

Tutor Professional Development Handbook: B.Ed. in Initial Teacher Education - Science Year 3 Semester 2

HANDBOOK FOR COORDINATORS



Wisdom, Knowledge
and Prudence





The Government of Ghana



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Foreword

In Ghana we have made great strides in transforming our teacher education system over the past few years. With each passing year the changes brought about through these reforms are maturing, embedding, and sustaining. Once the first B.Ed. graduates from Colleges of Education enter basic school classrooms from 2022 onwards, I am sure that as a nation, we will truly start to see the benefits of these reforms.

The success of national reforms depends on individual tutors and individual teachers working in classrooms across the country every day. The progress that we want to see will only be brought about through the consistent and regular application of the professional knowledge, professional practice and professional values and attitudes set out in the National Teachers' Standards (NTS).

This is where the Tutor Professional Development Handbooks, written by tutors and university lecturers, have an important role to play in helping tutors to reflect critically on their methods of teaching and learning.

Critical thinking and reflection is an area of weakness in parts of our current education system. Colleges of Education take secondary school graduates and, over four years of the B.Ed., shape them into professional teachers. A recent '21st Century Skills assessment' of a representative sample of Ghanaian Senior High School students found that 'critical thinking and problem solving' was the area where they performed least well. Lesson observation of these students' teachers in the same Senior High Schools found that 'employs a variety of instructional strategies that encourage student participation and critical thinking' was the area of the NTS where these teachers consistently scored lowest.

Teaching matters. If we want our Colleges of Education to develop teachers who can think critically and solve problems then tutors must model these expected behaviours in their lessons so that they create an environment where our teachers develop these competencies and, ultimately, use these competencies to develop critical thinking in our basic schools.

This latest set of Professional Development Handbooks, developed by four mentoring universities (University for Development Studies, University of Education, Winneba, University of Ghana and Kwame Nkrumah University of Science and Technology) and tutors from their affiliated Colleges of Education, are the third set of Professional Development Handbooks to be developed since Transforming Teaching, Education & Learning (T-TEL) became a Ghanaian not-for-profit organisation. I would like to take this opportunity to thank both the Ghana Tertiary Education Commission and Mastercard Foundation for making all this possible.

Robin Todd
Executive Director, T-TEL
February 2022

Year Three Semester Two

Writing the weekly PD sessions: Guidance for the Subject Writing Leads (SWL).

- The PD sessions are an important way to ensure effective implementation of the key principles and practices of the B.Ed. *It is critical that what SWL write provides direct subject and B.Ed. specific guidance, so SL/HoD can support and scaffold tutors learning and professional development.*
- The sessions need to provide *the PD* opportunity for tutors fully understand what they need to teach and to planning together to make sure the new B.Ed. courses are taught well
- Developments since the manuals were written require SWL to add additional detail to sessions. Specifically, this means a focus on:
 - Integrating GESI to ensure the needs of females, males and students with special education needs are well catered for
 - Integrating ICT and 21c skills to ensure students learn to use technology effectively to support their own and pupils' learning
 - National Teacher Education Assessment Policy (NTEAP)
 - the three assessment components *for the semester* for **EACH** course: subject project (30%), subject portfolio (30%) and end of semester examination (40%). These need to be introduced in session 1. PD writers will need to provide an example portfolio and project assessment components if these are not written into the course manuals (See Appendix 2: Course Assessment Components at a Glance).
 - integrating the use of continuous assessment designed to support student teacher learning in each session
- The PD session template provides the frame for SWL to write the guidance for the Subject Leads (SL)/HoD on how to lead and support the professional development of tutors in the weekly sessions for student teachers
- Age level specialisms are introduced in Y2S1. To ensure appropriate subject and age level focus for the PD sessions:
 - there will be subject specialists writing for each subject
 - where subjects are grouped direct reference needs to be made to Example of activities in the course manuals for each subject
 - where there are different age levels direct reference needs to be made to the course manuals for activities for each age level
- STS is six days in year 2 Semester 1 and involves observation and working with small groups subjects should include STS activities
- SL/HoD need to have details of the resources needed for the activities
- Appendix 1: The PD writing checklist, for checking that the PD sessions address all required issues.

Appendix 2: Course Assessment Components at a Glance, to help ensure the course assessments are accurately introduced

AGE LEVELS: JHS AND UPPER PRIMARY

Name of courses/Subject/s:

1. JHS ---Teaching and Assessment of Science
2. Upper Primary – Teaching and Assessment of Science

Lesson Tittles:

JHS: Recap of Course, Preparing to Teach Integrated Science and Introduction to New Course Manual

Upper Primary: Review of Mechanics and Teaching Concepts in Heat

Tutor PD Session for Lesson 1 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1(a) Introduction to the semester – in session one</p> <ul style="list-style-type: none"> • Introduction to the purpose of the specialisms: EG, UP and JHS • Overview of subject/s age level/s to be covered in the PD sessions and guidance on grouping tutors according to the 	<p>INTRODUCTION 1 (a)</p> <p>1.1 Discuss with tutors the purpose related to the various specialisms from the course manuals.</p> <p><i>E.g. The science programme is designed to transform the JHS and Upper primary teachers into one imbued with the right knowledge, technology, pedagogy, innovation, content and the core values and attitudes to promote inclusivity and inspire active learning at</i></p>	<p>1.1 Discuss the purpose related to the two specialisms (JHS and Upper Primary).</p>	<p>20 mins</p>

<p>subject/s, age levels/s.</p> <ul style="list-style-type: none"> • Introduction to the course manual/s • Overview of course learning outcomes • Introduction to the two continuous assessment components to be undertaken in each subject during the semester (See Course Assessment Components at a Glance Appendix 2) NB in subjects where there are no assessment components in the course manuals examples will need to be provided for SL/HoD. 	<p><i>the Upper primary and JHS levels.</i></p> <p>1.2 Ask tutors to sit according to their subject specialisms NOTE: Grouping for the semester’s PD sessions will be done according to various grade levels or specialisms. Thus, Upper primary and JHS. Courses to be covered during this semester’s PD sessions are:</p> <ol style="list-style-type: none"> 1. Upper Primary – Teaching and Assessment of Science 2. JHS --- Teaching and Assessment of Science <p>1.3 Ask tutors to read course descriptions, course learning outcomes and their corresponding learning indicators from their respective course manuals.</p> <p><i>NOTE: This should enable tutors to, for instance, tell the relationship between the course learning outcomes and their corresponding learning indicators.</i></p> <p>1.4 Discuss with tutors the two assessment components (Subject project and subject portfolio) for the semester.</p>	<p>1.2 Sit in groups according to your grade levels or specialisms.</p> <p>1.3 Read the course descriptions, course learning outcomes and their corresponding learning indicators from your respective course manuals.</p> <p>1.4 Discuss the two assessment components (Subject project and subject portfolio) for the semester.</p>	
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<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of any distinctive aspects of the lesson/s, • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>NOTE: <i>(Subject Portfolio: Overall weighting of project = 30% Weighting of individual parts of portfolio out of 100. Three (3) items of work produced during the semester selected by student teachers with tutor support during the semester as best examples of their progress and 200-word reflection on the items i.e.</i> <i>i. (a) Each of the three (3) items selected by the student teacher is 30 % (90%).</i> <i>i. (b) Presentation and organization of portfolio 10%.</i></p> <p style="text-align: center;">OR</p> <p><i>ii. (a). Each of the two (2) items selected by the student teacher is 30 % (60%).</i> <i>ii(b)Mid semester assessment 30%</i> <i>ii. (c) Presentation and organization of portfolio 10%.</i></p> <p><i>Subject Project: Overall weighting of project = 30% Weighting of individual parts of project out of 100%</i></p> <ul style="list-style-type: none"> • <i>Introduction – 10%</i> • <i>Methodology – 20%</i> • <i>Substantive section – 40%</i> • <i>Conclusion – 30%)</i> <p>Suggested examples for subject portfolio</p> <ul style="list-style-type: none"> • Lab reports, • Research reports • Charts, graphs created • Designs, TLMS, 	<p>NOTE: <i>(Subject Portfolio: Overall weighting of project = 30% Weighting of individual parts of portfolio out of 100. Three (3) items of work produced during the semester selected by student teachers with tutor support during the semester as best examples of their progress and 200-word reflection on the items i.e.</i> <i>i. (a) Each of the three (3) items selected by the student teacher is 30 % (90%).</i> <i>i. (b) Presentation and organization of portfolio 10%.</i></p> <p style="text-align: center;">OR</p> <p><i>ii. (a). Each of the two (2) items selected by the student teacher is 30 % (60%).</i> <i>ii(b)Mid semester assessment 30%</i> <i>ii. (c) Presentation and organization of portfolio 10%.</i></p> <p><i>Subject Project: Overall weighting of project = 30% Weighting of individual parts of project out of 100%</i></p> <ul style="list-style-type: none"> • <i>Introduction – 10%</i> • <i>Methodology – 20%</i> • <i>Substantive section – 40%</i> • <i>Conclusion – 30%)</i> <p>Suggested examples for subject portfolio</p> <ul style="list-style-type: none"> • Lab reports, • Research reports • Charts, graphs created • Designs, TLMS, 	
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	<p>posters, worksheets</p> <ul style="list-style-type: none"> Integrating indigenous knowledge into science teaching. <p><i>Start the review of the prior learning with an ice breaker. (E.g. Sing a song..... Something Pass, Something pass through my body to my heart).</i></p> <p>INTRODUCTION 1 (b)</p> <p>1.5 Ask tutors in their respective groups to write one thing they learnt in Year 3 semester 1 PD and how they applied it in their teaching sessions on a post it card.</p> <p>1.6 Ask tutors to provide examples of how students were prepared to employ the various strategies and skills during the basic school classroom work including STS Field Experience in year 3 semester 1 and how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.6.1 Ask tutors to post the cards on the wall for gallery walk.</p> <p>1.7 Ask tutors to read and discuss the introductory sections of the lesson up</p>	<p>posters, worksheets</p> <ul style="list-style-type: none"> Integrating indigenous knowledge into science teaching. <p>1.5 Write one thing you learnt in Year 3 semester 1 PD sessions on a post it card and show how you applied it in your teaching. Post the cards on the wall for gallery walk.</p> <p>1.6 Provide examples of how students were prepared to employ the various strategies and skills during the basic school classroom work including STS Field Experience in year 3 semester 1 and how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.6.1 Post your cards on the wall for gallery walk.</p> <p>1.7 Read and discuss the introductory sections of the lesson up to learning</p>	
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	<p>to learning indicators from their course manuals and explain how they are related to student teachers' relevant previous knowledge.</p> <p><i>Note: The topics and lesson descriptions for lesson 1 at the various levels are: JHS-: Topic – Recap of Year 3 semester 1 course (Preparing to teach integrated science) and introduction to the new course manual. (Year3 semester 2).</i></p> <p><i>Lesson Description - The lesson provides the student teacher the opportunity to: review the previous course on preparing to teach and introduction to the new course manual for the semester. This is done through the use of appropriate pedagogies.</i></p> <p><i>UPPER PRIMARY: Topic- Review of Mechanics and Teaching concepts in Heat</i></p> <p><i>Lesson Description - This lesson is intended to review and embed principles and concepts acquired in earlier years on mechanics and heat.</i></p> <p>1.8 Ask tutors to identify and discuss the distinctive features of lesson 1 for the various levels from the course manual.</p>	<p>indicators from your course manuals and explain how they are related to student teachers' relevant previous knowledge.</p> <p>1.8 Identify and discuss the distinctive features of lesson 1 from your various levels.</p>	
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	<p><i>UPPER PRIMARY:</i></p> <ul style="list-style-type: none"> • <i>Mechanics</i> • <i>Heat</i> • <i>Sources of heat</i> • <i>Effect of heat loss and heat gain</i> 		
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to list and discuss the major concepts in the lesson.</p> <p><i>E.g.</i></p> <p><i>UP:</i></p> <ul style="list-style-type: none"> • <i>The concept of heat</i> • <i>Sources of heat</i> • <i>The concept of heat lost and heat gain</i> <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: One of the misconceptions related to the concepts is:</i></p> <p><i>UP....Heat and temperature are the same.</i></p> <p><i>Solution:</i></p> <p><i>Heat is thermal energy and temperature is the degree of hotness or coldness</i></p> <p><i>Conduction and convection are the same.</i></p> <p><i>Solution:</i></p> <p><i>Conduction occurs in solids and convection also occur in liquids.</i></p> <p>2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve</p>	<p>2.1 List and discuss the major concepts in the lesson.</p> <p>2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p>2.3 Identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve</p>	15 mins

	<p>the LOs and the LIs of the lesson.</p> <p><i>E.g. (1) Demonstration / practical (2). Group presentation</i></p>	<p>the LOs and the LIs of the lesson.</p>	
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning 	<p>3.1 Guide tutors to read and discuss the teaching and learning activities in the course manuals for the various group levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1 Assist tutors to identify areas that need clarification.</p> <p>3.2 Lead tutors to discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 1.</p> <p><i>Note: Ensure that the language used in instructing learners to carry out the varied activities is gender responsive. E, g. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and</p>	<p>3.1 Read and discuss the teaching and learning activities in your course manuals.</p> <p>3.1.1 Identify areas that need clarification.</p> <p>3.2 Discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 1.</p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of</p>	

<ul style="list-style-type: none"> • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning • Tutors should be expected to have a plan for the next lesson for student teachers 	<p>learning activities of the lesson would be addressed.</p> <p>E.g.</p> <ol style="list-style-type: none"> 1. <i>Pay attention to slow learner.</i> 2. <i>Assign leadership roles to females and males equally.</i> <p>3.4 Ask tutors to identify which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities. <i>e.g. (1) The use of power point to prepare and present lessons.</i> <i>(2) Development of collaborative and communicative skills through group works and presentations.</i></p> <p>3.5 Ask tutors to read the assessment activities in the various manuals and identify areas that require clarification.</p> <p><i>Note: (1) Inform tutors to ask student teachers to prepare power point on EFFECTS OF HEAT ON SUBSTANCES AROUND THEM.</i> <i>These could be added to their subject portfolio.</i> <i>(2). Inform tutors to ask student teachers to prepare a LESSON PLAN ON THE TOPIC/SUB-STRAND HEAT</i></p>	<p>the lesson would be addressed.</p> <p>E.g.</p> <ol style="list-style-type: none"> 1. <i>Pay attention to slow learner.</i> 2. <i>Assign leadership roles to females and males equally</i> <p>3.4 Identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>3.5 Read the assessment activities in your various manuals and identify areas that require clarification.</p> <p><i>Note: (1) Inform your student teachers to prepare power point presentation on EFFECTS OF HEAT ON SUBSTANCES AROUND THEM.</i> <i>These could be added to their subject portfolio.</i> <i>(2). Inform your student teachers to prepare a LESSON PLAN ON THE TOPIC/SUB-STRAND HEAT</i></p>	
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	<p><i>assuming they are to teach this concept in their basic school classroom. This could be one of their subject projects for the semester.</i></p> <p>3.6 Lead tutors in identifying the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms. E.g. Games, Audio-visuals from YouTube, samples of individual tutor learning plans. Note: <i>Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN)</i></p> <p>3.7 Ensure that everybody has a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</p>	<p><i>assuming they are to teach this concept in their basic school classroom. This could be one of their subject projects for the semester.</i></p> <p>3.6 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>3.7 Have concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors need to identify critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson and report on observations made during next PD session.</p> <p>4.2 Find out if anything relating to Lesson 1 needs to be discussed and clarified. Note: 1. <i>In the case of unresolved issues consult the subject writing leads</i></p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p> <p>4.2 Discuss and clarify anything relating to Lesson 1.</p>	15 mins

	<p>2. <i>Encourage tutors to read lesson 2 from the PD manual and find relevant materials for the next session.</i></p>		
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AGE LEVELS: JHS, UPPER PRIMARY

Name of courses/Subject/s:

1. 1. JHS ---Teaching and Assessment of Science
2. Upper Primary – Teaching and Assessment of Science

Lesson Tittles:

Upper Primary: Teaching Concepts in Magnetism

JHS Biology: Post-teaching practice discussion

Tutor PD Session for Lesson 2 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of any distinctive 	<p>INTRODUCTION 1 (b)</p> <p>Icebreaker: Ask tutors to share any experience they have had with a science teacher or teacher during their early school days which has influences their perception of the subject.</p> <p>1.1 Ask tutors to tell how useful the lesson 1 PD session was and how it influenced their teaching over the week. Ask tutors to mention how students were well</p>	<p>1.1 Write one thing you learnt from lesson 1 and how you applied it in your teaching at the various grade levels on a post in card. Mention how students were well</p>	20 mins

<p>aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>placed to employ the various strategies and skills during the Basic School classroom work including STS Field Experience.</p> <p>1.2 Ask tutors to read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p><i>Note: UP</i></p> <p><i>Lesson Description: This lesson introduces the concept magnetism as a source of energy. This is to further reinforce methods used in Lessons 1 to enable student teachers acquire relevant pedagogic skills in the teaching of magnets in nature to primary school learners</i></p> <p>1.3 Ask tutors to identify and discuss the distinctive features of lesson 2 for the various levels from the course manual such fundamental concepts and developing awareness of equity and diversity issues and issues on ICT.</p> <p><i>Distinctive aspects include the interactive nature of the activities, emphasizing on connecting concepts: UPPER PRIMARY:</i></p>	<p>placed to employ the various strategies and skills during the Basic School classroom work including STS Field Experience.</p> <p>1.2 Read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>1.3 Identify and discuss the distinctive features of lesson 2 for the various levels from your course manual.</p>	
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	<ul style="list-style-type: none"> • <i>Magnets</i> • <i>Pedagogic</i> 		
<p>1. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to be in pairs to list the major concepts in the lesson and share with the whole group.</p> <p><i>UPPER PRIMARY:</i></p> <ul style="list-style-type: none"> • <i>Effects of Magnets</i> • <i>Characteristics of Magnets</i> <p>2.3 Ask tutors to use Think-Pair-Share to outline possible challenging areas in teaching and assessing the lesson.</p> <p>2.3 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>Possible challenging:</i> <i>JHS: Student-teachers may:</i></p> <ol style="list-style-type: none"> 1. Have a notion that the teachers know everything and must 'give out' everything. 2. Not developed, fully, the skill of preparing and identifying appropriate assessment strategies. <p><i>NB: Some of the misconceptions related to the concepts are:</i></p> <p><i>UP.... Concept of metal</i></p> <ol style="list-style-type: none"> 1. <i>Misconception: All metals are attracted to a magnet.</i> 	<p>2.1 In pairs, list the major concepts in the lesson and share with the whole group.</p> <p>2.2 Think-Pair-Share to outline possible challenging areas in your teaching and assessing the lesson.</p> <p>2.3 Discuss the potential misconceptions and barriers with respect to the concepts listed.</p>	15 mins

	<p><i>Solution: Only iron, nickel and cobalt and their alloys are attracted to a magnet.</i></p> <p>2. <i>Misconception: All magnets are made of iron.</i> <i>Solution: Iron is a soft magnetic material - wouldn't work</i></p> <p>2.4 Ask tutors in their respective group levels to think pair share the most appropriate teaching strategies that can be employed to best explain the new concepts.</p> <p><i>E.g:</i></p> <ol style="list-style-type: none"> 1. <i>Talk for learning</i> 2. <i>Practical Activities: Working with Magnets to create magnetic fields using iron fillings, pin/nails, plain sheets and any relevant materials</i> 3. <i>Simulations, video presentations</i> 4. <i>Group presentations of reflective reports and discussions</i> <p>2.5 Support tutors to identify GESI responsive resources such as supporting staff with experts in sign language as well as resources such as teacher and learner resource packs, textbooks, course manual, recorded video, manila cards, permanent markers, graph sheet, etc</p>	<p>2.4 Think pair share the most appropriate teaching strategies that you can employed to best explain the new concepts.</p> <p>2.5 Identify GESI responsive resources such as supporting staff with experts in sign language as well as resources</p>	
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<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, 	<p>3.1 Ask tutors to read and discuss teaching and learning activities for the lesson taking into account GESI (involving everybody, female take leading role presentation in their discussion group) issues.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1 Let tutors read the activities outlined in their course manuals and identify areas that require clarification.</p> <p><i>Strategies to clarify may include investigation, internet surf on the phone, etc.</i></p> <p>3.2 Lead tutors to discuss in their various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 2.</p> <p><i>Note: Ensure that the language used in instructing to carry out the varied activities are gender responsive.</i> <i>E, g. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p>	<p>3.1 Read and discuss the teaching and learning activities in your course manuals for the various group levels.</p> <p>3.1.1 Read the activities outlined in your course manuals and identify areas that require clarification</p> <p>3.2 Discuss in your various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 2.</p>	
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<p>questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used.</p> <p>Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ● Tutors should be expected to have a plan for the next lesson for student teachers 	<p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g. 1. Equal representation of males and females or mix ability grouping as appropriate.</i> <i>2. Assign leadership roles to females.</i></p> <p>3.4 Ask tutors to brain-write on a sticky paper some pedagogical approaches and their related core competencies likely to be inculcated in students and for that matter Basic School learners.</p> <p><i>Eg. Strategy: Reflective report writing, Simulations, video presentations</i> <i>Note: Use interactive and Collaborative group work (with the aid of ICT tools and other manipulatives to explore magnet concept.</i></p> <p>3.5 Ask tutors to read the assessment activities in the various manuals and identify areas that require clarification.</p> <p><i>Note: (1) Inform tutors to ask student teachers to develop specific lesson for a difficult concept.</i> <i>These could be added to their subject portfolio.</i></p> <p>3.6 Ask tutors to pair up and model a presentation of the various concept using ICT tools and taking into consideration GESI</p>	<p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p>3.4 Brain-write on a sticky paper some pedagogical approaches and their related core competencies likely to be inculcated in students and for that matter Basic School learners.</p> <p>3.5 Read the assessment activities in your various course manuals and identify areas that require clarification.</p> <p>3.6 Pair up and model a presentation of the various concept using ICT tools and taking into consideration GESI issues (eg. Both gender</p>	
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	<p>issues (eg. Both gender taking the leading roles in their groups and in the demonstration of the use of ICT tools) to teach their lessons plans.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. <i>Equal representation of males and females in pictures.</i> 2. <i>Make sure the resources are enough and appropriate to all learners (males, females and physically challenge)</i> <p><i>Ensure that everybody has understood the process for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	<p>taking the leading roles in their groups and in the demonstration of the use of ICT tools) to teach your lessons plans.</p> <p><i>Ensure that you have understood the process for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors need to identify critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson and report on observations made during next PD session.</p> <p>4.2 Find out if anything relating to Lesson 2 needs to be discussed and clarified.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. <i>In the case of unresolved issues consult the subject writing leads.</i> 2. <i>Encourage tutors to read lesson 3 from the PD manual and find relevant materials for the next PD session.</i> 	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p> <p>4.2 Discuss and clarified anything relating to Lesson 2 that needs to be clarified.</p> <p><i>Read lesson 3 from the PD manual and find relevant materials for the next session.</i></p>	15 mins

AGE LEVELS: JHS, UPPER PRIMARY

Name of courses/Subject/s:

1. Upper Primary – Teaching and Assessment of Science
2. JHS --- Teaching and Assessment of Science

Lesson Tittles:

Upper Primary: Teaching reproduction in Humans

JHS: Further review of the integrated science curriculum

Tutor PD Session for Lesson 3 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of 	<p>Start the review of the prior learning with an ice breaker.</p> <p>1.1 Ask tutors to discuss how useful the previous PD session was and how it influenced their teaching in lesson 3 in their various grade levels.</p> <p>1.2 Ask tutors to provide examples of how students will be prepared to employ the</p>	<p>1.1 Discuss how useful the previous PD session was and how it influenced their teaching in lesson 3 in your various grade levels.</p> <p>1.2 Provide examples of how students will be prepared to employ the various strategies and</p>	<p>20 mins</p>

<p>any distinctive aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Ask tutors to invite their critical friends to share their observations of a lesson for a short discussion.</p> <p>1.4 Ask tutors to read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p><i>Note: Lesson 2 topics and lesson descriptions for the various levels are: JHS: Topic - Further review of the integrated science curriculum</i></p> <p><i>Lesson Description: In the classroom, tutors put greater emphasis on ensuring that learning is well structured than on student-oriented activities which give them more autonomy. Both of these teaching practices are emphasised more than enhanced learning activities such as project work.</i></p> <p><i>Upper Primary: Topic - Teaching reproduction in Humans Lesson Description:</i></p>	<p>skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Invite your critical friends to share their observations for a short discussion.</p> <p>1.4 Read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p>	
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	<p><i>The lesson is to introduce student teachers to the human body and propagation of life. The lesson involves face-to-face discussions, analyzing videos and independent studies.</i></p> <p><i>(Refer to the course manual for JHS, Upper primary introductions/descriptions.</i></p> <p><i>N.B. Inform tutors that the grouping for this PD session will be done based on the following levels: upper primary and JHS.</i></p> <p>1.4.1 Ask tutors to discuss the CLOs and LIs of the learning areas to be covered in the PD sessions for lesson 3 so that they become familiar with them.</p> <p>1.5 Ask tutors to read the content to be covered for lesson 3 in their respective groups in order to acquaint themselves with the areas.</p> <p>1.6 Lead tutors to identify the distinctive aspects of the content of the lessons. <i>E.g. Distinctive aspects of the lessons JHS.....</i></p> <p><i>Discussing the Basic school Integrated Science curriculum.</i></p>	<p>1.4.1 Discuss the CLOs and LIs of the learning areas to be covered in your PD sessions for lesson 3.</p> <p>1.5 Read the content to be covered for lesson 3 in their respective groups in order to acquaint themselves with the areas.</p> <p>1.6 Identify the distinctive aspects of the content of the lessons.</p>	
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	<p><i>UP</i></p> <ul style="list-style-type: none"> • <i>Observable reproductive parts of humans</i> • <i>Non-observable reproductive parts of humans</i> 		
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to be in pairs and list and discuss the major concepts in the lesson and share with the whole group.</p> <p><i>E.g.</i></p> <ul style="list-style-type: none"> • <i>Reproduction in humans</i> <p><i>(Refer to the course manual for Upper primary and JHS lesson for their respective new learnings).</i></p> <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: Some of the misconceptions and barriers related to the concepts are:</i></p> <p><i>Misconceptions:</i></p> <p><i>UP....</i></p> <ol style="list-style-type: none"> 1. <i>Misconception: Plants reproduce only asexually</i> <p><i>Solution: No</i></p> <ol style="list-style-type: none"> 2. <i>Misconception: Reproduction is all to do with having babies."</i> <p><i>Solution: Students often assume that reproduction is simply a way of increasing population size. Emphasis should be placed on the idea that cell division of body cells is also a form of reproduction and is</i></p>	<p>2.1 In pairs, list and discuss the major concepts in the lesson and share with the whole group.</p> <p>2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: Some of the misconceptions and BARRIERS related to the concepts are:</i></p> <p><i>Misconceptions:</i></p> <p><i>UP....</i></p> <ol style="list-style-type: none"> 1. <i>Misconception: Plants reproduce only asexually</i> <p><i>Solution: No</i></p> <ol style="list-style-type: none"> 2. <i>Misconception: Reproduction is all to do with having babies."</i> <p><i>Solution: Students often assume that reproduction is simply a way of increasing population size. Emphasis should be placed on the idea that cell division of body cells is also a form of reproduction and is</i></p>	15 mins

	<p><i>essential for repair and growth of the body.</i></p> <p>2.3 Ask tutors to suggest alternative teaching strategies that can be employed to best explain the new concepts.</p> <p><i>E.g. Simulations, video presentations</i></p>	<p><i>essential for repair and growth of the body.</i></p> <p>2.3 Suggest alternative teaching strategies that can be employed to best explain the new concepts</p>	
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least 	<p>3.1 Ask tutors to read and discuss the teaching and learning activities in the course manuals for the various group levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1 Ask tutors to identify areas that need clarification.</p> <p>3.2 Lead tutors to discuss in their various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 3.</p> <p><i>Note:</i></p> <p><i>1. Take into account that some students are slow learners and others are gifted.</i></p>	<p>3.1 Read and discuss the teaching and learning activities in your course manuals for the various group levels.</p> <p>3.1.1 Identify areas that need clarification.</p> <p>3.2 Discuss in your various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of your course manual for lesson 3.</p> <p><i>Note:</i></p> <p><i>1. Take into account that some students are slow learners and others are gifted.</i></p>	40 mins

<p>two opportunities to use continuous assessment to support student teacher learning</p> <ul style="list-style-type: none"> • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning • Tutors should be expected to have a plan for the next lesson for student teachers 	<p>2. <i>Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>Give equal chances to females and males to ask and also answer questions in class.</i> 2. <i>Assign leadership roles to females where possible.</i> <p>3.4 Ask tutors to identify which, 21st century skills can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>The use of power point/excel to do presentations. Use Microsoft word to do assignments as well as teaching and learning resources.</i> 2. <i>Development of problem-solving skills and critical thinking through the use of leading and probing questions.</i> 	<p>2. <i>Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>Give equal chances to females and males to ask and also answer questions in class.</i> 2. <i>Assign leadership roles to females where possible.</i> <p>3.4 Identify which, 21st century skills can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>The use of power point/excel to do presentations. Use Microsoft word to do assignments as well as teaching and learning resources.</i> 2. <i>Development of problem-solving skills and critical thinking through the use of leading and probing questions.</i> 	
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	<p>3.5 Ask tutors to read the assessment activities in the various manuals and identify areas that require clarification.</p> <p><i>Note: (1) Inform tutors to ask student teachers to draw a fully labelled diagram of a named reproductive organ which clearly depicts the four. These could be added to their subject portfolio.</i></p> <p><i>(2) Encourage tutors to instruct student -teachers to work in groups (in mixed ability, & and pay attention to the composition of females and males during the group work) to use either concept maps, simulations or multimedia presentations to design games and/or rhymes that can teach the various concepts at Upper primary/JHS levels. This could be one of their subject projects for the semester.</i></p> <p>3.5 Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g, Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p><i>Note:</i> <i>1. all teaching and learning material should be GESI</i></p>	<p>3.5 Read the assessment activities in your various manuals and identify areas that require clarification.</p> <p><i>Note: (1) Ask student teachers to draw a fully labelled diagram of a named productive organ which clearly depicts the four whorls. These could be added to their subject portfolio.</i></p> <p><i>(2) Encourage tutors to instruct student -teachers to work in groups (in mixed ability, & and pay attention to the composition of females and males during the group work) to use either concept maps, simulations or multimedia presentations to design games and/or rhymes that can teach the various concepts at Upper primary/JHS levels. This could be one of their subject projects for the semester.</i></p> <p>3.5 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p><i>Note:</i> <i>1. all teaching and learning material should be GESI</i></p>	
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	<p><i>responsive by being bold, clear, colourful and big enough to be easily noticeable by all learners.</i></p> <p><i>2. Equal representation of males and females in group formation.</i></p> <p><i>3. Make sure the resources are appropriate and enough to all learners (males, females and physically challenge)</i></p> <p><i>4. Refer to theme 1 for different types of games to be used to teach the concepts.</i></p> <p><i>Note: Ensure that every member of the various groups prepares a concrete plans for what they have agreed on to be done to achieving the LOs and LIs of the course manuals.</i> <i>NB: In the case of unresolved issues consult the subject leads.</i></p>	<p><i>responsive by being bold, clear, colourful and big enough to be easily noticeable by all learners.</i></p> <p><i>2. Equal representation of males and females in group formation.</i></p> <p><i>3. Make sure the resources are appropriate and enough to all learners (males, females and physically challenge)</i></p> <p><i>4. Refer to theme 1 for different types of games to be used to teach the concepts.</i></p> <p><i>Note: Have concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</i></p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors should Identifying critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class and report on observations made during next PD session.</p> <p><i>NOTE: Find out if anything relating to Lesson 3 needs to be discussed and clarified.</i></p> <p><i>Encourage tutors to read lesson 4 from the PD manual and find relevant materials for the next session.</i></p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p> <p><i>NOTE: Find out if anything relating to Lesson 3 needs to be discussed and clarified.</i></p> <p><i>Read lesson 4 from the PD manual and find relevant materials for the next session.</i></p>	15 mins

AGE LEVELS: JHS, UPPER PRIMARY

Name of courses/Subject/s:

1. Upper Primary – Teaching and Assessment of Science

2. JHS --- Teaching and Assessment of Science

Lesson Tittles:

Upper Primary: Teaching Digestion in Humans

JHS: Further review of the integrated science curriculum

Tutor PD Session for Lesson 4 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of any distinctive 	<p>Start the review of the prior learning with a song</p> <p>1.1 Ask tutors in their respective groups to write one thing they learnt in lesson 3 of the previous PD session on a post in card and tell how it was applied in their teaching at their various grade levels.</p> <p>1.2 Ask tutors to provide examples of how students will be prepared to employ the various strategies and</p>	<p>1.1 Write one thing you have learnt in lesson 3 of the previous PD session on a post in card and tell how you applied it in your teaching at your various grade levels.</p> <p>1.2 Provide examples of how students will be prepared to employ the various strategies and skills during the basic</p>	20 mins

<p>aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Ask tutors to invite their critical friends to share their observations for a short discussion.</p> <p>1.4 Ask tutors to read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p><i>Note: Lesson 4 topics and lesson descriptions for the various levels are: JHS: Topic - Further review of the integrated science curriculum</i></p> <p><i>Lesson Description: In the classroom, tutors put greater emphasis on ensuring that learning is well structured than on student-oriented activities which give them more autonomy. Both of these teaching practices are emphasised more than enhanced learning activities such as project work.</i></p> <p><i>Upper Primary: Topic - Teaching Digestion in Humans</i></p> <p><i>Lesson Description: The lesson is designed to further improve student</i></p>	<p>school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Invite your critical friends to share their observations for a short discussion.</p> <p>1.4 Read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p>	
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	<p><i>teachers knowledge and skills in the professional attitudes and skills for the integrated science teacher and to boost their confidence to be able to create the required classroom environment that will motivate science learning.</i> <i>(Refer to the course manual for JHS, Upper primary introductions/descriptions)</i></p> <p><i>N.B. Inform tutors that the grouping for this PD session will be done based on the following levels: upper primary and JHS.</i></p> <p>1.5 Ask tutors to discuss the CLOs and LIs of the learning areas to be covered in the PD sessions for lesson 4 so that they become familiar with them.</p> <p>1.6 Ask tutors to read the content to be covered for lesson 4 in their respective groups in order to acquaint themselves with the areas.</p> <p>1.7 Lead tutors to identify the distinctive aspects of the content of the lessons. <i>E.g. Distinctive aspects of the lessons</i> <i>JHS.....</i> <i>Conversational Learning of Post-Professional Attitudes and Skill</i></p>	<p>1.5 Discuss the CLOs and LIs of the learning areas to be covered in the PD sessions for lesson 4.</p> <p>1.6 Read the content to be covered for lesson 4 in your respective groups in order to acquaint themselves with the areas.</p> <p>1.7 Identify the distinctive aspects of the content of the lessons.</p>	
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	<p><i>UP</i></p> <ul style="list-style-type: none"> ● Food substances and their nutrients ● Energy found in foods 		
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> ● Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD ● NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to be in pairs and list the major concepts in the lesson and share with the whole group.</p> <p><i>E.g. UP</i></p> <ul style="list-style-type: none"> ● <i>Classification of foods</i> ● <i>Develop checklist for use in observing the core values and develop appropriate teaching and learning materials/strategies for nutrients in foods</i> <p><i>(Refer to the course manual for Upper primary lesson for their respective new learnings).</i></p> <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: Some of the misconceptions and barriers related to the concepts are:</i></p> <p><i>Barriers:</i></p> <p><i>JHS</i></p> <p><i>Student teachers may have difficulty in understanding the appropriate behaviour for professionalism.</i></p> <p><i>Solution: Tutors should give more examples to explain the appropriate professionalism.</i></p> <p><i>UP....</i></p> <p><i>Student teachers may have misconceptions and</i></p>	<p>2.1 In pairs, list the major concepts in the lesson and share with the whole group.</p> <p>2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed.</p>	15 mins

	<p><i>misunderstanding about certain foods due to cultural beliefs</i> <i>Eg. Pregnant women are not to eat snails.</i></p> <p>2.3 Ask tutors to suggest alternative teaching strategies that can be employed to best explain the new concepts.</p>	<p>2.3 Suggest alternative teaching strategies that can be employed to best explain the new concepts.</p>	
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least 	<p>3.1 Lead tutors to read and discuss the teaching and learning activities in the course manuals for the various group levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1 Ask tutors to identify areas that need clarification.</p> <p>3.2 Lead tutors to discuss in their various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 4.</p> <p><i>Note: 1. Take into account that some students are slow learners and others are gifted.</i></p>	<p>3.1 Read and discuss the teaching and learning activities in the course manuals for the various group levels.</p> <p>3.1.1 Identify areas that need clarification.</p> <p>3.2 Discuss in your various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of your course manual for lesson 4.</p> <p><i>Note: 1. Take into account that some students are slow learners and others are gifted.</i></p>	<p>40 mins</p>

<p>two opportunities to use continuous assessment to support student teacher learning</p> <ul style="list-style-type: none"> • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning • Tutors should be expected to have a plan for the next lesson for student teachers 	<p><i>2. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>Give equal chances to females and males to ask and also answer questions in class.</i> 2. <i>Assign leadership roles to females.</i> <p>3.4 Ask tutors to identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>The use of power point/excel to do presentations. Use Microsoft word to do assignments as well as teaching and learning resources.</i> 2. <i>Development of problem-solving skills and critical thinking through the use of leading and probing questions.</i> <p>3.5 Ask tutors to read the assessment activities in</p>	<p><i>2. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>Give equal chances to females and males to ask and also answer questions in class.</i> 2. <i>Assign leadership roles to females.</i> <p>3.4 Identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> 1. <i>The use of power point/excel to do presentations. Use Microsoft word to do assignments as well as teaching and learning resources.</i> 2. <i>Development of problem-solving skills and critical thinking through the use of leading and probing questions.</i> <p>3.5 Read the assessment activities in the various</p>	
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	<p>the various manuals and identify areas that require clarification.</p> <p><i>Note:</i> <i>Encourage tutors to instruct student -teachers to work in groups (in mixed ability, & and pay attention to the composition of females and males during the group work) to use either concept maps, simulations or multimedia presentations to design games and/or rhymes that can teach the various concepts at Upper primary/JHS levels. This could be one of their subject projects for the semester.</i></p> <p>3.6 Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p><i>Note:</i> <i>1. Equal representation of males and females in group formation.</i></p> <p><i>2. Make sure the resources are appropriate and enough to all learners (males, females and physically challenge)</i></p> <p><i>3. Refer to theme 1 for different types of games to</i></p>	<p>manuals and identify areas that require clarification.</p> <p>3.6 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p><i>Note:</i> <i>1. Equal representation of males and females in group formation.</i></p> <p><i>2. Make sure the resources are appropriate and enough to all learners (males, females and physically challenge)</i></p> <p><i>3. Refer to theme 1 for different types of games to</i></p>	
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	<p><i>be used to teach the concepts.</i></p> <ul style="list-style-type: none"> • <i>Ensure that every member of the various groups prepares a concrete plans for what they have agreed on to be done to achieving the LOs and LIs of the course manuals.</i> • <i>In the case of unresolved issues consult the subject leads.</i> 	<p><i>be used to teach the concepts.</i></p> <ul style="list-style-type: none"> • <i>Have a concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</i> 	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors should Identifying critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class and report on observations made during next PD session.</p> <p>4.2 Encourage tutors to read lesson 5 from the PD manual and find relevant materials for the next session.</p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p> <p>4.2 Read lesson 5 from your PD manual and find relevant materials for the next session.</p>	15 mins

AGE LEVELS: JHS, UPPER PRIMARY

Name of courses/Subject/s:

1. Upper Primary – Teaching and Assessment of Science
2. JHS --- Teaching and Assessment of Science

Lesson Tittles:

Upper Primary: Teaching Human Respiration

JHS: Further review of the integrated science curriculum

Tutor PD Session for Lesson 5 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of 	<p>Start the review of the prior learning with a song like pete pete seniwa dendede seniwa.</p> <p>1.1 Ask tutors in their respective groups to write one thing they learnt in lesson 4 of the previous PD session on a post in card and tell how it was applied in their teaching at their various grade levels.</p>	<p>1.1 Write one thing you have learnt in lesson 4 of the previous PD session on a post in card and tell how you applied it in your teaching at your various grade levels.</p>	20 mins

<p>any distinctive aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>1.2 Ask tutors to provide examples of how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Ask tutors to invite their critical friends to share their observations for a short discussion.</p> <p>1.4 Ask tutors to read and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p><i>Note: Lesson 5 topics and lesson descriptions for the various levels are: JHS: Topic - Further review of the integrated science curriculum</i></p> <p><i>Lesson Description: In the classroom, tutors put greater emphasis on ensuring that learning is well structured and be able to manage students. Classroom management also refers to the wide variety of skills and techniques that teachers use to keep students organized, orderly, focused, attentive, on task, and academically productive during a class.</i></p>	<p>1.2 Provide examples of how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Invite your critical friends to share their observations for a short discussion.</p> <p>1.4 Read and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p>	
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	<p><i>Upper Primary: Topic - Teaching Human Respiration</i></p> <p><i>Lesson Description: Use this lesson to show your students the process of getting oxygen into the body and releasing carbon dioxide called respiration. The process of respiration also includes the exchange of oxygen and carbon dioxide between the blood and the cells of the body</i></p> <p><i>(Refer to the course manual for JHS, Upper primary introductions/descriptions.</i></p> <p><i>N.B. Inform tutors that the grouping for this PD session will be done based on the following levels: upper primary and JHS.</i></p> <p>1.5 Ask tutors to discuss the CLOs and LIs of the learning areas to be covered in the PD sessions for lesson 5 so that they become familiar with them.</p> <p>1.6 Ask tutors to read the content to be covered for lesson 5 in their respective groups in order to acquaint themselves with the areas.</p> <p>1.7 Lead tutors to identify the distinctive aspects of the content of the lessons.</p>	<p>1.5 Discuss the CLOs and LIs of the learning areas to be covered in the PD sessions for lesson 5.</p> <p>1.6 Read the content to be covered for lesson 5 in your respective groups.</p> <p>1.7 Identify the distinctive aspects of the content of the lessons.</p>	
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	<p><i>E.g. Distinctive aspects of the lessons</i> <i>JHS.....</i> <i>Managing the Science Classroom</i></p> <p><i>UP</i></p> <ul style="list-style-type: none"> • <i>Structure and Organs for Respiration</i> • <i>Functions of the structure and organs for Respiration in Humans</i> 		
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p>2.1 Ask tutors to be in pairs and list the major concepts in the lesson and share with the whole group.</p> <p><i>E.g. JHS</i></p> <ul style="list-style-type: none"> • Managing the Integrated Science classroom • Microteaching <p><i>UP</i></p> <ul style="list-style-type: none"> • The process of digestion • End products of digestion and benefits <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: Some of the misconceptions and barriers related to the concepts are:</i></p> <p><i>Misconceptions:</i> <i>UP</i> <i>Student teachers may have misconceptions and misunderstanding about some of the functions of some parts of the human body, for example, the</i></p>	<p>2.1 In pairs, list the major concepts in the lesson and share with the whole group.</p> <p>2.2 Discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: Some of the misconceptions and BARRIERS related to the concepts are:</i></p> <p><i>Misconceptions:</i> <i>UP.....</i> <i>Student teachers may have misconceptions and misunderstanding about some of the functions of some parts of the human body, for example, the</i></p>	<p>15 mins</p>

	<p><i>traditional ways of using the left hand.</i></p> <p><i>Solution:</i> Give a lot of examples on the functions of some parts of the human body.</p> <p>2.3 Ask tutors to suggest alternative teaching strategies that can be employed to best explain the new concepts.</p>	<p><i>traditional ways of using the left hand.</i></p> <p><i>Solution:</i> Give a lot of examples on the functions of some parts of the human body.</p> <p>2.3 Suggest alternative teaching strategies that can be employed to best explain the new concepts.</p>	
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each 	<p>3.1 Lead tutors to read and discuss the teaching and learning activities in the course manuals for the various group levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1 Ask tutors to identify areas that need clarification.</p> <p>3.2 Lead tutors to discuss in their various groups /levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 5.</p> <p><i>Note: 1. Take into account that some students are slow learners and others are gifted.</i></p>	<p>3.1 Read and discuss the teaching and learning activities in your course manuals form the various group levels.</p> <p>3.1.1 Identify areas that need clarification.</p> <p>3.2 Discuss in your various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 5.</p> <p><i>Note: 1. Take into account that some students are slow learners and others are gifted.</i></p>	40 mins

<p>lesson should include at least two opportunities to use continuous assessment to support student teacher learning</p> <ul style="list-style-type: none"> • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ Guidance on any power point presentations, TLM or other resources which need to be developed to support learning • Tutors should be expected to have a plan for the next lesson for student teachers 	<p><i>2. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> <i>1. Give equal chances to females and males to ask and also answer questions in class.</i> <i>2. Assign leadership roles to females males equally.</i> <p>3.4 Ask tutors to identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> <i>1. The use of power point/excel to do presentations. Use Microsoft word to do assignments as well as teaching and learning resources.</i> <i>2. Development of problem-solving skills and critical thinking through the use of leading and probing questions.</i> 	<p><i>2. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> <i>1. Give equal chances to females and males to ask and also answer questions in class.</i> <i>2. Assign leadership roles to females and males equally.</i> <p>3.4 Identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g.</i></p> <ol style="list-style-type: none"> <i>1. The use of power point/excel to do presentations. Use Microsoft word to do assignments as well as teaching and learning resources.</i> <i>2. Development of problem-solving skills and critical thinking through the use of leading and probing questions.</i> 	
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	<p>3.5 Ask tutors to read the assessment activities in the various manuals and identify areas that require clarification.</p> <p><i>Note:</i> <i>Encourage tutors to instruct student -teachers to work in groups (in mixed ability, & and pay attention to the composition of females and males during the group work) to use either concept maps, simulations or multimedia presentations to design games and/or rhymes that can teach the various concepts at Upper primary/JHS levels. This could be one of their class assignment.</i></p> <p>3.6 Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p><i>Note:</i></p> <ol style="list-style-type: none"> <i>1. Charts or pictures should be GESI responsive by being bold, clear, colourful and big enough to be easily noticeable by all learners.</i> <i>2. Equal representation of males and females in group formation.</i> <i>3. Make sure the resources are appropriate and enough</i> 	<p>3.5 Read the assessment activities in the various manuals and identify areas that require clarification.</p> <p><i>Note:</i> <i>Tutors instruct student - teachers to work in groups (in mixed ability, & and pay attention to the composition of females and males during the group work) to use either concept maps, simulations or multimedia presentations to design games and/or rhymes that can teach the various concepts at Upper primary/JHS levels. This could be one of their class assignment.</i></p> <p>3.6 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p><i>Note:</i></p> <ol style="list-style-type: none"> <i>1. The periodic table should be GESI responsive by being bold, clear, colourful and big enough to be easily noticeable by all learners.</i> <i>2. Equal representation of males and females in group formation.</i> <i>3. Make sure the resources are appropriate and enough</i> 	
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	<p><i>to all learners (males, females and physically challenge)</i></p> <p><i>4. Refer to theme 1 for different types of games to be used to teach the concepts.</i></p> <ul style="list-style-type: none"> <i>Ensure that every member of the various groups prepares a concrete plans for what they have agreed on to be done to achieving the LOs and LIs of the course manuals.</i> <p><i>NB: In the case of unresolved issues consult the subject leads.</i></p>	<p><i>to all learners (males, females and SEN)</i></p> <p><i>4. Refer to theme 1 for different types of games to be used to teach the concepts.</i></p> <ul style="list-style-type: none"> <i>Have concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</i> 	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> Tutors should Identifying critical friends to observe lessons and report at next session. Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class and report on observations made during next PD session.</p> <p><i>NOTE: Find out if anything relating to Lesson 5 needs to be discussed and clarified.</i></p> <p>4.2 Ask tutors to read lesson 6 from the PD manual and find relevant materials for the next session.</p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p> <p><i>NOTE: Find out if anything relating to Lesson 5 needs to be discussed and clarified.</i></p> <p>4.2 Read lesson 6 from your PD manual and find relevant materials for the next session.</p>	15 mins

AGE LEVELS: JHS, UPPER PRIMARY

Name of subject(s)/Course

1. Upper Primary – Teaching and Assessment of Science

2. JHS --- Teaching and Assessment of Science

Lesson title

Course Review 1 with STS Seminar

Course Review 1 with STS Seminar

Tutor PD Session for Lesson 6 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and 	<p>Introduce the session with an ice-breaker.</p> <p>1.1 Give post-it cards to your colleagues and ask them to write their reflections of PD sessions 1, 2, 3, 4 and 5 on it based on the following: positives, challenges and suggestion to improve on the next PD sessions.</p>	<p>1.1 Write down your reflections of PD sessions 1,2,3,4 and 5 on the post-it card given you based on the following: positives, challenges and suggestions to improve on the next PD sessions.</p>	<p>20 mins</p>

<p>identification of any distinctive aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. <p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.1.1 Ask tutors to share their reflections with the larger group.</p> <p>1.2 Ask tutors to provide examples of how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Ask tutors who served as critical friends in lessons 1,2,3,4 and 5 to give a summary of their observations on the enactment of lessons 1,2,3,4 and 5.</p> <p><i>Note: Tutors should be reminded of areas of their previous lessons that need improvement.</i></p> <p>1.4 Ask tutors in their phase groups to discuss the important or distinctive features of lessons 1, 2, 3, 4 and 5</p> <p>1.5 Guide tutors to brainstorm on how GESI issues were promoted in the CoE and basic school classrooms during the enactment of lessons 1, 2, 3, 4 and 5 beginning with lesson planning, selection of teaching learning resources (TLRs), classroom setup and gender responsive language and interactions.</p>	<p>1.1.1 Share your reflections with a colleague and then with the larger group.</p> <p>1.2 Provide examples of how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Critical friends give summary of their observations on the enactment of lessons 1,2,3,4 and 5.</p> <p>1.4 Discuss the important or distinctive features of lessons 1, 2, 3, 4 and 5</p> <p>1.5 Brainstorm on how GESI issues were promote in the CoE and basic classrooms during the enactment of lessons 1, 2, 3, 4 and 5 beginning with lesson planning, selection of teaching learning resources (TLRs), classroom setup and gender responsive language and interactions.</p>	
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	<p><i>E.g. Gender Responsive Language Interactions.</i></p> <p><i>The Teacher:</i></p> <p><i>Does not use negative expressions or language that demeans, excludes, or gives females the impression that they are not as intelligent or do not need to perform as well as males (e.g. Engineering is for men, girls don't play football)</i></p>		
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p>2.1 Ask tutors in their distinctive groups to list new learning areas in lessons 1, 2, 3, 4 and 5 that they were unable to explain properly to the student teachers in the enactment of those lessons.</p> <p>2.1.1 Ask one tutor in each distinct group to model the selected concept(s) and appropriate activities to be employed in teaching them.</p> <p><i>For example, modeling the teaching of the concept of heat</i></p> <p>2.2 Lead tutors to discuss unresolved misconceptions and potential barriers in teaching and learning of lessons 1, 2, 3, 4 and 5 from the various phases.</p>	<p>2.1 In your distinctive groups, list new learning areas in lessons 1, 2, 3, 4 and 5 that you were unable to explain properly to the student teachers in the enactment of those lessons.</p> <p>2.1.1 Model the selected concept(s) and appropriate activities to be employed in teaching them.</p> <p><i>For example, modeling the teaching of the concept of heat</i></p> <p>2.2 Discuss unresolved misconceptions and potential barriers in teaching and learning of lessons 1, 2, 3, 4 and 5 from the various phases.</p>	15 mins
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p>	<p>3.1 In their phase groups, ask tutors to recount the teaching and learning activities employed to teach lessons 1, 2, 3, 4, and 5.</p>	<p>3.1. Ask tutors to recount the teaching and learning activities employed to teach lessons 1, 2, 3, 4, and 5.</p>	40 mins

<ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on 	<p>3.2 Ask tutors to tell how they implemented the following:</p> <ol style="list-style-type: none"> i. Provision for SEN ii. Taking gender leading roles in group task. iii. Distribution of questions to different categories of learners based on gender, ability, previous experience, etc. referring to NTS 1a, b, c, d, 2b, e, f, 3b, c <p>3.3 Ask tutors to discuss the appropriateness of all the activities outlined in their respective course manuals and identify those that require clarification in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 1,2,3,4,5 and 5.</p> <p>3.4 Ask tutors to discuss how they integrated GESI issues related to the teaching and learning activities of lessons 1,2,3,4 and 5.</p> <p><i>E.g. i. The lesson plan/proforma should make allowance for all students to participate in the learning activity.</i></p> <p><i>ii. When doing science experiments, ensure that girls, boys and students with disability have a chance to use the equipment and chemicals.</i></p> <p><i>iii. There should also be equal participation in such</i></p>	<p>3.2 Tell how you implemented the following:</p> <ol style="list-style-type: none"> i. Provision for SEN. ii. Taking gender leading roles in group task. iii. Distribution of questions to different categories of learners based on gender, ability, previous experience, etc. referring to NTS 1a, b, c, d, 2b, e, f, 3b, c <p>3.3 Discuss the appropriateness of all the activities outlined in your respective course manuals and identify those that require clarification in both CoE and basic school classrooms to achieve the LOs and the LIs of the course manual for lessons 1,2,3,4, and 5.</p> <p>3.4 Discuss how you integrated GESI issues related to the teaching and learning activities of lessons 1,2,3,4 and 5.</p> <p><i>E.g. i. The lesson plan/proforma should make allowance for all students to participate in the learning activity.</i></p> <p><i>ii. When doing science experiments, ensure that girls, boys and students with disability have a chance to use the equipment and chemicals.</i></p> <p><i>iii. There should also be equal participation in such</i></p>	
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<p>web, Youtube, physical resources, power point; how they should be used.</p> <p>Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ● Tutors should be expected to have a plan for the next lesson for student teachers 	<p><i>activities as making presentations.</i></p> <p><i>iv. When assigning projects, ensure that both females and males are given leadership positions and roles.</i></p> <p><i>v. Take into account how the learning materials will be distributed equally to both girls and boys, especially in case of shortage.</i></p> <p>3.5 Ask tutors to list the 21st century skills that were developed or applied in lessons 1, 2, 3, 4 and 5 on post-it card.</p> <p><i>E.g. (1) The use of power point/excel to do presentations. Use Microsoft word to do assignments as well as teaching and learning resources.</i></p> <p><i>2. Development of problem-solving skills and critical thinking through the use of leading and probing questions.</i></p> <p>3.5.1 Ask tutors to share with the whole group how they helped student teachers to apply 21st century skills through STS activities.</p> <p>3.6 In their phases, ask tutors to tell the whole group the assessment activities in the various manuals and explain areas that require clarification.</p>	<p><i>activities as making presentations.</i></p> <p><i>iv. When assigning projects, ensure that both females and males are given leadership positions and roles.</i></p> <p><i>v. Take into account how the learning materials will be distributed equally to both girls and boys, especially in case of shortage.</i></p> <p>3.5 List the 21st century skills that were applied in lessons 1, 2, 3, 4 and 5 on post-it card.</p> <p>3.5.1 Share with the whole group how you helped student teachers to apply 21st century skills through STS activities.</p> <p>3.6 Tell the whole group the assessment activities in the various manuals and explain areas that require clarification.</p>	
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	<p>3.7 Lead tutors to recount the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>E.g. Overhead projector, Laptop, Audio-visuals from YouTube, Games, samples of individual tutor learning plans, Models.</i></p>	<p>3.7 Recount the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>E.g. Overhead projector, Laptop, Audio-visuals from YouTube, Games, samples of individual tutor learning plans, Models.</i></p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors should identify critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to provide feedback of the PD sessions 1,2,3,4 and 5 taking into consideration – Clarity of concepts and various contents delivered, pedagogical approaches employed, ICT integration, GESI issues, Twenty First Century Skills (NTS 1a, 3i) and make notes that will help them to teach Lesson 7.</p> <p><i>N/B: Take note of all other unresolved issues that may need further research or consultation and use any of following strategies to address them.</i></p> <p><i>i. Put on SL/SWL WhatsApp or Telegram platform for discussion</i></p> <p><i>ii. Tutors to research on those unresolved issues that persist for the next PD session for discussion.</i></p> <p>4.2 Ask tutors who were identified as critical friends of lessons 1,2,3,4 and 5 to also observe the enactment</p>	<p>4.1 Provide feedback on this PD sessions 1,2,3,4 and 5 taking into consideration – Clarity of concepts and various contents delivered, pedagogical approaches employed, ICT integration, GESI issues, Twenty First Century Skills (NTS 1a, 3i) and make notes that will help you to teach Lesson 7.</p> <p><i>N/B: Take note of all other unresolved issues that may need further research or consultation and use any of following strategies to address them.</i></p> <p><i>i. Put on SL/SWL WhatsApp or Telegram platform for discussion</i></p> <p><i>ii. Tutors to research on those unresolved issues that persist for the next PD session for discussion.</i></p> <p>4.2 Identify critical friends for lessons 1,2,3,4, and 5 to also observe the enactment of lesson 7 and provide feedback</p>	15 mins

	of lesson 7 and provide feedback during the next PD Session (NTS 1a).	during the next PD Session (NTS 1a).	
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AGE LEVELS/S: JHS and Upper Grade

Name of courses/Subject/s:

1. JHS ---Teaching and Assessment of Science

2. Upper Primary – Teaching and Assessment of Science

Lesson Tittles:

JHS - Reviewing the Basic School Curriculum

Upper Prim. - Science Pedagogies and Curriculum Studies

Tutor PD Session for Lesson 7 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of any distinctive 	<p>Start with an ice breaker.</p> <p>1.1 Ask tutors to review the 6th PD session in their respective grade levels/groups.</p> <p>1.2 Provide examples of how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p>	<p>1.1 Preview the 6th PD session in your respective grade levels/groups.</p> <p>1.2 Provide examples of how students will be prepared to employ the various strategies and skills during the basic school classroom work in STS Field Experience in year 4 semester 1.</p>	<p>20 mins</p>

<p>aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>1.3 Invite the critical friends for the various grade levels to share their findings for a short discussion.</p> <p>1.4 Ask tutors to read and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and explain how they are related to student teachers' relevant previous knowledge.</p> <p><i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.5 Ask tutors to read the lesson overview, lesson descriptions and the content of lesson 7 in their respective groups.</p> <p><i>Note: JHS lesson description- The lesson is designed to further enhance the student teachers' ability to put to practice the issues of SEN and equity in the integrated science classroom and teaching. Particularly their ability to identify special needs and distribute teaching resources in a fair and objective way while encouraging the vulnerable to participate fully in the integrated science classroom. This lesson will enable student teachers to present lessons in a balanced way.</i></p>	<p>1.3 Critical friends for the various grade levels share their findings for a short discussion.</p> <p>1.4 Read and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and explain how they are related to student teachers' relevant previous knowledge.</p> <p><i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.5 Read the lesson overview, lesson descriptions and the content of lesson 7 in your respective groups.</p> <p><i>Note: JHS lesson description- The lesson is designed to further enhance the student teachers' ability to put to practice the issues of SEN and equity in the integrated science classroom and teaching. Particularly their ability to identify special needs and distribute teaching resources in a fair and objective way while encouraging the vulnerable to participate fully in the integrated science classroom. This lesson will enable student teachers to present lessons in a balanced way.</i></p>	
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	<p>1.5.1 Ask tutors to note the distinctive features of lesson 7 as they read and discuss them after reading.</p> <p><i>E.g. JHS-Students with educational needs e.g. slow learners and gifted students.</i></p> <p><i>NB: Refer to the course manual for the rest.</i></p>	<p>1.5.1 Identify the distinctive features of lesson 7 as you read and discuss them after reading.</p> <p><i>E.g. JHS- Students with educational needs e.g. slow learners and gifted students.</i></p> <p><i>NB: Refer to the course manual for the rest.</i></p>	
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p>2.1 Ask tutors to identify and discuss the new areas to be covered in lesson 7 of their respective course manuals.</p> <p><i>Note: Ensure that different abilities and strengths/needs are catered for to ensure a safe working environment and equal opportunities for all learners by prospective teachers.</i></p> <p>2.2 Assist tutors to identify and discuss the potential barriers to lesson 7 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: Inability to remember Equity and SEN standards.</i></p> <p><i>Suggested solution: Read on GESI issues related to teaching and learning.</i></p> <p>2.3 Ask tutors to familiarize themselves with the teaching strategies suggested in the course manuals to teach lesson 7 and suggest alternative ones.</p>	<p>2.1 Identify and discuss the new areas to be covered in lesson 7 from your respective course manuals.</p> <p><i>Note: Ensure that different abilities and strengths/needs are catered for to ensure a safe working environment and equal opportunities for all learners by prospective teachers.</i></p> <p>2.2 Identify and discuss the potential barriers to lesson 7 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: Inability to remember Equity and SEN standards.</i></p> <p><i>Suggested solution: Read on GESI issues related to teaching and learning.</i></p> <p>2.3 Familiarize yourselves with the teaching strategies suggested in the course manuals to teach lesson 7 and suggest alternative ones.</p>	15 mins

	<i>Eg. 1. Using videos that reinforce Equity and SEN standards in the classroom. 2. Mix ability grouping</i>	<i>Eg. 1. Using videos that reinforce Equity and SEN standards in the classroom. 1. Mix ability grouping.</i>	
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for 	<p>3.1 Support tutors to read and discuss the activities of lesson 7 in order to agree on how to present them in the various classrooms.</p> <p><i>NB: Prompt tutors to identify areas that need clarification and let them solve them in their respective groups or discuss them with the larger group.</i></p> <p>3.2 Lead discussion on how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 7.</p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. Classroom setup should enhance the participation of all students.</i></p> <p>3.4 Ask tutors to identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p>	<p>3.1 Read and discuss the activities of lesson 7 in order to agree on how to present them in the various classrooms.</p> <p>3.2 Discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 7.</p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. Classroom setup should enhance the participation of all students.</i></p> <p>3.4 Identify where, and which, 21st century skills that can be developed or applied in the lesson and how you can help student teachers to support basic school learners to develop these skills through STS activities.</p>	40 mins

<p>example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ● Tutors should be expected to have a plan for the next lesson for student teachers 	<p><i>E.g. Through group discussions and sharing of ideas in class student teachers develop the skills of communication, collaboration and mutual respect while appreciating individual differences. They also acquire ICT skills through power point presentation.</i></p> <p>3.5 Ask tutors to suggest two (2) alternative assessment strategies (<i>for or as</i>) to be used during the lesson.</p> <p><i>Eg. Co-planning, co-teaching and co-reflection be done on two best lessons focussing on SEN and Equity standards and submitted for scoring. These could be added to students' subject portfolios.</i></p> <p>3.6 Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>NB: Equitable distribution of TLRs.</i></p> <p>3.7 Ensure that every member of the various groups have concrete plans for what they have agreed on to be done to achieve the LOs and LIs of the course manuals.</p>	<p><i>E.g. Through group discussions and sharing of ideas in class student teachers develop the skills of communication, collaboration and mutual respect while appreciating individual differences. They also acquire ICT skills through power point presentation.</i></p> <p>3.5 Suggest two (2) alternative assessment strategies (<i>for or as</i>) to be used during the lesson.</p> <p><i>Eg. Co-planning, co-teaching and co-reflection be done on two best lessons focussing on SEN and Equity standards and submitted for scoring. These could be added to students' subject portfolios.</i></p> <p>3.6 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>NB: Equitable distribution of TLRs.</i></p> <p>3.7 Have concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</p>	
<p>4. Evaluation and review of session:</p>	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to</p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your</p>	<p>15 mins</p>

<ul style="list-style-type: none"> • Tutors should identify critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>sit in their class and report on observations made during next PD session.</p> <p><i>Note: Find out if anything relating to Lesson 7 needs to be discussed and clarified.</i></p> <p>4.2 Ask tutors to read lesson 8 from the PD manual and look for relevant materials for the next session.</p>	<p>class during lesson and report on observations made during next PD session.</p> <p>4.2 Read lesson 8 from the PD manual and look for relevant materials for the next session.</p>	
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AGE LEVELS/S: JHS and Upper Grade

Name of courses/Subject/s:

1. JHS ---Teaching and Assessment of Science

2. Upper Primary – Teaching and Assessment of Science

Lesson Tittles:

JHS - Implementing the Basic School Integrated Science Curriculum.

Upper Prim. - Identifying resources and planning lessons for teaching science at the Primary School.

Tutor PD Session for Lesson 8 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of any distinctive 	<p>Start with an ice breaker.</p> <p>1.1 Ask tutors to review lesson 7 in their respective grade levels and share with the whole group anything that will be of interest to all.</p> <p>1.2 Ask tutors to provide examples of how students will be prepared to employ the various strategies and skills during the basic</p>	<p>1.1 Review lesson 7 in your respective grade levels and share with the whole group anything that will be of interest to all</p> <p>1.2 Provide examples of how students will be prepared to employ the various strategies and skills during the basic school classroom work</p>	20 mins

<p>aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>school classroom work in STS Field Experience in year 4 semester 1.</p> <p>1.3 Invite the critical friends for the various grade levels to share their findings for a short discussion.</p> <p>1.4 Ask tutors to read and discuss the introductory sections of the lesson up to learning outcomes and indicators from the course manual and explain how they are related to student teachers' relevant previous knowledge.</p> <p><i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.5 Ask tutors to read the lesson overview, lesson descriptions and the content of lesson 8 in their respective groups. <i>(It should be read by both males and females).</i></p> <p><i>Note: JHS- lesson description- The lesson is designed to improve and further strengthen student teachers ability to teach a whole lesson confidently. The lesson walks the student teacher through the steps in lesson delivery, drawing lessons from STS and Inclusive enquiry.</i></p>	<p>in STS Field Experience in year 4 semester 1.</p> <p>1.3 Critical friends for the various grade levels share their findings for a short discussion.</p> <p>1.4 Rad and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and explain how they are related to student teachers' relevant previous knowledge.</p> <p><i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.5 Read the lesson overview, lesson descriptions and the content of lesson 8 in your respective groups. <i>(It should be read by both males and females).</i></p> <p><i>Note: JHS- lesson description- The lesson is designed to improve and further strengthen student teachers ability to teach a whole lesson confidently. The lesson walks the student teacher through the steps in lesson delivery, drawing lessons from STS and Inclusive enquiry.</i></p>	
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	<p>1.5.1 Ask tutors to identify the distinctive features of lesson 8 as they read and discuss them after reading.</p> <p><i>E.g. JHS- Types of feedback: formative, summative, formal and informal feedbacks</i></p> <p><i>NB: Refer to the course manual for the rest.</i></p>	<p>1.5.1 Identify the distinctive features of lesson 8 as you read and discuss them after reading.</p> <p><i>E.g. JHS- Types of feedback: formative, summative, formal and informal feedbacks</i></p> <p><i>NB: Refer to the course manual for the rest.</i></p>	
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to identify and discuss the new areas to be covered in lesson 8 of their respective course manuals by going through all the teaching and learning activities of the lesson.</p> <p>2.2 Assist tutors to identify and discuss the potential barriers to lesson 8 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: The temptation of over criticising someone after presentation.</i></p> <p><i>Suggested solution: Engage in formative / constructive criticism for improvement and perfection.</i></p> <p>2.3 Ask tutors to familiarize themselves with the teaching strategies suggested in the course manuals to teach lesson 8.</p>	<p>2.1 Identify and discuss the new areas to be covered in lesson 8 from your respective course manuals by going through all the teaching and learning activities of the lesson.</p> <p>2.2 Identify and discuss the potential barriers to lesson 8 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: The temptation of over criticising someone after presentation.</i></p> <p><i>Suggested solution: Engage in formative / constructive criticism for improvement and perfection.</i></p> <p>2.3 Familiarize yourselves with the teaching strategies suggested in the course manuals to teach lesson 8.</p>	15 mins
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p>	<p>3.1 Support tutors to read and discuss the activities of lesson 8 in order to agree on how to present them in the various classrooms.</p>	<p>3.1 Read and discuss the activities of lesson 8 in order to agree on how to present them in the various classrooms.</p>	40 mins

<ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, 	<p><i>NB: Prompt tutors to identify areas that need clarification and let them solve them in their respective groups or discuss them with the larger group.</i></p> <p>3.2 Lead discussion on how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 8.</p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g. Encourage the participation of all students.</i></p> <p>3.1 Ask tutors to identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g. Development of communication skills, collaboration skills and mutual respect while appreciating individual difference, critical thinking and responsibility through careful participation in group work/ discussion.</i></p>	<p>3.2 Discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 8.</p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g. Encourage the participation of all students.</i></p> <p>3.1 Identify where, and which, 21st century skills that can be developed or applied in the lesson and how you can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g. Development of communication skills, collaboration skills and mutual respect while appreciating individual difference, critical thinking and responsibility through careful participation in group work/ discussion.</i></p>	
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<p>physical resources, power point; how they should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ● Tutors should be expected to have a plan for the next lesson for student teachers 	<p>3.5 Ask tutors to model how assessment strategies (<i>for or as</i>) would be used during the lesson. <i>NB: Tell tutors to inform student-teacher to write a reflective report on the characteristics of an inclusive teacher as observed in classroom engagements. These could be added to students' subject portfolios.</i></p> <p>3.6 Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms. <i>NB: Drawings and texts materials should be clear and large enough to be seen and read by all.</i></p> <p>3.7 Ensure that every member of the various groups have concrete plans for what they have agreed on to be done to achieve the LOs and LIs of the course manuals.</p>	<p>3.5 Model how assessment strategies (<i>for or as</i>) would be used during the lesson. <i>Eg. Inform student-teacher to write a reflective report on the characteristics of an inclusive teacher as observed in classroom engagements. These could be added to students' subject portfolios.</i></p> <p>3.6 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms. <i>NB: Drawings and texts materials should be clear and large enough to be seen and read by all.</i></p> <p>3.7 Have concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> ● Tutors should Identifying critical friends to observe lessons and report at next session. ● Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class and report on observations made during next PD session. <i>Note: Find out if anything relating to Lesson 8 needs to be discussed and clarified.</i></p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p>	<p>15 mins</p>

	4.2 Ask tutors to read lesson 9 from the PD manual and look for relevant materials for the next session.	4.2 Read lesson 9 from the PD manual and look for relevant materials for the next session.	
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AGE LEVELS/S: JHS and Upper Grade

Name of courses/Subject/s:

1. JHS ---Teaching and Assessment of Science

2. Upper Primary – Teaching and Assessment of Science

Lesson Tittles:

JHS -Implementing the Basic School Integrated Science curriculum

Upper Prim. - Co-planning and Co-teaching Primary Science

Tutor PD Session for Lesson 9 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of any distinctive 	<p>Start with an ice breaker.</p> <p>1.1 Ask tutors to write two things that went on well and one thing that didn't go on well in lesson 8 on a post in card and share with the whole group.</p> <p>1.2 Invite the critical friends for the various grade levels to share their findings for a short discussion.</p>	<p>1.1 Write two things that went on well and one thing that didn't go on well in lesson 8 on a post in card and share with the whole group.</p> <p>1.2 Critical friends for the various grade levels share their findings for a short discussion.</p>	<p>20 mins</p>

<p>aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>1.3 Ask tutors to read and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and explain how they are related to student teachers' relevant previous knowledge.</p> <p><i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.4 Ask tutors to read the lesson overview, lesson descriptions and the content of lesson 9 in their respective groups.</p> <p><i>Note: JHS lesson description- The lesson is designed to introduce student teachers to further studies on Junior High school Science curriculum and pedagogy. This involves lesson planning and micro teaching. This lesson will enable student teachers to prepare a 30-minute lesson that demonstrates content and pedagogical issues enshrined in JHS curriculum and NTS and how to do micro teaching on any science topic of their choice.</i></p> <p>1.4.1 Ask tutors to note the distinctive features of lesson 9 as they read and discuss them after reading.</p>	<p>1.3 Rad and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and explain how they are related to student teachers' relevant previous knowledge.</p> <p><i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.4 Read the lesson overview, lesson descriptions and the content of lesson 9 in your respective groups.</p> <p><i>Note: JHS lesson description- The lesson is designed to introduce student teachers to further studies on Junior High school Science curriculum and pedagogy. This involves lesson planning and micro teaching. This lesson will enable student teachers to prepare a 30-minute lesson that demonstrates content and pedagogical issues enshrined in JHS curriculum and NTS and how to do micro teaching on any science topic of their choice.</i></p> <p>1.4.1 Identify the distinctive features of lesson 9 as you read and discuss them after reading.</p>	
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	<i>E.g. JHS-Lesson plan and micro teaching. Up- Differentiated lesson. NB: Refer to the course manual for the rest.</i>	<i>E.g. JHS-Lesson plan and micro teaching. Up- Differentiated lesson NB: Refer to the course manual for the rest.</i>	
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to identify and discuss the new areas to be covered in lesson 9 of their respective course manuals.</p> <p><i>Note: Discuss the lesson plan, science activities and appropriate resources to be included /used in the lesson.</i></p> <p>2.2 Assist tutors to identify and discuss the potential barriers to lesson 9 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: insufficient already made TLRs.</i></p> <p><i>Suggested solution: Engage student-teachers to produce improvised materials to be used in the lesson.</i></p> <p>2.3 Ask tutors to familiarize themselves with the teaching strategies suggested in the course manuals to teach lesson 9 and suggest alternative ones.</p> <p><i>Eg. 1. Mix ability grouping. 2. Watching of videos on same or similar lesson.</i></p>	<p>2.1 Identify and discuss the new areas to be covered in lesson 9 from your respective course manuals.</p> <p><i>Note: Discuss the lesson plan, science activities and appropriate resources to be included /used in the lesson.</i></p> <p>2.2 Identify and discuss the potential barriers to lesson 9 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: insufficient already made TLRs.</i></p> <p><i>Suggested solution: Engage student-teachers to produce improvised materials to be used in the lesson.</i></p> <p>2.3 Familiarize yourselves with the teaching strategies suggested in the course manuals to teach lesson 9 and suggest alternative ones.</p> <p><i>Eg. 1. Mix ability grouping. 2. Watching of videos on same or similar lesson.</i></p>	15 mins

<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external 	<p>3.1 Support tutors to read and discuss the activities of lesson 9 in order to agree on how to present them in the various classrooms.</p> <p><i>NB: Prompt tutors to identify areas that need clarification and let them solve them in their respective groups or discuss them with the larger group.</i></p> <p>3.2 Lead discussion on how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 9.</p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p>E g. (1) Classroom setup should enhance the participation of all students</p> <p><i>(2) It is important to go beyond academic ability. Bear in mind that some learners come from disadvantaged situations – orphans, displaced, the very poor or may have hidden disabilities.</i></p> <p>3.4 Ask tutors to identify where, and which, 21st century skills that can be developed or</p>	<p>3.1 Read and discuss the activities of lesson 9 in order to agree on how to present them in the various classrooms.</p> <p>3.2 Discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 9.</p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g(1) Classroom setup should enhance the participation of all students</i></p> <p><i>(2) It is important to go beyond academic ability. Bear in mind that some learners come from disadvantaged situations – orphans, displaced, the very poor or may have hidden disabilities.</i></p> <p>3.4 Identify where, and which, 21st century skills that can be developed or applied in the lesson</p>	<p>40 mins</p>
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<p>reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ● Tutors should be expected to have a plan for the next lesson for student teachers 	<p>applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g. Development of collaborative and communication skills through group work and lesson presentations.</i></p> <p>3.5 Ask tutors to suggest two (2) alternative assessment strategies (<i>for or as</i>) to be used during the lesson.</p> <p><i>Eg. Co- planning, co-teaching and co-reflection be done on two best lessons and submitted for scoring. These could be added to students' subject portfolios.</i></p> <p>3.6 Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>NB: Consciously distribute books and TLRs equally amongst all students.</i></p> <p>3.7 Ensure that every member of the various groups have concrete plans for what they have agreed on to be done to achieve the LOs and LIs of the course manuals.</p>	<p>and how you can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g. Development of collaborative and communication skills through group work and lesson presentations.</i></p> <p>3.5 Suggest two (2) alternative assessment strategies (<i>for or as</i>) to be used during the lesson.</p> <p><i>Eg. Co- planning, co-teaching and co-reflection be done on two best lessons and submitted for scoring. These could be added to students' subject portfolios.</i></p> <p>3.6 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>NB: Consciously distribute books and TLRs equally amongst all students.</i></p> <p>3.7 Have concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</p>	
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<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors should identify critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class and report on observations made during next PD session.</p> <p><i>Note: Find out if anything relating to Lesson 9 needs to be discussed and clarified.</i></p> <p>4.2 Encourage tutors to read lesson 10 from the PD manual and look for relevant materials for the next session.</p> <p><i>NB: Ask tutors to read THEME 6 before the next lesson.</i></p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p> <p>4.2 Read lesson 10 from the PD manual and look for relevant materials for the next session.</p> <p><i>NB: Read THEME 6 before the next lesson.</i></p>	<p>15 mins</p>
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AGE LEVELS/S: JHS and Upper Grade

Name of courses/Subject/s:

1. JHS ---Teaching and Assessment of Science

2. Upper Primary – Teaching and Assessment of Science

Lesson Tittles:

JHS - Identifying and developing appropriate Assessment strategies for measuring learning outcomes in the science classroom

Upper Prim. - Co-planning and Co-teaching

Tutor PD Session for Lesson 10 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of 	<p>Start with an ice breaker.</p> <p>1.1 Ask tutors to review lesson 9 in their respective grade levels and share with the whole group anything that will be of interest to all.</p> <p>1.2 Invite the critical friends for the various grade levels to share their findings for a short discussion.</p>	<p>1.1 Review lesson 9 in your respective grade levels and share with the whole group anything that will be of interest to all</p> <p>1.2 Critical friends for the various grade levels share their findings for a short discussion.</p>	<p>20 mins</p>

<p>any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3 Ask tutors to read and discuss the introductory sections of the lesson up to learning outcomes and indicators from the course manual and explain how they are related to student teachers' relevant previous knowledge. <i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.4 Ask tutors to read the lesson overview, lesson descriptions and the content of lesson 10 in their respective groups. <i>(It should be read by both males and females).</i></p> <p><i>Note: UP- lesson description- In this lesson, the student teacher is guided to develop appropriate lessons with resources and assessment to facilitate Primary learning of science.</i></p> <p>1.4.1 Ask tutors to identify the distinctive features of lesson 10 as they read and discuss them after reading. <i>E.g. UP- Characteristics of an inclusive teacher: patience, critical thinker, tolerance, accommodating and perseverance.</i> <i>NB: Refer to the course manual for the rest.</i></p>	<p>1.3 Read and discuss the introductory sections of the lesson up to learning outcomes and indicators in the course manual and explain how they are related to student teachers' relevant previous knowledge. <i>N.B.: Refer to the course manual for detailed information.</i></p> <p>1.4 Read the lesson overview, lesson descriptions and the content of lesson 10 in your respective groups. <i>(It should be read by both males and females).</i></p> <p><i>Note: UP- lesson description- In this lesson, the student teacher is guided to develop appropriate lessons with resources and assessment to facilitate Primary learning of science.</i></p> <p>1.4.1 Identify the distinctive features of lesson 10 as you read and discuss them after reading. <i>E.g. E.g. UP- Characteristics of an inclusive teacher: patience, critical thinker, tolerance, accommodating and perseverance.</i> <i>NB: Refer to the course manual for the rest.</i></p>	
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<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to identify and discuss the new areas to be covered in lesson 10 of their respective course manuals.</p> <p><i>Note: Discuss how the assessment strategies in theme 6 will be integrated in the lesson.</i></p> <p>2.2 Assist tutors to identify and discuss the potential barriers to lesson 10 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: Preconceived notion that planning and delivery a lesson is always difficult is difficult.</i></p> <p><i>Suggested solution: Do co-planning, co-teaching and co-reflection. Also seek assistance when faced with any challenge.</i></p> <p>2.3 Ask tutors to familiarize themselves with the teaching strategies suggested in the course manuals to teach lesson 10 and suggest alternative ones.</p> <p><i>Eg. Peer-review after co-teaching exercise for lessons to be learnt.</i></p>	<p>2.1 Identify and discuss the new areas to be covered in lesson 10 from your respective course manuals.</p> <p><i>Note: Discuss how the assessment strategies in theme 6 will be integrated in the lesson.</i></p> <p>2.2 Identify and discuss the potential barriers to lesson 10 and suggest interventions to them.</p> <p><i>E.g. A potential Barrier: Preconceived notion that planning and delivery a lesson is always difficult is difficult.</i></p> <p><i>Suggested solution: Do co-planning, co-teaching and co-reflection. Also seek assistance when faced with any challenge.</i></p> <p>2.3 Familiarize yourselves with the teaching strategies suggested in the course manuals to teach lesson 10 and suggest alternative ones.</p> <p><i>Eg. Peer-review after co-teaching exercise for lessons to be learnt.</i></p>	<p>15 mins</p>
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities 	<p>3.1 Support tutors to read and discuss the activities of lesson 10 in order to agree on how to present them in the various classrooms.</p> <p><i>NB: Prompt tutors to identify areas that need</i></p>	<p>3.1 Read and discuss the activities of lesson 10 in order to agree on how to present them in the various classrooms.</p>	<p>40 mins</p>

<ul style="list-style-type: none"> • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they 	<p><i>clarification and let them solve them in their respective groups or discuss them with the larger group.</i></p> <p>3.2 Lead discussion on how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 10.</p> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p>E.g. (1) Encourage the participation of all students.</p> <p><i>(2) It is important to go beyond academic ability. Bear in mind that some learners come from disadvantaged situations – orphans, displaced, the very poor or may have hidden disabilities.</i></p> <p>3.4 Ask tutors to identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g. Development of communication skills,</i></p>	<p>3.2 Discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 10.</p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>Eg (1) Encourage the participation of all students.</i></p> <p><i>(2) It is important to go beyond academic ability. Bear in mind that some learners come from disadvantaged situations – orphans, displaced, the very poor or may have hidden disabilities.</i></p> <p>3.4 Identify where, and which, 21st century skills that can be developed or applied in the lesson and how you can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>E.g. Development of communication skills,</i></p>	
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<p>should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ● Tutors should be expected to have a plan for the next lesson for student teachers 	<p><i>collaboration skills and mutual respect while appreciating individual difference, critical thinking and responsibility through careful participation in group work/ discussion.</i></p> <p>3.5 Ask tutors to model how assessment strategies (<i>for or as</i>) would be used during the lesson. <i>NB: Tell tutors to inform student-teacher to write a reflective report on the characteristics of an inclusive teacher as observed in classroom engagements. These could be added to students' subject portfolios.</i></p> <p>3.6 Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms. <i>NB: Drawings and texts materials should be clear and large enough to be seen and read by all.</i></p> <p>3.7 Ensure that every member of the various groups have concrete plans for what they have agreed on to be done to achieve the LOs and LIs of the course manuals.</p>	<p><i>collaboration skills and mutual respect while appreciating individual difference, critical thinking and responsibility through careful participation in group work/ discussion.</i></p> <p>3.5 Model how assessment strategies (<i>for or as</i>) would be used during the lesson. <i>NB: Inform student-teacher to write a reflective report on the characteristics of an inclusive teacher as observed in classroom engagements. These could be added to students' subject portfolios.</i></p> <p>3.6 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms. <i>NB: Drawings and texts materials should be clear and large enough to be seen and read by all.</i></p> <p>3.7 Have concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</p>	
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<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors should identify critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class and report on observations made during next PD session.</p> <p><i>Note: Find out if anything relating to Lesson 10 needs to be discussed and clarified.</i></p> <p>4.2 Ask tutors to read lesson 11 from the PD manual and look for relevant materials for the next session.</p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p> <p>4.2 Read lesson 11 from the PD manual and look for relevant materials for the next session.</p>	<p>15 mins</p>
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AGE LEVELS: JHS and Upper Primary

Name of courses/Subject/s:

1. JHS ---Teaching and Assessment of Science

2. Upper Primary – Teaching and Assessment of Science

Lesson Tittles:

JHS: Reflective Practices

Upper Primary: Co-planning with Individualised teaching

Tutor PD Session for Lesson 11 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1(b) Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators • Overview of content and identification of any distinctive 	<p>Start the session with an icebreaker</p> <p>1.1 Use leading and probing questions to recap the main issues raised in the previous PD session in the various grade level.</p> <p>1.2 Ask tutors in their respective groups to read and discuss introductory sections of the lesson11 up to and including learning</p>	<p>1.1 Discuss the main issues raised in the previous PD session in the various grade level.</p> <p>1.2 Read and discuss the introductory section of lesson 11 in your course manual including the learning outcomes (LOs) in phase groups.</p>	20 mins

<p>aspects of the lesson/s,</p> <ul style="list-style-type: none"> • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>outcomes and indicators</p> <p><i>Note: The topics and lesson descriptions for lesson 11 at the various levels are:</i></p> <p><i>JHS-: Topic – Reflective Practices. (Year3 semester 2).</i></p> <p><i>Learning Outcomes - Plan and deliver varied lessons in science that will produce the intended learning outcomes and demonstrate significant ability to design and engage in Micro Science (MS) practical activities and other alternative interactive assessment practices. (NTS 2c, 2f: 13, 3a, 3c, 3d, 3e, 3f, 3i, 3j: 14)</i></p> <p><i>UPPER PRIMARY: Co-planning and co-teaching</i></p> <p><i>Learning Outcomes - Demonstrate the characteristics of an inclusive science teacher (values & attitudes) in class engagements. (NTS, 2e, Pg. 13).</i></p> <p>1.2.1 Ask tutors in the various groups to discuss the important or distinctive aspects of the lesson 11including vocabulary and fundamental concepts.</p>	<p>1.2.1 Ask tutors in the various groups to discuss the important or distinctive aspects of the lesson 11including vocabulary and fundamental concepts</p>	
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	<p><i>And explain how they applied it in their teaching.</i></p> <p><i>JHS: diagnostic assessment tools/resources.</i></p> <p><i>UPPER PRIMARY:</i></p> <ul style="list-style-type: none"> • <i>Learning Outcomes</i> • <i>Learning Indicators</i> • <i>Performance indicator</i> 		
<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors in their various group to identify familiar and unfamiliar concepts in their lessons 11 and discuss them with their group member.</p> <p><i>Familiar Concept</i> <i>JHS:</i></p> <ul style="list-style-type: none"> • <i>diagnostic</i> • <i>assessment</i> • <i>tools/resources</i> <p><i>UP:</i></p> <ul style="list-style-type: none"> • <i>Learning Outcomes</i> • <i>Learning Indicators</i> • <i>Performance indicator</i> <p><i>Unfamiliar Concepts</i> <i>E.g.</i> <i>UP:</i></p> <ul style="list-style-type: none"> • Make a reflective presentation on the characteristics of an inclusive science teacher <p>2.2 Ask tutors to outline possible challenging areas in teaching the various concept listed.</p> <p>Example: <i>JHS: Preconceived notion that designing diagnostic assessment resources is difficult and complicated</i></p>	<p>2.1 List and discuss the major concepts in the lesson.</p> <p>2.2 Outline possible challenging areas in teaching the various concept listed</p>	

	<p><i>UP: Student-teachers may lack knowledge about the features of early grade science.</i></p> <p>2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. Discussions, demonstrations and observations of video from you tube on teaching, peer teaching, stimulation Group presentations of reports and Reflections</i></p>	<p>2.3 Identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p>	
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness 	<p>3.1 Guide tutors to read and discuss the teaching and learning activities in the course manuals for the various group levels for lesson 11 taking into account GESI issues.</p> <p>eg.</p> <ol style="list-style-type: none"> 1. Even distribution of questions to address the various need of learner based on gender, learning abilities, previous experience 2. Provision should be for physical challenged persons. 	<p>3.1 Read and discuss the teaching and learning activities in your course manuals.</p>	40 mins

<p>and ICT and 21st C skills</p> <ul style="list-style-type: none"> • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning • Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability ○ guidance on any power point presentations, TLM or other resources which need to be developed 	<p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources including ICT and methodology.</i></p> <p>3.2 Let tutors identify areas that require further clarification in the various concept from the course manual.</p> <p><i>Note: Strategies for clarify may include investigation, internet search, etc.</i></p> <p>3.3 Ask tutors to discuss some pedagogical approaches and their related core competencies expected to be inculcated in students and for that matter Basic School learners to achieve the LOs and the LIs of the course manual for lesson 11.</p> <p>Eg. <i>UP/JHS: Strategies: Discussions, demonstrations and observations student teachers engage in peer teaching video presentation may be used to connect theory to practical. Core Competencies: problem formulation and identification, Problem solving, critical and creative thinking and communication</i></p> <p>3.4 Ask tutors to discuss how GESI issues related to the teaching</p>	<p>3.2 Identify areas that need clarification from your course manual.</p> <p>3.3 Discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of your course manual for lesson 11.</p> <p>3.4 Discuss how GESI issues related to the teaching and learning activities of</p>	
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<p>to support learning</p> <ul style="list-style-type: none"> Tutors should be expected to have a plan for the next lesson for student teachers 	<p>and learning activities of the lesson would be addressed.</p> <p>E.g.</p> <ol style="list-style-type: none"> Both genders take leading roles in group task Pay attention to slow learner. <p><i>Note: Being patient with stutterers, providing peer support for those who might need it, while you pay attention to all Phases learners.</i></p> <p>3.5 Ask tutors to identify where, and which, 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p><i>e.g.</i> <i>(1) The use of power point to prepare and present lessons video and stimulation by tutor and student teachers.</i></p> <p>3.6 Ask tutors to read and discuss the assessment strategies to be used during teaching of the lessons in the various course manual.</p> <p><i>Note: Assessment must be aligned to the NTEAP and required course.</i> <i>Continuous assessment activities (assignments,</i></p>	<p>the lesson would be addressed.</p> <p>E.g. <i>Pay attention to slow learner.</i></p> <p>3.5 Identify which 21st century skills that can be developed or applied in the lesson and how they can help student teachers to support basic school learners to develop these skills through STS activities.</p> <p>3.6 Read the assessment activities in the various manuals and identify areas that require clarification.</p>	
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	<p><i>quizzes, group presentations, etc, should be used to create subject projects and build subject portfolios</i></p> <p>3.7 Ask tutors in identifying the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. Games, Audio-visuals from YouTube, samples of individual tutor learning plans.</p> <p>Note: <i>Make sure the resources are enough and appropriate to all learners (males, females and physically challenge)</i></p> <ul style="list-style-type: none"> • <i>Ensure that everybody has a concrete approach as to how to go about the lesson for teaching the given topics, thus, the activities agreed on by the group to be followed.</i> 	<p>3.7 Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <ul style="list-style-type: none"> • <i>Have concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i> 	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors need to identify critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson 11 and report on observations made during next PD session taking into consideration – Clarity of concepts, ICT integration, GESI, Twenty First Century Skills.</p>	<p>4.1 Identify a critical friend who took part in the PD session to sit in your class during lesson and report on observations made during next PD session.</p>	<p>15 mins</p>

	<p>4.2 Ask tutors if anything relating to Lesson 11 needs to be discussed and clarified including GESI and ICT integration.</p> <p><i>Note: In the case of unresolved issues consult the subject writing leads.</i></p> <p>4.3 Ask tutors to read lesson 12 from the PD manual and find relevant materials for the next session.</p>	<p>4.2 Discuss and clarified anything relating to Lesson 11 concept.</p> <p>4.3 Read lesson 2 from the PD manual and find relevant materials for the next session.</p>	
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AGE LEVELS/S: JHS, and Upper Grade

Name of courses/Subject/s:

1. JHS---- Teaching and Assessment of Science
2. Upper Primary --- Teaching and Assessment of Science

Lesson Tittles:

Upper Primary -- Course Review II with STS seminar

JHS --Course Review II with STS seminar

Tutor PD Session for Lesson 12 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1. Introduction to the session</p> <ul style="list-style-type: none"> • Review prior learning • A critical friend to share findings for a short discussion and lessons learned • Reading and discussion of the introductory sections of the lesson up to and 	<p>Ask tutors to begin the session with an ice breaker. Eg. Riddle, riddle: What assessment method has nearly universal faculty participation, enjoys superb student participation, is never accused of violating academic freedom, provides detailed diagnostic assessment of student learning. is tightly linked to teaching objectives, has a</p>		20 mins

<p>including learning outcomes and indicators</p> <ul style="list-style-type: none"> • Overview of content and identification of any distinctive aspects of the lesson/s, • NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson. • NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session 	<p>tight feedback loop into classroom learning and into teacher planning. and is cheap to implement it? Answer: Grading, when it is well done.</p> <p>1.1 Provide post-it cards for tutors and ask them to write down their reflections of lesson learnt from lesson 7 through lesson 11 in all learning approaches and observations/experiences during STS.</p> <p>1.2 Ask tutors to reflect on lesson 11 observed by a colleague and discuss any finding if possible.</p> <p>1.3 In pairs ask tutors to read and discuss the introduction sections of the lesson to identify the lesson descriptions, the purpose, RPK, LOs and LIs, etc. of the lessons for the various grades in the course manual.</p> <p><i>E.g: JHS: This lesson is a review and audit of the lessons for the second half of the semester as well as review and discussion of lessons learned, reflection on the supported teaching in schools (STS) and peer review of teaching and learning portfolios.</i></p> <p>1.4 Ask tutor to identify any distinctive aspects of the lesson/s learnt from lesson 7 through lesson 11.</p>	<p>1.1 Write down your reflections of PD session from lesson 7-11 on it base on the following: positives challenges and suggestion to improve on the next PD sessions.</p> <p>1.2 Reflect on the lesson observed by a colleague and discuss any finding if possible.</p> <p>1.3 Read and discuss the introduction sections of the lesson to learning outcomes and indicators.</p> <p>1.4 Identify any distinctive aspects of the lesson/s learnt from lesson 7 through lesson 11</p>	
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<p>2. Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> • Identification and discussion of new learning, potential barriers to learning for student teachers or students, concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD • NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors 	<p>2.1 Ask tutors to use the radio reporter approach to come out with the main content covered from lesson 7 to lesson 11 for the various grade in the respective course manuals.</p> <p>2.2 Ask tutors to use reverse brainstorming method to outline potential barriers to learning for student teachers or students in relation to lessons from lesson 7 to lesson 11 in the various grade levels which still need clarification.</p> <p><i>Note: Misconception to some concepts not adequately dealt with. Lessons not appropriately understood by student teachers.</i></p> <p>2.2.1 Ask tutors to suggest ways to improve upon the teaching of the concepts that need clarification.</p> <p><i>E.g. JHS: potential barriers Preconceived notion that preparation of a lesson plan and pedagogy is difficult. Suggested way; student teachers may get a critical friend to audit their lesson plan and pedagogy</i></p>	<p>2.1 Use the radio reporter approach to come out with the main content covered from lesson 7 to lesson 11 for the various grade in the respective course manuals.</p> <p>2.2 Use reverse brainstorming method to outline potential barriers of learning for student teachers or students in relation to lessons 7-11 in the various grade levels which still need clarification.</p> <p>2.2.1 Suggest ways to improve upon the teaching of the concepts that need clarification.</p>	<p>15 mins</p>
<p>3. Planning for teaching, learning and assessment activities for the lesson/s</p>	<p>3.1 Discuss with tutors the various suggested teaching and learning activities in the course manual that were used in the delivery of the</p>	<p>3.1 Discuss the various suggested teaching and learning activities in the course manual that were used in the delivery of the lessons</p>	<p>40 mins</p>

<ul style="list-style-type: none"> • Reading and discussion of the teaching and learning activities • Noting and addressing areas where tutors may require clarification • Noting opportunities for making links to the Basic School Curriculum • Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills • Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning. 	<p>lessons which need clarification.</p> <p>3.2 Ask tutors discuss how they were able to ensure that all the teaching and learning activities from lessons 7- 11 are GESI responsive.</p> <p>3.3 Ask tutors to read the assessment activities in the manual(s) and identify areas that require clarification especially on NTEAP related activities. (E.g. Assessment arrangements are reviewed in line with NTEAP).</p> <p><i>Note: continuous assessment - subject project (class assignment, in-class presentation), subject portfolio including those gathered from School Visit (STS) and summative assessment - end of semester examination.</i></p>	<p>which need clarification.</p> <p>3.2 Discuss how they were able to ensure that all the teaching and learning activities from lessons 7- 11 are GESI responsive.</p> <p>3.3 Read the assessment activities in the manual(s) and identify areas that require clarification especially on NTEAP related activities. (E.g. Assessment arrangements are reviewed in line with NTEAP).</p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> • Tutors should Identifying critical friends to observe lessons and report at next session. • Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Individually, ask tutors to identify any outstanding issues relating to the lesson for clarification.</p> <p>4.2 Ask tutors to evaluate the PD sessions indicating what lessons have been learnt and how the sessions have impacted teaching and learning of the course.</p>	<p>4.1 Identify any outstanding issues relating to the lesson for clarification.</p> <p>4.2 Evaluate the PD sessions indicating what lessons have been learnt and how the sessions have impacted teaching and learning of the course.</p>	<p>15 mins</p>

Appendix 1

The PD session check list: supporting B.Ed. implementation.

In some cases, to support implementation and address recent developments the PD session writers may need to add detail to what is covered in the course manuals

What to Include in PD sessions	Checked and In Place.
<p>Course introductions and conclusions</p> <ul style="list-style-type: none"> The first PD session of each semester introduces the course manual/s, course expectations and course assessment components The final PD session provides the opportunity to review student teachers' learning from the course 	
<p>Prior knowledge: Points for tutors on activating student teachers' prior knowledge.</p>	
<p>Basic School Curriculum: when topics for student teachers are from the Basic School Curriculum the PD session makes explicit links.</p>	
<p>LO: relevance to each session are introduced</p>	
<p>Interactive teaching PD sessions provide opportunities for SL/HOD to model interactive approaches to teaching and learning that tutors will use to support student teachers</p>	
<p>Lesson Learning outcomes and indicators are introduced</p>	
<p>Integration of subject specific content and subject specific pedagogy is modelled in PD sessions through activities for tutors. Any potentially new concepts introduced in the lesson are explored with tutors</p>	
<p>Subject Specific Training: where subjects have been grouped together for the PD sessions, tutors are guided to engage with activities in the subject course manuals to ensure the PD is subject specific. Where appropriate there is direct page or point references to activities in each of the relevant subject course manuals.</p>	
<p>Integrating GESI: each PD session explicitly includes at least two (2) teaching and learning activities from the course manual/s which should be used to promote student teachers' understanding of GESI responsiveness and support the inclusion of all pupils.</p>	
<p>Assessment, integrating and embedding NTEAP practices: PD sessions include at least two (2) continuous assessment opportunities which will support tutors in developing student teacher's understanding of, and ability to apply, assessment for or as learning.</p>	
<p>Age Specific Training: where relevant tutors are guided to specific activities in the course manuals for EG, UP and JHS. Tutors are advised to group student teachers according to the age they are training for.</p>	
<p>Building in STS: STS tasks are integrated into the PD sessions. Preparing for work in school and opportunities for tutors to draw on what student teachers are learning in school by, for example, targeting observations linked directly to the themes in the course manuals.</p>	
<p>Building in activities which support the development of 21c skills in particular the use of ICT. The development of these is integrated into the PD sessions including the use of ICT to support learning. Each PD session should include at</p>	

least two (2) examples of students being required to use ICT to extend their learning.	
Resources /TLM. Where specific resources are required, it is clear where tutors can access them e.g., videos, online resources or readings.	

Appendix 2. Course Assessment Components briefly

COMPONENT	SUBJECT PROJECT 1 per course per semester, individual or collaborative student teacher work.	SUBJECT PORTFOLIO 1 per course per semester, individual or collaborative student teacher work.
WHAT IS IT?	The Subject project is an assignment designed to enable student teachers to demonstrate achieving one or more of the CLOs, progress towards achieving identified NTS, development of knowledge and understanding of: the Basic School Curriculum, GESI responsiveness, using ICT mand 21stC skills	The Subject Portfolio is the deliberate collection of student teachers' work that has been selected and organized for a particular subject to show student teacher's learning and progress to achieving the CLOs through examples of his or her best work.
CONSTITUENTS	<p>Introduction: a clear statement of aim and purpose</p> <p>Methodology: what the student teacher has done and why to achieve the aim and purpose of the project</p> <p>Substantive or main section: Presentation of any artifacts, experiments, TLMs created for the project; presentation, analysis, and interpretation of what has been done, learned, or found out in relation to focus of the project.</p> <p>Conclusion: Statement of the key outcomes of the project; reflection on what the student teacher has learnt</p>	<p>3 items of work produced during the semester selected by student teachers with tutor support during the semester as best examples of their progress and 200-word reflection on the items*</p> <p>Or 2 items of work and A mid semester assessment: case study, reflective note, quiz.</p> <p>* For each item they select, Student teacher's need to reflect on progress against identified NTS; achieving CLOs; increased knowledge and understanding of the Basic School Curriculum, GESI responsiveness, integration of ICT and how they could have approached developing the item differently to achieve a better outcome</p>
WEIGHT	<p>Overall weighting of project = 30%</p> <p>Weighting of individual parts of project out of 100</p> <ul style="list-style-type: none"> • Introduction – 10 • Methodology – 20 • Substantive section – 40 • Conclusion – 30 	<p>Overall weighting of project = 30%</p> <p>Weighting of individual parts of portfolio out of 100</p> <p>i(a). Each of the three (3) items selected by the student teacher is 30 % (90%).</p> <p>i(b) Presentation and organisation of portfolio 10%.</p> <p style="text-align: center;">OR</p> <p>ii(a). Each of the two (2) items selected by the student teacher is 30 % (60%).</p> <p>ii(b)Mid semester assessment 30%</p> <p>ii(c)Presentation and organisation of portfolio 10%</p>
EXAM	End of semester Exam, weight 40%. To assess: achievement of one or more of the CLOs, progress towards achieving identified NTS, development of knowledge and understanding of the Basic School Curriculum, ability to use GESI responsive approaches and to integrate ICT and 21 st C skills in teaching and learning	

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