.g. a) <i>Applied technology (Week 21):</i> i. <i>Learning Task:</i> <i>Identify two uses of manufactured boards made from wood and non-wood residues? etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>Critical Thinking and Talk for Learning Approaches: Guide learners through a video demonstration of manufactured boards (Engineered wood), to co-operatively brainstorm the uses of manufactured boards (Engineered wood) with open-mindedness and faithfulness. The teacher should pull all students back in for whole-class feedback and collect meaning explanations from learners, etc.</i>	
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	<i>and task them to co-operatively discuss the uses of manufactured boards (Engineered wood) with open-mindedness, patience and work ethics. HP learners can be tasked with also supporting groups in discussion like the teacher</i> ▪ <i>Experiential learning: Teacher take learners on a trip to a woodwork industry to observe the artefact production etc. and task learners in mixed ability groups to carefully identify and passionately explain the uses of manufactured boards (Engineered wood) with open-mindedness. HP learners can be tasked with also supporting groups in discussion like the teacher, etc.</i> <i>iii. Key Assessment</i> ▪ <i>Level 1: State three uses of manufactured boards made from wood and non-wood residues.</i> ▪ <i>Level 2: How is chipboard most commonly used?</i> ▪ <i>Level 3: Describe how chipboard is made? etc.</i>		
		<i>iii. Key Assessment</i> <i>Level 1: State three uses of manufactured boards made from wood and non-wood residues? etc.</i>	

	(Week 22): i. <i>Learning Task:</i> ▪ <i>Explain the primary functions of the vehicle braking system?</i> ▪ <i>Explain types of braking systems, and how differ in terms of their components and operation?</i> ▪ <i>Describe the means of actuating vehicle's brakes, etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>With the use of videos, and models for demonstration, help learners to brainstorm and discuss three points where the vehicle brakes come into operation</i> ▪ <i>With the use of models, real objects internet surfing, help learners to explain the types of braking systems and how they differ from each other.</i> ▪ <i>Learners work in groups, using models and surfing the internet to describe means of actuating vehicle brakes, etc.</i> iii. <i>Key Assessments:</i> ▪ <i>Level 1: How does the principle of friction play a crucial role in the operation of a braking system, and why is it essential in</i>	(Week 22): i. <i>Learning Task:</i> <i>Explain the primary functions of the vehicle braking system? etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>With the use of videos, and models for demonstration, help learners to brainstorm and discuss three points where the vehicle brakes come into operation</i> iii. <i>Key Assessments:</i> <i>Level 1: How does the principle of friction play a crucial role in the operation of a braking system, and why is it essential in slowing</i>	
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	<i>slowing down or stopping a vehicle?</i> ▪ <i>Level: 2 What are the main components of a conventional brake system, and how do they work together to achieve the goal of slowing down a vehicle effectively?</i> ▪ <i>Level 3: Explain the function of the brake master cylinder and its role in the distribution of hydraulic fluid within the brake system? etc.</i> <i>b) Design Communication technology (Week 21):</i> <i>i. Learning Task:</i> ▪ <i>Explain the concept of fractal geometry?</i> ▪ <i>Identify three types of fractal geometry and how they can be applied in real life situations?</i> ▪ <i>Explain three applications of fractal geometry? etc.</i> <i>ii. Pedagogical Exemplars</i> ▪ <i>With the use of charts, videos, fabrics, flowers, leaves, and in mix-ability groups guide learners to observe the pattern of given materials and identify the common geometrical shape running through the design of the materials given. Guide</i>	<i>down or stopping a vehicle? etc.</i> <i>b) Design Communication technology (Week 21):</i> <i>i. Learning Task:</i> <i>Explain the concept of fractal geometry? etc.</i> <i>ii. Pedagogical Exemplars</i> <i>With the use of charts, videos, fabrics, flowers, leaves, and in mix-ability groups guide learners to observe the pattern of given materials and identify the common geometrical shape running through the design of the materials given. Guide learners to</i>	
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	<i>learners to present their findings in a whole class discussion. Make sure the AP and P learners participate in the discursion</i> ▪ <i>In their groups guide learners to explain fractal geometry in their own words. Make sure the AP and P learners take part in the explanation</i> ▪ <i>Using internet surf and research guide learners to name some of the types of fractal geometry in their groups and present their finding in a whole class discussion, etc.</i> <i>iii. Key Assessments</i> ▪ <i>Level 2: Explain fractal geometry?</i> ▪ <i>Level 3: Identify at least two types of fractal geometry and how they can be applied in real life?</i> ▪ <i>Level 3: List at least two applications of fractal geometry and explain one of them. etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 21 and 22 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	<i>present their findings in a whole class discussion. Make sure the AP and P learners participate in the discursion, etc.</i> <i>iii. Key Assessments</i> <i>Level 2: Explain fractal geometry? etc.</i> 2.5 Complete the learning planner templates for teaching Weeks 21 and 22 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
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3. Peer-review of learning planners. Reviewing planner to ensure alignment between course manual and learning planner based on the templates provided.	3.1 Ask teachers to peer-review the learning plans for Weeks 21 and 22 lessons (NTS 1a, 2c and 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st century skills.</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	3.1 Peer-review the learning plans for Weeks 21 and 22 lessons (NTS 1a, 2c and 3h). <i>Hint</i> <i>Areas to consider for review:</i> a) <i>Conformance to the learning plan structure.</i> b) <i>Alignment of essential questions with the teacher manual.</i> c) <i>Key differentiation</i> d) <i>Suitability of selected resources and feasibility of executing the learning plan.</i> e) <i>Integration of GESI, SEL and national values.</i> f) <i>Application of 21st century skills.</i> g) <i>Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in your learning plans based on the feedback from your colleagues (NTS 1b).	10 mins
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3l). 4.3 Remind teachers to read the contents of Weeks 23 and 24 of the teacher manual and DPLC Handbook Session 13 in preparation for the next session (NTS 1a, 1b).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3l). 4.3 Remember to read the contents of Weeks 23 and 24 of the teacher manual and DPLC Handbook Session 13 in preparation for the next session (NTS 1a, 1b).	10 mins

DPLC Session 13: Developing learning plans for Weeks 23 and 24			
<i>The sections below provide the frame for what is to be done in the session</i>	Guidance notes on leading the session. <i>What the DPLC Coordinator will have to say during each stage of the session</i>	Guidance Notes on Teacher Activity during the DPLC Session. <i>What teachers will do during each stage of the session</i>	Time in session
1. Introduction: Review of previous learning using ideas from the last DPLC session, and introducing the Departmental PLC Handbook	1.1 Start the session by asking teachers to share two things they implemented based on the DPLC Session 12, <i>developing learning plans for Weeks 21 and 22</i>, which they think impacted learning positively (NTS 1a, 1b). 1.2 Ask teachers, as critical friends, to discuss why they think what a colleague did through the application of lessons learnt in DPLC Session 3, <i>developing learning plans for Weeks 3 and 4</i>, supported learning (NTS 1a-1c).	1.1 Share two things you implemented based on DPLC Session 12, <i>developing learning plans for Weeks 21 and 22</i>, which you think impacted learning positively (NTS 1a, 1b). 1.2 As a critical friend, discuss why you think what a colleague did through the application of lessons learnt in DPLC Session 3, <i>developing learning plans for Weeks 3 and 4</i>, supported learning (NTS 1a- 1c).	10 mins
2. Planning for teaching, learning and assessment activities, promoting character values, GESI, SEL, ICT and 21st century skills	2.1 Ask teachers to read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 23 and 24 learning plans for the following lessons: a) <i>Applied technology: Reasons for mobilisation and site preparations and hoarding of site to facilitate constructional works.</i>	2.1 Read the Purpose, Learning Outcomes (LOs) and Learning Indicators (LIs) for the session (NTS 1b). Purpose: This session is to assist teachers in the Applied Technology Department to use teacher manuals and learning planners to effectively develop Weeks 23 and 24 learning plans for the following lessons: a) <i>Applied technology: Reasons for mobilisation and site preparations and hoarding of site to facilitate constructional works.</i>	60 mins

	<i>b) Design Communication technology: Application of fractal geometry in designing.</i> LO 1: Develop learning plans for lessons in Weeks 23 and 24 on the design brief, generate solution of identified problems and the uses of manufactured boards over solid wood (NTS 1a, 1b, 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 23 and 24 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 23 and 24 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 23 and 24 in applied technology. (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 23 and 24 lessons in applied technology. LI 2.2 Team-review learning plans for Weeks 23 and 24 in applied technology.	<i>b) Design Communication technology: Application of fractal geometry in designing.</i> LO 1: Develop learning plans for lessons in Weeks 23 and 24 on the design brief, generate solution of identified problems and the uses of manufactured boards over solid wood (NTS 1a, 1b, 3c, 3e-3g and 3j). LI 1.1 Develop learning plans for teaching Weeks 23 and 24 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LI 1.2 Complete the learning planner templates for teaching Weeks 23 and 24 lessons in Applied Technology Department considering cross-cutting issues, essential questions and key notes on differentiation. LO 2: Review the learning plans prepared by various groups for teaching lessons in Weeks 23 and 24 in applied technology. (NTS 1a, 1b, 2b, 2c, 2e, 2f, 3a, 3d, 3e, 3g-3j and 3o). LI 2.1 Discuss the learning plans for Weeks 23 and 24 lessons in applied technology. LI 2.2 Team-review learning plans for Weeks 23 and 24 in applied technology.	
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	2.2 Ask teachers in groups to identify and share aspects of Weeks 23 and 24 lessons in Applied Technology and Design Communications Technology lessons in their teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>a) Learning indicator(s)</i> <i>b) Learning outcome(s)</i> <i>c) Content standard, etc.</i> 2.3 Ask teachers in their groups to develop the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 23 and 24 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 23):</i> <i>i. In what ways can learners be assisted to discover the primary purpose of mobilisation in the building construction industry?</i> <i>ii. How can learners be assisted to imagine a construction site that is well mobilised and has adequate facilities for constructional work to begin?</i> <i>iii. In what ways can learners be helped to come out with specific planning considerations that are essential to ensure a smooth mobilisation process? etc.</i>	2.2 In your groups, identify and share aspects of Weeks 23 and 24 lessons in Applied Technology and Design Communications Technology in your teacher manual that have been captured in the learning planner (NTS 1a, 2c, 2f and 3d-3g). <i>E.g.</i> <i>Learning indicator(s), etc.</i> 2.3 Review the essential questions that support the achievement of the LOs and LIs in the lessons in Weeks 23 and 24 (NTS 1a, 2c, 2e, 2f, 3d-3g). <i>E.g.</i> <i>a) Applied technology (Week 23):</i> <i>In what ways can learners be assisted to discover the primary purpose of mobilisation in the building construction industry? etc.</i>	
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	(Week 24): - How can learners be assisted to describe hoarding panels used for advertisement? - How can learners be assisted to appreciate the features of a construction site which is adequately hoarded off in terms of the safe and appropriate materials used as well as the appropriate construction technologies used? - In what ways can learners be guided to improve on site security that can be achieved through hoarding? etc. b) Design Communication technology (Week 23): - How can learners be assisted to generate fractal patterns geometrically? - How can learners be assisted to explain at least three applications of fractal pattern in designing? - How can learners be assisted to design a fabric pattern for a clothing company in Ghana? etc. 2.4 Ask teachers to think-pair-share key notes on differentiation in Weeks 23 and 24 Applied Technology and Design Communications Technology	(Week 24): How can learners be assisted to describe hoarding panels used for advertisement? etc. b) Design Communication technology (Week 23): How can learners be assisted to generate fractal patterns geometrically? 2.4 Think-pair-share key notes on differentiation in Weeks 23 and 24 Applied Technology and Design Communications Technology lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j).	
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	lessons that cater for the diverse needs of lessons (NTS 3e, 3g, 3i and 3j). <i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 23):</i> i. <i>Learning Task:</i> ▪ <i>Explain the different types of construction projects that require mobilisation.</i> ▪ <i>State the reasons why mobilisation is important in building construction?</i> ▪ <i>Identification of different factors that influence the cost and complexity of mobilisation, etc.</i> ii. <i>Pedagogical Exemplars:</i> ▪ <i>Surfing the internet, reading through reference books, going on field trips to explain different types of construction projects that require mobilisation</i> ▪ <i>With videos, internet surfing, field trips to state reasons why mobilisation is important in building construction.</i> ▪ <i>Learners work in mixed-ability, mixed-gender groupings, field trip, give different factors that influence the cost and complexity of mobilisation, etc.</i>	<i>Note: Refer to the teacher manual for more examples on differentiation questions.</i> E.g. a) <i>Applied technology (Week 23):</i> i. <i>Learning Task:</i> <i>Explain the different types of construction projects that require mobilisation. etc.</i> ii. <i>Pedagogical Exemplars:</i> <i>Surfing the internet, reading through reference books, going on field trips to explain different types of construction projects that require mobilisation, etc.</i>	
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	ii. <i>Learning Task:</i> ▪ <i>Level 1: What is mobilisation in the context of building construction, and why is it a critical phase in a construction project?</i> ▪ <i>Level 2: Can you explain the role of access roads in mobilisation and how they contribute to the efficient functioning of a construction site?</i> ▪ <i>Level 3: Why is it necessary to clear the construction site of obstructions during mobilisation, and what are the potential consequences of not doing so?</i> <i>(Week 24):</i> i. <i>Learning Task:</i> ▪ <i>Describe on site preparation and hoarding strategies that differ in urban construction projects compared to rural or remote construction sites?</i> ▪ <i>Differentiate between the types of site preparations that need to be done before construction can begin.</i> ▪ <i>Identification of specific steps that involved in site preparations, etc.</i>	ii. <i>Learning Task:</i> <i>Level 1: What is mobilisation in the context of building construction, and why is it a critical phase in a construction project? etc.</i> <i>(Week 24):</i> i. <i>Learning Task:</i> <i>Describe on site preparation and hoarding strategies that differ in urban construction projects compared to rural or remote construction sites? etc.</i>	
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	ii. <i>Pedagogical Exemplars:</i> ▪ <i>In groups, surf the Internet, reading through reference books or going on field trips</i> ▪ <i>Either surfing the Internet, reading through reference books, going on field trips or taking part in all the alternative activities.</i> ▪ <i>In groups, either surfing the Internet, reading through reference books, going on field trips or taking part in all the alternative activities, etc.</i> iii. <i>Key Assessment:</i> ▪ <i>Level 2: Why is the location of welfare facilities a crucial aspect of site planning, and how does it impact the progress of work?</i> ▪ <i>Level 2: Explain the role of an inner perimeter fence in maintaining security on a construction site and preventing unauthorised access?</i> ▪ <i>Level 3: As a site manager, how would you address the challenges of balancing workers' well-being, security, and operational efficiency when planning the</i>	ii. <i>Pedagogical Exemplars:</i> <i>In groups, surf the Internet, reading through reference books or going on field trips? etc.</i> iii. <i>Key Assessment:</i> ▪ <i>Level 2: Why is the location of welfare facilities a crucial aspect of site planning, and how does it impact the progress of work? etc.</i>	
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	<i>locations of facilities and equipment on a construction site? etc.</i> <i>b) Design Communication technology (Week 23):</i> <i>i. Learning Task:</i> ▪ <i>Generate fractal patterns geometrically?</i> ▪ <i>Explain at least three applications of fractal pattern in designing?</i> ▪ <i>Design a fabric pattern for a clothing company in Ghana? etc.</i> <i>ii. Pedagogical Exemplars</i> ▪ <i>Using videos, charts, research and internet surf, guide learners to explore varieties of fractal patterns in mixed ability groups and present their findings in a whole class discursion. Make sure the AP and P learners take part in the discursion</i> ▪ <i>In mixed ability groups assist learners to use free hand sketches to create fractal patterns from simple geometrical figures example, circle, ellipse and various polygon, similar to what they presented in class and compare their designs with</i>	<i>b) Design Communication technology (Week 23):</i> <i>i. Learning Task:</i> ▪ <i>Generate fractal patterns geometrically? etc.</i> <i>ii. Pedagogical Exemplars</i> <i>Using videos, charts, research and internet surf, guide learners to explore varieties of fractal patterns in mixed ability groups and present their findings in a whole class discursion. Make sure the AP and P learners take part in the discursion, etc.</i>	
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	<i>other groups. Make sure the AP, and P learners take part in the sketches</i> ▪ <i>Guide learners in mixed ability groups to use drawing instrument to create fractal patterns of their choice and pin their designs on the board for appraisal. Make sure the group consist of both AP, P, and HP learners, etc.</i> iii. <i>Key Assessments:</i> ▪ <i>Level 2: Generate at least two fractal patterns from simple geometrical figures?</i> ▪ <i>Level 3: Identify at least two applications of fractal patterns in designing?</i> ▪ <i>Level 4: Create a beautiful fractal pattern design for a clothing company in Ghana? etc.</i> 2.5 Ask teachers in their groups to complete the learning planner templates for teaching Weeks 23 and 24 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	iii. <i>Key Assessments:</i> <i>Level 2: Generate at least two fractal patterns from simple geometrical figures? etc.</i> 2.5 Complete the learning planner templates for teaching Weeks 23 and 24 lessons (NTS 3a, 3e-3g and 3k). <i>Note:</i> <i>Emphasis should be on essential questions and differentiation activities.</i>	
3. Peer-review of learning planners. Reviewing planner to ensure	3.1 Ask teachers to peer-review the learning plans for Weeks 5 and 6 lessons (NTS 1a, 2c and 3h).	3.1 Peer-review the learning plans for Weeks 5 and 6 lessons (NTS 1a, 2c and 3h).	10 mins

alignment between course manual and learning planner based on the templates provided.	<i>Hint</i> <i>Areas to consider for review:</i> <i>a) Conformance to the learning plan structure.</i> <i>b) Alignment of essential questions with the teacher manual.</i> <i>c) Key differentiation</i> <i>d) Suitability of selected resources and feasibility of executing the learning plan.</i> <i>e) Integration of GESI, SEL and national values.</i> <i>f) Application of 21st century skills.</i> <i>g) Differentiated instruction and assessment, etc.</i> 3.2 Ask teachers to make necessary corrections in their learning plans based on the feedback from their colleagues (NTS 1b).	<i>Hint</i> <i>Areas to consider for review:</i> <i>a) Conformance to the learning plan structure.</i> <i>b) Alignment of essential questions with the teacher manual.</i> <i>c) Key differentiation</i> <i>d) Suitability of selected resources and feasibility of executing the learning plan.</i> <i>e) Integration of GESI, SEL and national values.</i> <i>f) Application of 21st century skills.</i> <i>g) Differentiated instruction and assessment, etc.</i> 3.2 Make necessary corrections in your learning plans based on the feedback from your colleagues (NTS 1b).	
4. Evaluation and review of session: ▪ Noting that teachers need to identify critical friends to observe lessons and report at the next session.	4.1 Ask teachers to reflect and write one thing they have learnt at this session (NTS 1a). 4.2 Encourage teachers who did not complete their learning plans during the session to complete them (NTS 3I).	4.1 Write one thing learnt at this session (NTS 1a). 4.2 Complete the learning plans which were not completed during the session (NTS 3I).	10 mins

Appendix 1

Applied Technology

Learning Plan							
Subject	Applied Technology	Week	1	Duration	120min	Form	1
Strand	Wood Technology	Sub-Strand	Tools and Machines in Woodwork Industry				
Content Standard	Demonstrate knowledge and understanding of Health and Safety in woodwork industry						
Learning Outcome(s)	Demonstrate knowledge and understanding in health and safety and apply the appropriate safety measures in wood working environment.						
Learning Indicator(s)	Explain the meaning of personal safety, workshop safety and materials safety.						
Essential Question(s)	- How can learners be assisted to identify safety precautions in the workshop? - How can learners be assisted to demonstrate the safe use of machine tools in the workshop? - How can learners use the content of Safety at the applied technology workshop in real life situations? etc.						
Pedagogical Strategies	Critical Thinking and Talk for Learning Approaches, Group work/Collaborative Learning under mixed-grouping (gender, background, etc.), Digital Literacy learning, Experiential learning, Observation, brainstorming, demonstration						
Teaching & Learning Resources	Charts, pictures, videos and real object (nose mask, goggles, safety boots, overcoat, gloves helmet)						
Key Notes on Differentiation							
iv. Learning Task: - Recall any two. safety precaution in the workshop? - Demonstrate the safe use of machine tools in the workshop? - Demonstrate how to use the content of Safety at the applied technology workshop in real life situations? v. Pedagogical Exemplars: - Talk for learning approaches: Guide learners through watching a video of an operational workshop, to co-operatively brainstorm the meaning of health and safety in the workshop with open-mindedness. The teacher should pull all students back in for whole-class feedback and to collect definitions - Group work/collaborative learning: Place learners into mixed ability groups and task them to co-operatively discuss the causes of accidents in the workshop with open-mindedness and patience. HP learners can be tasked with also supporting groups in discussion like the teacher - Role play: The teacher should model to learners' safe use of tools in the classroom workshop and ask students questions to ensure understanding of safe							

use of machine tools. From here students can use role play to practice safe use of machine tools prior to using the actual equipment. As teachers assess learners' confidence, they can move to demonstrating safe use of machine tools on the equipment, etc.	
vi. Key Assessment: ▪ Level 1: List two items of safety equipment used on machine in the workshop. ▪ Level 2: How can accidents be prevented by the safe use of machine tools in the workshop? ▪ Level 3: Why is it necessary to ensure protection of the eyes when using machinery? etc.	
Keywords	Injury, damage, safety, tools, machines, accident, and workshop.
Lesson 1	
Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual	
Teacher Activity	Learner Activity
<u>Starter Activity (10 minutes)</u> Review learners' previous knowledge on safety in the workshop using real-life examples from (A learner dressed in his/her safety wear). Ask learners in mixed-gender groups to discuss the ways of observing health and safety in the workshop and prepare a sample for whole-class discussion.	
<u>Introductory Activity (15minutes)</u> Help learners to organize themselves in mixed-ability groups, then present them with charts, pictures, videos and real object (A learner dressed in his/her safety wear) and task learners to discuss and come up with two different ways they can demonstrating safety in the workshop that will make it appealing to users. Encourage learners to show respect for individual diverse views as they interact and collaborate in their groups. <u>Activity 1 (40 minutes)</u> In mixed-gender groups (gender, ability, background, religion, language etc) to brainstorm on effective ways of promoting safety in the workshop and ask learners to Surf through the Internet for information on safety in the workshop. <u>Activity 2 (40 minutes)</u> Using a computer application tool for presentations such as Power Point	<u>Introductory Activity (15minutes)</u> In your groups, discuss and come out with two different ways that you can demonstrate safety in the workshop to make it appealing to other users. Please as you carry out your discussions, show respect to others' views as you interact and collaborate with group members. <u>Activity 1 (40 minutes)</u> In your groups, brainstorm on effective ways of promoting health and safety in the workshop using the Internet where available. Please be wary of the use of the IT tool for this task. Use it appropriately as expected of you. <u>Activity 2 (40 minutes)</u> 1. Design a presentation using a computer application tool such as PPTs and present

template (PPT) (where available), call out groups to present effective ways of promoting health and safety in the workshop to the class. Be fair in the allocation of resources to groups for their presentations.	your effective ways of promoting safety in the workshop to the class. II. Please ask questions and contributions to the presentations. Tell how confident and effective your friends presented their work including the use of the right vocabulary for the concept being treated.
Assessment DoK aligned to the Curriculum and Subject Teacher Manual	
Level 1: Recall.	
1. Mention the types of safety in the workshop.	
Level 1: Recall.	
2. State examples of workshop safety, personal safety tool safety.	
Level 2: Skills of conceptual	
Understanding.	
3. Explain How would you protect yourself and others from accidents in the workshop?	
Lesson Closure	
<i>In completing this part, refer to the Essential Questions to check that learning has taken place.</i>	
Activity (15 minutes)	
I. Teacher will close the lesson by a seamless transition to plenary by making reference to the “Essential Questions on Knowledge Hierarchy”, recap of the main points of the lesson and ask oral questions to assess the understanding of the learners. The learners answer the questions orally and also ask questions that baffles their minds for clarification and better understanding.	
Reflection & Remarks	
❖ What was my best moment in today’s lesson and how can I create more of such situations? ❖ What did the learners find difficult to understand, and what activities did learners complete with ease and accuracy? ❖ Which materials best supported the delivery of the lesson and how did learners find its use in aiding their understanding of the concept taught? ❖ Were the different subgroups in the class catered? Were the learners enthusiastic about the activities and resources employed in the delivery of the lesson	
Lesson 2	
Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual	
Teacher Activity	Learner Activity
Starter Activity (10 minutes) Review learners’ previous knowledge on safety in the workshop using real-life examples from (A learner dressed in his/her safety wear). Ask learners in mixed-gender groups to discuss the ways of observing health and safety in the workshop and prepare a sample for whole-class discussion.	

<u>Introductory activity (25 minutes)</u> <i>Help learners to organize themselves in mixed-ability groups, then present them with charts, pictures, videos and real object (A learner dressed in his/her safety wear) and task learners to discuss and come up with two different ways they can demonstrating safety in the workshop that will make it appealing to users. Encourage learners to show respect for individual diverse views as they interact and collaborate in their groups.</i> <u>Activity 1 (25 minutes)</u> <i>Lead a class discussion in which you illustrate the best practices for fostering safety in the workshop. Give students the chance to clarify their understanding by asking questions to get more information. As students look for additional information and clarity from the class, encourage them to be cautious of preconceived notions about the talents and presentations of other groups.</i>	<u>Introductory activity (25 minutes)</u> <i>In your groups, discuss and come up with two different ways that you can demonstrate safety in the workshop to make it appealing to other users. Please, as you carry out your discussions, show respect for others' views as you interact and collaborate with group members.</i> <u>Activity 1 (30 minutes)</u> <i>Participate in a class discussion about how worker safety and occupational health impact the productivity and competitiveness of national and international economies. To help you organize your thoughts, clarify things further by asking questions. Be cautious not to assume anything negative about people who ask the class for more clarification or explanation.</i>
Assessment DoK aligned to the Curriculum and Subject Teacher Manual	
Level 2: Skills of conceptual Understanding. 1. Why should spillage of oil and water be prevented in the workshop? Level 3; Strategic Reasoning 2. Discuss how occupational health and safety of woodworkers affect national and global economies productivity and competitiveness. Level 3; Strategic Reasoning 3. Workers in applied technology do not put on personal protective equipment during processing, explain why and describe what you can do to persuade them to do otherwise.	
Lesson Closure <i>In completing this part, refer to the Essential Questions to check that learning has taken place.</i>	
<u>Activity (15 minutes)</u> <i>Teacher will close the lesson by a seamless transition to plenary by making reference to the “Essential Questions on Knowledge Hierarchy”, recap of the main points of the lesson and ask oral questions to assess the understanding of the learners. The learners answer the questions orally and also ask questions that baffles their minds for clarification and better understanding.</i>	
Reflection & Remarks	
❖ <i>What was my best moment in today's lesson and how can I create more of such situations?</i>	

- ❖ *What did the learners find difficult to understand, and what activities did learners complete with ease and accuracy?*
 - ❖ *Which materials best supported the delivery of the lesson and how did learners find its use in aiding their understanding of the concept taught?*
 - ❖ *Were the different subgroups in the class catered?*
- Were the learners enthusiastic about the activities and resources employed in the delivery of the lesson*

Design Communication Technology

Learning Planner							
Subject	Design Communication Technology	Week	1	Duration	120 mins	Form	1
Strand	Conceptual drawings	Sub- Strand	Concept sketches				
Content Standard	Demonstrate knowledge and understanding of the concept of sketches, in terms of rendering techniques and the use of perspective drawing and proportion in generating and creating designs using free-hand drawing.						
Learning Outcome(s)	Apply knowledge and skills of the concept sketches to generate and create designs using freehand drawing by applying rendering techniques in designing as well as the principles of perspective drawing and proportion						
Learning Indicator	Explain concept sketches and their applications in designing						
Essential Question(s)	▪ In what ways can learners be assisted to explain concept sketches? ▪ How can learners be assisted to list types of sketches? ▪ In what ways can learners be assisted to Explain line consistency and line weight?						
Pedagogical Strategies	Talk for learning, illustrations, Collaboration/ Group work/Problem-based learning, Project-based learning Problem-Based Learning						
Teaching & Learning Resources	Models, Charts, marker/chalk/charcoal/pencil/pen, reference books, drawing studio/classroom access to internet, masking tape, sketchpad, LCD Projector.						
Key Notes on Differentiation							
iv. Learning Task: ▪ Explain concept sketches? ▪ List types of sketches? ▪ Explain line consistency and line weight? etc.							

v. <i>Pedagogical Exemplars</i> ▪ <i>Managing Talk for Learning: In mixed-ability groups present to learner's different types of sketches, allow learners to observe the sketches and present their findings in a whole class discursion. Ensure the groups consist of both the AP, P and HP learners</i> ▪ <i>In their groups assist learners to use internet surf, relevant videos and charts, to research and discuss concept sketches, types of sketches, their application in the design process, as well as tools and materials used for sketching</i> ▪ <i>Ensure the AP and P learners participate in the research and discursions Assist learners to present their findings in a group presentation, allow the P learners to lead the presentation, etc.</i> vi. <i>Key Assessment:</i> ▪ <i>Level 1: List three types of sketches?</i> ▪ <i>Level 2: Explain concept sketches through any medium?</i> ▪ <i>Level 2: Explain the following? etc.</i>	
Keywords	Concept sketches, Line quality/weight, Line consistency, stroke weight and Blending stumps.
Lesson 1	
Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual	
Teacher Activity	Learner Activity
<u>Starter Activity (10 minutes)</u> <i>Show learners a short video of an artist working in his studio, let learners observe the video and discuss what they observed in the whole class</i>	
<u>Introductory Activity (15minutes)</u> <i>Based on the video watched ask learners to try their hands on any artistic works on a sketch pad and encourage learners to appreciate each other's art</i> <u>Activity 1 (40 minutes)</u> <i>In mix ability groups assist learners to use internet surf, relevant videos and charts, to research and discuss concept sketches, types of sketches, their application in the design process, as well as tools and materials used for sketching. Ensure the AP and P learners</i>	<u>Introductory Activity (15minutes)</u> <i>Learners create artistic drawings on their sketch pad and exchange with their friends for appreciation</i> <u>Activity 1 (40 minutes)</u> <i>In their groups learners use internet surf, relevant videos and charts, to research and discuss concept sketches, types of sketches, their application in the design process, as well as tools and materials used for sketching.</i>

participate in the research and discussions.	
<u>Activity 2 (40 minutes)</u> Assist learners to present their findings in a group presentation, allow the P learners to lead the presentation.	<u>Activity 2 (40 minutes)</u> In their groups learners present their findings in turns and produce a concise note on concept sketches, types of sketches, their application in the design process.
Assessment DoK aligned to the Curriculum and Subject Teacher Manual	
Level 1 assessment 1. List three types of sketches 2. State two importance of sketches in the design process Level 2 assessment 3. Explain concept sketches through any medium	
Lesson Closure <i>In completing this part, refer to the Essential Questions to check that learning has taken place.</i>	
<u>Activity (15 minutes)</u> a)	
Reflection & Remarks	
Lesson 2	
Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual	
<i>Teacher Activity</i>	<i>Learner Activity</i>
<u>Starter Activity (10 minutes)</u> Paste learners artworks they did previously in the classroom/ studio to create an art gallery and allow learners to observe and appreciate each other's art works whilst walking around the gallery	
<u>Introductory activity (25 minutes)</u> In mix ability groups, ask learners to discuss how they can use different lines to enhance their art works <u>Activity 1 (25 minutes)</u> In mix ability groups assist learners to use internet surf, relevant videos and charts, to research and discuss different types of lines used in drawing/ artworks, their characteristics and line concepts. <u>Activity 2 (25 minutes)</u> Assist learners to present their findings in a group presentation, allow the AP learners to take part in the presentation.	<u>Introductory activity (25 minutes)</u> Learners in their groups discuss how they can use different types of lines to enhance their artworks <u>Activity 1(30 minutes)</u> In their groups learners use internet surf, relevant videos and charts, to research and discuss different types of lines used in drawing artworks their characteristics and line concepts <u>Activity 2 (25 minutes)</u> Learners present their findings in a group presentation.

<u>Activity 3 (25 minutes)</u> <i>Assist learners to draw different types of lines used in drawing/ artworks using freehand in their sketch pads</i>	<u>Activity 3 (25 minutes)</u> <i>Learners draw different types of lines used in drawing/ artworks in their sketch pads</i>
Assessment DoK aligned to the Curriculum and Subject Teacher Manual	
Level 2 assessment 4. Explain the following lines used in drawing/ art works with the aid of sketches. i. Horizontal lines ii. Zigzag lines iii. Diagonal lines 5. Explain the following concepts as they apply in drawing/ arts i. Line quality/weight ii. Line consistency	
Lesson Closure <i>In completing this part, refer to the Essential Questions to check that learning has taken place.</i>	
<u>Activity (15 minutes)</u> b)	
Reflection & Remarks	

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

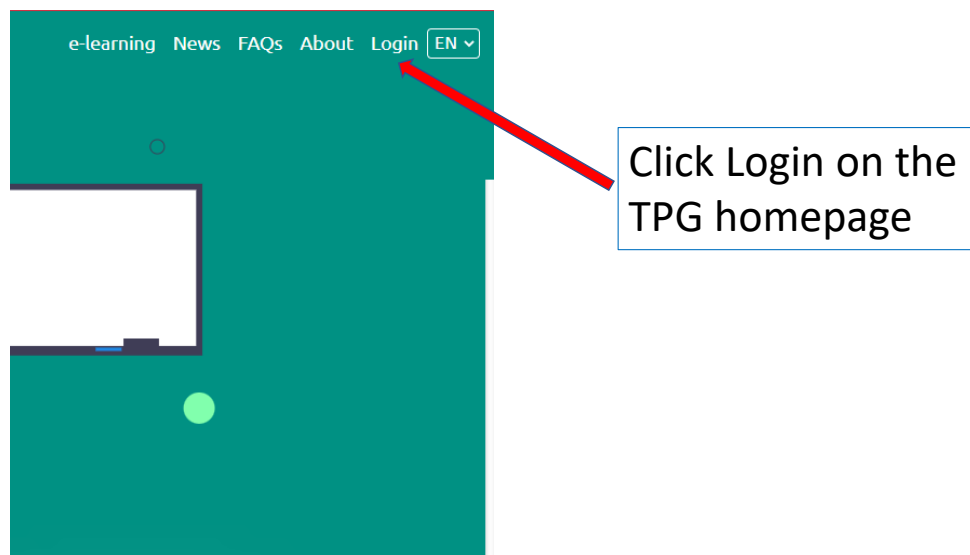
22. Areas for development

23. Next steps for teacher

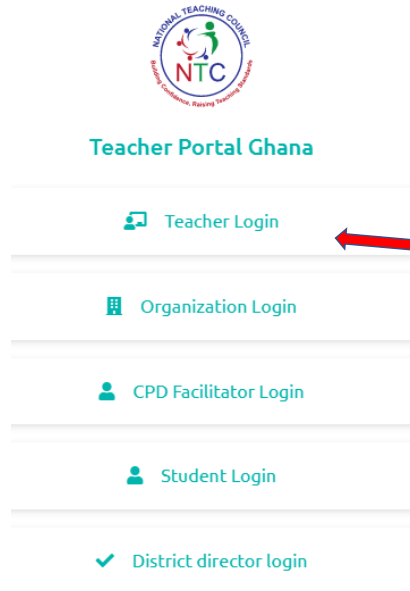
24. Additional Notes (on teacher's actions, the flow of activities, etc.)

HOW TO AWARD CPD POINTS TO DESERVING TEACHERS

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



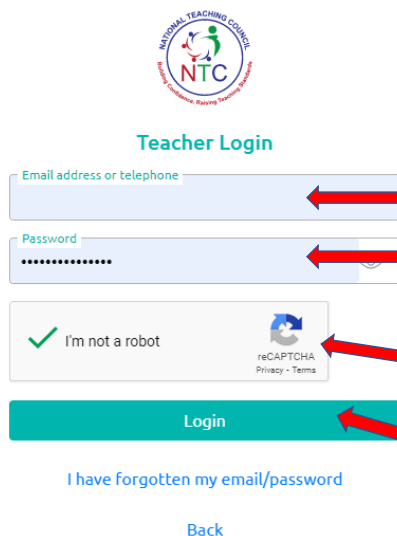
2. On the Login page, click Teacher Login



The image shows the 'Teacher Portal Ghana' login page. At the top is the NTC logo with the text 'NATIONAL TEACHING COUNCIL' and 'NTC'. Below the logo is the title 'Teacher Portal Ghana'. There are five login options listed in a vertical stack: 'Teacher Login' (with a laptop icon), 'Organization Login' (with a building icon), 'CPD Facilitator Login' (with a person icon), 'Student Login' (with a person icon), and 'District director login' (with a checkmark icon). A red arrow points from a text box to the 'Teacher Login' button.

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. At the top is the NTC logo. Below the logo is the title 'Teacher Login'. There are four input fields: 'Email address or telephone', 'Password', 'I'm not a robot' (with a checkmark icon), and a 'Login' button. A red arrow points from a text box to the 'Email address or telephone' field. Another red arrow points from a text box to the 'Password' field. A third red arrow points from a text box to the 'I'm not a robot' checkbox. A fourth red arrow points from a text box to the 'Login' button. Below the 'Login' button is a link 'I have forgotten my email/password' and a 'Back' link.

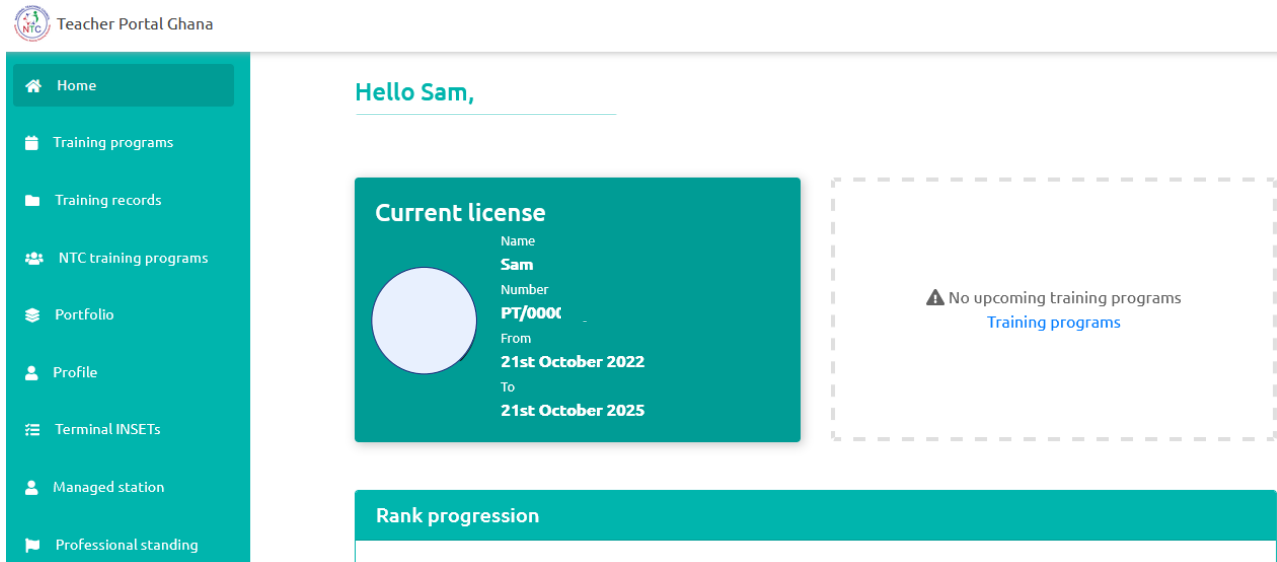
Enter your email address

Enter your password

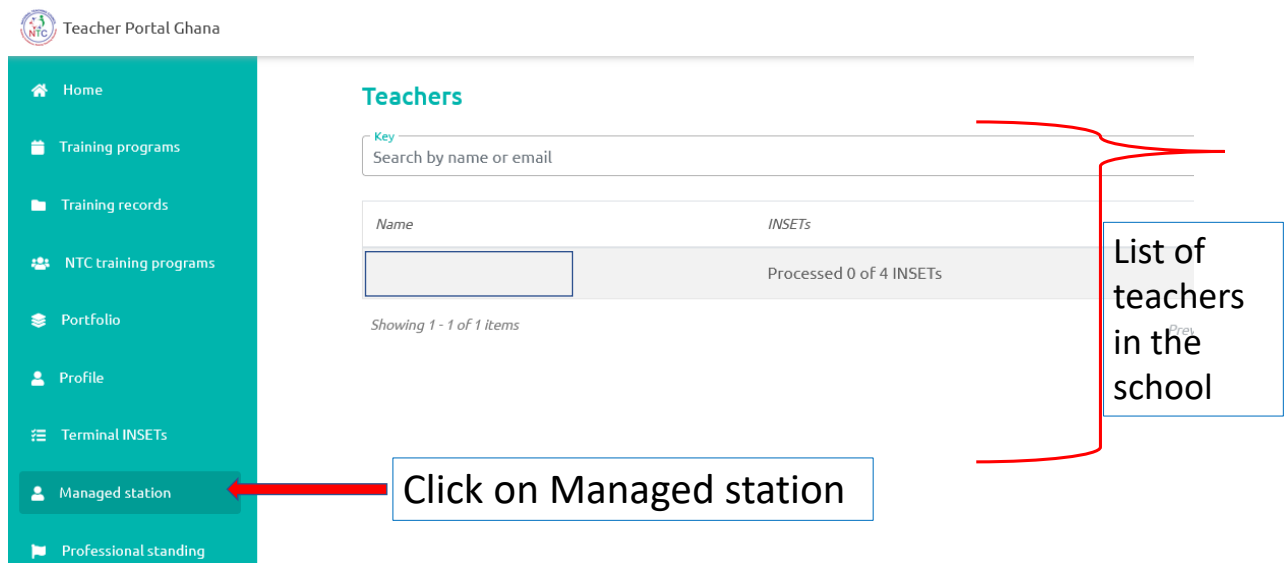
Check I'm not a robot

Click Login

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



5. To award CPD points, from the side menu tap on **Managed station** to display list of teachers



6. Click on the name of the teacher to display the page for awarding CPD points (Check image below)

Teachers /

Type	Year	Term	Processed	Processed by	Processed on	Credits	
School Based Inset (SBI)	2022/2023	1	No	---	---	---	...
Cluster Based Inset (CBI)	2022/2023	1	No	---	---	---	...
School Based Inset (SBI)	2022/2023	1	No	---	---	---	...
Department Based Inset (DBI)	2022/2023	1	No	---	---	---	...

7. Click on the 3 dots after the Credits column at the extreme right side to process (Check image below)

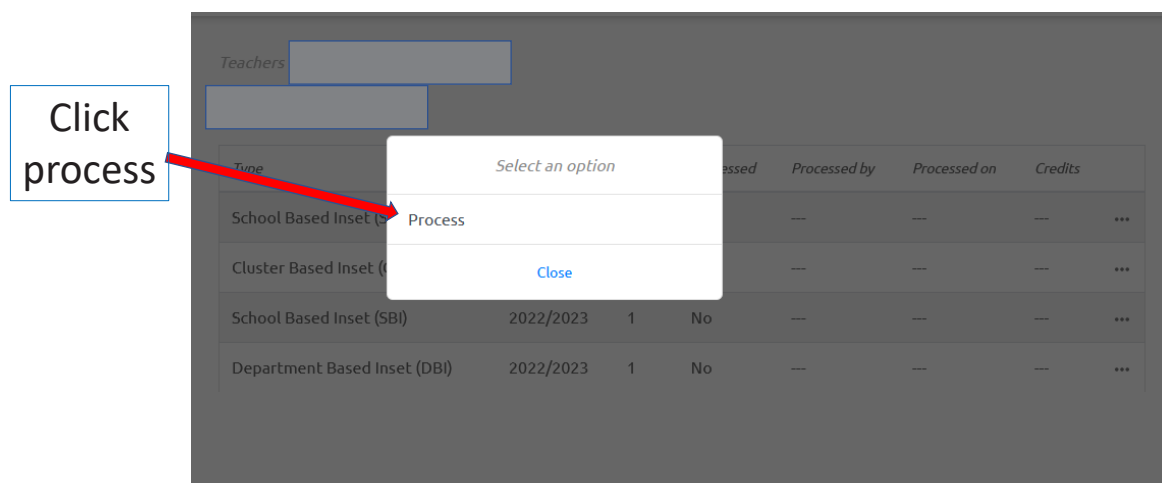
Teachers /

Click here to process

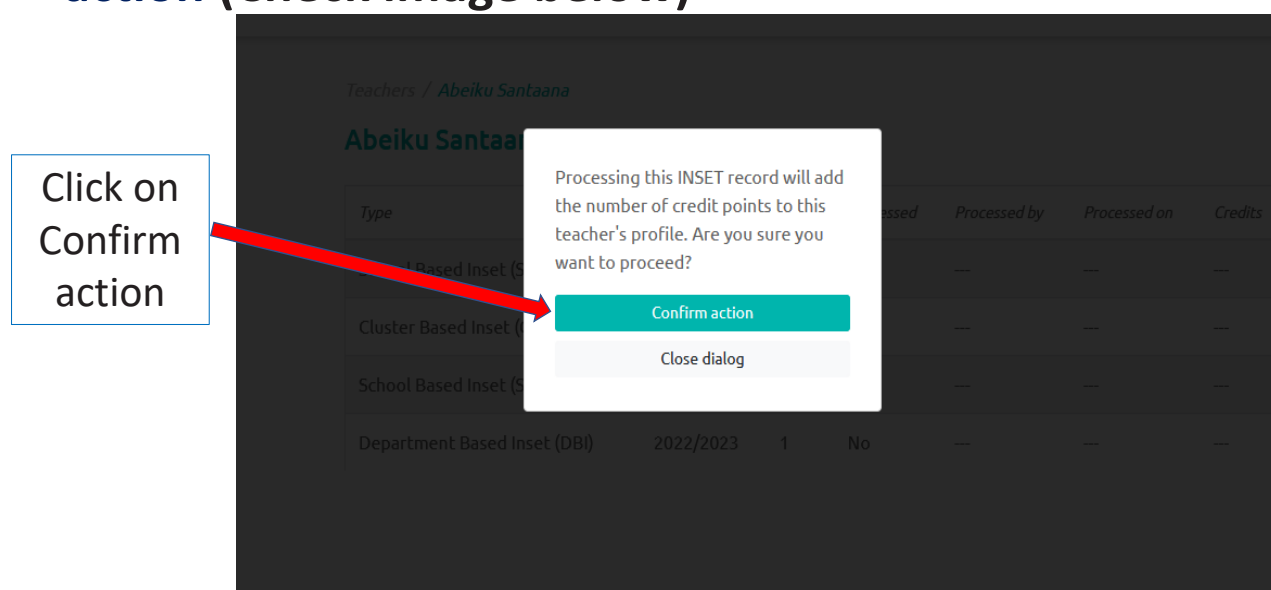
Type	Year	Term	Processed	Processed by	Processed on	Credits	
School Based Inset (SBI)	2022/2023	1	No	---	---	---	...
Cluster Based Inset (CBI)	2022/2023	1	No	---	---	---	...
School Based Inset (SBI)	2022/2023	1	No	---	---	---	...
Department Based Inset (DBI)	2022/2023	1	No	---	---	---	...

Note: You will repeat same actions for all the INSET/PLC types

8. On the new page that appears click on **Process** (Check image below)



8. On the new page that appears click on **Confirm action** (Check image below)



9. The points for the teacher will then be processed (Check image below)

Teachers /

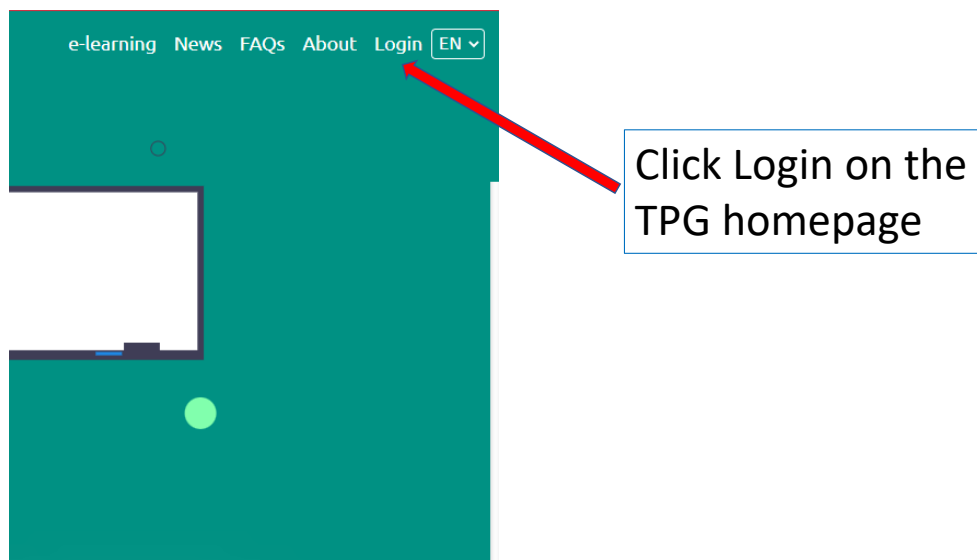
Points processed

Type	Year	Term	Processed	Processed by	Processed on	Credits	
School Based Inset (SBI)	2022/2023	1	Yes	 (Teacher)	Saturday, 15th April, 2023	1	...
Cluster Based Inset (CBI)	2022/2023	1	Yes	 (Teacher)	Saturday, 15th April, 2023	1	...
School Based Inset (SBI)	2022/2023	1	No	---	---	---	...
Department Based Inset (DBI)	2022/2023	1	No	---	---	---	...

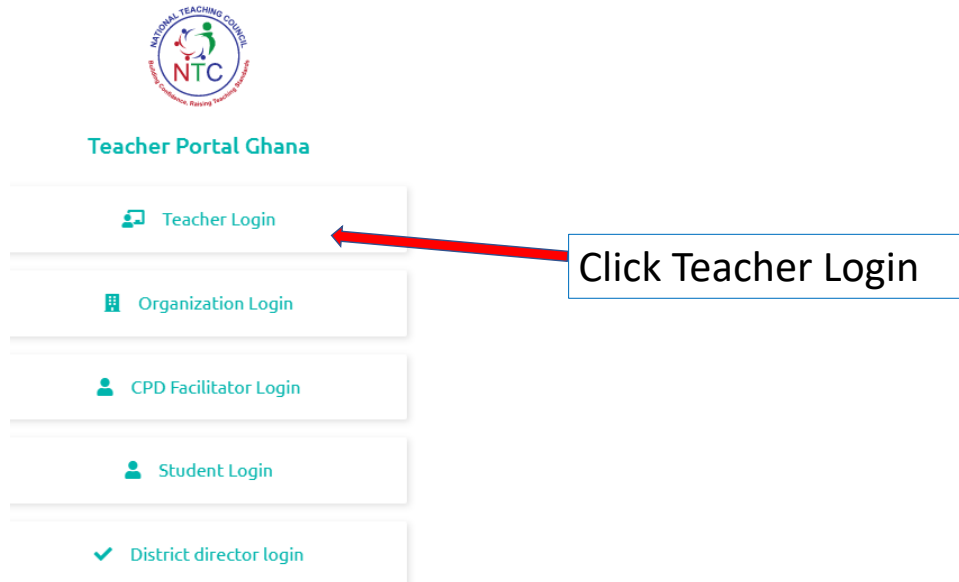
THANK YOU

HOW TO CHECK CPD POINTS AND TRAINING RECORDS ON TEACHER PORTAL GHANA

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

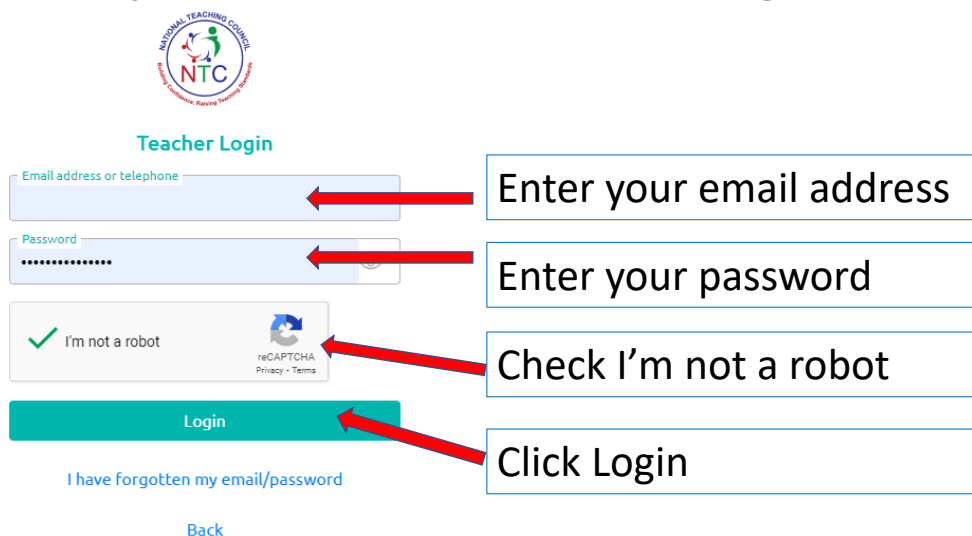


2. On the Login page, click Teacher Login



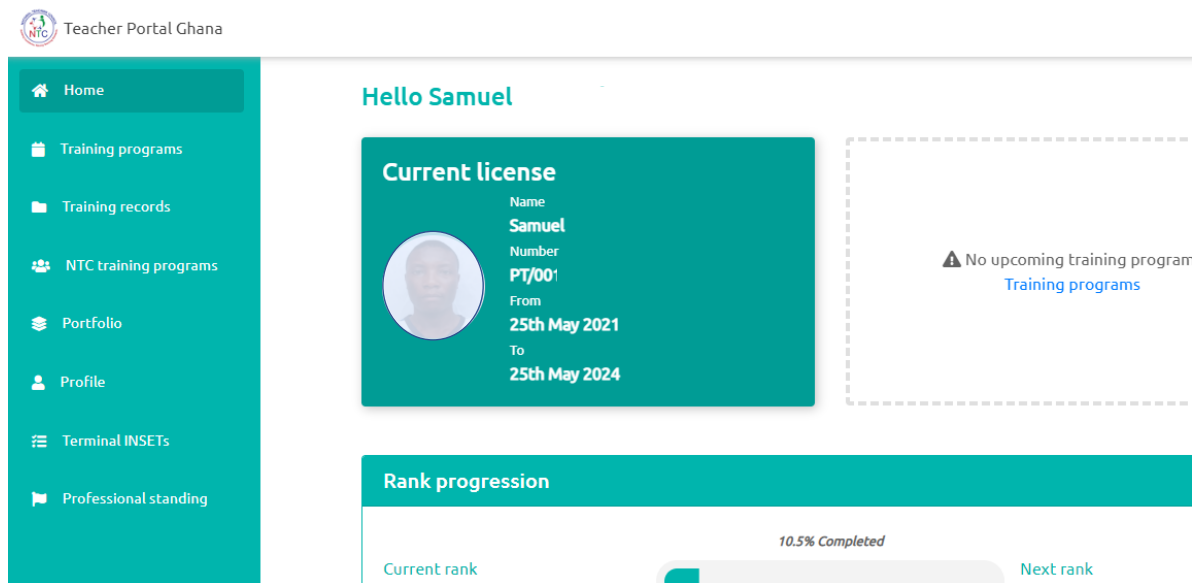
The image shows the 'Teacher Portal Ghana' login page. At the top is the NTC logo with the text 'NATIONAL TEACHING COUNCIL' and 'NTC'. Below the logo is the title 'Teacher Portal Ghana'. There are five login options listed in a vertical stack: 'Teacher Login' (with a person icon), 'Organization Login' (with a building icon), 'CPD Facilitator Login' (with a person icon), 'Student Login' (with a person icon), and 'District director login' (with a checkmark icon). A red arrow points from a text box 'Click Teacher Login' to the 'Teacher Login' button.

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



The image shows the 'Teacher Login' page. At the top is the NTC logo. Below the logo is the title 'Teacher Login'. There are four input fields: 'Email address or telephone' (with a red arrow pointing to it from a text box 'Enter your email address'), 'Password' (with a red arrow pointing to it from a text box 'Enter your password'), and a reCAPTCHA box (with a red arrow pointing to it from a text box 'Check I'm not a robot'). Below the input fields is a green 'Login' button (with a red arrow pointing to it from a text box 'Click Login'). Below the 'Login' button are two links: 'I have forgotten my email/password' and 'Back'.

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



5. To check CPD points, scroll down to **Rank progression**. You will see the CPD points progress bar and actual points accrued (Check image below)



6. To view training records, from the side menu tap on **Training records** (Check image below)

Teacher Portal Ghana

Training records
Records for training programs registered and/or attended

Total points: 1.8988

Sensitization on Education Policies	⚠ Marked as absent
Differentiated Learning	✓ Processed Credits: 1.32
Advanced Mobile Learning with Multimedia (AMLM)	✓ Processed Credits: 0.5788

Click to view training records

List of training programs

THANK YOU