

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

HANDBOOK FOR TUTORS



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 '21<sup>st</sup> 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**

**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 Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p><b>1(a) Introduction to the semester – in session one</b></p> <ul style="list-style-type: none"> <li>• Introduction to the purpose of the specialisms: EG, UP and JHS</li> <li>• Overview of subject/s age level/s to be covered in the PD sessions and guidance on grouping tutors according to the subject/s, age levels/s.</li> <li>• Introduction to the course manual/s</li> </ul>	<ol style="list-style-type: none"> <li>1.1. Discuss the purpose related to the two specialisms (JHS and Upper Primary).</li> <li>1.2. Sit in groups according to your grade levels or specialisms.</li> <li>1.3. Read the course descriptions, course learning outcomes and their corresponding learning indicators from your respective course manuals.</li> <li>1.4. Discuss the two assessment components (Subject project and subject portfolio) for the semester.</li> </ol> <p><i>NOTE: (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</i></p>	<b>20 mins</b>

<ul style="list-style-type: none"> <li>• Overview of course learning outcomes</li> <li>• 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.</li> </ul> <p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>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><i>during the semester as best examples of their progress and 200-word reflection on the items i.e.</i></p> <p><i>i. (a) Each of the three (3) items selected by the student teacher is 30 % (90%).</i></p> <p><i>i. (b) Presentation and organization of portfolio 10%.</i></p> <p style="text-align: center;"><i>OR</i></p> <p><i>ii. (a). Each of the two (2) items selected by the student teacher is 30 % (60%).</i></p> <p><i>ii(b)Mid semester assessment 30%</i></p> <p><i>ii. (c) Presentation and organization of portfolio 10%.</i></p> <p><i>Subject Project: Overall weighting of project = 30%</i>  <i>Weighting of individual parts of project out of 100%</i></p> <ul style="list-style-type: none"> <li>• <i>Introduction – 10%</i></li> <li>• <i>Methodology – 20%</i></li> <li>• <i>Substantive section – 40%</i></li> <li><i>Conclusion – 30%</i></li> </ul> <p>Suggested examples for subject portfolio</p> <ul style="list-style-type: none"> <li>• Lab reports,</li> <li>• Research reports</li> <li>• Charts, graphs created</li> <li>• Designs, TLMs, posters, worksheets</li> <li>• Integrating indigenous knowledge into science teaching.</li> </ul> <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.</p> <p>1.5.1. 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 indicators from your course manuals and explain how they are related to student teachers’ relevant previous knowledge.</p>	
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	1.8. Identify and discuss the distinctive features of lesson 1 from your various levels.	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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 the LOs and the LIs of the lesson.</p>	<b>15 mins</b>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> </ul>	<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 the lesson would be addressed.</p> <p>E.g.</p> <ol style="list-style-type: none"> <li>1. <i>Pay attention to slow learner.</i></li> <li>2. <i>Assign leadership roles to females and males equally</i></li> </ol> <p>3.4. Identify where, and which, 21<sup>st</sup> 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>	

<ul style="list-style-type: none"> <li>• 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</li> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<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. These could be added to their subject portfolio.</i></p> <p><i>(2). Inform your student teachers to prepare a LESSON PLAN ON THE TOPIC/SUB-STRAND HEAT 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><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors need to identify critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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>	<p><b>15 mins</b></p>

**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**

<b>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.</b>	<b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b>	<b>Time in session</b>
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</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 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>	<b>20 mins</b>

<p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>		
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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 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> <p>2.4 Think pair share the most appropriate teaching strategies that you can employ 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>	<p><b>15 mins</b></p>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> </ul>	<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> <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>	

<ul style="list-style-type: none"> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> </ul> </li> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<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 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>	
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<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors need to identify critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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. <i>Read lesson 3 from the PD manual and find relevant materials for the next session.</i></p>	<p><b>15 mins</b></p>
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**AGE LEVELS:** JHS, UPPER PRIMARY

**Name of courses/Subject/s:**

1. 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**

<b>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.</b>	<b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b>	<b>Time in session</b>
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</p>	<ol style="list-style-type: none"> <li>1.1. Discuss how useful the previous PD session was and how it influenced their teaching in lesson 3 in your various grade levels.</li> <li>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.</li> <li>1.3. Invite your critical friends to share their observations for a short discussion.</li> <li>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.               <ol style="list-style-type: none"> <li>1.4.1 Discuss the CLOs and LIs of the learning areas to be covered in your PD sessions for lesson 3.</li> </ol> </li> </ol>	<b>20 mins</b>

<p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</p> <p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</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>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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> <p><i>Misconception: Plants reproduce only asexually</i></p> <p><i>Solution: No</i></p> <p><i>3. Misconception: Reproduction is all to do with having babies.”</i></p> <p><i>Solution: Students often assume that reproduction is simply a way of increasing population size.</i></p> <p><i>Emphasis should be placed on the idea that cell division of body cells is also a form of reproduction and is 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><b>15 mins</b></p>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the</li> </ul>	<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><b>40 mins</b></p>

<p>teaching and learning activities</p> <ul style="list-style-type: none"> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> </ul> </li> </ul>	<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: 1. Take into account that some students are slow learners and others are gifted.</i>  <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. 1. Give equal chances to females and males to ask and also answer questions in class.</i>  <i>2. Assign leadership roles to females where possible.</i></p> <p>3.4. Identify which, 21<sup>st</sup> 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. (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> <p>2.4. 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>  <i>(2) Encourage tutors to instruct student -teachers to work in groups (in mixed ability, &amp; 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.</i></p>	
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<ul style="list-style-type: none"> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> <li>● Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p><i>This could be one of their subject projects for the semester.</i></p> <p>2.5. Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms. E.g. Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p>Note:</p> <ol style="list-style-type: none"> <li>1. <i>all teaching and learning material should be GESI responsive by being bold, clear, colourful and big enough to be easily noticeable by all learners.</i></li> <li>2. <i>Equal representation of males and females in group formation.</i></li> <li>3. <i>Make sure the resources are appropriate and enough to all learners (males, females and physically challenge)</i></li> <li>4. <i>Refer to theme 1 for different types of games to be used to teach the concepts.</i></li> </ol> <p>Note: <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>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>● Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>● Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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>	<p><b>15 mins</b></p>

**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

<b>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.</b>	<b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b>	<b>Time in session</b>
<b>1(b) Introduction to the session</b> <ul style="list-style-type: none"><li>• Review prior learning</li><li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li><li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li></ul> NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>1.3. Invite your critical friends to share their observations for a short discussion.</li><li>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.</li><li>1.5. Discuss the CLOs and LIs of the learning areas to be covered in the PD sessions for lesson 4.</li></ol>	<b>20 mins</b>

<p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</p> <p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</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>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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>2.3. Suggest alternative teaching strategies that can be employed to best explain the new concepts.</p>	<b>15 mins</b>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas</li> </ul>	<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>	<b>40 mins</b>

<p>where tutors may require clarification</p> <ul style="list-style-type: none"> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on any power point presentations,</li> </ul> </li> </ul>	<p><i>Note: 1. Take into account that some students are slow learners and others are gifted.</i></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. 1. Give equal chances to females and males to ask and also answer questions in class.</i></p> <p><i>2. Assign leadership roles to females.</i></p> <p>3.4. Identify where, and which, 21<sup>st</sup> 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. (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. Read the assessment activities in the various 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></p> <p><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 be used to teach the concepts.</i></p>	
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<p>TLM or other resources which need to be developed to support learning</p> <ul style="list-style-type: none"> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p><i>Have a concrete plan for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</i></p>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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>	<p><b>15 mins</b></p>

**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

<b>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.</b>	<b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b>	<b>Time in session</b>
<b>1(b) Introduction to the session</b> <ul style="list-style-type: none"><li>• Review prior learning</li><li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li><li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li></ul> NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.	<ol style="list-style-type: none"><li>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.</li><li>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.</li><li>1.3. Invite your critical friends to share their observations for a short discussion.</li><li>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.</li><li>1.5. Discuss the CLOs and LIs of the learning areas to be covered in the PD sessions for lesson 5.</li></ol>	<b>20 mins</b>

<p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</p> <p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</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>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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 traditional ways of using the left hand.</i></p> <p><i>Solution:</i> <i>Give a lot of examples on the functions of some parts of the human body.</i></p> <p>2.3 Suggest alternative teaching strategies that can be employed to best explain the new concepts.</p>	<b>15 mins</b>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> </ul>	<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>3.1. Discuss in your various groups/levels how the different activities would be carried out in both CoE and basic school classroom to achieve the</p>	<b>40 mins</b>

<ul style="list-style-type: none"> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> </ul> </li> </ul>	<p>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><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. 1. Give equal chances to females and males to ask and also answer questions in class.</i></p> <p><i>2. Assign leadership roles to females and males equally.</i></p> <p>3.4. Identify where, and which, 21<sup>st</sup> 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. (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>2.4. Read the assessment activities in the various manuals and identify areas that require clarification.</p> <p><i>. Note:</i></p> <p><i>Tutors instruct student -teachers to work in groups (in mixed ability, &amp; 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.</i></p> <p><i>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>	
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<p>given to local availability</p> <ul style="list-style-type: none"> <li>○ Guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> <li>● Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<p>E.g. Audio-visuals from YouTube, Games, samples of individual tutor learning plans.</p> <p>Note:</p> <ol style="list-style-type: none"> <li>1. <i>The periodic table should be GESI responsive by being bold, clear, colourful and big enough to be easily noticeable by all learners.</i></li> <li>2. <i>Equal representation of males and females in group formation.</i></li> <li>3. <i>Make sure the resources are appropriate and enough to all learners (males, females and SEN)</i></li> <li>4. <i>Refer to theme 1 for different types of games to be used to teach the concepts.</i></li> </ol> <ul style="list-style-type: none"> <li>● <i>Have concrete plans for what you have agreed on to be done to achieving the LOs and LIs of the course manuals.</i></li> </ul>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>● Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>● Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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>	<p><b>15 mins</b></p>

**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><b>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.</b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</p>	<ol style="list-style-type: none"> <li>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.                     <ol style="list-style-type: none"> <li>1.1.1. Share your reflections with a colleague and then with the larger group.</li> </ol> </li> <li>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.</li> <li>1.3. Critical friends give summary of their observations on the enactment of lessons 1,2,3,4 and 5.</li> <li>1.4. Discuss the important or distinctive features of lessons 1, 2, 3, 4 and 5</li> </ol>	<p><b>20 mins</b></p>

<p>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>1.5. 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>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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. <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>	<p><b>15 mins</b></p>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to</li> </ul>	<p>3.1. Ask tutors to recount the teaching and learning activities employed to teach lessons 1, 2, 3, 4, and 5.</p> <p>3.2. Tell how you implemented the following:</p> <ol style="list-style-type: none"> <li>Provision for SEN.</li> <li>Taking gender leading roles in group task.</li> <li>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</li> </ol> <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</p>	<p><b>40 mins</b></p>

<p>the Basic School Curriculum</p> <ul style="list-style-type: none"> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Youtube, physical resources, power point; how they should be used. Consideration needs to be given to local availability</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> </ul> </li> </ul>	<p>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 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 21<sup>st</sup> 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 21<sup>st</sup> 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> <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>	
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<ul style="list-style-type: none"> <li>Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>		
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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 during the next PD Session (NTS 1a).</p>	<p><b>15 mins</b></p>

**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><b>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.</b></p>	<p><b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b></p>	<p><b>Time in session</b></p>
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</p>	<ol style="list-style-type: none"> <li>1.1. Preview the 6<sup>th</sup> PD session in your respective grade levels/groups.</li> <li>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.</li> <li>1.3. Critical friends for the various grade levels share their findings for a short discussion.</li> <li>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.</li> </ol> <p><i>N.B.: Refer to the course manual for detailed information.</i></p>	<p><b>20 mins</b></p>

<p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</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> <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><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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 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> <p><i>Eg. 1. Using videos that reinforce Equity and SEN standards in the classroom.</i></p> <p><i>2. Mix ability grouping.</i></p>	<p><b>15 mins</b></p>

<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power</li> </ul> </li> </ul>	<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. <i>E.g. Classroom setup should enhance the participation of all students.</i></p> <p>3.4. Identify where, and which, 21<sup>st</sup> 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. <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</i> or <i>as</i>) to be used during the lesson. <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. <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><b>40 mins</b></p>
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<p>point; how they should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> <li>● Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>		
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>● Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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 8 from the PD manual and look for relevant materials for the next session.</p>	<p><b>15 mins</b></p>

**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 Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might</p>	<ol style="list-style-type: none"> <li>1.1. Review lesson 7 in your respective grade levels and share with the whole group anything that will be of interest to all</li> <li>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.</li> <li>1.3. Critical friends for the various grade levels share their findings for a short discussion.</li> <li>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.</li> </ol> <p><i>N.B.: Refer to the course manual for detailed information.</i></p>	<b>20 mins</b>

<p>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>1.5. 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> <p>1.5.1. Identify the distinctive features of lesson 8 as you read and discuss them after reading. <i>E.g. JHS- Types of feedback: formative, summative, formal and informal feedbacks</i> <i>NB: Refer to the course manual for the rest.</i></p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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. <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>	<b>15 mins</b>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Noting opportunities for making links to the Basic School Curriculum</li> </ul>	<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> <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>	<b>40 mins</b>

<ul style="list-style-type: none"> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> </ul> </li> <li>• Tutors should be expected to have a plan for the next</li> </ul>	<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>3.4. Identify where, and which, 21<sup>st</sup> 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> <p>3.5. Model how assessment strategies (for or as) would be used during the lesson.</p> <p><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.</p> <p><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>lesson for student teachers</p>		
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should identify critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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 9 from the PD manual and look for relevant materials for the next session.</p>	<p><b>15 mins</b></p>

**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

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 Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might require clarification on any aspect of the lesson.</p>	<ol style="list-style-type: none"> <li>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.</li> <li>1.2. Critical friends for the various grade levels share their findings for a short discussion.</li> <li>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. <i>N.B.: Refer to the course manual for detailed information.</i></li> <li>1.4. Read the lesson overview, lesson descriptions and the content of lesson 9 in your respective groups.  <i>Note: JHS lesson description- The lesson is designed to introduce student teachers to</i></li> </ol>	<b>20 mins</b>

<p>NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p><i>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.  <i>E.g. JHS-Lesson plan and micro teaching.  Up- Differentiated lesson  NB: Refer to the course manual for the rest.</i></p>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. Identify and discuss the new areas to be covered in lesson 9 from your respective course manuals.  <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.  <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.  <i>Eg. 1. Mix ability grouping.  2. Watching of videos on same or similar lesson.</i></p>	<p><b>15 mins</b></p>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> </ul>	<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><b>40 mins</b></p>

<ul style="list-style-type: none"> <li>• Noting and addressing areas where tutors may require clarification</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• 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</li> <li>• guidance on any power point presentations, TLM or other resources which need to be developed to support learning</li> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<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, 21<sup>st</sup> 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 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>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues</li> </ul>	<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>4.3. 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><b>15 mins</b></p>

relating to the lesson/s for clarification		
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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 Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas where tutors might</p>	<ol style="list-style-type: none"> <li>1.1. Review lesson 9 in your respective grade levels and share with the whole group anything that will be of interest to all</li> <li>1.2. Critical friends for the various grade levels share their findings for a short discussion.</li> <li>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. <i>N.B.: Refer to the course manual for detailed information.</i></li> <li>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></li> </ol>	<b>20 mins</b>

<p>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><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>	
<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. Identify and discuss the new areas to be covered in lesson 10 from your respective course manuals. <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.  <i>E.g. A potential Barrier: Preconceived notion that planning and delivery a lesson is always difficult is difficult.</i>  <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.  <i>Eg. Peer-review after co-teaching exercise for lessons to be learnt.</i></p>	<p><b>15 mins</b></p>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Reading, discussion, and identification of continuous assessment</li> </ul>	<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>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. <i>E g(1) Encourage the participation of all students.</i></p>	<p><b>40 mins</b></p>

<p>opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning</p> <ul style="list-style-type: none"> <li>• Resources: <ul style="list-style-type: none"> <li>○ 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</li> </ul> </li> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<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, 21<sup>st</sup> 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. <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>3.1. 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>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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><b>15 mins</b></p>

**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 Titles:**

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 Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p><b>1(b) Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul>	<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> <p>1.2.1 Ask tutors in the various groups to discuss the important or distinctive aspects of the lesson 11 including vocabulary and fundamental concepts</p>	<b>20 mins</b>

<p><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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>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><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• Reading and discussion of the teaching and learning activities</li> <li>• Noting opportunities for making links to the Basic School Curriculum</li> <li>• Noting opportunities for integrating: GESI responsiveness and ICT and 21<sup>st</sup> C skills</li> <li>• Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at</li> </ul>	<p>3.1. Read and discuss the teaching and learning activities in your course manuals.</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 the lesson would be addressed. 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>	<p><b>40 mins</b></p>

<p>least two opportunities to use continuous assessment to support student teacher learning</p> <ul style="list-style-type: none"> <li>• Resources: <ul style="list-style-type: none"> <li>○ links to the existing PD Themes, for example, action research, questioning and to other external</li> </ul> </li> <li>• Tutors should be expected to have a plan for the next lesson for student teachers</li> </ul>	<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"> <li>• <i>Have concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></li> </ul>	
<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors need to identify critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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 11 concept.</p> <p>4.3. Read lesson 2 from the PD manual and find relevant materials for the next session.</p>	<p><b>15 mins</b></p>

**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**

<b>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.</b>	<b>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</b>	<b>Time in session</b>
<p><b>1. Introduction to the session</b></p> <ul style="list-style-type: none"> <li>• Review prior learning</li> <li>• A critical friend to share findings for a short discussion and lessons learned</li> <li>• Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</li> <li>• Overview of content and identification of any distinctive aspects of the lesson/s,</li> </ul> <p>NB The guidance for SL/HoD should identify and address any areas</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>	<b>20 mins</b>

<p>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><b>2. Concept Development (New learning likely to arise in lesson/s):</b></p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <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. 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><b>15 mins</b></p>
<p><b>3. Planning for teaching, learning and assessment activities for the lesson/s</b></p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>	<p>3.1. Discuss the various suggested teaching and learning activities in the course manual that were used in the delivery of the lessons 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><b>40 mins</b></p>

<p><b>4. Evaluation and review of session:</b></p> <ul style="list-style-type: none"> <li>• Tutors should Identifying critical friends to observe lessons and report at next session.</li> <li>• Identifying and addressing any outstanding issues relating to the lesson/s for clarification</li> </ul>	<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><b>15 mins</b></p>
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## 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><b>Course introductions and conclusions</b></p> <ul style="list-style-type: none"> <li>• The first PD session of each semester introduces the course manual/s, course expectations and course assessment components</li> <li>• The final PD session provides the opportunity to review student teachers' learning from the course</li> </ul>	
<p><b>Prior knowledge:</b> Points for tutors on activating student teachers' prior knowledge.</p>	
<p><b>Basic School Curriculum:</b> when topics for student teachers are from the Basic School Curriculum the PD session makes explicit links.</p>	
<p><b>LO:</b> relevance to each session are introduced</p>	
<p><b>Interactive teaching</b> 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><b>Lesson Learning outcomes and indicators</b> are introduced</p>	
<p><b>Integration of subject specific content and subject specific pedagogy</b> is modelled in PD sessions through activities for tutors. Any potentially new concepts introduced in the lesson are explored with tutors</p>	
<p><b>Subject Specific Training:</b> 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><b>Integrating GESI:</b> 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><b>Assessment, integrating and embedding NTEAP practices:</b> 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><b>Age Specific Training:</b> 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><b>Building in STS:</b> 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><b>Building in activities which support the development of 21c skills in particular the use of ICT.</b> 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.	
<b>Resources /TLM.</b> 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?	<b>The Subject project</b> 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	<b>The Subject Portfolio</b> 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><b>Introduction:</b> a clear statement of aim and purpose</p> <p><b>Methodology:</b> what the student teacher has done and why to achieve the aim and purpose of the project</p> <p><b>Substantive or main section:</b> 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><b>Conclusion:</b> Statement of the key outcomes of the project; reflection on what the student teacher has learnt</p>	<p><b>3 items of work produced during the semester selected by student teachers with tutor support</b> during the semester as best examples of their progress and 200-word reflection on the items*</p> <p><b>Or 2 items of work and A mid semester assessment:</b> 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><b>Overall weighting of project = 30%</b></p> <p><b>Weighting of individual parts of project out of 100</b></p> <ul style="list-style-type: none"> <li>• Introduction – 10</li> <li>• Methodology – 20</li> <li>• Substantive section – 40</li> <li>• Conclusion – 30</li> </ul>	<p><b>Overall weighting of project = 30%</b></p> <p><b>Weighting of individual parts of portfolio out of 100</b></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;"><b>OR</b></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	<b>End of semester Exam, weight 40%. To assess:</b> 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 <sup>st</sup> C skills in teaching and learning	

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