

TUTOR PROFESSIONAL DEVELOPMENT HANDBOOK: B.Ed in Initial Teacher Education Science Year 4

HANDBOOK FOR COORDINATORS





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**TUTOR PROFESSIONAL
DEVELOPMENT HANDBOOK:
B.Ed in Initial Teacher
Education
Science Year 4**

Coordinator Version

Foreword to the Year 4 Tutor Professional Development Handbook

The development of this set of Tutor Professional Development Handbooks, for Year 4 Bachelor of Education (B.Ed.) courses in Initial Teacher Education marks both an end and a beginning.

It marks an end in that this is the final set of Tutor Professional Development Handbooks to be written, bringing an end to three years of writing by teams from across the four mentoring Universities (Kwame Nkrumah University of Science and Technology, University for Development Studies, University of Ghana and University of Education, Winneba) and Colleges of Education.

It marks a beginning because the significant reforms in teacher education which these Handbooks are helping to bring about has only just begun. The first student teachers who have directly benefitted from these Handbooks entered Colleges of Education in 2019 and won't graduate until 2023. Once these B.Ed. graduates enter Ghana's basic school classrooms, I am confident that we will see a year-on-year increase in the number of teachers meeting the quality benchmarks set out in the National Teachers' Standards (NTS).

It is our intention and belief that these Handbooks will be used in Universities and Colleges of Education for many years to come and that they will play a central role in helping us to bring about a sustained transformation in our basic education system so that we achieve the goal of the Education Strategic Plan (2018-2030) that "all pupils are equipped with appropriate literacy, numeracy and social development skills to effectively transition to second cycle education."

I would like to take this opportunity to thank the Ghana Tertiary Education Commission, the UK's Foreign, Commonwealth and Development Office (FCDO) and Mastercard Foundation for their support over the past three years in making all this possible.

Robin Todd
Executive Director, T-TEL
June 2022

Year Four

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

- ***It is critical that what SWL write provides direct subject and B.Ed. specific guidance, so SL/HoD can support and scaffold tutors learning and professional development. This requires direct reference to each course manual and explanations of any areas which may be challenging.***
- The sessions need to provide *the main PD* opportunity for tutors to ensure they fully understand what they need to teach and have the opportunity to plan together to make sure the new B.Ed. courses are taught well.
- Developments since the manuals were written require SWL to ***add additional detail to PD sessions***. Specifically, this means a focus on:
 - Integrating GESI to ensure the needs of females, males and students with special education needs are well catered for
 - Integrating ICT and 21c skills to ensure students learn to use technology effectively to support their own and pupils' learning
 - National Teacher Education Assessment Policy (NTEAP)
 - the three assessment components ***for the semester*** for ***each*** course: subject project (30%), subject portfolio (30%) and end of semester examination (40%). These need to be introduced in session 1. PD writers will need to provide an example subject portfolio and project assessment components. If these are not written into the course manuals, see Appendix 1: Course Assessment Components.
 - integrating the use of continuous assessment designed to support student teacher learning in each PD session
 - ***In year four there are two assessment components associated with the STS Portfolio course: the Professional Portfolio, this is presented with evidence of the Student Teacher meeting the NTS and assessed at a post internship seminar (viva), and the Action Research Project. Tutors need to be prepared for assessing these components.***
- The PD session template provides the frame for SWL to write the guidance for the Subject Leads (SL)/HoDs on how to lead and support the professional development of tutors in the weekly sessions
- Age level specialisms. To ensure appropriate subject and age level focus for the PD sessions:
 - there will be a subject specialist writing for each subject
 - where subjects are grouped direct reference needs to be made to examples of activities in the course manuals for each subject with explanations and guidance as required
 - where there are different age levels direct reference needs to be made to the course manuals for activities for each age level
- This is the student teachers' final year and involves planning for and teaching sequences of lessons next academic year across all required subjects with regard for: the basic school curriculum GESI responsiveness, cross-cutting and transferable skills, including ICT.
- PD sessions in all subjects will need to include preparation for this final push to beginning teaching
- SL/HoD need to have details of the resources needed for the activities

- Appendix 1: The PD writing checklist, for checking that the PD sessions address all required issues.
- Appendix 2: Course Assessment Components overview and example portfolio and projects

Tutor PD Session

Age Level/s: JHS

Name of Subject/s: Physics and Chemistry

Course Title: Physics - Properties of Matter and Electromagnetism.

Chemistry - *Chemistry Around Us*

Lesson Title: Measurement Errors and Dimensional Analysis

Tutor PD Session for Lesson 1 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1a Introduction to the semester – in session one</p> <ul style="list-style-type: none"> ➤ 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 level/s. ➤ Introduction to the course manual/s ➤ Overview of course learning outcomes ➤ Introduction to the two 	<p><u>INTRODUCTION 1 (a)</u></p> <p>1.1. Discuss with tutors the overview related to the JHS specialism from the course manual.</p> <p><i>E.g., The science programme is designed to transform the JHS teachers into one imbued with the right knowledge, technology, pedagogy, innovation, content and the core values and attitudes to promote inclusivity and inspire active learning at the JHS levels.</i></p> <p><i>Note: Inform tutors that this semesters' PD session would cover two courses of the JHS</i></p>	<p>1.1. Discuss the overview related to the JHS specialism from the course manual.</p>	<p>20 mins</p>

<p>continuous assessment components to be undertaken in each subject during the semester (See Course Assessment Components Appendix NB in subjects where there are no assessment components in the course manuals examples will need to be provided by the SWL for the SL/HoD.</p> <p>1b Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and identification of any distinctive aspects of the lesson/s, <p>NB The guidance for SL/HoD should identify, address and <i>provide explanations</i> for any</p>	<p><i>specialism (Chemistry & Physics) hence, grouping for the semester's PD sessions will be done according to these two subject specialisms.</i></p> <p>1.2. Ask tutors to sit according to their subject specialisms <i>NOTE: Courses to be covered with their corresponding course titles during this semester's PD sessions are:</i></p> <ul style="list-style-type: none"> ➤ <i>JHS (Physics): Properties of Matter and Electromagnetism.</i> ➤ <i>JHS (Chemistry): Chemistry Around Us</i> <p>1.3. Ask tutors to read course descriptions, course learning outcomes and their corresponding learning indicators from their respective course manuals.</p> <p><i>NOTE: This would enable tutors to familiarise themselves with the course learning outcomes and their corresponding learning indicators for the semester.</i></p> <p>1.4. Discuss with tutors the two assessment components (Subject project and subject portfolio) for the</p>	<p>1.2. Sit according to your subject specialisms. <i>NOTE: Courses to be covered with their corresponding course titles during this semester's PD sessions are:</i></p> <ul style="list-style-type: none"> ➤ <i>JHS (Physics): Properties of Matter and Electromagnetism.</i> ➤ <i>JHS (Chemistry): Chemistry Around Us</i> <p>1.3. Read the course descriptions, course learning outcomes and their corresponding learning indicators from your respective course manuals.</p> <p><i>NOTE: This would enable you to familiarise yourselves with the course learning outcomes and their corresponding learning indicators for the semester.</i></p> <p>1.4. Discuss the two assessment components (Subject project and subject portfolio) for the</p>	
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<p>areas where tutors might require clarification on an aspect of the lesson. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>semester.</p> <p>NOTE: <i>(Subject Portfolio: Overall weighting of project = 30% Weighting of individual parts of portfolio out of 100. Three (3) items of work produced during the semester selected by student teachers with tutor support during the semester as best examples of their progress and 200-word reflection on the items i.e. i. (a) Each of the three (3) items selected by the student teacher is 30 % (90%). i. (b) Presentation and organization of portfolio 10%.</i></p> <p>OR <i>ii. (a). Each of the two (2) items selected by the student teacher is 30 % (60%). ii(b)Mid semester assessment 30% ii. (c) Presentation and organization of portfolio 10%.</i></p> <p>Subject Project: Overall weighting of project = 30% Weighting of individual parts of project out of 100%</p> <ul style="list-style-type: none"> ➤ Introduction – 10% ➤ Methodology – 20% ➤ Substantive section – 40% Conclusion – 30%) 	<p>semester.</p> <p>NOTE: <i>(Subject Portfolio: Overall weighting of project = 30% Weighting of individual parts of portfolio out of 100. Three (3) items of work produced during the semester selected by student teachers with tutor support during the semester as best examples of their progress and 200-word reflection on the items i.e. i. (a) Each of the three (3) items selected by the student teacher is 30 % (90%). i. (b) Presentation and organization of portfolio 10%.</i></p> <p>OR <i>ii. (a). Each of the two (2) items selected by the student teacher is 30 % (60%). ii(b)Mid semester assessment 30% ii. (c) Presentation and organization of portfolio 10%.</i></p> <p>Subject Project: Overall weighting of project = 30% Weighting of individual parts of project out of 100%</p> <ul style="list-style-type: none"> ➤ Introduction – 10% ➤ Methodology – 20% 	
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	<p><i>Suggested examples for subject <u>Project</u></i></p> <ul style="list-style-type: none"> ➤ <i>Lab reports</i> ➤ <i>Integrating indigenous knowledge into science teaching.</i> ➤ <i>Charts, graphs created</i> ➤ <i>Designs, TLMs, posters, worksheets</i> <p><u>Subject Portfolio</u></p> <ul style="list-style-type: none"> ➤ <i>STS Portfolio</i> ➤ <i>Action Research reports</i> <p><i>Let tutors sing the song below as an ice breaker. (E.g., Paracetamol, aracetamol, racetamol, acetamol, cetamol).</i></p> <p><u>INTRODUCTION 1 (b)</u></p> <p>1.5. Ask tutors in their subject groups to write two things they learnt in Year 3 semester 2 PD sessions.</p> <p>1.5.1. Ask tutors to explain how they applied what they have written in their varied lessons.</p> <p>1.6. Guide tutors to discuss lessons on Basic Chemistry II and come out with challenges they faced and how they</p>	<ul style="list-style-type: none"> ➤ <i>Substantive section – 40%</i> <i>Conclusion – 30%</i> <p><i>Suggested examples for subject <u>Project</u></i></p> <ul style="list-style-type: none"> ➤ <i>Lab reports</i> ➤ <i>Integrating indigenous knowledge into science teaching.</i> ➤ <i>Charts, graphs created</i> ➤ <i>Designs, TLMs, posters, worksheets</i> <p><u>Subject Portfolio</u></p> <ul style="list-style-type: none"> ➤ <i>STS Portfolio</i> ➤ <i>Action Research reports.</i> <p>1.5. Write two things you learnt during Year 3 semester 2 PD sessions.</p> <p>1.5.1. Explain how you applied what you have written in your varied lessons.</p> <p>1.6. Discuss lessons on Basic Chemistry II and come out with challenges you faced and how you</p>	
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	<p>overcame them from the previous semester lessons.</p> <p>1.7. Ask tutors to read and discuss the introduction sections of the lesson up to learning indicators from their course manuals.</p> <p><i>Note: Some of the learning outcomes with their corresponding indicators, topics and course descriptions for Physics and Chemistry are:</i></p> <p><u>Chemistry:</u></p> <p><u>L.O</u> <i>Demonstrate the ability to transfer knowledge and skills from one lesson onto developing new concepts (NTS 2e & 2f, p.13.</i></p> <p><u>LI</u> <i>Present a checklist on new expectations based on the links between Basic chemistry II and chemistry around us.</i></p> <p><u>Physics:</u></p> <p><u>LO</u> <i>Demonstrate knowledge and understanding in the various errors involved in scientific measurement and apply dimensional analysis in determining relations among physical quantities. (NTS 1a, 2a, Pg. 18 &20)</i></p>	<p>overcame them from the previous semester lessons.</p> <p>1.7. Read and discuss the introduction sections of the lesson up to learning indicators from your course manuals.</p> <p><i>Note: Some of the learning outcomes and their corresponding indicators for Physics and Chemistry are:</i></p> <p><u>Chemistry:</u></p> <p><u>L.O</u> <i>Demonstrate the ability to transfer knowledge and skills from one lesson onto developing new concepts (NTS 2e & 2f, p.13.</i></p> <p><u>LI</u> <i>Present a checklist on new expectations based on the links between Basic chemistry II and chemistry around us.</i></p> <p><u>Physics:</u></p> <p><u>LO</u> <i>Demonstrate knowledge and understanding in the various errors involved in scientific measurement and apply dimensional analysis in determining relations among physical quantities. (NTS 1a, 2a, Pg. 18 &20)</i></p>	
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	<p><u>LI</u> <i>Show exercises in student teachers' workbook on errors and limitations of scientific measurement, and the relation of derived quantity to its basic quantity.</i></p> <p>1.8. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p><i>The topics and lesson descriptions for lesson 1 at the various course levels</i> <i>JHS (Physics) Topic:</i> <i>Measurement Errors and Dimensional Analysis.</i> <i>Lesson Description</i> - <i>The lesson will get student teachers to define and calculate absolute and relative errors of measured value, also help student teachers to appreciate dimensional analysis by determining relations among physical quantities and how they are used in our daily lives.</i></p> <p><i>JHS (Chemistry) Topic:</i> <i>Recap of the course Introduction to Basic Chemistry II and Introduction to Chemistry Around Us Manual</i> <i>Lesson Description</i> - <i>The lesson is designed to embed concepts in chemistry that are often used on a daily</i></p>	<p><u>LI</u> <i>Show exercises in student teachers' workbook on errors and limitations of scientific measurement, and the relation of derived quantity to its basic quantity.</i></p> <p>1.8. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p>	
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	<p><i>basis in the environment.</i></p> <p>1.9. Ask tutors to identify and discuss the distinctive features of lesson 1 for the two courses from the course manuals.</p> <p>JHS (Physics):</p> <ul style="list-style-type: none"> ➤ <i>Measurement, errors, accuracy and precision</i> ➤ <i>Limitations, significant figures, prefixes, rules of using the metric system and Scientific notations</i> ➤ <i>Dimensional analysis</i> 	<p>1.9. Identify and discuss the distinctive features of lesson 1 for the two courses from the course manuals.</p>	
<p>As this course is dealing with supporting and/or assessing the Professional Teaching Portfolio Development and/or Classroom Enquiry and Action Research Project, Report writing, Tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.10. Discuss with tutors the need to develop professional teaching portfolio.</p> <p><i>Some Examples are:</i></p> <ul style="list-style-type: none"> ➤ <i>For promotion</i> ➤ <i>It is a characteristic of professional teacher</i> ➤ <i>It serves as records and a reference material of one's professional work over time.</i> <p>1.10.1. Ask tutors to list the artefacts of a professional teaching portfolio and show how they will help student teachers to develop their own professional teaching portfolio in their respective basic schools when posted. <i>(Refer to Y3S2 STS Handbook Pg. 114-118).</i></p> <p><i>Some artefacts found in a</i></p>	<p>1.10. Discuss the need to develop professional teaching portfolio in your respective groups.</p> <p>1.10.1. List the artefacts of a professional teaching portfolio and show how you will help student teachers to develop their own professional teaching portfolio in their respective basic schools when posted.</p>	

	<p><i>professional teaching portfolio are;</i></p> <ul style="list-style-type: none"> ➤ Curriculum Vitae (CV) ➤ Teaching philosophy ➤ Sample lesson plans ➤ Sample scheme of learning ➤ Teaching and learning resources with annotated descriptions. ➤ Reflections on lessons. <p>1.11. Ask tutors to explain how they will assist the initial teachers to complete their classroom enquiry report. Refer to Y3 STS Pg. 91-100.</p> <p>1.12. Ask tutors to explain how they would assist initial teachers to discuss some professional practices of their mentors and co-mentees. (Refer to NTS 3a-3p. Pg.14).</p>	<p><i>(Refer to Y3S2 STS Handbook Pg. 114-118).</i></p> <p>1.11. Explain how they will assist the initial teachers to complete their classroom enquiry report. Refer to Y3 STS Pg. 91-100.</p> <p>1.12. Explain how you would assist initial teachers to discuss some professional practices of their mentors and co-mentees. (Refer to NTS 3a-3p, pg. 14).</p>	
<p><i>For each session remember this is the final semester before Students start teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc</i></p>	<p>1.13. Ask tutors to identify the cross-cutting issues in the course manuals and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Examples of cross-cutting issues are;</i></p> <ul style="list-style-type: none"> ➤ The use of ICT ➤ Equity ➤ Inclusivity ➤ Gender issues 	<p>1.13. Identify the cross-cutting issues in the course manual and explain how you can help the initial teachers to implement them in the basic school classroom after posting.</p>	

<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> ➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors</p>	<p>2.1. Ask tutors to list and discuss the major concepts in lesson 1.</p> <p>E.g.</p> <p>JHS: (PHYSICS)</p> <ul style="list-style-type: none"> ➤ The concept of measurement ➤ Concept the degree of errors ➤ Define the accepted value of a measurement ➤ Define relative measurement error ➤ Calculate relative measurement error values <p>2.2 Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p>NB: Misconceptions related to the concepts are:</p> <p><i>JHS (Physics)...</i></p> <p>(i). Students believing that all rulers are 30 cm long.</p> <p>Solution:</p> <p>A standard ruler is 1meter long. There are other meter rules that are more than 30cm.</p> <p>(ii). Confusing the formula for calculating “area” with the formula for calculating the perimeter of objects/plane figures.</p> <p>Solution:</p> <p><i>Area is the measurement of the surface of an object, whereas, perimeter is the close path that encompasses/surround the object/plane figure.</i></p> <p><i>E.g., The formula</i></p>	<p>2.1. List and discuss the major concepts in lesson 1.</p> <p>2.2. Discuss the potential misconceptions and barriers with respect to the concepts listed.</p>	<p>15 mins</p>
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	<p><i>calculating the area of a rectangle is $L * B$. However, the formula for calculating a perimeter is adding all the sides.</i></p> <p>2.3. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Demonstration / practical on how meter rule is used to take accurate measurement. (ii) Video/ multimedia simulation on a typical measurement skill that is GESI responsive. (iii). Group presentation</i></p>	<p>2.3. Identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p>	
<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining areas where tutors may require clarification ➤ Noting opportunities for making 	<p>3.1. Guide tutors to read and discuss the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1. Assist tutors to identify and discuss areas that need clarification.</p>	<p>3.1. Read and discuss the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1. Identify and discuss areas that need clarification.</p>	<p>1.13.1.1. n s</p>

<p><i>explicit</i> links to the Basic School Curriculum</p> <ul style="list-style-type: none"> ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning ➤ Resources: <ul style="list-style-type: none"> ○ links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Youtube, physical resources, power point; how they should be used. Consideration needs to be 	<p>3.2. Lead tutors to discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 1 from their course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender responsive.</i> <i>E, g. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3. Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Pay attention to slow learner.</i> <i>(ii). Assign leadership roles to females and males equally.</i></p> <p>3.4. Guide tutors to explain how they would assist the student teachers to demonstrate the 21st century skill in the basic school classroom. <i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons.</i> <i>(2) Development of leadership, collaborative and communicative</i></p>	<p>3.2. Discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 1 from your course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender responsive.</i> <i>E, g. Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3. Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Pay attention to slow learner.</i> <i>(ii). Assign leadership roles to females and males equally.</i></p> <p>3.4. Explain how you would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p>	
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<p>given to local availability</p> <ul style="list-style-type: none"> ○ guidance on any power point presentations, TLM or other resources which need to be developed to support learning ➤ Tutors should be expected to have a plan for the next lesson for student teachers 	<p><i>skills through group works and presentations.</i></p> <p>3.5. Ask tutors to read the assessment activities in the various course manuals and identify areas that require clarification.</p> <p><i>Note: (i) Assist your colleagues to review the assessment in the course manual to be in line with the NTEAP.</i></p> <p><i>(ii) Inform tutors to ask student teachers to prepare power point presentations on physical quantities. These could be added to their subject portfolio.</i></p> <p><i>(iii). Inform tutors to ask student teachers to prepare a LESSON PLAN on the topic/sub-strand "Measurement". Integrate two cross cutting issues and two 21st century skills. This could be one of their subject projects for the semester.</i></p> <p>3.6. Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>E.g., Games-Bingo, Audio-visuals from YouTube in relation to teaching measurement, samples of individual tutor learning plans.</i></p>	<p>3.5. Read the assessment activities in the various course manuals and identify areas that require clarification.</p> <p>3.6. Identify the inclusive resources needed for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>E.g., Games-Bingo, Audio-visuals from YouTube in relation to teaching measurement, samples of individual tutor learning plans.</i></p>	
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	<p>Note: <i>(i). Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN).</i> <i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	<p>Note: <i>Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN)</i></p>	
<p>4. Evaluation and review of session: a. Tutors need to identify critical friends to observe lessons and report at next session b. Identifying and addressing any outstanding issues relating to the lesson/s for clarification</p>	<p>4.1. Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.2. Discuss with tutors anything relating to Lesson 1 that needs clarification.</p> <p><i>Note:</i> <i>In the case of unresolved issues consult the subject writing leads.</i></p> <p>4.3. Encourage tutors to read lesson 2 from the PD manual and find relevant materials for the next session.</p>	<p>4.1. Identify a critical friend who took part in the PD session to sit in your class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.2. Discuss anything relating to Lesson 1 that needs clarification.</p> <p>4.3. Read lesson 2 from the PD manual and find relevant materials for the next session.</p>	15 mins

Tutor PD Session

Age Levels/s: JHS

Course Title/s: Physics- Properties of Matter and Electromagnetism

Chemistry: Chemistry Around Us

Lesson Title: Physics- Fluid at rest

Chemistry: Chemical bonding in substances

Name of Subject/s: Physics & Chemistry

Tutor PD Session for Lesson 2 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and 	<p>Start the session with an ice breaker.</p> <p>1.1. Ask tutors in their subject groups to write one thing that didn't go on well in the reviewed lesson of the previous PD session on a post in card and tell how it affected the lesson.</p> <p>1.2. Ask tutors to invite their critical friends to share their observations and have a brief discussion on the suggestions provided by the critical friends.</p>	<p>1.1. Write one thing that didn't go on well in the reviewed lesson of the previous PD session and tell how it affected your lesson.</p> <p>1.2. Invite your critical friends to share their observations made during lesson delivery and discuss the suggestions provided.</p>	<p>20 mins</p>

<p>identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3. Ask tutors to read the introduction of their respective course manuals and discuss the course learning outcomes (CLOs) and course learning indicators (CLIs) in groups as appropriate.</p> <p>Note (1): <i>The topics and lesson introduction/descriptions for lesson 2 at the various course levels are:</i> JHS (Physics) Topic: <i>Fluid at rest.</i> Lesson Description - <i>In this lesson, Tutor discusses fluid at rest with student teachers. Thus, student teachers will be introduced to measurements and calculations of density and relative density. Definition and calculation of pressure will also be introduced to student teachers.</i></p> <p>JHS (Chemistry) Topic: <i>Chemical bonding in substances</i> Lesson Description - <i>The lesson is designed to make student teachers reflect substances in the home and environment and how they are formed (bonding) as well explain their characteristics using the knowledge of how they are formed.</i></p> <p><i>E.g., 2. Physics CLO: Demonstrate adequate</i></p>	<p>1.3. Read and discuss the introductory sections of the lesson up to course learning outcomes and indicators from your course manuals.</p> <p>Note (1): <i>The topics and lesson introduction/descriptions for lesson 2 at the various course levels are:</i> JHS (Physics) Topic: <i>Fluid at rest.</i> Lesson Description - <i>In this lesson, Tutor discusses fluid at rest with student teachers. Thus, student teachers will be introduced to measurements and calculations of density and relative density. Definition and calculation of pressure will also be introduced to student teachers.</i></p> <p><i>JHS (Chemistry) Topic: Chemical bonding in substances</i> Lesson Description - <i>The lesson is designed to make student teachers reflect substances in the home and environment and how they are formed (bonding) as well explain their characteristics using the knowledge of how they are formed.</i></p> <p><i>E.g., 2. Physics CLO: Demonstrate adequate</i></p>	
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	<p><i>knowledge of physics principles in fluids at rest, basic fluid properties and the physical laws that govern fluid behaviour. (NTS 2a, Pg. 20)</i></p> <p><i>Physics CLI:</i> <i>Provide worked examples on relation of mass, volume and density ($m = \rho v$) and friction in liquid properties of viscous substance.</i></p> <p>1.3.1. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p><i>NOTE: This should enable tutors to, for instance, tell the possible preconceptions student teachers have about the various learning indicators.</i></p> <p>1.4. Ask tutors to identify and discuss the distinctive features of lesson 2 for the two courses from the course manuals.</p> <p>NOTE Distinctive Features JHS (Physics):</p> <ul style="list-style-type: none"> ➤ <i>Measurement of Density and Relative density</i> ➤ <i>Calculation of Density and relative density</i> ➤ <i>Definition and calculation of</i> 	<p><i>knowledge of physics principles in fluids at rest, basic fluid properties and the physical laws that govern fluid behaviour. (NTS 2a, Pg. 20)</i></p> <p><i>Physics CLI:</i> <i>Provide worked examples on relation of mass, volume and density ($m = \rho v$) and friction in liquid properties of viscous substance.</i></p> <p>1.3.1. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p>1.4. Identify and discuss the distinctive features of lesson 2 for the two courses from the course manuals.</p> <p>NOTE Distinctive Features JHS (Physics):</p> <ul style="list-style-type: none"> ➤ <i>Measurement of Density and Relative density</i> ➤ <i>Calculation of Density and relative density</i> ➤ <i>Definition and calculation of</i> 	
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	<p><i>pressure</i></p> <ul style="list-style-type: none"> ➤ <i>Fluid at rest (Density, Relative density and pressure)</i> <p>Distinctive Features JHS (Chemistry):</p> <ul style="list-style-type: none"> ➤ <i>Physical Properties of Compounds</i> ➤ <i>Chemical properties</i> ➤ <i>Bonding</i> 	<p><i>pressure</i></p> <ul style="list-style-type: none"> ➤ <i>Fluid at rest (Density, Relative density and pressure)</i> <p>Distinctive Features JHS (Chemistry):</p> <ul style="list-style-type: none"> ➤ <i>Physical Properties of Compounds</i> ➤ <i>Chemical properties</i> ➤ <i>Bonding</i> 	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should to be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.5. Guide tutors to discuss the activities that the student teachers are supposed to undertake with their mentors by the end of the extending placement during post internship seminar.</p> <p><i>Some Examples are:</i></p> <ul style="list-style-type: none"> ➤ <i>Undertake an action research project to improve the learning opportunities of an agreed group of pupils to promote greater inclusion.</i> ➤ <i>Discuss key features of the school curriculum, including issues of continuity and progression both within their specialism and across all the subjects they will teach. (Refer to Y3 STS Handbook, Page 7.)</i> 	<p>1.5. Discuss the activities that the student teachers are supposed to undertake with their mentors by the end of the extending placement during post internship seminar.</p> <p><i>Some Examples are:</i></p> <ul style="list-style-type: none"> ➤ <i>Undertake an action research project to improve the learning opportunities of an agreed group of pupils to promote greater inclusion.</i> ➤ <i>Discuss key features of the school curriculum, including issues of continuity and progression both within their specialism and across all the subjects they will teach. (Refer to Y3 STS Handbook, Page 7.)</i> 	

	<p>1.6. In their subject groups, ask tutors to brainstorm on the meaning of teaching philosophy and together come out with the most appropriate meaning.</p> <p><i>Suggested Meaning of Teaching Philosophy: Teaching philosophy is a self-reflective statement of your ideas and beliefs about Teaching and learning.</i></p> <p>1.7. Lead tutors to describe how they will review the general guidelines/steps for writing teaching philosophy statement. with student teachers.</p> <p><i>Note: General guidelines for writing Teaching Philosophy Statement: 1. Make your Teaching Statement brief and well written. 2. Use a narrative, first person approach 3. Make it specific rather than abstract. 4. Be discipline-specific. 5. Avoid jargon and technical terms, as they can be off-putting to some readers. 6. Be sincere and unique. 7. Be humble 8. Revise</i></p> <p>1.8. Ask tutors to write down their own example of teaching philosophy and share with the whole group.</p>	<p>1.6. Brainstorm on the meaning of teaching philosophy and together come out with the most appropriate meaning.</p> <p>1.7. Describe how you will review the general guidelines/steps for writing a teaching philosophy statement with student teachers.</p> <p>1.8. Write down your own example of a teaching philosophy statement and share it with the le group.</p>	
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	<p><i>Suggested Example of a teaching philosophy: I hoped to convey the sheer joy of learning, the thrill of understanding things about the universe. I wanted to pass on to students not only the logic but the beauty of science. Furthermore, I wanted to do this in a way that will be equally helpful to kids studying science for the first time.</i></p>		
<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</i></p>	<p>1.9. Ask tutors to identify the features of GESI responsive classroom set-up and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Note: To ensure GESI responsiveness in the way a classroom is set up, the following needs to be considered:</i></p> <ul style="list-style-type: none"> ➤ <i>A classroom setup that mixes girls and boys and also considers disabilities.</i> ➤ <i>Classroom setup that enhances the participation of all students</i> ➤ <i>Arrangement of the desks that allow students with disabilities to be comfortable</i> ➤ <i>Appropriate shelf heights in the libraries and laboratories.</i> ➤ <i>Stools in laboratories that are appropriate in size and shape thus enabling effective</i> 	<p>1.9. Identify the features of GESI responsive classroom set-up and explain how you can help the initial teachers to implement them in the basic school classroom after posting.</p>	

	<p><i>participation of both girls and boys.</i></p> <ul style="list-style-type: none"> ➤ <i>Fixtures and visual aids on the walls that send gender-responsive messages</i> ➤ <i>Appropriate size, shape and weight of desks and chairs.</i> 		
<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> ➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.1. Ask tutors to list and discuss the major concepts in lesson 2.</p> <p>E.g. JHS: (Physics)</p> <ul style="list-style-type: none"> ➤ <i>Measurement of Density and Relative density.</i> ➤ <i>Calculation of Density and relative density.</i> ➤ <i>Definition and calculation of pressure.</i> ➤ <i>Teaching of fluid at rest (density, relative density and pressure).</i> <p>2.2. Ask tutors to discuss the potential misconceptions and barriers concerning the concepts listed.</p> <p>NB: Misconceptions related to the concepts are: <i>JHS (Physics)...</i> <i>(i). The weight of an object determines if it will sink or float. Solution: Any object will either float or sink in water depending on its density (how much a certain volume of it weighs). If it's denser than water, it will usually sink; if it's less dense, it will float. It doesn't matter how big or small the object is: a gold ring will sink in water, while a piece of plastic as big as a football field will float.</i></p>	<p>2.1. List and discuss the major concepts in a lesson</p> <p>2.2. Discuss the potential misconceptions and barriers concerning the concepts listed.</p>	15 mins

	<p>(ii). <i>An object, such as a boat, floats because water is pushing up on it.</i></p> <p>Solution: <i>The air that is inside a ship is much less dense than water. That's what keeps it floating. As a ship is set in water, it pushes down and displaces an amount of water equal to its weight.</i></p> <p>2.3. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classrooms to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Demonstration / practical activity that is GESI responsive on how an object floats in water (Tutor guides student teachers to do hands-on/ practical activities, discuss and calculate density ($m = vp$) and relative density in an inclusive, multi-grade, and developmentally appropriate classrooms.)</i></p> <p><i>(ii) Video/ multimedia simulation on the concept of density and how objects float.</i></p> <p><i>(iii). Group presentation</i></p> <p><i>For videos on float and sink go to:</i> https://www.youtube.com/user/learningjunction https://www.youtube.com/watch?v=Oe6bDTL3YQg</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 classrooms to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Demonstration / practical activity that is GESI responsive on how an object floats in water (Tutor guides student teachers to do hands-on/ practical activities, discuss and calculate the density ($m = vp$) and relative density in an inclusive, multi-grade, and developmentally appropriate classrooms.)</i></p> <p><i>(ii) Video/ multimedia simulation on the concept of density and how objects float.</i></p> <p><i>(iii). Group presentation</i></p> <p><i>For videos on float and sink go to:</i> https://www.youtube.com/user/learningjunction https://www.youtube.com/</p>	
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	https://www.youtube.com/watch?v=kE8I_M2pyg8	m/watch?v=Oe6bDTL3YQg https://www.youtube.com/watch?v=kE8I_M2pyg8	
<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <p>Reading and discussion of the teaching and learning activities Noting, addressing, and explaining areas where tutors may require clarification Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to</p>	<p>3.1. Ask tutors to read and discuss the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, teaching and learning resources, characteristics of learners, coherency and methodology.</i></p> <p>3.1.1. Assist tutors to identify and discuss areas that need clarification.</p> <p>3.2. Lead tutors to discuss how the varied activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 2 from their course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender responsive.</i></p> <p><i>E.g., 1: Instead of “When everyone contributes <u>his</u> ideas, the discussion will be a success”.</i> <i>It may read: “When everyone contributes <u>his or her</u> ideas, the discussion will be a success”.</i></p>	<p>3.1. Read and discuss the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1. Identify and discuss areas that need clarification.</p> <p>3.2. Discuss how the varied activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 2 from your course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender responsive.</i></p> <p><i>E. g.,1: Instead of “When everyone contributes <u>his</u> ideas, the discussion will be a success”.</i> <i>It may read: “When everyone contributes <u>his or her</u> ideas, the discussion will be a success”.</i></p>	40 mins

<p>support student teacher learning, subject specific examples should be provided for SL/HoD</p> <p>Resources: 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.</p> <p>Consideration needs to be given to local availability</p> <p>Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p>2. <i>Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3. Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Prepare and use TLRs that attract the attention and interest of both female and male students, such as a short video on science concepts to be learned.</i></p> <p><i>(ii). Attract the interest of both female and male Students and motivate them.</i></p> <p>3.4. Guide tutors to explain how they would assist the student teachers to demonstrate the 21st skill in the basic school classroom.</p> <p><i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons.</i></p> <p><i>(2) Development of digital literacy, collaborative and communicative skills through group works and presentations.</i></p> <p>3.5. Ask tutors to read the assessment activities in the various course manuals and identify areas that require clarification.</p>	<p>2. <i>Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3. Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Prepare and use TLRs that attract the attention and interest of both female and male students, such as short video on science concept to be learned.</i></p> <p><i>(ii). Attract the interest of both female and male Students and motivate them.</i></p> <p>3.4. Explain how you would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p> <p>3.5. Read the assessment activities in the various course manuals and identify areas that require clarification.</p>	
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	<p><i>Note: (i) Assist your colleagues to review the assessment in the course manual to be in line with the NTEAP.</i></p> <p><i>(ii) Independent study: Tutor guides student teachers to do exercises in their workbooks individually on definition and calculation of pressure.</i></p> <p><i>These could be added to their subject portfolio.</i></p> <p><i>(iii). Inform tutors to ask student teachers to prepare a LESSON PLAN on the topic/sub-strand “Density and relative density”. Integrate two cross-cutting issues and two 21st century skills.</i></p> <p><i>This could be one of their subject projects for the semester.</i></p> <p>3.6. Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>E.g., Games-Going Fishing, Audio-visuals from YouTube in relation to teaching density and relative density as well as calculations of pressure.</i></p> <p>Note:</p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (females, males, and persons with SEN).</i></p> <p><i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the</i></p>	<p>3.6. Identify the inclusive resources needed for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>E.g., Games-Going Fishing, Audio-visuals from YouTube in relation to teaching density and relative density as well as calculations of pressure.</i></p> <p>Note:</p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (females, males and persons with SEN).</i></p>	
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	<i>activities agreed on by the group to be followed.</i>		
4. Evaluation and review of session: ➤ Tutors should identify critical friends to observe lessons and report at next session ➤ Identifying and addressing any outstanding issues relating to the lesson/s for clarification	4.1. Ask tutors to identify a critical friend who took part in this PD session to sit in their class during the lesson to provide feedback and report on observations made in the next PD session. 4.2. Discuss with tutors anything relating to Lesson 2 that needs clarification. <i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 3 from both the course manual and PD manual and find relevant materials for the next session.</i>	4.1. Identify a critical friend who took part in the PD session on lesson 2 to sit in your class during lesson to provide feedback and report on observations made in the next PD session. 4.2. Discuss anything relating to Lesson 2 that needs clarification.	15 mins

Tutor PD Session

Age Levels/s: JHS

Name of Subject/s: Physics & Chemistry

Course Title/s: Physics- Properties of Matter and Electromagnetism

Chemistry: Chemistry Around Us

Lesson Title: Physics- Electricity

Chemistry: Hydrogen ion Concentration (pH) in Systems

Tutor PD Session for Lesson 3 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and 	<p>Start the session with an ice breaker.</p> <p>1.1. Ask tutors in their distinct groups to write two things they learned during the previous PD session on a post in card and tell how it affected their lesson positively.</p> <p>1.2. Ask tutors to invite their critical friends to share their observations and have a brief discussion on the suggestions provided by the critical friends.</p>	<p>1.1. Write two things you learned during the previous PD session on a post in card and tell how it affected your lesson positively.</p> <p>1.2. Invite your critical friends to share their observations made during lesson delivery and discuss the suggestions provided.</p>	<p>20 mins</p>

<p>identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3. Ask tutors to read the introduction of their respective course manuals and discuss the course learning outcomes (CLOs) and course learning indicators (CLIs) in groups as appropriate.</p> <p>Note (1): <i>The topics and lesson introduction/descriptions for lesson 2 at the various course levels are:</i> JHS (Physics) Topic: <i>Electricity</i></p> <p>Lesson Description - <i>In this lesson, Tutor discusses Electricity with student teachers. The following topics will be introduced to student teachers under Current Electricity; Electric circuits, Potential difference (v), Resistance (Ω) and Ohm's law.</i></p> <p>JHS (Chemistry) Topic: <i>Hydrogen ion Concentration (pH) in Systems</i> Lesson Description - <i>The lesson is designed to further improve student teachers conceptual understanding of chemicals (Acids and Alkalis or bases) and to guide student teachers to be able to present this in practical ways for the JHS learner.</i></p> <p><i>E.g., 2. Chemistry CLOs:</i> ➤ <i>Demonstrate</i></p>	<p>1.3. Read and discuss the introductory sections of the lesson up to course learning outcomes and indicators from your course manuals.</p> <p>Note (1): <i>The topics and lesson introduction/descriptions for lesson 2 at the various course levels are:</i> JHS (Physics) Topic: <i>Electricity</i></p> <p>Lesson Description - <i>In this lesson, Tutor discusses Electricity with student teachers. The following topics will be introduced to student teachers under Current Electricity; Electric circuits, Potential difference (v), Resistance (Ω), and Ohm's law.</i></p> <p>JHS (Chemistry) Topic: <i>Hydrogen ion Concentration (pH) in Systems</i> Lesson Description - <i>The lesson is designed to further improve student teachers' conceptual understanding of chemicals (Acids and Alkalis or bases) and to guide student teachers to be able to present this in practical ways for the JHS learner.</i></p> <p><i>E.g., 2. Chemistry CLOs:</i> ➤ <i>Demonstrate</i></p>	
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	<p><i>knowledge and skills in identifying pH in systems (NTS 2c, p.13)</i></p> <ul style="list-style-type: none"> ➤ <i>Demonstrate the ability to explain the concepts of pH to JHS learners.</i> <p><i>Chemistry CLIs:</i></p> <ul style="list-style-type: none"> ➤ <i>Present concept maps on pH in systems in the home.</i> ➤ <i>Demonstrate how to explain the concepts to their peers.</i> <p>1.3.1. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p><i>NOTE: This should enable tutors to, for instance, tell the possible preconceptions student teachers have about the various learning indicators.</i></p> <p>1.4, Ask tutors to identify and discuss the distinctive features of lesson 3 for the two courses from the course manuals.</p> <p>NOTE Distinctive Features JHS (Physics):</p> <ul style="list-style-type: none"> ➤ <i>Current Electricity</i> 	<p><i>knowledge and skills in identifying pH in systems (NTS 2c, p.13)</i></p> <ul style="list-style-type: none"> ➤ <i>Demonstrate the ability to explain the concepts of pH to JHS learners.</i> <p><i>Chemistry CLIs:</i></p> <ul style="list-style-type: none"> ➤ <i>Present concept maps on pH in systems in the home.</i> ➤ <i>Demonstrate how to explain the concepts to their peers.</i> <p>1.3.1. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p>1.4. Identify and discuss the distinctive features of lesson 3 for the two courses from the course manuals.</p> <p>NOTE Distinctive Features JHS (Physics):</p> <ul style="list-style-type: none"> ➤ <i>Current Electricity</i> 	
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	<p>(Electric circuits, Potential difference (v), Resistance (Ω) and Ohm's law)</p> <p>Distinctive Features JHS (Chemistry):</p> <ul style="list-style-type: none"> ➤ The concepts of pH (Hydrogen ion concentration in systems) ➤ Importance of pH in the food industry. 	<p>(Electric circuits, Potential difference (v), Resistance (Ω) and Ohm's law)</p> <p>Distinctive Features JHS (Chemistry):</p> <ul style="list-style-type: none"> ➤ The concepts of pH (Hydrogen ion concentration in systems) ➤ Importance of pH in the food industry. 	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should to be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.5. Ask tutors to individually list the thematic areas which the classroom inquiry and action research write-up follows and share with the whole group.</p> <p><i>An Example:</i> Chapter One. <i>Title: Introduction</i> <i>Sub-headings:</i></p> <ul style="list-style-type: none"> ➤ Background to the Study ➤ Statement of the Problem ➤ Purpose of the Study/Objectives of the Study ➤ Research Questions ➤ Hypothesis (if any) ➤ Significance of the Study. ➤ Delimitation ➤ Limitation(s) ➤ Definition of Terms (if any) ➤ Organisation of the rest of the Study <p>1.5.1. Guide tutors to explain how they will review the scope of each</p>	<p>1.5. List the thematic areas which the classroom inquiry and action research write-up follow and share with the whole group.</p> <p>1.5.1. Explain how you will review the scope of each thematic area of a</p>	

	<p>thematic area of a classroom inquiry and action research project report/write-up with student teachers during the post-internship seminar.</p> <p><i>For Example:</i> Chapter One. <i>Title: Introduction</i> <i>Sub-headings</i></p> <ul style="list-style-type: none"> ➤ <i>Background to the Study..... It brings forth the historical and contextual information surrounding the issue at hand.</i> ➤ <i>Statement of the Problem.....This section provides a brief description of an issue or issues under investigation in a selected area of study.</i> ➤ <i>Research Question.... Research questions are answerable inquiry into a particular issue or concern. They are questions that the researcher seeks to find answers to after the study. etc.</i> <p>1.6. In their subject groups, ask tutors to discuss how they would share the purposes of the Teacher Licensure Examination with student teachers during the post-internship seminar. <i>Note: The purpose of the teacher licensure examination is to ensure:</i></p>	<p>classroom inquiry and action research project report/write-up with student teachers during the post-internship seminar.</p> <p>1.6. Discuss how you would share the purposes of the Teacher Licensure Examination with student teachers during the post-internship seminar.</p>	
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	<ul style="list-style-type: none"> ➤ <i>That schools across Ghana have quality teachers;</i> ➤ <i>Standardisation of teaching across Ghana.</i> ➤ <i>Improvement in professionalism in school teaching.</i> ➤ <i>Preparation of teachers to be accepted globally.</i> <p>1.7. Lead tutors to identify the licensing process for Newly Qualified Teachers (NTQs) which would be shared with the student teachers during the post-internship seminar.</p> <p><i>Note:</i> <i>The summary of licensing process for NQTs is:</i></p> <ol style="list-style-type: none"> 1. <i>NQTs acquire provisional licenses to be posted as national service personnel.</i> 2. <i>The NQTs must meet Continuous Professional Development (CPD) requirement. That is, they have to build CPD points and portfolio.</i> 3. <i>Acquisition of full license. This can only be achieved through the assessment of the NQT's portfolio.</i> 	<p>1.7. Identify the licensing process for Newly Qualified Teachers (NTQs) which you have to share with the student teachers during the post-internship seminar.</p>	
<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to</i></p>	<p>1.8. Ask tutors to identify decisions that needed to be made during GESI responsive lesson planning and explain how they can</p>	<p>1.8. Identify decisions that needed to be made during GESI responsive lesson planning and explain how you can help the initial teachers to implement</p>	

<p>help support this transition for planning and give regard for GESI, CCI, ICT etc.</p>	<p>help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Note:</i> <i>To ensure GESI responsiveness lesson planning, the following wide range of decisions needed to be made:</i></p> <ul style="list-style-type: none"> ➤ <i>Choice of learning materials to use</i> ➤ <i>Methodologies</i> ➤ <i>Content</i> ➤ <i>Learning activities</i> ➤ <i>Language use</i> ➤ <i>Classroom setup</i> ➤ <i>Classroom interaction</i> ➤ <i>Assessment of the learning/ learner</i> ➤ <i>Fair knowledge of the background of learners to inform all the above.</i> <p>1.9. Ask tutors to discuss GESI responsive teaching methodologies and learning activities and how they would help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Note:</i> <i>GESI Responsive Teaching Methodologies</i></p> <ul style="list-style-type: none"> ➤ <i>Select teaching methodologies that will ensure equal participation of girls, boys, and students with special needs.</i> ➤ <i>Ensure that dominant individuals do not</i> 	<p>them in the basic school classroom after posting.</p> <p>1.9. Discuss GESI responsive teaching methodologies and learning activities and how you would help the initial teachers to implement them in the basic school classroom after posting.</p>	
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	<p><i>sideline less assertive ones.</i></p> <ul style="list-style-type: none"> ➤ <i>Employ differentiated teaching approaches suitable for all learners.</i> ➤ <i>Protect students with disability from abuse or bullying by other students.</i> <p><i>GESI Responsive Learning Activities</i></p> <ul style="list-style-type: none"> ➤ <i>The lesson plan should make allowance for all students to participate in the learning activity.</i> ➤ <i>When doing science experiments, ensure that girls, boys, and students with disability have a chance to use the equipment and chemicals.</i> ➤ <i>There should also be equal participation in such activities as making presentations.</i> ➤ <i>When assigning projects, ensure that both females and males are given leadership positions and roles.</i> ➤ <i>Take into account how the learning materials will be distributed equally to both girls and boys, especially in case of shortage.</i> 		
<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> ➤ Identification and discussion of new learning, potential 	<p>2.1. Ask tutors to list and explain the major concepts in lesson 3.</p> <p>E.g.</p> <p><i>JHS: (Physics)</i></p> <ul style="list-style-type: none"> ➤ <i>Current Electricity</i> ➤ <i>Electric circuits,</i> ➤ <i>Potential difference</i> 	<p>2.1. List and explain the major concepts in lesson 3.</p>	<p>15 mins</p>

<p>barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>(v),</p> <ul style="list-style-type: none"> ➤ Resistance (Ω) and ➤ Ohm's law) <p><i>JHS: (Chemistry)</i></p> <ul style="list-style-type: none"> ➤ Concepts of pH (Hydrogen ion concentration in systems ➤ Importance of the pH in the food industry. <p>2.2. Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p>NB: Misconceptions related to the concepts are:</p> <p><i>JHS (Physics)...</i></p> <p>(i). <i>Some student teachers think that potential difference is different from voltage simply because of the word potential.</i></p> <p>Solution: 'potential difference and voltage' are synonymous. They mean exactly the same thing, and are also measured in volts. 'Potential' and 'voltage', on the other hand, are not synonymous. Potential exists at one point; voltage, or potential difference, exists between two points.</p> <p>(ii). <i>Electricity does not pass-through water bodies.</i></p> <p>Solution: <i>Electricity flows through</i></p>	<p>2.2. Discuss the potential misconceptions and barriers concerning the concepts listed.</p>	
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	<p><i>water because it contains ions of dissolved salts and metals. Distilled water, which does not contain impurities, does not conduct electricity.</i></p> <p>2.3. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Simulations and multimedia, posters, projectors Demonstration / practical activity that is GESI responsive on how to complete an electric circuit.</i></p> <p><i>ii. Tutor Presents a checklist on some pH systems in the immediate school environment to student teachers and directs them, in mixed ability groups to walk around the school/college premises to identify and fill out the checklist for discussion later in the classroom. Student teachers, in their groups, return to the class, under the guidance of the Tutor discuss their findings and cross share ideas.</i></p> <p><i>(iii). Group presentation For videos on float and sink go to:</i></p>	<p>2.3. Identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p>	
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	<p>https://sciencing.com/can-affected-change-ph-levels6165622.html. https://www.youtube.com/watch?v=id1yK29TTcc, https://www.youtube.com/watch?v=d8f85k3LwwA, https://www.youtube.com/watch?v=9X5DTFYgtsQ, https://www.youtube.com/watch?v=v9-9MfJMtyg</p>		
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<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <p>Reading and discussion of the teaching and learning activities</p> <p>Noting, addressing, and explaining areas where tutors may require clarification</p> <p>Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum</p> <p>Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills</p> <p>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, subject specific examples should be provided for SL/HoD</p>	<p>3.1. Ask tutors to read and discuss the appropriateness of the teaching and learning activities in the course manuals for the two-course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the coherency, methodology, time available, teaching and learning resources, and characteristics of learners as well as GESI related issues. E.g., Consider how to arrange the classroom and interact with the students to promote equal participation of all students.</i></p> <p><i>Plan in advance to ask substantive questions to all students. Etc.</i></p> <p>3.1.1. Assist tutors to identify and discuss areas that need clarification.</p> <p>3.2. Lead tutors to discuss how the varied activities would be carried out in both CoE and basic school classrooms to achieve the LOs and the LIs of lesson 3 from their course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender-responsive.</i></p>	<p>3.1. Read and discuss the appropriateness of the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the coherency, methodology, time available, teaching and learning resources, and characteristics of learners as well as GESI related issues. E.g., Consider how to arrange the classroom and interact with the students to promote equal participation of all students.</i></p> <p><i>Plan in advance to ask substantive questions to all students. Etc.</i></p> <p>3.1.1. Identify and discuss areas that need clarification.</p> <p>3.2. Discuss how the varied activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 3 from your course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender responsive.</i></p>	<p>40 mins</p>
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<p>Resources: 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.</p> <p>Consideration needs to be given to local availability</p> <p>Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p><i>E.g.,1: Instead of “When everyone contributes <u>his</u> ideas, the discussion will be a success”.</i></p> <p><i>It may read: “When everyone contributes <u>his</u> or <u>her</u> ideas, the discussion will be a success”.</i></p> <p>3. Do not use harsh, threatening language or actions that instill fear in both females and males.</p> <p>3.3. Ask one tutor to model the teaching of the concept of electricity.</p> <p>3.4. Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Prepare and use TLRs that attract the attention and interest of both female and male students, such as a short video on science concepts to be learned.</i></p> <p><i>(ii). Attract the interest of both female and male students, motivate them and provide relevance to the lesson learned.</i></p> <p>3.5. Guide tutors to explain how they would assist the student teachers to demonstrate the 21st-century skill in the basic school</p>	<p><i>E. g.1: Instead of “When everyone contributes <u>his</u> ideas, the discussion will be a success”.</i></p> <p><i>It may read: “When everyone contributes <u>his</u> or <u>her</u> ideas, the discussion will be a success”.</i></p> <p>2. Do not use harsh, threatening language or actions that instil fear in both females and males.</p> <p>3.3. Model the teaching of the concept of electricity.</p> <p>3.4. Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Prepare and use TLRs that attract the attention and interest of both female and male students, such as short video on science concept to be learned.</i></p> <p><i>(ii). Attract the interest of both female and male students, motivate them and provide relevance to the lesson learned.</i></p> <p>3.5. Explain how you would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p>	
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	<p>classroom.</p> <p><i>E.g. (1) Student teachers to use Open Courseware, Open Learning Imitative, and Open Course Library to search for additional information. This will enable them to acquire digital literacy skills</i></p> <p><i>(2) Digital Literacy skills e.g. The use of power-point to prepare and present lessons.</i></p> <p><i>(3) Development of critical thinking and problem-solving skills, collaborative and communicative skills through group works and presentations.</i></p> <p>3.6. Ask tutors to read the assessment activities in the various course manuals and identify areas that require clarification.</p> <p><i>Note: (i) Assist your colleagues to review the assessment in the course manual to be in line with the NTEAP.</i></p> <p><i>(ii) Independent study: Tutor guides student teachers to do exercises in their workbooks individually on how to draw a simple electrical circuit and how to do calculations involving the application of the concept on ohms law.</i></p> <p><i>These could be added to their subject portfolio.</i></p> <p><i>(iii). Inform tutors to ask student teachers to prepare a LESSON PLAN on</i></p>	<p>3.6. Read the assessment activities in the various course manuals and identify areas that require clarification.</p>	
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	<p><i>the topic/sub-strand “Electricity”. Integrate two cross cutting issues and two 21st century skills.</i></p> <p><i>This could be one of their subject projects for the semester.</i></p> <p>3.7. Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE ad basic school classrooms.</p> <p><i>E.g., COKO Games- https://www.cokogames.com/ohm-simulation-interactive-ohms-law), Audio-visuals from YouTube about teaching electricity and potential difference as well as calculations involving ohm’s law concept.</i></p> <p>Note:</p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (females, males and persons with SEN).</i></p> <p><i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	<p>3.7. Identify the inclusive resources needed for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>E.g., E.g., COKO Games- https://www.cokogames.com/ohm-simulation-interactive-ohms-law), Audio-visuals from YouTube in relation to teaching electricity and potential difference as well as calculations involving ohm’s law concept.</i></p> <p>Note:</p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (females, males and persons with SEN)</i></p>	
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<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> ➤ Tutors should Identifying critical friends to observe lessons and report at next session ➤ Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1. Engage tutors in providing feedback of the PD session taking into consideration – Clarity of concepts, pedagogical approaches employed, ICT integration, GESI, Twenty First Century Skills (NTS 1a, 3i,) and make notes that will help them to teach Lesson 3.</p> <p>4.2. Ask tutors to identify a critical friend who took part in this PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.3. Discuss with tutors anything relating to Lesson 3 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 4 from both the course manual and PD manual and find relevant materials for the next session.</i></p>	<p>4.1. Provide feedback on this PD session taking into consideration – Clarity of concepts, pedagogical approaches employed, ICT integration, GESI, Twenty First Century Skills (NTS 1a, 3i,) and make notes that will help you to teach Lesson 3.</p> <p>4.2. Identify a critical friend who took part in the PD session on lesson 3 to sit in your class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.3. Discuss anything relating to Lesson 3 that needs clarification.</p>	<p>15 mins</p>
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Tutor PD Session

Age Levels/s: Course Titles:

Physics - Properties of Matter and Electromagnetism.
Chemistry - *Chemistry Around Us*

Name of Subject/s:

Physics and Chemistry

Lesson Title:

Chemistry- Hydrogen ion Concentration (pH) in Systems.
Physics- Electricity.

Tutor PD Session for Lesson 4 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and 	<p>Begin the PD session with an ice-breaker.</p> <p>1.1. Ask tutors to discuss the successes and challenges of the PD session for lesson 3.</p> <p>1.2. Ask critical friends who sat in different lessons during the actual teaching of lesson 3 to share their observations with the larger group.</p> <p>1.3. Ask tutors to read the introduction,</p>	<p>1.1, Discuss the successes and challenges of the PD session for lesson 3.</p> <p>1.2. Share your observations with the larger group as critical friends who sat in different lessons during the actual teaching of lesson 3.</p> <p>1.3. Read the introduction, lesson</p>	<p>20 mins</p>

<p>identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>lesson description and the purpose of lesson 4 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>Note <i>Topics and brief lesson descriptions for lesson 4 are:</i> Physics - <i>In this lesson, Tutor discusses Electricity with student teachers. The following topics will be introduced to student teachers under electricity; identification of cell (chargeable and non-chargeable) and electric power. In this lesson student teachers will overcome their misconceptions in identification of cell (chargeable and non-chargeable) and Electric power, and basically learn how to teach these topics to the basic school learner.</i> Chemistry- <i>The lesson is designed to further improve student teachers conceptual understanding of chemicals (Acids and Alkalis or bases) and to guide student teachers to be able to present this in practical ways for the JHS learner. The following topics will be introduced to student teachers: Concept of buffer, Buffers and their applications.</i></p>	<p>description and the purpose of lesson 4 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>Note <i>Topics and brief lesson descriptions for lesson 4 are:</i> Physics - <i>In this lesson, Tutor discusses Electricity with student teachers. The following topics will be introduced to student teachers under electricity; identification of cell (chargeable and non-chargeable) and electric power. In this lesson student teachers will overcome their misconceptions in identification of cell (chargeable and non-chargeable) and Electric power, and basically learn how to teach these topics to the basic school learner.</i> Chemistry- <i>The lesson is designed to further improve student teachers conceptual understanding of chemicals (Acids and Alkalis or bases) and to guide student teachers to be able to present this in practical ways for the JHS learner. The following topics will be introduced to student teachers: Concept of buffer, Buffers and their</i></p>	
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	<p>1.4. Ask tutors to read, identify and discuss the <i>LOs and LIs</i> of lesson 4 in the course manuals.</p> <p><u>Chemistry:</u> <u>L.O</u> <i>Demonstrate knowledge and skills in identifying buffers in systems (NTS 2c, p.13) Demonstrate the ability to explain the concepts of pH to JHS learners.</i></p> <p><u>LI</u> <i>Prepare a checklist of buffers. Demonstrate an understanding of buffers by explaining to peers.</i></p> <p><u>Physics:</u> <u>LO</u> <i>Draw simple electrical circuits, solve basic problems in electricity and state the importance of electricity and magnetism. (NTS 1a &1b, 2a &2c, Pg. 18 & 20).</i></p> <p>1.5. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p><u>LI</u> <i>Provide a chart showing the drawings of simple electrical circuits, some basic solutions in</i></p>	<p><i>applications.</i></p> <p>1.4. Read, identify and discuss the <i>LOs and LIs</i> of lesson 4 in the course manuals.</p> <p><u>Chemistry:</u> <u>L.O</u> <i>Demonstrate knowledge and skills in identifying buffers in systems (NTS 2c, p.13) Demonstrate the ability to explain the concepts of pH to JHS learners.</i></p> <p><u>LI</u> <i>Prepare a checklist of buffers. Demonstrate an understanding of buffers by explaining to peers.</i></p> <p><u>Physics:</u> <u>LO</u> <i>Draw simple electrical circuits, solve basic problems in electricity and state the importance of electricity and magnetism. (NTS 1a &1b, 2a &2c, Pg. 18 & 20).</i></p> <p>1.5. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p><u>LI</u> <i>Provide a chart showing the drawings of simple electrical circuits, some basic solutions in</i></p>	
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	<p><i>electricity, list the importance of electricity and magnetism and gadgets that Hands-on Practical activities on identification of cells (chargeable and non-chargeable) and calculations in electric power, and sharing ideas in class. Student teachers use electromagnetic properties.</i></p> <p>1.6. Ask tutors to identify and explain the distinctive features of lesson 4 for the two courses. Note: Examples of distinctive features of electricity are: <i>Cells (chargeable and non-chargeable) and calculations on electric power.</i> Examples of distinctive features of Buffer are: <i>Buffers in biological system – food and blood, pH, acids and bases.</i></p>	<p><i>electricity, list the importance of electricity and magnetism and gadgets that Hands-on Practical activities on identification of cells (chargeable and non-chargeable) and calculations in electric power, and sharing ideas in class. Student teachers use electromagnetic properties</i></p> <p>1.6. Identify and explain the distinctive features of lesson 4 for the two courses. Note: Examples of distinctive features of electricity are: <i>Cells (chargeable and non-chargeable) and calculations on electric power.</i> Examples of distinctive features of Buffer are: <i>Buffers in biological system – food and blood, pH, acids and bases.</i></p>	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should to be provided with guidance on what to</p>	<p>1.7. Ask tutors to describe how they will assist student teachers to discuss the effects of the interventions of their Classroom Enquiry and Action Research on learners. <i>Refer to STS Handbook pg. 91-100.</i></p>	<p>1.7. Describe how you will assist student teachers to discuss the effects of the interventions of their Classroom Enquiry and Action Research on learners. <i>Refer to STS Handbook pg. 91-100.</i></p>	

do including organisation of Post Internship Seminar.			
For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.	1.8. Lead discussions on how to help the student teachers to integrate ICT tools and GESI issues in their lessons when posted. <i>E.g., Using Microsoft Excel and Word processor to plan lessons and design inclusive TLRs.</i>	1.8. Discuss how you will help the student teachers to integrate ICT tools and GESI issues in their lessons when posted. <i>E.g., Using Microsoft Excel and Word processor to plan lessons and design inclusive TLRs.</i>	
<p>2 Concept Development (New learning likely to arise in lesson/s) :</p> <p>➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.1. Ask tutors to use think pair share to identify and explain the main concepts of Lesson 4 from the course manuals. <i>Examples of main concept/ new learning of lesson 4 are:</i> Physics-Drawing of simple electrical circuits, the skill of solving basic problems in electricity. Chemistry-buffers in biological system</p> <p>2.2 Ask tutors to identify and discuss any GESI issues related to the new concepts of Lesson 4 from the course manuals. <i>E.g., Concepts must reflect the diversity of ALL learners and should not reinforce false gender assumptions or stereotypes.</i></p> <p>2.3. Ask tutors in mixed-gender groups (where applicable), to discuss and share potential barriers to teaching and learning</p>	<p>2.1. Use thinks pair share to identify and explain the main concepts of Lesson 4 from the course manuals. <i>Examples of main concept/ new learning of lesson 4 are:</i> Physics-Drawing of simple electrical circuits, the skill of solving basic problems in electricity. Chemistry-buffers in biological system</p> <p>2.2. Identify and discuss any GESI issues related to the new concepts of Lesson 4 from the course manuals. <i>E.g., Concepts must reflect the diversity of ALL learners and should not reinforce false gender assumptions or stereotypes.</i></p> <p>2.3. In mixed-gender groups, (where applicable), discuss and share potential barriers to the teaching and learning</p>	15 mins

	<p>of the new concepts of Lesson 4.</p> <p>A potential barrier (Physics)- Have the misconception on chargeable and non-chargeable cells, thus, all electrical cells are chargeable.</p> <p>Suggested solution to the potential barrier- Ask learners to read on Electrical Cell before the start of the lesson.</p> <p>2.4. Ask tutors to discuss the appropriateness of the teaching strategies suggested in the course manuals for teach lesson 4 and suggest alternative ones if possible.</p> <p>Example of Teaching Strategies from the course manuals: Using simulations and multimedia presentations, demonstration, group work and discussion.</p>	<p>of the new concepts of Lesson 4.</p> <p>A potential barrier (Physics)- Have the misconception on chargeable and non-chargeable cells, thus, all electrical cells are chargeable.</p> <p>Suggested solution to the potential barrier- Ask learners to read on Electrical Cell before the start of the lesson.</p> <p>2.4. Discuss the appropriateness of the teaching strategies suggested in the course manuals for teach lesson 4 and suggest alternative ones if possible.</p> <p>Example of Teaching Strategies from the course manuals: Using simulations and multimedia presentations, demonstration, group work and discussion.</p>	
<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining 	<p>3.1. Lead discussion with tutors through questions and answers on the various suggested teaching and learning activities from the course manuals to be used in delivery lesson 4.</p> <p>NB: Carefully review with your colleagues the language used in the activities of the course</p>	<p>3.1. Discuss through questions and answers the various suggested teaching and learning activities from the course manuals to be used in delivery lesson 4.</p> <p>NB: Carefully review with your colleagues the language used in the activities of the course</p>	40 mins

<p>areas where tutors may require clarification</p> <ul style="list-style-type: none"> ➤ Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➤ Resources: links to the existing PD 	<p><i>manual to make them gender responsive and inclusive if appropriate.</i></p> <p>3.2. Discuss with tutors how GESI responsiveness, ICT and 21st Century skills will help to promote the delivery of the lessons in both the B.Ed. and Basic School Curricula.</p> <p><i>Examples of 21st century skills from the course manual and other sources:</i> <i>Ccommunication skills, collaboration, observation and enquiry skills, digital literacy, creativity, personal development and global citizenship.</i></p> <p><i>Examples of GESI responsiveness from the course manual and other sources:</i> <i>Making reasonable adjustments for physically challenged learners. Both male and female learners playing leading roles in a group task. The use of braille and audio machines.</i></p> <p><i>Examples of ICT tools from the course manual and other sources:</i> <i>Office 365 vs G-suite for education, Google meet for online teaching, Google classroom for online assignment</i></p>	<p><i>manual to make them gender responsive and inclusive if appropriate.</i></p> <p>3.2. Discuss in your groups how GESI responsiveness, ICT and 21st Century skills will help to promote the delivery of the lessons in both the B.Ed. and Basic School Curricula.</p> <p><i>Examples of 21st century skills from the course manual and other sources:</i> <i>Ccommunication skills, collaboration, observation and enquiry skills, digital literacy, creativity, personal development and global citizenship.</i></p> <p><i>Examples of GESI responsiveness from the course manual and other sources:</i> <i>Making reasonable adjustments for physically challenged learners. Both male and female learners playing leading roles in a group task. The use of braille and audio machines.</i></p> <p><i>Examples of ICT tools from the course manual and other sources:</i> <i>Office 365 vs G-suite for education, Google meet for online teaching, Google classroom for online assignment</i></p>	
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<p>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</p> <p>➤ Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p><i>submissions, plagiarism checking software, tools for checking grammar errors online.</i></p> <p>3.3. Ask tutors to read the assessment section in the course manuals and discuss how they align with the NTEAP.</p> <p>3.3.1. Ask tutors to discuss how they will guide student teachers to do hands-on/ practical activities on identification of cells (chargeable and non-chargeable cells) and buffer solutions in inclusive classrooms and submit a typed report on them.</p> <p><i>Note: (This report could be used as their subject project).</i></p> <p><i>Student teachers, in pairs, (male and females as appropriate) should also provide charts on current electricity just after the lesson.</i></p> <p><i>(This report could be used as part of their subject portfolio).</i></p> <p>3.4. Ask tutors to project or watch a video, as appropriate, on different types of cells (chargeable and non-chargeable) and buffer solutions in their groups and discuss how this</p>	<p><i>submissions, plagiarism checking software, tools for checking grammar errors online.</i></p> <p>3.3. Read the assessment section in the course manuals and discuss how they align with the NTEAP.</p> <p>3.3.1. Discuss how you will guide student teachers to do hands-on/ practical activities on identification of cells (chargeable and non-chargeable cells) and buffer solutions in inclusive classrooms and submit a typed report on them.</p> <p><i>Note: (This report could be used as their subject project).</i></p> <p><i>Student teachers, in pairs, (male and females as appropriate) should also provide charts on current electricity just after the lesson.</i></p> <p><i>(This report could be used as part of their subject portfolio).</i></p> <p>3.4. Projector or watch a video, as appropriate, on different types of cells (chargeable and non-chargeable) and buffer solutions in their groups and</p>	
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	<p>concept will be presented to the student teachers.</p> <p>(i) Electric Power - YouTube (ii) Respiratory Buffer System - YouTube</p> <p>NB: <i>Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	<p>discuss how this concept will be presented to the student teachers.</p> <p>(i) Electric Power - YouTube (ii) Respiratory Buffer System - YouTube</p> <p>NB: <i>Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> ➤ <i>Tutors should identify critical friends to observe lessons and report at next session</i> ➤ <i>Identifying and addressing any outstanding issues relating to the lesson/s for clarification</i> 	<p>4.1. Ask tutors to identify a critical friend who took part in the PD session to sit in their class during the lesson to provide feedback to you and report on observations made in the next PD session.</p> <p>4.2. Discuss with tutors anything relating to Lesson 4 that needs clarification.</p> <p>Note: (i). <i>In the case of unresolved issues consult the subject writing leads.</i> (ii). <i>Encourage tutors to read lesson 5 from the PD manual and find relevant materials for the next session.</i></p>	<p>4.1. Identify a critical friend who took part in the PD session to sit in your class during lesson to provide feedback to you and report on observations made in the next PD session.</p> <p>4.2. Discuss in your groups anything relating to Lesson 4 that needs clarification.</p> <p>Note: (i). <i>In the case of unresolved issues consult the subject writing leads.</i> (ii). <i>Read lesson 5 from the PD manual and find relevant materials for the next session.</i></p>	15 mins

Tutor PD Session

Age Levels/s: Course Titles:

Physics - Properties of Matter and Electromagnetism.

Chemistry - *Chemistry Around Us*

Lesson Title:

Chemistry- Electrolytes and non-electrolytes.

Physics: Magnet and Electromagnet

Name of Subject/s:

Physics and Chemistry

Tutor PD Session for Lesson 5 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and identification of 	<p>Begin the PD session with an ice-breaker.</p> <p>1.1. Ask tutors to discuss the successes and challenges of the PD session for lesson 4.</p> <p>1.2. Ask critical friends who sat in different lessons during the actual teaching of lesson 4 to share their observations with the larger group.</p> <p>1.3. Ask tutors to read the introduction,</p>	<p>1.1, Discuss the successes and challenges of the PD session for lesson 4.</p> <p>1.2. In your groups, invite your critical friends to share their observations made during delivery of lesson 4 and discuss the suggestions provided.</p> <p>1.3. Read the introduction, lesson</p>	<p>20 mins</p>

<p>any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>lesson description and the purpose of lesson 5 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>Note <i>Topics and brief lesson descriptions for lesson 4 are:</i> Physics - <i>The main topic for this lesson is Magnet and Electromagnet. In this lesson, Tutor discusses properties of a magnet and magnetic field with student teachers. Again, student teachers will be guided to overcome their misconceptions in properties of magnets and magnetic field, and basically learn how to teach these topics to the basic school learner.</i> Chemistry- <i>The lesson is designed to further improve student teachers' knowledge and understanding on electrolytes and non-electrolytes and to guide them to be able to teach same concepts for the JHS learner.</i></p> <p>1.4. Ask tutors to read, identify and discuss the <i>LOs and Lis</i> of lesson 4 in the course manuals.</p>	<p>description and the purpose of lesson 5 in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>Note <i>Topics and brief lesson descriptions for lesson 4 are:</i> Physics - <i>The main topic for this lesson is Magnet and Electromagnet. In this lesson, Tutor discusses properties of a magnet and magnetic field with student teachers. Again, student teachers will be guided to overcome their misconceptions in properties of magnets and magnetic field, and basically learn how to teach these topics to the basic school learner.</i> Chemistry- <i>The lesson is designed to further improve student teachers' knowledge and understanding on electrolytes and non-electrolytes and to guide them to be able to teach same concepts for the JHS learner.</i></p> <p>1.4. Read, identify and discuss the <i>LOs and Lis</i> of lesson 5 in the course manuals.</p>	
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	<p><u>Chemistry:</u> <u>L.O</u> <i>Explain the use for electrolytes and non-electrolytes (NTS 2c, p. 13, 3i, 3i, p.14).</i></p> <p><u>LI</u> <i>Prepare model experimental set-up to show the use of electrolyte in electrical conductivity.</i></p> <p><u>Physics:</u> <u>LO</u> <i>Demonstrate understanding of magnets and electromagnetics (NTS 1b, 3a, 3e & 3j).</i></p> <p><u>LI</u> <i>(i). Draw magnetic field lines. (ii) Show the relationship between electric and magnetic field lines.</i></p> <p>1.5. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p>1.6. Ask tutors to identify and explain the distinctive features of lesson 5 for the two courses. Note: Examples of distinctive features of lesson 5 are: Electric field- an electric</p>	<p><u>Chemistry:</u> <u>L.O</u> <i>Explain the use for electrolytes and non-electrolytes (NTS 2c, p. 13, 3i, 3i, p.14).</i></p> <p><u>LI</u> <i>Prepare model experimental set-up to show the use of electrolyte in electrical conductivity.</i></p> <p><u>Physics:</u> <u>LO</u> <i>Demonstrate understanding of magnets and electromagnetics (NTS 1b, 3a, 3e & 3j).</i></p> <p><u>LI</u> <i>(i). Draw magnetic field lines. (ii) Show the relationship between electric and magnetic field lines.</i></p> <p>1.5. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p>1.6. Identify and explain the distinctive features of lesson 5 for the two courses. Note: Examples of distinctive features of lesson 5 are: Electric field- an electric property associated</p>	
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	<p><i>property associated with each point in space when charge is present in any form.</i></p> <p>Magnetic field-is a vector field that describes the magnetic influence on moving electric charges, electric current, and magnetic materials.</p> <p>Magnetic field lines- are a visual tool used to represent magnetic fields.</p> <p>Electrolytes- a liquid or gel which contains ions e.g., K^+, Na^+, Cl^- ions in solution.</p>	<p><i>with each point in space when charge is present in any form.</i></p> <p>Magnetic field-is a vector field that describes the magnetic influence on moving electric charges, electric current, and magnetic materials.</p> <p>Magnetic field lines- are a visual tool used to represent magnetic fields.</p> <p>Electrolytes- a liquid or gel which contains ions e.g., K^+, Na^+, Cl^- ions in solution.</p>	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.7. Ask tutors to describe how they will assist student teachers to discuss the effects of the interventions of their Classroom Enquiry and Action Research on learners. <i>Refer to STS Handbook pg. 91-100.</i></p>	<p>1.7. Describe how you will assist student teachers to discuss the effects of the interventions of their Classroom Enquiry and Action Research on learners. <i>Refer to STS Handbook pg. 91-100.</i></p>	
<p>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</p>	<p>1.8. Lead discussions on how tutors will help the student teachers to integrate Cross-cutting Issues and GESI issues in their lessons when posted. <i>E.g., Using mobile phones to show image, power points and videos</i></p>	<p>1.8. Discuss how you will help the student teachers to integrate Cross-cutting Issues and GESI issues in their lessons when posted. <i>E.g., Using mobile phones to show image, power points and videos to</i></p>	

	<p><i>to enhance learning.</i></p> <p><i>Lesson plans should make allowance for all students to participate in the learning activity. 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>enhance learning.</i></p> <p><i>Lesson plans should make allowance for all students to participate in the learning activity. When doing science experiments, ensure that girls, boys and students with disability have a chance to use the equipment and chemicals.</i></p>	
<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <p>➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.1. Ask tutors to identify and explain the main concepts of Lesson 5 from the course manuals.</p> <p><i>Examples of main concept/ new learning of lesson 5 are:</i></p> <p>Physics- <i>Properties of magnets and magnetic field.</i></p> <p>Chemistry- <i>Electrolytes and Non electrolytes.</i></p> <p>2.2. Lead discussions on alternative strategies to be employed to teach the new concepts.</p> <p><i>Eg. Using audio visual materials to teach the concepts.</i></p> <p>2.3. Ask tutors to identify and discuss any GESI issues related to the new concepts of Lesson 5 from the course manuals.</p> <p><i>E.g., Equity and SEN: through appropriate gender and equity sensitive group work to protect vulnerable student teachers, establish an interactive</i></p>	<p>2.1. Identify and explain the main concepts of Lesson 5 from the course manuals.</p> <p><i>Examples of main concept/ new learning of lesson 5 are:</i></p> <p>Physics- <i>Properties of magnets and magnetic field.</i></p> <p>Chemistry- <i>Electrolytes and Non electrolytes.</i></p> <p>2.2. Discuss alternative strategies to be employed to teach the new concepts.</p> <p><i>Eg. Using audio visual materials to teach the concepts.</i></p> <p>2.3. Identify and discuss any GESI issues related to the new concepts of Lesson 5 from the course manuals.</p> <p><i>E.g., Equity and SEN: through appropriate gender and equity sensitive group work to protect vulnerable student teachers, establish an interactive and inclusive</i></p>	15 mins

	<p><i>and inclusive classroom atmosphere.</i></p> <p>2.4. Ask tutors in mixed-gender groups (where applicable), to discuss and share potential barriers to teaching and learning of the new concepts of Lesson 5.</p> <p>A potential barrier (Physics)- <i>Have the misconception on properties of magnet. For example, student teachers think that all metals are attracted to a magnet, larger magnets are stronger than smaller magnets</i></p> <p>Suggested solution <i>The following metals in their natural states do not attract magnets aluminum, copper, gold and silver.</i></p>	<p><i>classroom atmosphere.</i></p> <p>2.4. In mixed-gender groups, (where applicable), discuss and share potential barriers to the teaching and learning of the new concepts of Lesson 5.</p>	
<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining areas where tutors may require clarification ➤ Noting opportunities for making <i>explicit links</i> to the Basic School 	<p>3.1. Ask tutors to read and discuss the various teaching and learning activities suggested in the course manuals to be used to achieve the LOs and LIs of lesson 5.</p> <p><i>NB: Find out if anything needs clarification in the various groups and do that immediately with them.</i></p> <p>3.2. Discuss with tutors how GESI responsiveness, ICT and 21st Century skills will help to promote the delivery of the</p>	<p>3.1. Read and discuss the various teaching and learning activities suggested in the course manuals to be used to achieve the LOs and LIs of lesson 5.</p> <p>3.2. Discuss in your groups how GESI responsiveness, ICT and 21st Century skills will help to promote the delivery of the</p>	40 mins

<p>Curriculum</p> <ul style="list-style-type: none"> ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➤ Resources: 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 ➤ Tutors should be expected to have 	<p>lessons in both the B.Ed. and Basic School Curricula.</p> <p>Examples of 21st century skills from the course manual and other sources: <i>Digital literacy, Ccommunication skills, collaboration, observation and enquiry skills, creativity, personal development and global citizenship.</i></p> <p>Examples of GESI responsiveness from the course manual and other sources: <i>Both male and female learners playing leading roles in a group task.</i></p> <p>Examples of ICT tools from the course manual and other sources: <i>Office 365, Google classroom for online assignment submissions, plagiarism checking software, tools for checking grammar errors online.</i></p> <p>3.3. Ask tutors to read the assessment section in the course manuals and discuss how they align with the NTEAP.</p> <p>3.3.1. Ask tutors to discuss how they will guide student teachers to do hands-on/ practical activities on</p>	<p>lessons in both the B.Ed. and Basic School Curricula.</p> <p>Examples of 21st century skills from the course manual and other sources: <i>Digital literacy, Ccommunication skills, collaboration, observation and enquiry skills, digital literacy, creativity, personal development and global citizenship.</i></p> <p>Examples of GESI responsiveness from the course manual and other sources: <i>Both male and female learners playing leading roles in a group task.</i></p> <p>Examples of ICT tools from the course manual and other sources: <i>Office 365, Google classroom for online assignment submissions, plagiarism checking software, tools for checking grammar errors online.</i></p> <p>3.3. Read the assessment section in the course manuals and discuss how they align with the NTEAP.</p> <p>3.3.1. Discuss how you will guide student teachers to do hands-on/ practical activities on establishing the</p>	
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<p>a plan for the next lesson for student teachers</p>	<p>establishing the properties of magnet in an inclusive, multi-grade, and developmentally appropriate classroom and submit a typed report on them.</p> <p><i>Note:</i> <i>(This report could be used as their subject project).</i></p> <p><i>Student teachers, in pairs, (male and females as appropriate) should also provide a 30 min. lesson plan on how to teach the concept of electrolytes and non-electrolytes to JHS 3 learners.</i></p> <p><i>(This report could be used as part of their subject portfolio).</i></p> <p>3.4. Ask tutors to project or watch a video, as appropriate, on electrolytes and non-electrolytes in their groups and discuss how this concept will be presented to the student teachers. What Are Electrolytes? - YouTube</p> <p>NB: <i>Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	<p>properties of magnet in an inclusive, multi-grade and developmentally appropriate classroom and submit a typed report on them.</p> <p><i>Note:</i> <i>(This report could be used as their subject project).</i></p> <p><i>Student teachers, in pairs, (male and females as appropriate) should also provide a 30 min. lesson plan on how to teach the concept of electrolytes and non-electrolytes to JHS 3 learners.</i></p> <p><i>(This report could be used as part of their subject portfolio).</i></p> <p>3.4. Project or watch a video, as appropriate, on electrolytes and non-electrolytes in their groups and discuss how this concept will be presented to the student teachers. What Are Electrolytes? - YouTube</p> <p>NB: <i>Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	
<p>4. Evaluation and review of session: ➤ <i>Tutors should Identifying critical</i></p>	<p>4.1. Ask tutors to identify a critical friend who took part in the PD session to sit in their class during</p>	<p>4.1. Identify a critical friend who took part in the PD session to sit in your class during lesson to</p>	<p>15 mins</p>

<p><i>friends to observe lessons and report at next session</i></p> <p>➤ <i>Identifying and addressing any outstanding issues relating to the lesson/s for clarification</i></p>	<p>lesson to provide feedback to you and report on observations made in the next PD session.</p> <p>4.2. Discuss with tutors anything relating to Lesson 5 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 6 from the PD manual and find relevant materials for the next session.</i></p>	<p>provide feedback to you and report on observations made in the next PD session.</p> <p>4.2. Discuss in your groups anything relating to Lesson 5 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Read lesson 6 from the PD manual and find relevant materials for the next session.</i></p>	
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Tutor PD Session

Age Levels/s: Course Titles:

Physics - Properties of Matter and Electromagnetism.

Chemistry - *Chemistry Around Us*

Lesson Title:

Chemistry- Course Review 1 with STS seminar

Physics: Course Review 1 with STS seminar

Name of Subject/s:

Physics and Chemistry

Tutor PD Session for Lesson 6 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and 	<p>Start the lesson with an ice braker. RIDDLE, RIDDLE! Many have heard it, but nobody has seen it. It will not speak back unless spoken to. What is it? An Echo.</p> <p>1.1 Ask tutors to tell how useful the previous lessons of the PD session were and how it influenced their teaching positively, challenges and if possible subject ways to improve upon the next PD session lesson.</p>	<p>1.1 Tell how useful the previous lessons of the PD session were and how it influenced your teaching positively, challenges and if possible subject way to improve upon the next PD session lessons.</p>	<p>20 mins</p>

<p>identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and provide explanations for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.2 Ask a critical friend to give feedback on observation during the enactment of the lessons and what they have learned. <i>NB: Thing's tutor might have observed; tutor's choice of words, pedagogical content knowledge, content knowledge subject matter, ICT tools, GESI and the use of NTEAP</i></p> <p>1.3 Ask tutors to use Think-pair-share to present the introductory section of the lesson 1 -5 up to and including the learning outcomes (LOs) in phase groups.</p> <p>1.4 Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge in lesson 1-5 and state their expectations of the PD Session. <i>The topics and lesson descriptions for lesson at the various course levels are: JHS (Physics) Topic: Course Review Lesson Description - It is also expected that Student teachers will reflect during this lesson on their own progress in the course JHS (Chemistry) Topic:</i></p>	<p>1.2 A critical friend gives feedback on observation during enactment of the lessons and what they have learnt.</p> <p>1.3 Think-pair-share to present the introductory section of the lesson 1 -5 up to and including the learning outcomes (LOs) in phase groups.</p> <p>1.4 Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge in lessons 1-5 and state their expectations of the PD Session.</p>	
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	<p><i>Course Review I with STS seminar</i></p> <p><i>Lesson Description - This lesson is a review and audit of the lessons for the first half of the semester as well as review and discussion of lessons learned, reflection on observations made during the supported teaching in schools (STS).</i></p>		
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.5. Lead tutors to review the various post internship seminar activities of lessons 1,2,3,4 and 5 and share their experiences with the whole group.</p> <p><i>Examples: Post internship seminar activities for lessons 1 and 2;</i></p> <p>(1) <i>The importance of professional teaching portfolio is:</i></p> <ul style="list-style-type: none"> ➤ <i>For promotion</i> ➤ <i>It is a characteristic of professional teacher</i> ➤ <i>It serves as records and a reference material of one's professional work over time.</i> <p>(2) <i>Some artefacts found in a professional teaching portfolio are;</i></p> <ul style="list-style-type: none"> ➤ <i>Curriculum Vitae (CV)</i> ➤ <i>Teaching philosophy</i> ➤ <i>Sample lesson plans</i> ➤ <i>Sample scheme of</i> 	<p>1.5. Review the various post internship seminar activities of lessons 1,2,3,4 and 5 and share your experiences with the whole group.</p>	

	<p><i>learning</i></p> <ul style="list-style-type: none"> ➤ <i>Teaching and learning resources with annotated descriptions.</i> ➤ <i>Reflections on lessons.</i> <p><i>(3) General guidelines for writing Teaching Philosophy Statement:</i></p> <ol style="list-style-type: none"> <i>1. Make your Teaching Statement brief and well written.</i> <i>2. Use a narrative, first person approach</i> <i>3. Make it specific rather than abstract.</i> <i>4. Be discipline-specific.</i> <i>5. Avoid jargon and technical terms, as they can be off-putting to some readers.</i> <i>6. Be sincere and unique.</i> <i>7. Be humble</i> <i>8. Revise</i> 		
<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</i></p>	<p>1.6 Ask tutors to review the different GESI, CCI, and ICT issues raised in lessons 1,2,3,4, and 5, tell how those issues raised impacted positively in their previous lessons and what they need to do to improve upon incorporating GESI, CCI, and ICT features in their subsequent lessons.</p> <p><i>Example:</i></p> <p><i>(1) To ensure GESI responsiveness in the way a classroom is set up, the following needs to be considered:</i></p> <ul style="list-style-type: none"> ➤ <i>A classroom setup that mixes girls and boys and also considers</i> 	<p>1.6. Review the different GESI, CCI, and ICT issues raised in lessons 1,2,3,4, and 5, tell how those issues raised impacted positively in your previous lessons and what you need to do to improve upon incorporating GESI, CCI, and ICT features in your subsequent lessons.</p>	

	<p><i>disabilities.</i></p> <ul style="list-style-type: none"> ➤ <i>Classroom setup that enhances the participation of all students</i> ➤ <i>Arrangement of the desks that allow students with disabilities to be comfortable</i> <p><i>(2) Examples of cross-cutting issues are;</i></p> <ul style="list-style-type: none"> ➤ <i>The use of ICT</i> ➤ <i>Equity</i> ➤ <i>Inclusivity</i> ➤ <i>Gender issues</i> 		
<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> ➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.1 Ask tutors to identify familiar and unfamiliar concepts in their lessons and discuss with the larger group.</p> <p>2.2 Ask tutors to outline possible challenging areas e.g.:</p> <p><i>Possible challenging: lack of understanding and possible misconception to some concepts not adequately dealt with. Lessons not appropriately understood by student teachers.</i></p> <p>2.3. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classrooms to achieve the LOs and the LIs of the lesson.</p> <p>a. Discussion, group work in same</p>	<p>2.1. Identify familiar and unfamiliar concepts in the lessons and discuss with the larger group.</p> <p>2.2. Outline possible challenging areas.</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>	15 mins

	<p>ability group works.</p> <p>b. Presentations and peer review.</p> <p>c. e-learning Opportunities: OERs and Video presentations from</p> <p>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC533116/</p> <p>https://www.nap.edu/read/5287/chapter/3#13</p>		
<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining areas where tutors may require clarification ➤ Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment 	<p>3.1 Ask tutors to suggest teaching and learning activities for the lesson taking into account GESI issues.</p> <p><i>Eg.</i></p> <p><i>i. Provision made for physically challenged</i></p> <p><i>ii. Both genders take leading roles in group tasks</i></p> <p><i>iii. Even distribution of questions to different categories of learners based on gender, ability, previous experience, etc.</i></p> <p>3.2 Ask tutors to identify and discuss areas that need clarification if any.</p> <p>3.3. Lead tutors to discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 1-5 from their course manuals.</p> <p>3.4 Ask tutors to model a presentation of a</p>	<p>3.1 Suggest teaching and learning activities for the lessons taking into account GESI issues.</p> <p><i>Eg.</i></p> <p><i>i. Provision made for physically challenged</i></p> <p><i>ii. Both genders take leading roles in group tasks</i></p> <p><i>iii. Even distribution of questions to different categories of learners based on gender, ability, previous experience, etc.</i></p> <p>3.2 Identify and discuss areas that need clarification if any.</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 lesson 1-5 from their course manuals.</p> <p>3.4 Model a presentation of a concept using ICT</p>	40 mins

<p>opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD</p> <p>➤ Resources: 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</p> <p>➤ Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p>concept using ICT tools and taking into consideration GESI issues and 21st Century skill (eg. Both genders take the leading roles in their groups and in the demonstration of the use of ICT tools) to teach their lessons.</p> <p>3.5 Ask tutors to read and discuss the assessment activities in the various course manuals and identify areas that require clarification. e.g: of <i>subject portfolio Student teachers' presentations on any of the lessons from 1-5 during group work and model work presentation helps to assess them of learning.</i></p> <p>3.6 Guid tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. <i>Cardboards, Course manual, Flip charts, Poster paper, computers with internet access</i> https://www.ncbi.nlm.nih.gov/pmc/articles/PMC533116/ https://www.nap.edu/read/5287/chapter/3#13</p>	<p>tools and taking into consideration GESI issues and 21st Century skills (eg. Both genders take the leading roles in their groups and in the demonstration of the use of ICT tools) to teach their lessons.</p> <p>3.5 Read and discuss the assessment activities in the various course manuals and identify areas that require clarification.</p> <p>3.6 Identify the inclusive resources needed for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p>E.g. <i>Cardboards, Course manual, Flip charts, Poster paper, computers with internet access</i> https://www.ncbi.nlm.nih.gov/pmc/articles/PMC533116/ https://www.nap.edu/read/5287/chapter/3#13</p>	
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	<p><i>Note: Let everybody should have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>		
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> ➤ Tutors should Identifying critical friends to observe lessons and report at next session ➤ Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1 Ask tutors question to help them in self-evaluation as well as encourage tutors to provide feedback of the PD session taking into consideration inclusivity – how to be patient with stammers, using tactile and audio devices for visually challenged, paying attention to all courses, etc.</p> <p>4.2 Ask tutors to identify unresolved issues relating to this lesson for clarification</p> <p>4.3 Ask a critical friend to observe your teaching and record his/her findings to be presented after delivery or in the Next PD session</p>	<p>4.1 Provide feedback of the PD session taking into consideration inclusivity – how to be patient with stammers, using tactile and audio devices for visually challenged, paying attention to all courses, etc.</p> <p>4.2 identify unresolved issues relating to this lesson for clarification</p> <p>4.3 a critical friend to observe your teaching and record his/her findings to be presented after delivery or in the Next PD session.</p>	15 mins

Tutor PD Session

Age Levels/s:

JHS (Chemistry): Water

JHS (Physics): Magnet and Electromagnet

Name of Subject/s: Chemistry and Physics

Tutor PD Session for Lesson 7 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and identification of any distinctive aspects of the lesson/s, <p>NB The guidance for</p>	<p><i>Start with an icebreaker.</i></p> <p>1.1. Ask tutors in their subject groups to write things they learnt in lesson 7 PD sessions.</p> <p>1.2. Ask tutors to explain how they applied what they have written in their varied lessons to the whole group.</p> <p>1.3. Invite critical friends to share their findings for a short discussion</p> <p>1.4. Ask tutors to read and discuss the Introductory sections of the lesson up to learning indicators from their course manuals.</p>	<p>1.1. Write things they learnt in lesson 7 PD sessions.</p> <p>1.2. Explain how you applied what you have written to the whole group</p> <p>1.3. Critical friends to share their findings for a short discussion</p> <p>1.4. Read and discuss the Introductory sections of the lesson up to learning indicators from their course manuals.</p>	<p>20 mins</p>

<p>SL/HoD should identify, address and provide explanations for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p><i>LO: demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i> <i>LI: Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i></p> <p>1.5. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p><i>Note: The topics and lesson descriptions for lesson 7 at the various course levels are:</i> <i>JHS (Physics) Topic: Basic School Physics Curriculum Materials.</i> <i>Lesson Description -. Under this topic Tutor discusses the Syllabus, Teachers' Handbook and Pupils Textbook with student teachers. Student teachers will be guided on how to use syllabus, teacher's handbook and pupil's textbook to teach the basic school learner.</i></p> <p><i>JHS (Chemistry) Topic: Types of Climates and their effect on food</i> <i>Lesson Description -Climate, which is an aggregation of daily weather changes</i></p>	<p><i>LO: demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i> <i>LI: Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i></p> <p>1.5. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p>	
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	<p><i>influences agriculture and vegetation within our various communities and the world over.</i></p> <p>1.6. Ask tutors to identify and discuss the distinctive features of lesson 8 for the two courses from the course manuals.</p> <p><i>JHS (Chemistry):</i></p> <ul style="list-style-type: none"> ➤ <i>Types of world climates.</i> ➤ <i>Activities of crop production</i> <p><i>JHS (Physics):</i></p> <ul style="list-style-type: none"> ➤ <i>Teaching of how to use Teachers' Handbook and Pupils Textbook to teach the Basic School Learner</i> 	<p>1.6. Identify and discuss the distinctive features of lesson 8 for the two courses from the course manuals</p>	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should to be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.7. Ask tutors to explain how they will organise post internship seminar for student teachers</p> <p>1.8. Ask tutors to list the artefacts of a professional teaching portfolio and show how they will help student teachers to develop their own professional teaching portfolio in their respective basic schools when posted. <i>(Refer to Y3 STS Handbook Pg. 114-118).</i></p> <p><i>Some artefacts found in a professional teaching portfolio are;</i></p> <ul style="list-style-type: none"> ➤ <i>Curriculum Vitae</i> 	<p>1.7. Explain how they will organise post internship seminar for student teachers.</p> <p>1.8. List the artefacts of a professional teaching portfolio and show how they will help student teachers to develop their own professional teaching portfolio in their respective basic schools when posted. <i>(Refer to Y3 STS Handbook Pg. 114-118).</i></p>	

	<p>(CV)</p> <ul style="list-style-type: none"> ➤ Teaching philosophy ➤ Sample lesson plans ➤ Sample scheme of learning ➤ Teaching and learning resources with annotated descriptions. ➤ Reflections on lessons. <p>1.9. Ask tutors explain how they would assist initial teachers to discuss some professional practices of their mentors and co-mentees. (Refer to NTS 1a, 3a, 3e and 3j Pg.14).</p>	<p>1.9. Explain how they would assist initial teachers to discuss some professional practices of their mentors and co-mentees. (Refer to NTS 1a, 3a, 3e and 3j Pg.14).</p>	
<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</i></p>	<p>1.10. Ask tutors to identify the cross-cutting issues in the course manuals and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Examples of cross-cutting issues are;</i></p> <ul style="list-style-type: none"> ➤ The use of ICT ➤ Equity ➤ Inclusivity <p><i>Gender issues.</i></p>	<p>1.10. Identify the cross-cutting issues in the course manuals and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p>	
<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> ➤ Identification and discussion of new learning, potential barriers to learning for student teachers 	<p>2.1. Ask tutors to list and discuss the major concepts in lesson 7.</p> <p><i>E.g.</i> <i>JHS: (PHYSICS)</i> <i>Teaching of how to use Teachers' Handbook and Pupils Textbook to teach the Basic School Learner.</i></p>	<p>2.1. List and discuss the major concepts in lesson 7.</p>	<p>15 mins</p>

<p>or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.2. Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: Misconceptions related to the concepts are: JHS (Physics)...</i></p> <p>➤ <i>Student teachers may lack the skills of how to use the Syllabus, Teachers' Handbook and Pupils Textbook</i></p> <p><i>Solution:</i></p> <p><i>Student teachers answer open-ended questions, interactive discussion on syllabus, teachers' handbook and pupils' textbook in mixed ability/ gender-based groups of 3 members.</i></p> <p>2.3. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Practical manipulation of simple machines. (ii) Video/ multimedia simulation on a typical measurement skill that is GESI responsive. (iii). Group presentation</i></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>	
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<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining areas where tutors may require clarification ➤ Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➤ Resources: links to the existing PD 	<p>3.1. Guide tutors to read and discuss the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.1.1. Assist tutors to identify and discuss areas that need clarification.</p> <p>3.2. Lead tutors to discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 8 from their course manuals.</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> ➤ <i>Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress. (NTS 3f)</i> ➤ <i>Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes. (NTS 3g)</i> <p>3.3. Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be</p>	<p>3.1.Read and discuss the teaching and learning activities in the course manuals for the two course levels</p> <p>3.1.1. Discuss 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 lesson 8 from their course manuals</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> ➤ <i>Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress. (NTS 3f)</i> ➤ <i>Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes. (NTS 3g)</i> <p>3.3. Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed</p>	<p>40 mins</p>
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<p>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</p> <p>➤ Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p>addressed.</p> <p><i>E.g. (i). Pay attention to slow learner.</i> <i>(ii). Assign leadership roles to females and males equally.</i></p> <p>3.4. Guide tutors to explain how they would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p> <p><i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons.</i> <i>(2) Development of leadership, collaborative and communicative skills through group works and presentations.</i></p> <p>3.5. Ask tutors to read the assessment activities in the various course manuals and identify areas that require clarification.</p> <p><i>Note:</i> <i>(i) Assist your colleagues to review the assessment in the course manual to be in line with the NTEAP.</i> <i>(ii) Student teachers doing short presentations (3-5 minutes each) on how to use Teachers' Handbook and Pupils Textbook to teach the Basic School Learner (Reflection on presentations)</i></p>	<p>3.4. Guide tutors to explain how they would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p> <p><i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons.</i> <i>(2) Development of leadership, collaborative and communicative skills through group works and presentations.</i></p> <p>3.5. Read the assessment activities in the various course manuals and identify areas that require clarification</p>	
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	<p><i>These could be added to their subject presentations on physical quantities portfolio.</i></p> <p>3.6. Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>Note:</i> <i>(i). Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN).</i> <i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed</i></p>	<p>3.6. Identify the inclusive resources needed for teaching and learning of the concepts in both CoE and basic school classrooms</p> <p><i>Note:</i> <i>(i). Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN).</i> <i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	
<p>4. Evaluation and review of session:</p> <p>➤ Tutors should Identifying critical friends to observe lessons and report at next session</p> <p>Identifying and addressing any outstanding issues relating to the lesson/s for clarification</p>	<p>4.1. Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.2. Discuss with tutors anything relating to Lesson 7 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 8 from the PD manual and find relevant materials for the next session.</i></p>	<p>4.1. Identify a critical friend who took part in the PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.2. Discuss anything relating to Lesson 7 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 8 from the PD manual and find relevant materials for the next session.</i></p>	15 mins

Tutor PD Session

Age Levels/s:
JHS (Chemistry)
JHS (Physics)

Name of Subject/s: Chemistry and Physics
Types of Climates and their effect on food
Basic School Physics Curriculum Materials.

Tutor PD Session for Lesson 8 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i>	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and identification of any distinctive aspects of the lesson/s, <p>NB The guidance for</p>	<p><i>Start with an icebreaker.</i></p> <p>1.1. Ask tutors in their subject groups to write 4 things they learnt in lesson 7 PD sessions.</p> <p>1.2. Ask tutors to explain how they applied what they have written in their varied lessons to the whole group.</p> <p>1.3. Invite the critical friends to share their findings for a short discussion</p> <p>1.4. Ask tutors to read and discuss the introductory sections of the lesson up to</p>	<p>1.1. Write 4 things they learnt in lesson 7 PD sessions.</p> <p>1.2. Explain how you applied what you have written to the whole group</p> <p>1.3. Critical friends to share their findings for a short discussion</p> <p>1.4. Read and discuss the introductory sections of the lesson up to learning</p>	<p>20 mins</p>

<p>SL/HoD should identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>learning indicators from their course manuals.</p> <p><i>LO: demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i> <i>LI: Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i></p> <p>1.5. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p><i>Note: The topics and lesson descriptions for lesson 7 at the various course levels are:</i> <i>JHS (Physics) Topic: Basic School Physics Curriculum Materials.</i> <i>Lesson Description -.Under this topic Tutor discusses the Syllabus, Teachers' Handbook and Pupils Textbook with student teachers. Student teachers will be guided on how to use syllabus, teacher's handbook and pupil's textbook to teach the basic school learner.</i></p> <p><i>JHS (Chemistry) Topic: Types</i></p>	<p>indicators from their course manuals.</p> <p><i>LO: demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i> <i>LI: Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i></p> <p>1.5. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p>	
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	<p><i>of Climate and their effect on food</i></p> <p><i>Lesson Description -Climate, which is an aggregation of daily weather changes influences agriculture and vegetation within our various communities and the world over.</i></p> <p>1.6. Ask tutors to identify and discuss the distinctive features of lesson 8 for the two courses from the course manuals.</p> <p><i>JHS (Chemistry):</i></p> <ul style="list-style-type: none"> ➤ <i>Types of world climates.</i> ➤ <i>Activities of crop production</i> <p><i>JHS (Physics):</i></p> <ul style="list-style-type: none"> ➤ <i>Teaching of how to use Teachers' Handbook and Pupils Textbook to teach the Basic School Learner</i> 	<p>1.6. Identify and discuss the distinctive features of lesson 8 for the two courses from the course manuals</p>	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should to be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.7. Ask tutors to explain how they will organise post internship seminar for student teachers</p> <p>1.8. Ask tutors to list the artefacts of a professional teaching portfolio and show how they will help student teachers to develop their own professional teaching portfolio in their respective basic schools when posted. (Refer to Y3 STS Handbook Pg. 114-</p>	<p>1.7. Explain how they will organise post internship seminar for student teachers</p> <p>1.8. List the artefacts of a professional teaching portfolio and show how they will help student teachers to develop their own professional teaching portfolio in their respective basic schools when posted. (Refer to Y3 STS Handbook Pg. 114-118).</p>	

	<p>118).</p> <p><i>Some artefacts found in a professional teaching portfolio are;</i></p> <ul style="list-style-type: none"> ➤ Curriculum Vitae (CV) ➤ Teaching philosophy ➤ Sample lesson plans ➤ Sample scheme of learning ➤ Teaching and learning resources with annotated descriptions. ➤ Reflections on lessons. <p>1.9. Ask tutors explain how they would assist initial teachers to discuss some professional practices of their mentors and co-mentees. (Refer to NTS 1a, 3a, 3e and 3j Pg.14).</p>		
<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</i></p>	<p>1.10. Ask tutors to identify the cross-cutting issues in the course manuals and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Examples of cross-cutting issues are;</i></p> <ul style="list-style-type: none"> ➤ The use of ICT ➤ Equity ➤ Inclusivity <p><i>Gender issues</i></p>	<p>1.10. Identify the cross-cutting issues in the course manuals and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p>	
<p>2 Concept Development (New learning likely to arise in lesson/s) :</p> <ul style="list-style-type: none"> ➤ Identification and discussion of new learning, potential barriers to learning for 	<p>2.1. Ask tutors to list and discuss the major concepts in lesson 8.</p> <p><i>E.g.</i> <i>JHS: (PHYSICS)</i> <i>Teaching of how to use Teachers' Handbook and Pupils Textbook to teach the Basic School</i></p>	<p>2.1. List and discuss the major concepts in lesson 8.</p>	<p>15 mins</p>

<p>student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p><i>Learner.</i></p> <p>2.2. Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p><i>NB: Misconceptions related to the concepts are:</i></p> <p><i>JHS (Physics)...</i></p> <p>➤ <i>Student teachers may lack the skills of how to use the Syllabus, Teachers' Handbook and Pupils Textbook Solution:</i></p> <p><i>Student teachers answer open-ended questions, interactive discussion on syllabus, teachers' handbook and pupils' textbook in mixed ability/ gender based groups of 3 members.</i></p> <p>2.3. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Practical manipulation of simple machines.</i></p> <p><i>(ii) Video/ multimedia simulation on a typical measurement skill that is GESI responsive.</i></p> <p><i>(iii). Group presentation</i></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>	
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<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <p>Reading and discussion of the teaching and learning activities</p> <p>Noting, addressing, and explaining areas where tutors may require clarification</p> <p>Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum</p> <p>Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills</p> <p>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 , subject specific examples should be provided for SL/HoD</p> <p>Resources: links to the existing PD Themes, for example, action research, questioning and to other external reference material: literature, on web, Utube, physical resources, power</p>	<p>3.1. Guide tutors to read and discuss the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p> <p>3.2. Assist tutors to identify and discuss areas that need clarification.</p> <p>3.3. Lead tutors to discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 8 from their course manuals.</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> ➤ <i>Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress.(NTS 3f)</i> ➤ <i>Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.(NTS 3g).</i> 	<p>3.1. Read and discuss the teaching and learning activities in the course manuals for the two course levels</p> <p>3.2. Discuss areas that need clarification.</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 lesson 8 from their course manuals</p> <p><i>Note:</i></p> <ul style="list-style-type: none"> ➤ <i>Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress.(NTS 3f)</i> ➤ <i>Employs instructional strategies appropriate for mixed ability, multilingual and multi-age</i> 	<p>40 mins</p>
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<p>point; how they should be used. Consideration needs to be given to local availability</p>	<p>3.4. Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g. (i). Pay attention to slow learner. (ii). Assign leadership roles to females and males equally.</i></p> <p>3.5. Guide tutors to explain how they would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p> <p><i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons. (2) Development of leadership, collaborative and communicative skills through group works and presentations.</i></p> <p>3.6. Ask tutors to read the assessment activities in the various course manuals and identify areas that require clarification.</p> <p><i>Note: (i) Assist your colleagues to review the assessment in the course manual to be in line with the NTEAP.</i></p>	<p><i>classes.(NTS 3g)</i></p> <p>3.4. Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed</p> <p>3.5. Explain how you would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p> <p><i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons. (2) Development of leadership, collaborative and communicative skills through group works and presentations.</i></p> <p>3.6. Read the assessment activities in the various course manuals and identify areas that require clarification</p>	
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	<p><i>(ii) Student teachers doing short presentations (3-5 minutes each) on how to use Teachers' Handbook and Pupils Textbook to teach the Basic School Learner (Reflection on presentations)</i></p> <p><i>These could be added to their subject presentations on physical quantities portfolio.</i></p> <p>3.7. Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms.</p> <p><i>Note:</i></p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN).</i></p> <p><i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed</i></p>	<p>3.7. Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school classrooms</p> <p><i>Note:</i></p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN).</i></p> <p><i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed</i></p>	
<p>4. Evaluation and review of session:</p> <p>➤ Tutors should Identifying critical friends to observe lessons and report at next session</p>	<p>4.1. Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p>	<p>4.1. Identify a critical friend who took part in the PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD</p>	<p>15 mins</p>

<p>4. Identifying and addressing any outstanding issues relating to the lesson/s for clarification</p>	<p>4.2. Discuss with tutors anything relating to Lesson 8 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 9 from the PD manual and find relevant materials for the next session.</i></p>	<p>session.</p> <p>4.2. Discuss with tutors anything relating to Lesson 8 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 9 from the PD manual and find relevant materials for the next session.</i></p>	
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Tutor PD Session

Age Levels/s:JHS

Name of Subject/s: JHS (PHYSICS): *Basic School Physics Curriculum*

Materials

JHS (CHEMISTRY): *Climatic effects on nutrition in foods*

Tutor PD Session for Lesson 9 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. What the SL/HoDs will have to say during each stage of the session</p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and identification of any distinctive aspects of the lesson/s, <p>NB The guidance for SL/HoD should</p>	<p>Start the PD session with an icebreaker.</p> <p>1.1. Ask tutors in their distinctive groups to write two things that didn't go on well in lesson 8 of the previous PD session on a post in card and tell how it affected the lesson.</p> <p>1.2. Ask a critical friend to give feedback on his/her observation of the previous enacted lesson laying emphasis on clarity of content, assessment strategies, ICT integration, GESI, 21st Century.</p> <p>1.3. Ask tutors to read individually and discuss in pairs the introductory</p>	<p>1.1. In your distinctive groups write two things that didn't go on well in lesson 8 of the previous PD session on a post in card and tell how it affected the session.</p> <p>1.2. A critical friend to give feedback on his/her observation of the previous enacted lesson laying emphasis on clarity of content, assessment strategies, ICT integration, GESI, 21st Century.</p> <p>1.3. Read individually and discuss in pairs the introductory</p>	<p>20 mins</p>

<p>identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>sections of the lesson up to the purpose and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>Note: Physics- Lesson title - Climatic effects on nutrition in foods <i>Lesson description: This lesson looks at the relationship between climate, availability of nutrients and food production.</i></p> <p>Chemistry-Lesson title - Basic School Physics Curriculum Materials <i>Lesson description: The main topic for this lesson is basic school physics curriculum materials. Under this topic Tutor discusses the rational, general aims, objectives, and organisation of the syllabus (Profile Dimension) with student teachers. Student teachers will be guided on how to develop rational, general aims, objectives, and organisation of the syllabus (Profile Dimension)</i></p> <p>1.4 Ask tutors to read and discuss the Learning Outcomes and the learning indicators of the lesson 9 in the course manual</p>	<p>sections of the lesson up to and including Learning Outcomes indicators in the course manual and indicate how they are related to student teachers' relevant previous knowledge.</p> <p>Physics- Lesson title - Climatic effects on nutrition in foods <i>Lesson description: This lesson looks at the relationship between climate, availability of nutrients and food production.</i></p> <p>Chemistry-Lesson title - Basic School Physics Curriculum Materials <i>Lesson description: The main topic for this lesson is basic school physics curriculum materials. Under this topic Tutor discusses the rational, general aims, objectives, and organisation of the syllabus (Profile Dimension) with student teachers. Student teachers will be guided on how to develop rational, general aims, objectives, and organisation of the syllabus (Profile Dimension)</i></p> <p>1.4. Read and discuss the Overview of content and identification of any distinctive aspects of lesson 9 in the course</p>	
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	<p><i>Eg. PHYSCIS – LO</i> <i>Demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i> <i>LI</i> <i>Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i> CHEMISTRY: LO <i>Demonstrate understanding of the effect of climatic change on nature of the soil for plant crops and nutritive value of produced crops for farm animals and farmed fish.</i> <i>LI</i> <i>Report in diverse forms</i></p> <p>1.5 Ask tutors to identify and discuss the distinctive features of lesson 9 for the various levels from the course manual. <i>Distinctive features</i></p> <p>JHS: PHYSCIS</p> <ul style="list-style-type: none"> ➤ <i>Rational, general aims, objectives, and organisation of the syllabus (Profile Dimension)</i> <p>JHS: CHEMISTRY</p> <ul style="list-style-type: none"> ➤ <i>Climate</i> ➤ <i>availability of nutrients</i> ➤ <i>food production</i> 	<p>manual. <i>E.g., PHYSICS – LO</i> <i>Demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lesson planning and delivery. (NTS 1b, 3a, 3e & 3j)</i> <i>LI</i> <i>Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i> CHEMISTRY: LO <i>Demonstrate understanding of the effect of climatic change on nature of the soil for plant crops and nutritive value of produced crops for farm animals and farmed fish.</i> <i>LI</i> <i>Report in diverse forms</i></p> <p>1.5. Identify and discuss the distinctive features of lesson 9 from your various levels. <i>Distinctive features</i></p> <p>JHS: PHYSCIS</p> <ul style="list-style-type: none"> ➤ <i>Rational, general aims, objectives, and organisation of the syllabus (Profile Dimension)</i> <p>JHS: CHEMISTRY</p> <ul style="list-style-type: none"> ➤ <i>Climate</i> ➤ <i>availability of</i> 	
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		<p>nutrients</p> <p>➤ food production</p>	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.6 Ask tutors to describe how they will assist student teachers to discuss the effects of the interventions of their Classroom Enquiry and Action Research on learners.</p> <p><i>Refer to STS Handbook pg. 91-100.</i></p>	<p>1.6 Describe how you will assist student teachers to discuss the effects of the interventions of their Classroom Enquiry and Action Research on learners.</p> <p><i>Refer to STS Handbook pg. 91-100</i></p>	
<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</i></p>	<p>1.7 Ask tutors question on how they can assist student teachers to incorporate 21st century ICT, cross-cutting and GESI issue in daily STS lessons.</p> <p><i>e.g – How to use computer or mobile phone to search for information on the internet.</i></p>	<p>1.7 Answer questions on how you can facilitate student teachers to incorporate 21st century ICT, cross-cutting and GESI issue in daily STS lesson.</p> <p><i>e.g – How to use computer or mobile phone to search for information on the internet.</i></p>	
<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <p>➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the</p>	<p>2.1 Ask tutors to identify and explain the main concepts of Lesson 9 from the course manuals.</p> <p>Physics- <i>Climatic effects on nutrition in foods</i></p> <p>Chemistry- - Basic School Physics Curriculum Materials</p> <p>2.2 Ask tutors to outline and discuss possible potential</p>	<p>2.1 identify and explain the main concepts of Lesson 9 from the course manuals</p> <p>Physics- <i>Climatic effects on nutrition in foods</i></p> <p>Chemistry- - Basic School Physics Curriculum Materials</p> <p>2.2 Outline and discuss possible potential</p>	15 mins

<p>lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>barriers areas in teaching the various concept listed.</p> <p>Example: JHS: (chemistry)-Learners sometimes think that poor climatic conditions and subsequent famines are punishments from gods or evil deeds by community members <i>JHS: (Phycis)</i> <i>Student teachers may lack the skills of developing rational, general aims, objectives, and organisation of the syllabus (Profile Dimension)</i></p> <p>2.3 In pairs ask tutors to identify and discuss the needed pedagogy to be used in the lesson 9 to deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p>Pedagogy: <i>Discussion, Practical manipulation of simple machines Independent, Inquiry and reflections e-learning opportunities.</i></p> <p>2.4 Ask tutors to identify and discuss how GESI issues can be integrated in the teaching of the new concepts of Lesson 9 from the course manuals. <i>Note: refer to GESI session 0 for examples.</i></p>	<p>barriers areas in teaching the various concept listed.</p> <p>JHS: (chemistry)-Learners sometimes think that poor climatic conditions and subsequent famines are punishments from gods or evil deeds by community members <i>JHS: (Phycis)</i> <i>Student teachers may lack the skills of developing rational, general aims, objectives, and organisation of the syllabus (Profile Dimension)</i></p> <p>2.3 In pairs identify and discuss the needed pedagogy to be used in the lesson 9 to deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p>2.4 identify and discuss how GESI issues can be integrated in the teaching of the new concepts of Lesson 9 from the course manuals. <i>Note: refer to GESI session 0 for examples.</i></p>	
<p>3.Planning for teaching, learning and assessment</p>	<p>3.1 Ask tutors to read through the teaching and learning activities of Lesson</p>	<p>3.1 Read through the teaching and learning activities of Lesson 9 from</p>	<p>40 mins</p>

<p>activities for the lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining areas where tutors may require clarification ➤ Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➤ Resources: links to the existing PD Themes, for example, action research, questioning and 	<p>9 from the course manual and suggest other teaching and learning activities for teaching the various courses.</p> <p><i>NB: Make sure the teaching and learning activities for teaching the various grade levels are suitable for all learners (males, females and physically challenged).</i></p> <p>3.2 Guide tutors to identify areas that need clarification and how to address it in the lesson.</p> <p>3.3 Ask tutors in their various groups/levels to discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 9.</p> <p>3.4 Ask tutors to discuss how GESI issues related to the teaching and learning activities of lesson 9 would be addressed.</p> <p><i>E.g. leadership roles should be equally assigned to both females and males.</i></p> <p>3.5 Ask tutors to identify two 21st century skills that can be developed in the learners and assist the student teachers to demonstrate it in the basic school classroom.</p>	<p>the course manual and suggest other teaching and learning activities for teaching the various courses.</p> <p>3.2 Identify areas that need clarification and how to address it in the lesson.</p> <p>3.3 In your various groups/levels discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of the course manual for lesson 9.</p> <p>3.4 Discuss how GESI issues related to the teaching and learning activities of lesson 9 would be addressed.</p> <p>3.5 Identify two 21st century skills that can be developed in the learners and assist the student teachers to demonstrate it in the basic school classroom.</p>	
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<p>to other external reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability</p> <p>➤ Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p><i>Eg. The use of power point to deliver an inquiry lesson.</i></p> <p>3.6 Ask tutors to Read, identify and discuss the continuous assessment opportunities in the lesson 9.</p>	<p>3.6 Read, identify and discuss the continuous assessment opportunities in the lesson 9.</p>	
<p>4. Evaluation and review of session:</p> <p>➤ Tutors should Identifying critical friends to observe lessons and report at next session</p> <p>Identifying and addressing any outstanding issues relating to the lesson/s for clarification</p>	<p>4.1 Ask tutors to identify a critical friend from the same or related discipline to observe the enactment of their lesson and provide feedback during the next PD Session (NTS 1a).</p> <p>4.2 Ask tutors to identify unresolved issues relating to this lesson 9 for clarification.</p> <p>NB: <i>Take note of all unresolved issues that may need further research or consultation.</i></p> <p>4.3. Ask tutors to read through lesson 10 before the next PD.</p>	<p>4.1 Identify a critical friend from the same or related discipline to observe the enactment of their lesson and provide feedback during the next PD Session (NTS 1a).</p> <p>4.2 Identify unresolved issues relating to this lesson 9 for clarification</p> <p>4.3. Read through lesson 10 before the next PD.</p>	<p>15 mins</p>

Tutor PD Session

Age Levels/s:
JHS (Physics)

Name of Subject/s:
Skills in teaching Basic school Physics
Further studies on the Secondary
School Chemistry Curriculum

JHS (Chemistry)

Tutor PD Session for Lesson 10 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in session</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and identification of any distinctive aspects of the lesson/s, <p>NB The guidance for</p>	<p>Start the PD session with an icebreaker.</p> <p>1.1. Ask tutors in their subject groups to write things they learnt in lesson 9 PD sessions.</p> <p>1.2. Ask tutors to explain how they applied what they have written in their varied lessons to the whole group.</p> <p>1.3. Invite critical friends to share their findings for a short discussion</p> <p>1.4. Ask tutors to read and discuss the Introductory sections of the lesson up to learning indicators from</p>	<p>1.1. Write things they learnt in lesson 9 PD sessions.</p> <p>1.2. Explain how you applied what you have written to the whole group</p> <p>1.3. Critical friends to share their findings for a short discussion</p> <p>1.4. Read and discuss the Introductory sections of the lesson up to learning indicators from their course</p>	<p>20 mins</p>

<p>SL/HoD should identify, address and provide explanations for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>their course manuals.</p> <p><i>LO: demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i></p> <p><i>LI: Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i></p> <p>1.5. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p>Note: <i>The topics and lesson descriptions for lesson 10 at the various course levels are:</i></p> <p>JHS (Physics) Topic: <i>Skills in teaching Basic school Physics.</i></p> <p>Lesson Description -. <i>The lesson students will be expected to communicate their own physics questions and findings bearing in mind that studies physics involve fundamental concepts, such as how matter moves through space and time, their energy and forces' effect on that matter.</i></p>	<p>manuals.</p> <p><i>. LO: demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i></p> <p><i>LI: Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</i></p> <p>1.5.Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p>	
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	<p>JHS (Chemistry) Topic: <i>Further studies on the Secondary School Chemistry Curriculum</i></p> <p>Lesson Description - The lesson is designed to embed concepts in chemistry as education in this field is facing a challenge of students losing interest in learning the subject.</p> <p>1.6. Ask tutors to identify and discuss the distinctive features of lesson 10 for the two courses from the course manuals.</p> <p>JHS (Chemistry): ➤ <i>Formation of day and night</i></p> <p>JHS (Physics): ➤ <i>Experimental Process</i></p>	<p>1.6. Identify and discuss the distinctive features of lesson 10 for the two courses from the course manuals</p>	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.7. Ask tutors to explain how they would assist initial teachers to discuss some professional practices of their mentors and co-mentees from the NTS.</p> <p><i>Refer to NTS:</i> Professional Values and Attitudes <i>1(a) critically and collectively reflects to improve teaching and learning.</i></p> <p>Professional Knowledge <i>2(c) Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach</i></p>	<p>1.7. Explain how you would assist initial teachers to discuss some professional practices of their mentors and co-mentees from the NTS.</p> <p><i>Refer to NTS:</i> Professional Values and Attitudes <i>1(a) critically and collectively reflects to improve teaching and learning.</i></p> <p>Professional Knowledge <i>2(c) Has secure content knowledge, pedagogical knowledge and pedagogical content</i></p>	

	<p>in.</p> <p>2(f) Takes accounts of and respects learners’ cultural, linguistic, socio-economic and educational backgrounds in planning and teaching.</p> <p>Professional Practice</p> <p>3(a) Plans and delivers varied and challenging lessons, showing a clear grasp of the intended outcomes of their teaching.</p> <p>3(c) Creates a safe, encouraging learning environment.</p> <p>3 (d) Manages behaviour and learning with small and large classes.</p> <p>3(g) Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.</p>	<p>knowledge for the school and grade they teach in.</p> <p>2(f) Takes accounts of and respects learners’ cultural, linguistic, socio-economic and educational backgrounds in planning and teaching.</p> <p>Professional Practice</p> <p>3(a) Plans and delivers varied and challenging lessons, showing a clear grasp of the intended outcomes of their teaching.</p> <p>3(c) Creates a safe, encouraging learning environment.</p> <p>3 (d) Manages behaviour and learning with small and large classes.</p> <p>3(g) Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.</p>	
<p>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</p>	<p>1.8. Ask tutors to identify the cross-cutting issues in the course manuals and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Examples of cross-cutting issues are;</i></p> <ul style="list-style-type: none"> ➤ The use of ICT ➤ Equity ➤ Inclusivity ➤ Gender issues 	<p>1.8. Identify the cross-cutting issues in the course manuals and explain how they can help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Examples of cross-cutting issues are;</i></p> <ul style="list-style-type: none"> ➤ The use of ICT ➤ Equity ➤ Inclusivity <p><i>Gender issues</i></p>	

<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <p>➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.1. Ask tutors to list and discuss the major concepts in lesson 10.</p> <p>2.2. Ask tutors to discuss the potential misconceptions and barriers in the course manual with respect to the concepts.</p> <p>2.3. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Practical manipulation of simple machines. (ii) Video/ multimedia simulation on a typical measurement skill that is GESI responsive. (iii). Group presentation</i></p>	<p>2.1. List and discuss the major concepts in lesson 10.</p> <p>2.2. Discuss the potential misconceptions and barriers in the course manual with respect to the concepts.</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>15 mins</p>
<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <p>Reading and discussion of the teaching and learning activities</p> <p>Noting, addressing, and explaining areas where tutors may require clarification</p> <p>Noting opportunities for making <i>explicit links</i> to the Basic</p>	<p>3.1. Guide tutors to read and discuss the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the time available, resources and nature of learners, coherency and methodology.</i></p>	<p>3.1. Read and discuss the teaching and learning activities in the course manuals for the two course levels</p>	<p>40 mins</p>

<p>School Curriculum Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD Resources: 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 Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p>3.2. Assist tutors to identify and discuss areas that need clarification.</p> <p>3.3. Lead tutors to discuss how the different activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 10 from their course manuals.</p> <p>Note:</p> <ul style="list-style-type: none"> ➤ Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress.(NTS 3f) ➤ Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.(NTS 3g) <p>3.4. Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E.g. (i). Pay attention to slow learner. (ii). Assign leadership roles to females and males equally.</i></p> <p>3.5. Guide tutors to explain how they would assist the student teachers to</p>	<p>3.2.Discuss areas that need clarification.</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 lesson 10 from their course manuals</p> <p>Note:</p> <ul style="list-style-type: none"> ➤ Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress.(NTS 3f) ➤ Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.(NTS 3g) <p>3.4. Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed</p> <p>3.5. Guide tutors to explain how they would assist the student teachers to</p>	
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	<p>demonstrate the 21st century skill in the basic school classroom. <i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons.</i> <i>(2) Development of leadership, collaborative and communicative skills through group works and presentations.</i></p> <p>3.6. Ask tutors to read the assessment activities in the various course manuals and identify areas that require clarification.</p> <p><i>Note:</i> <i>(i) Assist your colleagues to review the assessment in the course manual to be in line with the NTEAP.</i> <i>(ii) Student teachers doing short presentations (3-5 minutes each) on how to use Teachers' Handbook and Pupils Textbook to teach the Basic School Learner (Reflection on presentations)</i> <i>These could be added to their subject presentations on physical quantities portfolio.</i></p> <p>3.7. Lead tutors to identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school</p>	<p>demonstrate the 21st century skill in the basic school classroom.</p> <p><i>E.g. (1) Digital Literacy e.g. The use of power-point to prepare and present lessons.</i> <i>(2) Development of leadership, collaborative and communicative skills through group works and presentations.</i></p> <p>3.6. Read the assessment activities in the various course manuals and identify areas that require clarification</p> <p>3.7. Identify the needed inclusive resources for teaching and learning of the concepts in both CoE and basic school</p>	
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	<p>classrooms.</p> <p><i>Note:</i></p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN).</i></p> <p><i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	<p>classrooms</p> <p><i>Note:</i></p> <p><i>(i). Make sure the resources are enough and appropriate to all learners (males, females and persons with SEN).</i></p> <p><i>(ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</i></p>	
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> ➤ Tutors should Identifying critical friends to observe lessons and report at next session ➤ Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1. Ask tutors to identify a critical friend who took part in the PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.2. Discuss with tutors anything relating to Lesson 10 that needs clarification.</p> <p><i>Note:</i></p> <p><i>(i). In the case of unresolved issues consult the subject writing leads.</i></p> <p><i>(ii). Encourage tutors to read lesson 11 from the PD manual and find relevant materials for the next session.</i></p>	<p>4.1. Identify a critical friend who took part in the PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.2. Discuss with tutors anything relating to Lesson 10 that needs clarification.</p> <p><i>Note:</i></p> <p><i>(i). In the case of unresolved issues consult the subject writing leads.</i></p> <p><i>(ii). Encourage tutors to read lesson 11 from the PD manual and find relevant materials for the next session.</i></p>	15 mins

Tutor PD Session

Age Levels/s: JHS

Name of Subject/s: Physics & Chemistry

Course Title/s: Physics- Properties of Matter and Electromagnetism

Chemistry: Chemistry Around Us

Lesson Title: Physics- Skills in Teaching Basic School Physics

Chemistry: Co-planning, Co-teaching and Co-assessment

Tutor PD Session for Lesson 11 in the Course Manual

Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.	Guidance notes on Leading the session. What the SL/HoDs will have to say during each stage of the session	Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.	Time in session
<p>1 Introduction to the session</p> <p>Review prior learning A critical friend to share findings for a short discussion and lessons learned Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators</p> <p>➤ Overview of content and</p>	<p>Start the session with an icebreaker.</p> <p>1.1. Ask tutors in their subject groups to identify two things they learned during the previous PD session and tell how they affected their lessons positively.</p> <p>1.2. Ask tutors to invite their critical friends to share their observations and have a brief discussion on the suggestions provided by the critical friends.</p>	<p>1.1. Identify two things you learned during the previous PD session and tell how they affected your lessons positively.</p> <p>1.2. Invite your critical friends to share their observations made during lesson delivery and discuss the suggestions provided.</p>	<p>20 mns</p>

<p>identification of any distinctive aspects of the lesson/s, NB The guidance for SL/HoD should identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>1.3. Ask tutors to read the introduction of their respective course manuals and discuss the course learning outcomes (CLOs) and course learning indicators (CLIs) in groups as appropriate.</p> <p>Note (1): <i>The topics and lesson introduction/descriptions for lesson 11 at the various course levels are:</i></p> <p>JHS (Physics) Topic: <i>Skills in teaching Basic school Physics</i></p> <p>Lesson Description - <i>The lesson is a furtherance to lesson 10 and must help students to understand that Physics gets involved in their daily life right from waking up in the morning</i></p> <p>JHS (Chemistry) Topic: <i>Co-planning, co-teaching and co-assessment</i></p> <p>Lesson Description – <i>This lesson deals with interpreting, planning, executing and assessing lessons taught in reflective mode.</i></p> <p><i>E.g., 2. Physics CLOs: Demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a, 3e & 3j)</i></p>	<p>1.3. Read and discuss the introductory sections of the lesson up to course learning outcomes and indicators from your course manuals.</p> <p>Note (1): <i>The topics and lesson introduction/descriptions for lesson 11 at the various course levels are:</i></p> <p>JHS (Physics) Topic: <i>Skills in teaching Basic school Physics</i></p> <p>Lesson Description - <i>The lesson is a furtherance to lesson 10 and must help students to understand that Physics gets involved in their daily life right from waking up in the morning</i></p> <p>JHS (Chemistry) Topic: <i>Co-planning, co-teaching and co-assessment</i></p> <p>Lesson Description – <i>This lesson deals with interpreting, planning, executing and assessing lessons taught in reflective mode.</i></p> <p><i>E.g., 2. Physics CLOs: Demonstrate skills in teaching Basic School Physics and in using Basic School Science Curriculum Materials for lessons planning and delivering. (NTS 1b, 3a,</i></p>	
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	<p><i>Physics CLIs:</i> Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</p> <p><i>E.g., 3. Chemistry CLOs:</i> Demonstrate understanding of curriculum, required pedagogies and assessment procedures. Understand how learning occurs in diverse contexts and apply this in their execution of co-planned and co-taught lesson</p> <p><i>Chemistry CLIs:</i> In pairs co-plan, co-teach, co-assess and co-reflect prepared 30-minute lesson from week 10.</p> <p>1.3.1. Guide tutors to explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge. <i>NOTE: This should enable tutors to tell the possible preconceptions student teachers have about the various learning indicators.</i></p> <p>1.4. Ask tutors to identify and discuss the distinctive features of lesson 11 for the two courses from the course manuals.</p>	<p><i>3e & 3j)</i> <i>Physics CLIs:</i> Provide Lesson plan on teaching some concepts and show Video clip on teaching some topics in Basic School Physics.</p> <p><i>E.g., 3. Chemistry CLOs:</i> Demonstrate understanding of curriculum, required pedagogies and assessment procedures. Understand how learning occurs in diverse contexts and apply this in their execution of co-planned and co-taught lesson</p> <p><i>Chemistry CLIs:</i> In pairs co-plan, co-teach, co-assess and co-reflect prepared 30-minute lesson from week 10.</p> <p>1.3.1. Explain how the course learning outcomes and their corresponding indicators are related to student teachers' relevant previous knowledge.</p> <p>1.4. Identify and discuss the distinctive features of lesson 11 for the two courses from the course manuals.</p>	
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	<p>NOTE Distinctive Features JHS (Physics):</p> <ul style="list-style-type: none"> ➤ <i>Planning and designing experiments</i> ➤ <i>Communicating and reporting</i> ➤ <i>Discussions on experimental results.</i> 	<p>NOTE Distinctive Features JHS (Physics):</p> <ul style="list-style-type: none"> ➤ <i>Planning and designing experiments</i> ➤ <i>Communicating and reporting</i> ➤ <i>Discussions on experimental</i> 	
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<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.5. Ask tutors to discuss how they will assist student teachers during the post internship seminars to practice the qualities of a professional teacher when posted.</p> <p><i>Some Qualities of a Professional Teacher are:</i></p> <ul style="list-style-type: none"> ➤ <i>Good teachers are strong communicators</i> ➤ <i>Good teachers listen well.</i> ➤ <i>Good teachers focus on collaboration</i> ➤ <i>Good teachers are adaptable.</i> ➤ <i>Good teachers are engaging.</i> ➤ <i>Good teachers show empathy</i> ➤ <i>Good teachers have patience.</i> ➤ <i>Professional teachers Value real-world learning.</i> ➤ <i>Professional teachers share best practices</i> ➤ <i>Professional teachers are life-long learners.</i> <p>1.6. Guide tutors to explain the classifications of the Newly Qualified Teachers (NQTs) roles and responsibilities in the portfolio assessment process and how they will discuss the classifications with the extending teachers during the post internship</p>	<p>1.5. Discuss how you will assist student teachers during the post internship seminars to practice the qualities of a professional teacher when posted.</p> <p><i>Some Qualities of a Professional Teacher are:</i></p> <ul style="list-style-type: none"> ➤ <i>Good teachers are strong communicators</i> ➤ <i>Good teachers listen well.</i> ➤ <i>Good teachers focus on collaboration</i> ➤ <i>Good teachers are adaptable.</i> ➤ <i>Good teachers are engaging.</i> ➤ <i>Good teachers show empathy</i> ➤ <i>Good teachers have patience.</i> ➤ <i>Professional teachers Value real-world learning.</i> ➤ <i>Professional teachers share best practices</i> ➤ <i>Professional teachers are life-long learners.</i> <p>1.6. Explain the classifications of the Newly Qualified Teachers (NQTs) roles and responsibilities in the portfolio assessment process and how you will discuss the classifications with the extending teachers during the post</p>	
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	<p>seminar.</p> <p><i>Note: The classifications of the Newly Qualified Teachers (NQTs) in the portfolio assessment process are;</i></p> <ul style="list-style-type: none"> ➤ <i>Collection</i> ➤ <i>Selection</i> ➤ <i>Reflection</i> ➤ <i>Assessment</i> <p>1.7. In their subject groups, ask tutors to discuss the Sample Portfolio Elements that would be used both by district and regional assessors and how they will share these sample portfolio elements with the student teachers during the post internship seminar.</p> <p><i>Note: Sample Portfolio Elements are;</i></p> <ul style="list-style-type: none"> ➤ <i>Teaching Philosophy</i> ➤ <i>Scheme of learning.</i> ➤ <i>Lesson plan.</i> ➤ <i>Report from Head of institution confirming that the teacher has taught for not less than 10 hours in a term (90 hours) for TCPD cycle.</i> ➤ <i>Reflective log/journal</i> ➤ <i>Teacher Training Logbook</i> ➤ <i>Action research conducted.</i> ➤ <i>Write up on assessment methods used with justification.</i> ➤ <i>Copies of learners' activities</i> ➤ <i>Photos/Videos on lessons</i> 	<p>internship seminar.</p> <p>1.7. Discuss the Sample Portfolio Elements that would be used both by district and regional assessors and how you will share these sample portfolio elements with the student teachers during the post internship seminar.</p>	
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<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</i></p>	<p>1.8. Ask tutors to identify decisions that needed to be made during GESI responsive lesson planning how they can help student teachers to implement them in the basic school classroom after posting.</p> <p><i>Note:</i> To ensure GESI responsiveness lesson planning, the following wide range of decisions needed to be made:</p> <ul style="list-style-type: none"> ➤ <i>Choice of learning materials to use</i> ➤ <i>Methodologies</i> ➤ <i>Content</i> ➤ <i>Learning activities</i> ➤ <i>Language use</i> ➤ <i>Classroom setup</i> ➤ <i>Classroom interaction</i> ➤ <i>Assessment of the learning/ learner</i> ➤ <i>Fair knowledge of the background of learners to inform all the above.</i> <p>1.9. Ask tutors to discuss GESI responsive lesson planning activities and how they would help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Note:</i> <i>GESI Responsive Lesson Planning Activities:</i></p> <ul style="list-style-type: none"> ➤ <i>Reviews student attendance every 2-3</i> 	<p>1.8. Identify decisions that needed to be made during GESI responsive lesson planning how you can help student teachers to implement them in the basic school classroom after posting.</p> <p><i>Note:</i> To ensure GESI responsiveness lesson planning, the following wide range of decisions needed to be made:</p> <ul style="list-style-type: none"> ➤ <i>Choice of learning materials to use</i> ➤ <i>Methodologies</i> ➤ <i>Content</i> ➤ <i>Learning activities</i> ➤ <i>Language use</i> ➤ <i>Classroom setup</i> ➤ <i>Classroom interaction</i> ➤ <i>Assessment of the learning/ learner</i> ➤ <i>Fair knowledge of the background of learners to inform all the above.</i> <p>1.9. Discuss GESI responsive lesson planning activities and how you would help the initial teachers to implement them in the basic school classroom after posting.</p> <p><i>Note:</i> <i>GESI Responsive Lesson Planning Activities:</i></p> <ul style="list-style-type: none"> • <i>Reviews student attendance every 2-3</i> 	
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	<p><i>months (particularly for females) - if there are problems with attendance, the teacher should follow up with the head teacher and parents.</i></p> <ul style="list-style-type: none"> ➤ <i>Plan classroom seating so that males and females are mixed, and so that pupils who need more support sit at the front Protect students with disability from abuse or bully by other students.</i> ➤ <i>Plan to use teaching strategies that ensure equal participation of both females and males. (Refer to Guidance note for integrating gender equality and social inclusion, Pg. 16)</i> 	<p><i>months (particularly for females) - if there are problems with attendance, the teacher should follow up with the head teacher and parents.</i></p> <ul style="list-style-type: none"> • <i>Plan classroom seating so that males and females are mixed, and so that pupils who need more support sit at the front Protect students with disability from abuse or bully by other students.</i> • <i>Plan to use teaching strategies that ensure equal participation of both females and males. (Refer to Guidance note for integrating gender equality and social inclusion, Pg. 16)</i> 	
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<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <ul style="list-style-type: none"> ➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.1. Ask tutors to list and explain the major concepts in lesson 11.</p> <p>E.g. <i>JHS: (Physics)</i></p> <ul style="list-style-type: none"> ➤ <i>Planning and designing.</i> ➤ <i>Communicating and reporting</i> ➤ <i>Practical activities.</i> <p><i>JHS: (Chemistry)</i></p> <ul style="list-style-type: none"> ➤ <i>Curriculum</i> ➤ <i>CO-plan, co-teach and co-assess</i> ➤ <i>Co-reflect.</i> <p>2.2. Ask tutors to discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p>NB: Misconceptions related to the concepts are: <i>JHS (Physics)...</i> <i>(i). Some student teachers think that curriculum is just about the content.</i></p> <p>Solution: <i>Curriculum is defined: Planned learning experiences with intended outcomes while recognizing the importance of possible unintended outcomes.</i></p> <p>There are three types of curricula: (1) explicit (stated curriculum), (2) hidden (unofficial curriculum), and (3) absent or null (excluded curriculum).</p> <p>2.3. Lead tutors to discuss the potential barriers that may impede extending teachers' learning and</p>	<p>2.1. List and explain the major concepts in lesson 11.</p> <p>2.2. Discuss the potential misconceptions and barriers with respect to the concepts listed.</p> <p>2.3. Discuss the potential barriers that may impede extending teachers' learning and application of concepts learned in</p>	<p>15 mins</p>
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	<p>application of concepts learned in basic schools.</p> <p><i>E.g., Possible Barriers:</i></p> <ul style="list-style-type: none"> ➤ <i>Student teachers may lack the skills of applying some of the experimental process skills appropriately.</i> ➤ <i>Large class size.</i> ➤ <i>Student teachers' inability to design appropriate teaching and learning activities to aid in learners' acquisition of core transferrable skills.</i> <p>2.4. Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson.</p> <p><i>E.g. (i) Teacher-led discussion on salient components of the curriculum to consider as translated into 30-minute lesson</i></p> <p><i>ii. Put students in pairs to enact the 30-minute lessons from week 10 (Each teaches a 30-minute lesson)</i></p> <p><i>(iii). Teacher-led whole-class reflective sessions. Students engaged in discussions on outcome of paired activities.</i></p>	<p>basic schools.</p> <p>2.4. 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>	
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	<p><i>(iv) E-Learning/Practical Activity: Tutor guides student teachers in groups of 3 members each with mixed ability on how to communicate and report their experimental result.</i></p> <p><i>(v). E-Learning/Practical Activity: Tutor allows student teachers to design their own experiments and provide how they will communicate and report their experimental results in their work book.</i></p>		
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<p>3.Planning for teaching, learning and assessment activities for the lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining areas where tutors may require clarification ➤ Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD 	<p>3.1. Ask tutors to read and discuss the appropriateness of the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the coherency, methodology, time available, teaching and learning resources, and characteristics of learners as well as GESI related issues.</i></p> <p><i>E.g., (i) Plan to use exercises/activities that do not reinforce traditional gender roles and in some cases, actively challenges or reverses traditional gender roles.</i></p> <p><i>(ii) Review TLRs for traditional gender roles and ensures that materials are distributed and used equally between females and males</i></p> <p>3.1.1. Assist tutors to identify and discuss areas that need clarification.</p> <p>3.2. Lead tutors to discuss how the varied activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson 11</p>	<p>3.1. Read and discuss the appropriateness of the teaching and learning activities in the course manuals for the two course levels.</p> <p><i>Note: Tutors should go through the activities one after the other taking into consideration the coherency, methodology, time available, teaching and learning resources, and characteristics of learners as well as GESI related issues.</i></p> <p><i>E.g., (i) Plan to use exercises/activities that do not reinforce traditional gender roles and in some cases, actively challenges or reverses traditional gender roles.</i></p> <p><i>(ii) Review TLRs for traditional gender roles and ensures that materials are distributed and used equally between female and males</i></p> <p>3.1.1. Identify and discuss areas that need clarification.</p> <p>3.2. Discuss how the varied activities would be carried out in both CoE and basic school classroom to achieve the LOs and the LIs of lesson</p>	<p>40 mins</p>
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<p>➤ Resources: 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</p> <p>➤ Tutors should be expected to have a plan for the next lesson for student teachers</p>	<p>from their course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender responsive.</i></p> <p><i>E.g., 1: Instead of “When everyone contributes <u>his</u> ideas, the discussion will be a success”.</i> <i>It may read: “When everyone contributes <u>his or her</u> ideas, the discussion will be a success”.</i></p> <p>2. <i>Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3. Ask two tutors to model how to co-plan, co-teach and co-reflect a lesson based on any selected concept in the semester.</p> <p>3.4. Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Prepare and use TLRs that attract the attention and interest of both female and male students, such as short video on science concept to be learned.</i> <i>(ii). Attract the interest of both female and male students, motivate them and provide relevance to</i></p>	<p>11 from your course manuals.</p> <p>Note: <i>Ensure that the language used in instructing learners to carry out the varied activities is gender responsive.</i></p> <p><i>E. g.,1: Instead of “When everyone contributes <u>his</u> ideas, the discussion will be a success”.</i> <i>It may read: “When everyone contributes <u>his or her</u> ideas, the discussion will be a success”.</i></p> <p>2. <i>Do not use harsh, threatening language or actions that instil fear in both females and males.</i></p> <p>3.3. Model how to co-plan, co-teach and co-reflect a lesson based on any selected concept in the semester.</p> <p>3.4. Discuss how GESI issues related to the teaching and learning activities of the lesson would be addressed.</p> <p><i>E g. (i). Prepare and use TLRs that attract the attention and interest of both female and male students, such as short video on science concept to be learned.</i> <i>(ii). Attract the interest of both female and male students, motivate them</i></p>	
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	<p><i>the lesson learned.</i></p> <p>3.5. Guide tutors to explain how they would assist the student teachers to demonstrate the 21st century skill in the basic school classroom. <i>E.g. (1) Student teachers to use Open Courseware, Open Learning Imitative and Open Course Library to search for additional information. This will enable them to acquire digital literacy skills</i> <i>(2) Digital Literacy skills e.g. The use of power-point to prepare and present lessons.</i></p> <p><i>(3) Development of critical thinking and problem-solving skills, collaborative and communicative skills through group works and presentations.</i></p> <p>3.6. Ask tutors to read the assessment activities in the various course manuals and identify areas that require clarification. <i>Note: (i) Assist your colleagues to review the assessment in the course manual to be in line with the NTEAP.</i> <i>(ii) Tutor guides student teachers in groups of 3 members each with mixed ability to plan and design experiments in Basic School Physics concepts. (Student teachers should provide their plan and design of</i></p>	<p><i>and provide relevance to the lesson learned.</i></p> <p>3.5. Explain how you would assist the student teachers to demonstrate the 21st century skill in the basic school classroom.</p> <p>3.6. Read the assessment activities in the various course manuals and identify areas that require clarification.</p>	
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	<p>experiments in their work books) These could be added to their subject portfolio.</p> <p>(iii). Inform tutors to ask student teachers to prepare a LESSON PLAN on the topic/sub-strand “Electrical circuit”. Integrate two cross cutting issues and two 21st century skills. This could be one of their subject projects for the semester.</p> <p>3.7. Lead tutors to identify the needed inclusive resources for co-planning, co-teaching and co-reflecting on any selected concept within the semester in both CoE and basic school classrooms. <i>E.g., Syllabus, teacher’s handbook and pupil’s textbook, student teacher’s workbook.</i> <i>Also, curriculum, lesson notes, internet (if required), box.</i></p> <p>Note: (i). Make sure the resources are enough and appropriate to all learners (females, males and persons with SEN). (ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed.</p>	<p>3.7. Identify the inclusive resources needed for teaching and learning the concepts in both the CoE and basic school classrooms. <i>E.g., Syllabus, teacher’s handbook, pupil’s textbook, student teachers ’ book. ok.</i> <i>Also, curriculum, lesson notes, internet (if required), box.</i></p> <p>Note: (i). Make sure the resources are enough and appropriate to all learners (females, males and persons with SEN). ii). Let everybody have a concrete plan for teaching the given topics, thus, the activities agreed on by the group to be followed</p>	
<p>4. Evaluation and review of session:</p> <p>➤ Tutors should Identifying critical</p>	<p>4.1. Engage tutors in providing feedback of this PD session taking into consideration – Clarity of concepts,</p>	<p>4.1. Provide feedback on this PD session taking into consideration – Clarity of concepts,</p>	<p>15 mins</p>

<p>friends to observe lessons and report at next session</p> <p>➤ Identifying and addressing any outstanding issues relating to the lesson/s for clarification</p>	<p>pedagogical approaches employed, ICT integration, GESI, Twenty First Century Skills (NTS 1a, 3i,) and make notes that will help them to teach Lesson 11.</p> <p>4.2. Ask tutors to identify a critical friend who took part in this PD session to sit in their class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.3. Lead tutors to discuss anything relating to Lesson 11 that needs clarification.</p> <p><i>Note:</i> <i>(i). In the case of unresolved issues consult the subject writing leads.</i> <i>(ii). Encourage tutors to read lesson 12 (Review Lesson) from both the course manual and PD manual and find relevant materials for the next session.</i> <i>(iii) Ask tutors to find out the challenges student teachers faced during their entire extending teaching for discussion in the next lesson.</i></p>	<p>pedagogical approaches employed, ICT integration, GESI, Twenty First Century Skills (NTS 1a, 3i,) and make notes that will help you to teach Lesson 11.</p> <p>4.2. Identify a critical friend who took part in this PD session lesson to sit in your class during lesson to provide feedback and report on observations made in the next PD session.</p> <p>4.3. Discuss anything relating to Lesson 11 that needs clarification.</p> <p><i>Note:</i> <i>(i) Read lesson 12 (Review Lesson) from both course manuals and PD manuals and find relevant materials for the next session.</i> <i>(ii) Find out the challenges student teachers faced during their entire extending teaching for discussion in the next lesson.</i></p>	
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Tutor PD Session

Age Levels/s: JHS

Name of Subject/s: *Chemistry and
Physics:*

Course Review II with STS seminar

Year 4

Semester 2

Tutor PD Session for Lesson 12 in the Course Manual

<p>Focus: the bullet points provide the frame for what is to be done in the session. The SWL should use the bullets to guide what they write for the SL/HoD and tutors to do and say during each session. Each bullet needs to be addressed and specific reference should be made to the course manual/s.</p>	<p>Guidance notes on Leading the session. <i>What the SL/HoDs will have to say during each stage of the session</i></p>	<p>Guidance Notes on Tutor Activity during the PD Session. What PD Session participants (Tutors) will do during each stage of the session.</p>	<p>Time in sess</p>
<p>1 Introduction to the session</p> <ul style="list-style-type: none"> ➤ Review prior learning ➤ A critical friend to share findings for a short discussion and lessons learned ➤ Reading and discussion of the introductory sections of the lesson up to and including learning outcomes and indicators ➤ Overview of content and identification of any distinctive aspects of the lesson/s, <p>NB The guidance for</p>	<p>Start lesson with an icebreaker relevant to the course in the lesson.</p> <p>1.1 Lead tutors to 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. Ask tutors to tell how useful the previous PD sessions were and how they influenced their teaching over the weeks.</p> <p>1.3. Ask a critical friend to give feedback on Lesson 7-</p>	<p>1.1. 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. How useful were the previous PD sessions and how have they influenced your teaching over the weeks.</p> <p>1.3. A critical friend to give feedback on</p>	<p>20 mins</p>

<p>SL/HoD should identify, address and <i>provide explanations</i> for any areas where tutors might require clarification on an aspect of the lesson. SL/HoD take feedback to gauge understanding and support tutor engagement. NB SL/HoD should ask tutors to plan for their teaching as they go through the PD session</p>	<p>11 which they observed.</p> <p>1.4. Ask tutors to read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators of lesson 12</p> <p><i>Example;</i> <i>JHS (Chemistry)-This lesson is a review and audit of the lessons for the second half of the semester as well as review and discussion of lessons learned, reflection and peer review of teaching and learning portfolios.</i></p> <p><i>JHS (physics) -The review and audit the lessons for the second half of the semester (from lesson 7- lesson 11). It is also expected that Student teachers will reflect during this lesson on their own progress in the course.</i></p> <p>JHS- Learning Outcomes</p> <ul style="list-style-type: none"> <i>i) Be able to reflect on lessons and state new insights or grey areas needing remedies</i> <i>ii) Basis for co-planning and co-teaching</i> <p>JHS-Learning Indicators</p> <ul style="list-style-type: none"> <i>i) Provide a reflection report on STS and demonstrations and illustrations on a given media of lessons learnt so far.</i> 	<p>Lesson 7-11 which they observed.</p> <p>1.4. Read and discuss the introductory sections of the lesson up to and including learning outcomes and indicators of lesson 12.</p> <p><i>Example;</i> <i>JHS (Chemistry)-This lesson is a review and audit of the lessons for the second half of the semester as well as review and discussion of lessons learned, reflection and peer review of teaching and learning portfolios.</i></p> <p><i>JHS (physics) -The review and audit the lessons for the second half of the semester (from lesson 7- lesson 11). It is also expected that Student teachers will reflect during this lesson on their own progress in the course.</i></p> <p>JHS- Learning Outcomes</p> <ul style="list-style-type: none"> <i>i) Be able to reflect on lessons and state new insights or grey areas needing remedies</i> <i>ii) Basis for co-planning and co-teaching</i> <p>JHS-Learning Indicators</p> <ul style="list-style-type: none"> <i>i) Provide a reflection report on STS and demonstrations and illustrations on a given media of</i> 	
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	<p><i>ii) Present teaching and learning e-portfolios developed throughout semester.</i></p> <p>1.5. Lead tutors in pairs to discuss the distinctive aspects of lesson 7-11 such as fundamental concepts and developing awareness of equity and diversity issues and issues on ICT</p>	<p><i>lessons learnt so far.</i></p> <p><i>ii) Present teaching and learning e-portfolios developed throughout semester.</i></p> <p>1.5. In pairs discuss the distinctive aspects of lesson 7- 11 such as fundamental concepts and developing awareness of equity and diversity issues and issues on ICT</p>	
<p>As this course is dealing with supporting and/ or assessing the Professional Teaching Portfolio Development and/ or the Classroom Enquiry and Action Research Project Report writing, Tutors should be provided with guidance on what to do including organisation of Post Internship Seminar.</p>	<p>1.6. Ask tutors to bring out and discuss the challenges the student teachers said they faced during the entire extending teaching.</p> <p>1.6.1. Ask tutors to explain how they will assist the student teachers to overcome their challenges so as to prevent them from occurring in their new schools when posted.</p> <p><i>Note: They were asked in the previous PD to find out from student teachers the challenges they faced for discussion in this PD session.</i></p>	<p>1.6. Bring out and discuss the challenges the student teachers said they faced during the entire extending teaching.</p> <p>1.6.1. Explain how you will assist the student teachers to overcome their challenges so as to prevent them from occurring in their new schools when posted.</p>	
<p><i>For each session remember this is the final semester before Students begin teaching provide prompts to help support this transition for planning and give regard for GESI, CCI, ICT etc.</i></p>	<p>1.7. Ask tutors to identify and discuss key GESI, ICT and cross-cutting issues they know that are very relevant but were not discussed in any of the PD sessions.</p> <p>1.7.1. Ask tutors to explain how they will assist the student teachers to integrate the key GESI,</p>	<p>1.7. Identify and discuss key GESI, ICT and cross-cutting issues you know that are very relevant but were not discussed in any of the PD sessions.</p> <p>1.7.1. Explain how you will assist the student teachers to integrate the key GESI, ICT and Cross-</p>	

	ICT and Cross-Cutting issues in their teaching when posted.	Cutting issues in their teaching when posted.	
<p>2 Concept Development (New learning likely to arise in lesson/s):</p> <p>➤ Identification and discussion of new learning, potential barriers to learning for student teachers or students, new concepts or pedagogy being introduced in the lesson, which need to be explored with the SL/HoD</p> <p>NB The guidance for SL/HoD should set out what they need to do to introduce and explain the issues/s with tutors, they should take feedback to gauge understanding and support tutor engagement.</p>	<p>2.1. Ask tutors to identify and discuss the major concepts in lesson 7-11.</p> <p>2.2. Ask tutors to use Think-Pair-Share to outline possible challenging areas in teaching and assessing of lesson 7-11.</p> <p>Note: <i>use differentiated instruction to cater for the needs of all children in the JHS classrooms, including those with special educational needs (SEN) and creating a safe, secure, happy and stimulating learning environment (NTS 3c 3f, pg. 14).</i></p> <p>2.3 Ask tutors to identify the most appropriate teaching strategies that can be employed to best deliver the new concepts in both CoE and basic school classroom to achieve the LOs and the LIs of the lesson apart from the once that was used in the previous lesson 7-11.</p> <p>Note: <i>Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.</i></p>	<p>2.1 Identify and discuss the major concepts in lesson 7-11.</p> <p>2.2 Use Think-Pair-Share to outline possible challenging areas in teaching and assessing of lesson 7-11.</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 apart from the once that was used in the previous lesson 7-11.</p>	15 mins
<p>3.Planning for teaching, learning and assessment activities for the</p>	<p>3.1 Ask tutors to read and discuss of the teaching and learning activities from the course manual for lesson 7-</p>	<p>3.1 Read and discuss of the teaching and learning activities from the course manual for</p>	40 mins

<p>lesson/s</p> <ul style="list-style-type: none"> ➤ Reading and discussion of the teaching and learning activities ➤ Noting, addressing, and explaining areas where tutors may require clarification ➤ Noting opportunities for making <i>explicit links</i> to the Basic School Curriculum ➤ Noting opportunities for integrating: GESI responsiveness and ICT and 21st C skills ➤ Reading, discussion, and identification of continuous assessment opportunities in the lesson. Each lesson should include at least two opportunities to use continuous assessment to support student teacher learning, subject specific examples should be provided for SL/HoD ➤ Resources: links to the existing PD Themes, for example, action research, questioning and to other external 	<p>11.</p> <p>3.2 Ask tutors to list and explaining areas where tutors may still require clarification for the lesson 7-11 and also making <i>explicit links</i> to the Basic School Curriculum.</p> <p><i>E.g</i></p> <ol style="list-style-type: none"> 1. <i>Misconception to some concepts not adequately dealt with.</i> 2. <i>Lessons not appropriately understood by student - teachers.</i> 3. <i>Pedagogical issues not appropriately understood by student teachers.</i> <p>3.3 Ask tutors to discuss how GESI issues related to the teaching and learning activities of the lesson 7- 11 would be addressed in the case of unresolved.</p> <p>3.4 Ask tutor to read, identify and discuss continuous assessment opportunities in lesson 7-11 that can be added to what was already in the manual.</p>	<p>lesson 7- 11.</p> <p>3.2. List and explaining areas where tutors may still require clarification for the lesson 7-11 and also making explicit links to the Basic School Curriculum.</p> <p>3.3 Discuss how GESI issues related to the teaching and learning activities of the lesson 7- 11 would be addressed in the case of unresolved.</p> <p>3.4 Read, identify and discuss continuous assessment opportunities in lesson 7-11 that can be added to what was already in the manual.</p>	
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<p>reference material: literature, on web, Utube, physical resources, power point; how they should be used. Consideration needs to be given to local availability</p> <ul style="list-style-type: none"> ➤ Tutors should be expected to have a plan for the next lesson for student teachers 			
<p>4. Evaluation and review of session:</p> <ul style="list-style-type: none"> ➤ Tutors should Identifying critical friends to observe lessons and report at next session ➤ Identifying and addressing any outstanding issues relating to the lesson/s for clarification 	<p>4.1. Discuss with tutors anything relating to Lesson 7-12 that needs further clarification.</p>	<p>4.1. Discuss anything relating to Lesson 7-12 that needs further clarification.</p>	<p>15 mins</p>

**Appendix 1. Course Assessment Components, detail in the Revised NTEAP Toolkit
(Sept. 21)**

COMPONENT	SUBJECT PROJECT 1 per course per semester, individual or collaborative student teacher work.	SUBJECT PORTFOLIO 1 per course per semester, individual or collaborative student teacher work.
WHAT IS IT?	The Subject project is an assignment designed to enable student teachers to demonstrate achieving one or more of the CLOs, progress towards achieving identified NTS, development of knowledge and understanding of: the Basic School Curriculum, GESI responsiveness, using ICT and 21stC skills	The Subject Portfolio is the deliberate collection of student teachers' work that has been selected and organized for a particular subject to show student teacher's learning and progress to achieving the CLOs.
CONSTITUENTS	<p>Introduction: a clear statement of aim and purpose</p> <p>Methodology: what the student teacher has done and why to achieve the aim and purpose of the project</p> <p>Substantive or main section: Presentation of any artifacts, experiments, TLMs created for the project; presentation, analysis, and interpretation of what has been done, learned, or found out in relation to focus of the project.</p> <p>Conclusion: Statement of the key outcomes of the project; reflection on what the student teacher has learnt</p>	<p>Either 3 items of work produced during the semester or 2 items of work and a mid-semester assessment</p> <p>The items of work to be selected by student teachers, with tutor support, during the semester as best examples of their progress. 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> <p>The mid-semester assessment : case study, reflective note, quiz etc.</p>
WEIGHT	<p>Overall weighting of project = 30%</p> <p>Weighting of individual parts of project out of 100</p> <ul style="list-style-type: none"> • Introduction – 10 • Methodology – 20 	<p>Overall weighting of project = 30%</p> <p>Weighting of individual parts of portfolio out of 100</p> <ul style="list-style-type: none"> • Each item of work - 30 • Mid semester assessment - 30 - <i>if applicable</i>

	<ul style="list-style-type: none"> • Substantive section – 40 • Conclusion – 30 	<ul style="list-style-type: none"> • Presentation and organisation of portfolio - 10
EXAM	End of semester Exam, weight 40%. To assess: achievement of one or more of the CLOs, progress towards achieving identified NTS, development of knowledge and understanding of the Basic School Curriculum, ability to use GESI responsive approaches and to integrate ICT and 21 st C skills in teaching and learning	

Examples of course assessment components

Subject portfolio examples of items of work

Literacy:

- o Reading log of children’s literature
- o Review of different types of writing and how to teach them
- o Book summaries/reports
- o Report on different purposes for and types of reading or writing
- o Vocabulary achievement
- o Schemes of work

Mathematics:

- o Samples of problem solving with written explanations of how the problems were solved and how this can be taught
- o Charts and graphs with written explanations of how and why they were created and how this can be taught
- o Computer analyses conducted as well as use of software to teach mathematics and how effective they are
- o Use indigenous knowledge in mathematics teaching.
- o Schemes of work

Science

- o Lab reports,
- o Research reports
- o Charts, graphs created
- o Designs, TLMs, posters, worksheets
- o Integrating indigenous knowledge into science teaching
- o Schemes of work

Subject project examples

- o *Pedagogic Studies*. What are the qualities you need to develop to be a good teacher? Reflect on your personal experiences, values, and background, the NTS and the expectations of, and vision for, the B.Ed.

ACKNOWLEDGEMENTS

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