

## Four-Year B.Ed. Course Manual

# **Early Grade Science**

















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## FOREWORD

These Initial Teacher Education course manuals were developed by a team consisting of members from Colleges of Education and four universities namely the University of Ghana, Kwame Nkrumah University of Science and Technology, University of Education, Winneba, and University for Development Studies. This team was originally constituted by the National Council for Tertiary Education (now the Ghana Tertiary Education Commission) in 2019 to support the delivery of the new B.Ed. curriculum with assistance from T-TEL and UK Aid. The revision, finalization and printing of these manuals took place in 2021 with support from T-TEL and Mastercard Foundation.

The course manuals have been produced for use as general guides for the delivery of the new four-year B.Ed. curriculum in Colleges of Education in collaboration with their affiliated universities. They are designed to support student teachers, tutors, and lecturers in delivering a complete B.Ed. course for training student teachers which meets the requirements of the National Teachers' Standards, enabling them to teach effectively in basic schools.

The first section of the manuals is focused on the course information and vision for the B.Ed. curriculum. The second section presents the course details, goal for the subject or learning area, course description, key contextual factors as well as core and transferable skills and cross-cutting issues, including equity and inclusion. The third section is a list of course learning outcomes and their related learning indicators. The fourth section presents the course content which is broken down into units for each week, the topic and sub-strands and their related teaching and learning activities to achieve the learning outcomes and the teaching and learning strategies. This is followed by course assessment components in section five. Each manual contains a list of required reading and references as well as teaching and learning resources. The final section presents course related professional development for tutors and lecturers to be able to use each section of the manual.

Field instructions to guide Supported Teaching in School are integrated into the course manuals to provide the student teacher with guidance in developing teaching throughout the entire period of study to be able to meet the requirements of the National Teachers' Standards (NTS) and the National Teacher Education Curriculum Framework (NTECF). To ensure maximum benefit the course manuals should be used in addition to other resources such as the NTS, NTCEF, National Teacher Education & Assessment Policy and the National Teacher Education Gender Equality and Social Inclusion (GESI) Strategy and Action Plan.. This will help to ensure that student teachers' learning is integrated within the wider teacher education policy framework.

#### Professor Mohammed Salifu Director General, Ghana Tertiary Education Commission

## ACKNOWLEDGEMENTS

The course manuals were developed through the collaborative efforts of a team of individuals from Colleges of Education, University of Ghana, Kwame Nkrumah University of Science and Technology, University of Education, Winneba, and University for Development Studies. They were produced in association with the Ghana Tertiary Education Commission of the Ministry of Education, Ghana.

A participatory team approach was used to produce this set of resources for tutors/lecturers, mentors, and student teachers. We are grateful to the specialists who contributed their knowledge and expertise.

Special thanks to Professor Jophus Anamuah-Mensah - T-TEL Key Advisor, Dr. Eric Daniel Ananga - T-TEL Key Advisor for Curriculum reform and Beatrice Noble-Rogers who provided key editorial, review and content input and facilitated the process of drafting and finalising the course manual.

Patricia Appiah-Boateng and Gameli Samuel Hahomene, served as typesetting and formatting coordinators and designed and produced the illustrations, tables, and other graphics which appear in the pages. They spent time and effort designing and redesigning the graphic layout and producing the camera-ready copy resulting in a set of materials that are easy to use, read, and reference.

Thanks also goes to all T-Tel staff members who worked to support production of these course manuals, particularly Beryl Opong-Agyei and Gideon Okai. Their frankness and co-operative attitude complimented the team approach used to produce this manual.

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In addition to all the staff who participated visibly in the development of these materials we would like to acknowledge all those people from the many colleges of education and universities in which we have worked who have, directly or indirectly, shared their views on the curriculum with us.

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#### **INTRODUCTION TO COURSE MANUALS**

Welcome to this B.Ed. Course manual.

Following the accreditation of the B.Ed. by the national accreditation Board with its recognition as a world class teacher education curriculum, the decision was taken to support effective implementation through the development of course manuals. the course manuals provide tutors and lecturers with the materials necessary to support teaching each of the B.Ed. courses. The manuals adhere directly to, and emphasise, the principles and standards set out in the NTS, NTECF and in the B.Ed. and will help ensure operationalising the Government's teacher education reform Policy.

The manuals serve the following purposes:

- they are the key educational agreements between the training institution and the student teachers. In this way student teachers know what the expectations are for them and for the training they will receive.
- they lay out the course outcomes, content, strategies, and assessment, thereby providing direction to and consistency in training and B.Ed. implementation among tutors across the country.
- they are explicit documents that provide other institutions with information on which to base transfer/ articulation decisions.

Specifically, they also:

- support coherent lesson planning and teaching which will enable student teachers to achieve the NTS and become good teachers who ensure all pupils' learning whilst offering tutors the flexibility for adaptation for local needs and contexts.
- Provide a lesson by lesson overview of the course, building on and developing the material in the course specifications.
- Inform tutors, student teachers and others working with student teachers about:
  - 1. What is to be taught and why.
  - 2. how it can be taught.
  - 3. how it should be assessed.
- Provide opportunities for student teachers to develop and apply knowledge during supported teaching in school, creating a strong bond between learning in school and in the training institution.
- Reflect the stage of student teacher development, set out in the model for progress across the four years of the B.Ed.
- Can be used as self-study tools by student teachers.
- Ensure that all information necessary to inform teacher training is in one place (serves as reference document).
- The manuals are the basis of the codes and university professional development sessions to ensure Principals, tutors, lecturers and heads of department are fully familiar with the details of: courses, outcomes, content, approaches, assessments and lessons.

Who are course manuals for:

- College of Education Tutors
- Teacher Education University Lecturers
- Student Teachers
- Mentors and Lead Mentors
- All Those with An Interested In Teacher Education.

#### **USING THIS MANUAL**

Writers of the manuals engaged widely with colleagues in each subject area at each stage of development. Besides, writers envisaged themselves in varied contexts as they wrote, to suggest methodologies and strategies for teaching the strands which would ensure student teachers are enabled to achieve the learning outcomes. In view of our commitment to creativity, problem solving, collaboration and to lifelong learning, we expect that individual tutors will "own" their manuals and become user-developers. lessons in the manuals will be strands for weekly Pd meetings where tutors/lecturers will situate the lessons in the contexts of their colleges and their student teachers, to maximize the benefits.

It is also expected that tutors will model the best pedagogic practices for student teachers. Key among such practices is the communication of the importance of having a personal teaching philosophy. We expect that tutors and lecturers will explicitly communicate their personal teaching philosophies to their student teachers during the first meeting of every course. in preparation for this, we suggest you set out your personal teaching philosophy and how it will be demonstrated in your teaching using, or adapting, the sample sentence introductions below.

My teaching philosophy is .....

In view of this philosophy, I will facilitate this course by/through .....

#### This manual will be very useful to tutors it is very clear and easy to follow. A few points for consideration:

- 1. Identify which CLO addressed in which week/unit
- 2. The teaching and learning activities need to relate directly to what is being taught and learned in each unit in each week. E.g. in unit one 'Produce charts and illustrations of forms and sources of energy' has nothing to do with 'living things'. This needs to be clear for all topics in all units
- 3. There are three assessment components. An exam 40%: summative and two continuous assessment components totaling 60%. Tutors cannot assess work from each lesson there is not time. We need to be mindful of both tutor and student teacher work loadIf you want students to build up a portfolio of materials from each lesson as one assignment that is OK but not weekly tutor assessments. Suggest that you introduce the idea of the portfolio in week one, you can include weekly peer assessment, final session peer review and subsequent tutor assessment on submission of the portfolio of work. I have also added an example of a written report assessment component. Several lessons say they have 40% of the assessment marks for the semester that is not possible. Also not sure what the 10 marks /20marks etc are in all lesson assessments.
- 4. In lessons e.g. 2. You refer to teaching and assessment strategies for early grade. Please can you provide some examples
- 5. I wonder why you do not introduce the school curriculum until lesson 10. Are the topics covered not in the Curriculum? Should it not be referred to throughout?
- 6. Lesson 12 is a mid semester review! I think this is a mistake!

#### A. Course Information

Notes

Introduction to Early Grade Science I

#### The vision for the New B.Ed. Curriculum

The vision is to transform initial teacher education and train highly qualified, motivated new teachers who are effective, engaging and fully prepared to teach the basic school curriculum. This would improve the learning outcomes and life chances of all learners they teach as set out in the National Teachers' Standards. In doing this it would instill in new teachers the Nation's core values of honesty, integrity, creativity and responsible citizenship and to achieve inclusive, equitable, high quality education for all learners

Course Details									
Course	Intro	Introduction to Early Grade Science I							
Name									
Pre-	Introduction to Integrated Science I and Introduction to Integrated Science II (from year 1)								
requisite									
Course	200	Course Code		Credit	3				
Level				Value					
Could famile									

**Goal for the Subject or Learning Area** 

The science programme is designed to transform the early grade teacher 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 early grade level.

#### **Course Description**

The Introduction to Early Grade Science I consolidates the basic science concepts of the student teacher on the nature of science and matter through appropriate pedagogies useful for early child education such as play/activity based, games (indigenous and foreign), storytelling and sharing, as well as field trips to identify important scientific scenes. Pyramid discussions, multimedia presentations, reflective writing and authentic assessments modes would be used to identify critical values and skills that student teachers must imbibe for practice. Some of the topical issues the course deals with are living and non-living things, measurement in science, Sun and Earth, Day and Night and Curriculum studies. It also introduces the student teacher to the essential attitudes and values of professional science teaching such as honesty, carefulness, accuracy and many more. The student teacher is also introduced to the child study styles, the new Basic school curriculum and how to begin developing the portfolio for their Student Reflective Journals (SRJ). Assessment procedures for this course will include written reports, making of models, short notes, charts for teaching and production of audio-visual materials. NTS, 1a, Pg. 12; NTS 2c, pg. 13, NTS 3b, 3e & 3g, pg. 14; NTECF pg. 20

- A number of on-going interventions have been initiated by government and other stakeholders which support the Early Child Education (ECE) sector, such as mainstreaming KG into compulsory basic education for all school-age children, school feeding programme, provision of free school uniforms, National Literacy Acceleration Programme (NALAP) and USAID support programmes (learning materials).
- However, current research shows that early childhood education is still facing a number of challenges. Some of these
  include: public prejudice about the relevance of early childhood education, lack of commitment and involvement of
  parents, financial constraints and inadequate infrastructure.
- Other challenges include: cultural and linguistic barriers; mode of assessment of pupils and a lack of conducive learning environments.

- Another major challenge is the lack of qualified early childhood teachers, leading to rote-based learning in Ghanaian early years' settings.
- The current training for early childhood teachers does not prepare them sufficiently to identify, manage and support the learning challenges of children; including those with special educational needs.
- Early childhood education is perceived by society as women's field and also not regarded as important as Primary and JHS.
- There is a low competency level of early childhood teachers in integrating ICT into their teaching and learning process.

Also

- The learners' primary environment provides primary resources to make science learning relevant, interactive and enjoyable.
- There is extensive literature to make appropriate improvisations and innovations towards improving science learning.
- Innovations make it easy for every student, irrespective of their social, physical and mental ability, to participate in science learning.
- There is human resource at the training, supporting and mentoring institutions to build capacity that can drive the intervention that this manual presents.

Play-based pedagogy, introduced by the 2012 Programme to Scale Up Quality Kindergarten Education Nationwide, requires all teachers to adopt the play-based approach. Noting that;

- learning activities have to be structured in such a manner that all learners will be able to work in free, collaborative and engaging environments to build logical and sequenced concepts from their personal (but guided) experiences. This will imply engaging in integrated teaching- bringing in ideas to facilitate concept formation from various disciplines, cultures and activities.
- Since science is practical, learners must be engaged in hands-on activities, with or without standard laboratories. The introduction of (universal/adaptable) laboratories through micro science kits would be very useful.
- Text and content materials as well as assessment tools must be modelled to take into consideration, the different cultures and gender issues bordering on learning science. The new teacher must be gender sensitive with a sense of inclusivity in their teaching strategies.

Core and transferable skills and cross cutting issues, including equity and inclusion						
Critical and Independent Thinking, Equity and Inclusivity, Social Collaboration/Team work, Creativity, Innovation, Problem						
solving, Manipulation, Reflection, developing scientific process skills and Inquiry.						
Course Learning Outcomes	Learning Indicators					
CLO 1. Identify creative ways to present plant and animal and their uses to early grade learners (NTS, 2c, Pg. 13; 3j, pg.12)	<ul> <li>Develop science related games children can play and learn about plant and animal uses.</li> </ul>					
CLO2. Demonstrate adequate knowledge and understanding that Sunlight is a basic need for plants and animals CLO3. Mention some uses/importance of sunlight. (NTS, 2c, Pg. 13)	<ul> <li>Create song and rhymes about sun, the moon and their influence on plant and animal life</li> </ul>					

CLO4. Understand th and/or careers them to suppo and developm stakeholders t early years' ed	e important influence of parents s, working in partnership with rt the child's wellbeing, learning ent and collaborate with o participate effectively in the lucation (NTS 1e, pg. 12)	<ul> <li>Role play in a mini drama the teacher, parent and wellbeing of the child.</li> </ul>	to demonstrate the collaboration of d stakeholders in caring for the			
CLO5. Develop and u TLMs from loc years` educatio	se developmentally appropriate ally available materials for early on (NTS 3j, pg. 14)	Prepare improvised mater     level	ials for teaching at the early grade			
CLO6. Demonstrate H their teeth, ba short and clea their importan 3e, Pg. 14 fing	now to wash their hands, clean th their body, keep their nails n, care for their hair together with ce to the human body. (NTS, 2c & er & 24)	<ul> <li>Role play the process of W care of the hair and nails.</li> <li>Demonstrate the process a bathing</li> </ul>	ashing hands, cleaning the teeth and ind present a concept cartoon on the			
CLO 7. Demonstrate Teachers' Sta Curriculum, la relevant regu values, attitu teacher will b NTS. (NTS 1b	knowledge and application of the ndards, Early Childhood Education aws protecting children and all lations, and model positive des and behaviours. student we working towards meeting the p14 & 18, 14)	<ul> <li>Provide a checklist to identify values such as patience, critical thinking, precision and accuracy in a peer review exercise</li> <li>Prepare a list of some examples of professional needs and some characteristics of professional teachers</li> </ul>				
Unit	Торіс	Subtopic (if any)	Teaching and learning activity to			
Week 1	<ul> <li>Review of Year 1 Integrated Science</li> <li>Teaching Living and Non Living things</li> </ul>	<ul> <li>Recap of year 1 lessons and challenges thereof.</li> <li>Introducing Year 2 Specialism CM</li> <li>concepts of living and non-living things</li> <li>Characteristics and Differences between living and non-living things</li> </ul>	<ul> <li>Demonstrations and discussions of Y1 CM and specialism of Early grade science CM</li> <li>Reflections, presentations and designing Maps on challenges and unique nature of Y1 CM and Y2 Specialism Early Grade CM</li> <li>Role playing/song creations of concepts of Living and nonliving things</li> <li>Simulations, video and Computer presentation of Characteristics of Living and nonliving things</li> <li>Produce charts and illustrations of differences of living and nonliving things</li> </ul>			
Week 2 Week 3	How to teach Living and Non Living things I How to teach Living and Non	<ul> <li>Plants and animals and their uses</li> <li>Developing activities and</li> </ul>	<ul> <li>Demonstrations and group discussions of previous lessons</li> <li>Reflections, presentations and designing/game development on plants and animal uses</li> <li>Concept mapping to show plants and animal uses</li> <li>Simulations, video and Computer presentation on plant and animal uses</li> <li>Face-to Face:</li> </ul>			
	Living things II	Assessment strategies to teach early grade living and nonliving things	Discussion, Role Playing, Construction of games, Designing rhymes, creating songs about plants and animals			

			e-learning: Video and Computer simulation on teaching activities and assessment strategies for living and nonliving things
Week 4	Measurement in Science	<ul> <li>Measuring mass and Length</li> <li>Measuring Volume and time</li> </ul>	Face-to-face: Mixed group discussions and demonstrations/role plays on everyday measurement activities Concept Mapping and Cartooning on measurement of quantities. e-learning/Reflections: Video
			presentations from MOOCs with reflections on values such as Honesty, Accuracy, Precision and critical thinking in measurement.
Week 5	Teaching Measurement in Science	<ul> <li>Developing early grade science activities and assessments on measurement</li> </ul>	Face-to-face: Discussion, Talk for learning approaches with student teacher presentations on Activities for teaching Early grade measurement in science
			Independent Face-to-face: Discussion, Talk for learning approaches with student teacher presentations, on Assessments strategies for measurement in science Independent Study: problem- based teaching and assessment of measurement in science
			e-learning opportunities: multimedia presentations, problem-based teaching on measurement in science
Week 6)	Course Review I with STS seminar	<ul> <li>Reviewing and reflecting on lessons 1-5</li> <li>STS Seminar</li> </ul>	Face-to-face: Discussion, Talk for learning approaches with student teacher presentations to review lessons learnt form week 1- week 5.
			Independent Study: Problem-based learning on National Teacher's Standards and reflection on observations made during STS between week 1 – week 5.
Week 7	Exploring Sun and Earth	<ul> <li>Objects in the sky: sun, moon, and stars</li> <li>The Sun</li> <li>The Earth</li> </ul>	Face-to-Face: Pyramid discussions, Presentations on the sun, Earth, sky and Stars e-learning: OERs and MOOCs on
			the sun, Earth, Sky and stars.
Week 8	Day and Night I	<ul><li>Position of the sun</li><li>Causes of day and night</li></ul>	<b>Face-to-face:</b> Discussions, demonstration, mixed group work on the positions of the sun and

			how day and night are formed Computer simulations and OERs sources on the positions of the sun formation of day and night				
Week 9	Day and Night II	<ul> <li>Effect of day and night</li> <li>Day and night cycle on human activities</li> </ul>	Independent Study: Inquiry and reflections on previous lesson and on the effects of day and night Face-to-Face: Discussions, Role playing and Rhyme designing on day and night cycle activities				
Week 10	Early Grade Science Curriculum Studies I	<ul> <li>The nature of the Early Grade curriculum and science learning</li> </ul>	Face-to-Face: Think, Pair, Share, share discussions, Reflections and rhyming on the nature of early grade curriculum and science learning e-learning: OERs and MOOCs with report writing about early grade science learning.				
Week 11	Early Grade Science Curriculum Studies II	<ul> <li>Modelling Inclusivity, Values and appropriate attitudes in the Science lessons on the Early grade curriculum</li> </ul>	Face-to-Face: Modelling, Role playing and Rhyming on the values in the Early grade curriculum				
Week 12	Course Review II with STS seminar	<ul> <li>Reviewing and reflecting on lessons 7-11</li> <li>STS Seminar</li> </ul>	Face-to-face: Discussion, talk for learning approaches with student teacher presentations on lessons learnt from week 7 – week 11 Independent Study: problem- based learning on National Teacher's Standards and reflection on observations made during STS between week 7 – week 11				
Teaching and Learn Think, Pair mapping, field trips	ning Strategies: r, Share, Square, group Discussions, C concept cartoons, video presentatior and seminars, rhyming and song cons	hecklist, Role Play activities, Multin s, simulations and Computer assist structions	nedia presentations, Concept ed instructions, inquiry learning and				
Course Assessmen	t Components:						
Course Assessment Components: Component 1: Assessment as Learning Review of Reports/Portfolio Summary of Assessment Method: Peer Review documents/ Evidence of report from school (STS) visits for portfolio/Reflective notes and as prescribed by University of Affiliation Core skills to be acquired: Pedagogical, observational and cooperative skills Weighting: 30% (of the 70% based on the NTEAP) Write a 1500-word report on what strategies need to be used in science teaching to ensure all learners are included and that the teaching is appropriate to the typical characteristics of the upper primarylearner. Include reference: to examples of teaching you have observed and taken part in in school; topics covered during the course and The Basic School Science							
CLO4, CLO5, CLO6 and CLO7 NTS: 1a) Critically and collectively reflects to improve teaching and learning 2c) Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in. 3m) Identifies and remediates learners' difficulties or misconceptions, referring learners whose needs lie outside the competency of the teacher.							
Component 2: Asso Summary of Assess course: Component 1 and 2	essment for Learning Presentations/P sment Method: Peer Review / Tutor a 2 Coursework : teaching and learning	ortfolio ssessment of portfolio of materials portfolio	and resources amassed during the				
In the final session of the course student teachers present the teaching and learning portfolios they have developed during the course for peer review and then tutor assessment. The final portfolio should include: all the items added throughout the							

course: presentations, TLMs, example plans for lessons and an up-dated personal teaching philosophy for teaching early grade science, a list of key lessons learned during the course and three targets for developing their skills, knowledge and understanding of teaching and learning further Weighting: 30 % (of the 70% based on the NTEAP) CLO 4, CLO5, CLO6 and CLO7 NTS: 1b) Improves personal and professional development through lifelong learning and Continuous Professional Development. 1d) Is guided by legal and ethical teacher codes of conduct in his or her development as a professional teacher. 1g) Sees his or her role as a potential agent of change in the school, community and country 2b) Has comprehensive knowledge of the official school curriculum, including learning outcomes 2c) Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in. 3e) Employs a variety of instructional strategies that encourages student participation and critical thinking. 3i) Explains concepts clearly using examples familiar to students. 3j) Produces and uses a variety of teaching and learning resources including ICT, to enhance learning

Component 3: Summary of Assessment Method: End of Semester Examination on key concepts as shown in the lessonsand
as prescribed by the University of affiliation.
Core skills to be acquired: Cognitive, literacy, numeracy, writing and reading
Weighting: 40% (of the 70% from the NTEAP)
CL01-CL07
NTS
1
Professional Development
The Teacher(s):
a) Critically and collectively reflects to improve teaching and learning.
b) Improves personal and professional development through lifelong learning and Continuous Professional Development.
Community of Practice
The Teacher:
d) is guided by legal and ethical teacher codes of conduct in his or her development
as a professional teacher.
2
- Knowledge of educational frameworks and curriculum
The Teacher:
a) Demonstrates familiarity with the education system and key policies guiding it b) Has comprehensive knowledge of the
official school curriculum, including
learning outcomes.
c) Has secure content knowledge, pedagogical knowledge and pedagogical content
knowledge for the school and grade they teach in.
Managing the learning environment
The Teacher:
a) Plans and delivers varied and challenging lessons, showing a clear grasp of the
intended outcomes of their teaching.
3
Managing the learning environment
The Teacher:
a) Plans and delivers varied and challenging lessons, showing a clear grasp of the
intended outcomes of their teaching.
Assessment
The Teacher:
k) Integrates a variety of assessment modes into teaching to support learning.
Required Reading and Reference List
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Teaching and Learning resources
Smartphones, Tablets, Productivity tools (software that allow teachers to work better), Subject based instructional
tools/applications, Instructional laboratories, Smart boards, projectors, Smart screens, Open ERs – YouTube, Coursera, Khan
Academy, TESSA and UNESCO OERs, iBox, and standard laboratories
Course related professional development for tutors/ lecturers
Development of Concept Maps/ Concept cartoons Charts/ technical/action research report writing/
• Training in Use of CMs/ Appreciating the place of the Cross-cutting issues in the CLOs and Teaching -Learning
Activities/ Assessment component requirement for active learning/ model teaching to reflect the desired PCK
students-teachers are required to learn.

students-teachers are required to learn.

Year of B.Ed.	2	Semester	emester         1         Place of lesson in semester         1 2 3 4 5 6 7 8 9 10 11 12						
Title of Lesson		Review and Nor	of Year 1 Int n Living thin	tegrated Scien gs	ce and Teachir	ng Living	Lesson Duration	3 Hours	
Lesson descriptio	n	This less teacher concept can be u	son reviews to transition in t of living and used to teach	the year integr ito the early gr d non-living thi n the main cha	ated science co ade science sp ings with the vi racteristics and	ourse with the ecialism. It in ew to identify I differences o	e view to help the st roduces student tea ving appropriate peo of living and non-livi	udent achers to the Jagogies that ng things to	
Previous student knowledge, prior (assumed)	teacher learning	Student teachers have gone through the Integrated Science courses at year 1.							
Possible barriers	to learnin	g Possible confusir assumin	e misconcept ng the charac ng that those	tions that stud cteristics of so objects are liv	ent-teachers m me non-living t ving things, e.g.	ay bring to th hings which n shadows, the	e classroom. For ex nove with living thin e sun and moon.	ample, Igs and thus	
Lesson Delivery – support students achieving the out	chosen to in comes	Face -to- face	Practical Activity √	Work- Based Learning	Seminars V	Independent Study V	e-learning opportunities √	Practicum	
Lesson Delivery – mode of delivery support student t achieving the lear	main chosen to ceachers ir rning	Face-to Practica Seminar Indepen	face: Discus al Activities: r: STS semina adent Study:	sions, demons Group work ar ar presentation Reflections	trations and ok nd composing s ns and reflectio	oservations, rl ongs and rhy ns entations	yming and singing nes, Nature walk	L	
Purpose for the le you want the stur achieve, serves as the learning outc expanded version description. • Write in full a the NTS addr	esson, wha dents to s basis for omes. An o of the aspects of essed	(NTS) 2c: Has	<ul> <li>Get the conceptual understanding of living and non-living things</li> <li>Discard the common misconceptions that student-teachers have about living and non-living things</li> <li>Designing activities to teach living and non-living things</li> <li>(NTS)</li> </ul>						
		content 2e: Und this in h 3d: Mar	knowledge Ierstands hov is or her tea nages behavi	for the school w children dev ching. four and learni	and grade they elop and learn ng with small a	teach in. in diverse cor nd large class	ntexts and applies		
<ul> <li>Learning Out the lesson, p developed fr course specif</li> <li>Learning indi each learning</li> </ul>	come for icked and om the ication cators for g outcome	Learnin	g Outcomes	Lea	rning Indicator	S	Identify which cross- cutting issues, core and transferable skills, inclusivity. Equity and addressing diversity. How will these be addressed or developed		
		<ul> <li>Linkyea</li> <li>yea</li> <li>in li</li> <li>thir</li> <li>Dist</li> <li>the</li> <li>livir</li> <li>Ide</li> <li>diff</li> <li>livi</li> <li>thi</li> </ul>	k concepts fr ir 1 to new co iving and non- ngs characterist ng and non-lings entify the ferences bet ing and non- ngs within th vironment	om oncepts n-living veen cics of iving ween living ne	<ul> <li>Develop C Maps to I concepts to new co to be dev</li> <li>Explain in sentences the main character living and things res</li> <li>Role play</li> </ul>	Concept ink from year 1 oncepts yet eloped. four s for each istics of non-living spectively. to	Through discussion of ideas in class stu- teachers develop to communication, co- and mutual respec- appreciating indivi- difference and abi- also acquire skills in devices, develop co- thinking, honesty, responsibility thro- participation in gro- work/discussion.	ns and sharing udent- the skills of ollaboration tt while dual lities. They n handling ritical accuracy and ugh active oup	

	<ul> <li>Erase misc about the between linnon-living</li> <li>Demonstration understan and non-lining and be abling the subject</li> </ul>	conceptions differences iving and things. ate ding of living ving things le to teach t matter	<ul> <li>demonstrate the concepts of living and non-living (PD Theme 1, pg. 44; PD Theme 4, pg. 112)</li> <li>Present charts and models of the differences between living and non-living things within the environment (PD Theme 5, pg. 37)</li> <li>Designed activities that can be used to teach living and non-living things.</li> </ul>	
Topic/Title	Sub Topic	Time or Stage	Teaching and learning to ach depending on delivery mode	ieve learning outcomes: selected. Teacher led,
			collaborative group work or i Teacher Activity	independent study Student Activity
Review of Year 1 integrated science and Teaching Living and Non Living things	Introduction to Early Grade Year 2 Course Manual	20 minutes	<b>Face-to-face:</b> Tutor initiates discussions with the student teachers on the expectations of Early Grade Year 2 Course Manual	Face-to-face: Students come out with their own expectations with the Early Grade Year 2 Course Manual drawing experience from Year 1 course manual
	Recap of year 1 lessons and challenges thereof. (KG1.1.5)	40 minutes	Face-to-face/Group activity: Teacher initiates a Pyramid discussion on the year 1 concepts with student teachers, and encourages them to reflect on the new concepts, the challenges and unique lessons	Face-to-face/Group activity: Student teachers work individually and in groups to discuss year one lessons, the challenges, unique values and produce a concept map of possible expectations in the content of early grade science lessons.
	Concepts of living and non- living things (KG1.1.5)	60 minutes	Face-to-face/Group activity: Teacher allows students-teachers to work in mixed ability (inclusivity)groups to arrange and compose songs and rhymes about the concepts of living and non- living things.	<b>Face-to-face/Group activity:</b> students-teachers to work in mixed ability (inclusivity)groups to arrange and compose songs and rhymes about the concepts of living and non-living things. living and non-living things using any of the following; concept maps, simulations and multimedia (PD Theme 8, pg. 40; PD Theme 4, pg. 23-46)

	Characteristics and	60 minutes	Face-to-face/Group activity:	Face-to-face/Group					
	Differences		Tutor provides multimedia	activity:Student-teachers					
	between living and		presentations to show the	working in groups (in mixed					
	non-living things		characteristics of living and	ability) use concepts learned					
	(KG1.1.5)		non-living things. Tutor	from multimedia					
			instructs student -teachers to	presentations to design					
			work in groups (in mixed	either concept maps,					
			ability) to use either concept	simulations or multimedia					
			maps, simulations or	games and/or rhymes that					
			multimedia presentations to	can make early grade					
			design games and/or rhymes	learners learn the					
			that can make early grade	characteristics of living and					
			learners learn the	non-living things and the					
			characteristics of living and	differences between them.					
			non-living things and the	The Concept maps, rhymes					
			differences between them.	and games are cross shared					
				to be reviewed by their					
				peers.					
Which cross	Equity and SEN: throu	ugh setting ground rules to	protect vulnerable student-teach	ers and establishing an					
cutting issues	interactive and inclus	ive classroom atmosphere	and encourage collaboration and	mutual respect. Innovation					
will be	and creativity throug	h arranging and composition	on of songs and rhymes, designing	and construction of games.					
addressed or									
developed									
and now									
Lesson	<ul> <li>Assessment as le nortfoliog (20 m)</li> </ul>	earning: student teachers p	rovide songs, rhymes which are p	eer reviewed and placed in					
assessments –	portiolios. (20 m	arks) in an an an an an utima alia. A							
loarning: of	living things by stude	ng: games of multimedia d	lesign of the concepts and differe	nces between living and non-					
for and as	inving timings by stude	ints for portiono (weight – .	to marks)						
learning									
within the									
lesson									
Teaching	Copies of Farly Grade	vear 2 course manuals. Ph	ones, tablets, desktop computers	with internet access					
Learning	http://www.softscho	ols.com/language_arts/rea	ding comprehension/science/21	/living and non living things/					
Resources									
Required Text	NaCCA, MoE. (2019; S	September). <i>Kindergarten (</i>	Curriculum (KG1&2) for Preschool	Accra: Ministry of Education					
(core)	Abbey, T. K., Alhassar	n, B., Ameyibor, K., Essiah, J	l. W., Fometu, E., &Wiredu, M.B.	2008). Ghana association of					
	science teachers integ	grated science for senior hig	gh schools. Accra: Unimax MacMi	lan; Handbook for PD					
	Coordinators Themes	s 1 <b>-</b> 10.							
Additional	Abbey, T. K., &Essiah,	, J.W. (1995). Ghana associ	ation of science teachers physics f	or senior high schools. Accra:					
Reading List	Unimax Macmillan.								
	Ameyibor, K., &Wired	du, M. B. (2006). <i>Ghana ass</i>	ociation of science teachers: chem	nistry for senior high schools.					
	Accra: Unimax MacM	lillan.							
	Asabere-Ameyaw, A.,	, &Oppong, E. K. (2013). <i>Int</i>	egrated science for the basic scho	ol teacher I. Winneba: IEDE.					
	Oddoye, E. O. K., Taa	le, K. D., Ngman-Wara, E., S	amlafo, V.&Obeng-Ofori, D. (201	1). SWL integrated science for					
	conjor high schools. S		. Com Moodo Itd						
	seriior nigh schools. S	tudents book. Accra, Ghana	a, Sam-woode Ltd.						
CPD	CoE Tutors need trair	tudents book. Accra, Ghana hing on arranging and comp	oosing rhymes and songs as well a	s game construction					

Yea	r of B.Ed.	2	Sem	lester	1	Place	e of lesson in sem	nester	1 <b>2</b> 3 4 5 6 7 8 9 10 11 12		
Title	e of Lesson		How to t	each Living a	nd Nor	i Living	g things I			Lesson Duration	a 3 Hours
Less	son descriptio	n	This less teaching	on further en ; and learning	forces strate	studer gies fo	nt teachers' know r teaching the co	ledge ai	nd skills o <sup>:</sup> living an	n the basics of de d non-living things	veloping s with
			particula	ir reference t	o plant	s and a	animals and the n	nain diff	erences b	etween them.	
Pre	vious student		Student-	teachers are	aware	of the	characteristics of	living a	nd non-liv	ving things from tl	he previous
tead	cher knowledg	rledge, lesson (Lesson 1)									
prio	or learning										
(ass	umed)										
Pos	sible barriers	to	Misconc	eptions abour	t plant	and ar	nimal behaviours.	For exa	mple, tha	it plants do not re	spire or move
lear	ning in the les	sson	since the	ey are usually	seen c	only at	one point.				
Less	son Delivery –		Face-	Practical	Wo	ork-	Seminars	Indep	endent	e-learning	Practicum
cho	sen to suppor	t	to-face	Activity√	Ba	sed		Stu	ıdy√	opportunities	
stud	dents in achiev	ving	V		Lear	ning√				V	
the	outcomes										
Less	son Delivery –		Face-to 1	ace: Discussi	ons, de	monst	rations and obse	rvations	, Group w	ork and designing	8
mai	n mode of	•	VVORK-Da	dont Studie P	oflocti	anc fi	d inquiry (walking		the com	nound to obcome	for plants
cup	very chosen to	0	and anin	aale)	enectio	JIIS, IIE	elu iliquity (waikii	ig round	i the com	pound to observe	
top	port student	ving		nais) ng Opportunit	ioc · Sir	nulatio	ns video nresen	tations			
the	learning	51115	c icariii		.103. 311	nulatio	nis, viaco presen	tations			
out	comes.										
Pur	pose for the		• Get	the conceptu	al und	erstan	ding of the differe	ences be	etween pl	ants and animals	
less	on, what you		Disc	ard the com	non mi	sconce	entions that stude	ent-teac	hers have	about plants and	animals
war	nt the student	s to	Desi	igning activiti	es to te	ach pl	ants and animals				annaid
ach	ieve, serves as	s	200	88							
bas	is for the learn	ning									
out	comes. An		(NTS								
ехр	anded versior	n of	2c: Has s	ecure conten	it know	ledge,	pedagogical kno	wledge	and peda	gogical	
the	description.		content	knowledge fo	or the s	chool a	and grade they te	ach in.			
٠	Write in full		2e: Unde	erstands how	childre	en deve	elop and learn in	diverse	contexts	and applies	
	aspects of the	е	this in hi	s or her teach	ning.						
	NTS addresse	ed	3d: Man	ages behavio	ur and	learnii	ng with small and	large cl	asses)		
•	Learning		Learning	Outcomes		Learni	ng Indicators			Identify which c	ross- cutting
	Outcome for	the								issues, core and	transferable
	lesson, picke	d								skills, inclusivity	. Equity and
	and develope	ed								addressing dive	rsity. How
	from the cou	rse								will these be ad	aressea or
	specification		• Deci		ta		Droduco Evom	nlas of		Through discuss	ions and
	indicators for	<b>,</b>	<ul> <li>Desi</li> </ul>	igii appropria	ie is to	•	appropriato to	pies OI aching		sharing of ideas	in class
	each learning	, 7	teac	h parly grade	5 10		strategies (Car	aciilig nac Rhi	mes	student-teacher	s develon the
		5	nlan	its and anima	ls		models multir	nedia au	nd	skills of commun	nication
	outcome		and	the	15	videos) to teach Plants and				collaboration an	d mutual
			char	acteristics of		animals and their main			respect while ap	preciating	
			plan	its and anima	ls		characteristics	of plan	ts and	individual differe	ence and
			• Iden	tify the			animals. (PD T	heme 1.	pg. 44;	abilities. They al	so acquire
			diffe	rences betwe	en		PD Theme 4, p	g. 112)	,	skills in handling	devices,
			plan	ts and animal	s		<i>,</i> ,	- '		develop critical	thinking,
			and	the uses.						honesty, accurat	cy and
			<ul> <li>Expl</li> </ul>	ain away		• P	resent charts and	d model	s of the	responsibility th	rough active
			miso	conceptions		d	lifferences betwe	en plant	ts and	participation in §	group
			abo	ut the		а	nimals and the us	ses (PD	Theme	work/discussion	
			diffe	erences betw	een	5	, pg. 37)				
			plan	its and anima	ls.						

Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomes: depending on delivery mode selected. Teacher led.					
			collaborative group work or independent study					
			Teacher Activity	Student Activity				
Teaching Living and Non-Living Things II	Introduction and recap of lesson 1	40 minutes	Face to face: Teacher initiates discussion and forms mixed ability groups	Face-to-face:Student- teachers work in groups of twos, fours and eights to				
			of students to use rhymes or songs from lesson 1 to recap the main concepts in lesson- with regards to plants and animals.	sing or rhyme while producing concept maps of the characteristics of living things using plant and animal examples.				
	Plants and animals and their uses (Demonstration phase) (KG1.1.5)	60 minutes	Face-to-face: Teacher introduce to student teachers an outline to develop teaching and assessment strategies though demonstration and discussion of those strategies espoused in the themes (6 and 8)	<b>Face-to-face:</b> Student-teachers observe and discuss the outline for developing teaching strategies for early grade teaching and assessment. (PD Theme 8, pg. 40; PD Theme 4, pg. 23-46)				
	Plants and animals and their uses (Reflection and Development phase) (KG1.1.5)	80 minutes	Face-to-face/Group activity: Tutor instructs student -teachers to work in groups (in mixed ability) to use either concept maps, simulations or multimedia presentations on the uses of plants and animals.	Face-to-face/Group activity: Student-teachers prepare workbooks, charts and models outlining the main uses of plants and animals that can be used for early grade learning. Student teachers are then put in groups to peer review the materials they prepared				
Which cross cutting issues will be addressed or developed and how	Equity and SEN: throug an interactive, inclusive	h setting ground rule e, innovative and crea	to protect vulnerable student ativity in the classroom atmosp	-teachers and establishing here				
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	<ul> <li>Assessment of learning: student teachers Presents models, charts, workbooks on the uses of plants and animals. (10 marks)</li> <li>Assessment for learning: student-teachers peer review chats and models from group work showing the differences between plants and animals. (20 marks)</li> </ul>							
Teaching Learning Resources	Cardboards, poster pap	pers, poster colours, p	phones, tablets, desktop compu	iters with internet access.				
Required Text (core)	NaCCA, MoE. (2019; September). <i>Kindergarten Curriculum (KG1&amp;2) for Preschool</i> . Accra: Ministry of Education Handbook for PD Coordinators Themes 1- 10 Abbey, T. K., Alhassan, B., Ameyibor, K., Essiah, J. W., Fometu, E., &Wiredu, M.B. (2008). <i>Ghana</i> <i>association of science teachers integrated science for senior high schools</i> . Accra: Unimax MacMillan.							
List	Abbey, I. K., &Essiah, J Accra: Unimax Macmill Ameyibor, K., &Wiredu schools. Accra: Unimax Asabere-Ameyaw, A., & Winneba: IEDE. Oddoye, E. O. K., Taale	.w. (1995). Ghana as lan. I, M. B. (2006). Ghana MacMillan. &Oppong, E. K. (2013) , K. D., Ngman-Wara, schools: Studente boo	sociation of science teachers pl a association of science teacher ). Integrated science for the bas E., Samlafo, V.&Obeng-Ofori, E	nysics for senior high schools. s: chemistry for senior high ic school teacher I. 9. (2011). SWL integrated				
CPD Requirement	Training on Early Grade	e teaching and assess	ment strategies					

Year of B.Ed.	2	Semester	1	Place of I	esson in semest	er 12 <b>3</b>	45	6789101112	2	
Title of Lesson		How to teach Living and Non Living things II Lesson 3 Hour Duration								
Lesson description	on	The lesson involves teacher led face-to-face discussions, practical activities, work-based learnin how to teach. This is to further reinforce methods used in the previous lessons (Lessons 1 & 2) enable student-teachers acquire relevant pedagogic skills in the teaching of living and non-livin things, plants and animals								
Previous student teacher knowled prior learning	ge,	student-teachers are aware of the characteristics of living and non-living things, plants and ani from the previous lessons (Lessons 1 & 2)								
Possible barriers	to	Student-teachers might stick to the exact activities and methods used in teaching them and methods used in teaching them and								
Lesson Delivery	-	Face- Practic	Worl	k-Based	Seminars	Independe	ont	e-learning	Practicum	
chosen to suppo	rt	to- Activity	v lea	rningv	Seminars	Study		opportunities v	- Tucticult	
students in achie	eving	face √				otady		opportunities		
the outcomes										
Lesson Delivery - mode of delivery chosen to suppo student teachers achieving the lea outcomes.	- main / rt : in irning	Face-to face: Disc Practical Activitie Work-based learn e-learning Oppor	ussions, d s: Group p iing: stude tunities: Si	emonstra presentat ent-teach imulatior	ations and obser ions of sub-topic ers engage in pe is, video present	vations cs from previ eer teaching cations	ous l	essons		
Purpose for the	esson.	This lesson is inte	nded to h	elp stude	nt-teachers to a	cquire pract	ical s	kills of teaching liv	ing and non-	
what you want t	he	living things, plan	ts and ani	mals alor	ng the lines of th	e two previo	ous le	ssons (Lessons 1 8	ι 2).	
students to achie	eve,	0 0 1			0	•		·		
serves as basis fo	or the									
learning outcom	es. An									
expanded versio	n of the	NTS 2e: Understa	nds how c	hildren d	levelop and lear	n in diverse o	conte	exts and applies		
description.										
Write in full     of the NTS	aspects									
addressed										
Learning Ou	tcome	Learning Outcom	es	Lear	ning Indicators		Ide	entify which cross	- cutting	
for the lesso picked and developed fi course speci	rom the fication						iss ski ad th	ues, core and trar ills, inclusivity. Eq dressing diversity ese be addressed	uity and . How will or developed	
<ul> <li>developed from the course specification</li> <li>Learning indicators for each learning outcome</li> </ul>		<ul> <li>Student-teac prepare lesse and non-livin plants and an teach in class</li> <li>Demonstrate the core valu critical thinki inclusivity, cc in group wor independent in designing and assessm strategies for early grade li</li> </ul>	hers to ons on livir g things, imals to i. identify es of ng, ollaboratio k and reflection ceaching ent teaching ving thing	ng ir a g ru a b n t f s	repared lesson forporates stud ctivities, individ roup work, use esources, practi- desources, practi- nd face-to-face bevelop checklist bserving teache emonstrate how eaching learning or Early Grade to	blans which dent ual work, of e- cal activity to use for r v to design strategies eaching	Th of de co mu inc Th de ho re: pa wo	rough discussions ideas in class stud velop the skills of mmunication, coll- utual respect while dividual difference ey also acquire ski vices, develop crit nesty, accuracy ar sponsibility throug rticipation in grou ork/discussion.	and sharing ent-teachers aboration and e appreciating and abilities. Ils in handling ical thinking, id h active p	

	Developing and Assess strategies grade living nonliving t and anima	Developing activities and Assessment strategies to teach early grade living and nonliving things, plants and animals		ent reflective reports on usivity and Models, mes or any appropriate thing and assessment tegies that can be used each early grade living non-living things		
Topic/Title	Sub Topic	Time or Stag	e	Teaching and learning to	o achieve l	earning outcomes:
				depending on delivery n	100e selec	ted. Teacher led,
				Tooshor Activity	k or indep	Student Activity
How to tooch	Rocan of Losson 2 and	40 minutos		Face to face:		Eaco to faco:
Living and Non	Introduction to lesson	40 minutes		Invite individual student.	_	Observe and critique the
Living things II	3			teachers to make 3 minu	tes	nresentations made by
211115 11115 11	5			presentations on sub-tor	pics from	individual students
				Lesson 1 & and 2		individual students
	Developing activities	60 minutes		Face-to-face:		Face-to-face:
	and Assessment			Teacher introduce to stu	dent	Student-teachers
	strategies to teach			teachers an outline to de	evelop	observe using a checklist
	early grade living and			teaching and assessment	t	for the purpose
	non-living things			strategies though demor	nstration	designed by student
	(demonstration			and discussion for early	grade	teachers and their tutor,
	Phase)			teaching		and discuss the outline
						for developing teaching
						teaching and
						assessment (PD Theme
						8 ng 40 PD Theme 4
						pg. 23-46)
	Developing activities	80 minutes		Face-to-face/Group activ	vity:	Face-to-face:
	and assessment			Tutor instructs student -	teachers	Student-teachers
	strategies to teach			to work in groups (in mix	ed	(working in mixed ability
	early grade living and			ability) to design teachin	g and	groups) prepare
	nonliving things,			icn and	workbooks, charts and	
	plants and animals			non-living things. After w	anu vhich	teach and assess the
				each group will write and	1	concepts of living and
				present a reflective repo	non-living things to early	
				inclusivity on the designed	ed	grade learning.
				activities.		Student teachers are
						then put in groups to
						peer review reflective
						reports on inclusivity in
	<b>a</b> 10 1 <b>a</b> 1	<u> </u>	· ·			the strategies designed.
Which cross	Equity and SEN: throug	h appropriate g	ender ar	id equity sensitive group w	ork to pro	tect vulnerable student-
will be	teachers, establish an i	interactive and i	nciusive	classroom atmosphere.		
addressed or						
developed and						
how						
Lesson	Assessment of lear	ning: Models, v	vork boo	ks, charts (all collected in t	he teachin	g portfolio) serves as
assessments –	assessment of lear	ning. (10 marks	)			
evaluation of	Assessment as lear	ning: student te	eachers r	eflective report presentati	on serves	as assessment as learning
learning: of, for	(20 marks)					
and as learning    Assessment for Lea		arning: Designe	d worksh	eets serves as assessment	for learnir	ng. (20 marks)
within the						
Teaching	Cardboards, postor par	are postor col	ours abo	nes tablets deskton som	utors with	internet accoss
Learning	Caluboalus, postel pap	iers, poster colt	juis, pilo	וופס, נמטופנס, טפאנוטף נטווון	Juleis Will	
Resources						

Required Text	NaCCA, MoE. (2019; September). Kindergarten Curriculum (KG1&2) for Preschool. Accra: Ministry of
(core)	Education
	Abbey, T. K., Alhassan, B., Ameyibor, K., Essiah, J. W., Fometu, E., &Wiredu, M.B. (2008). Ghana association of
	science teachers integrated science for senior high schools. Accra: Unimax MacMillan; Handbook for PD
	Coordinators Themes 1 – 10.
Additional	Abbey, T. K., & Essiah, J.W. (1995). Ghana association of science teachers physics for senior high schools.
Reading List	Accra: Unimax Macmillan.
	Ameyibor, K., & Wiredu, M. B. (2006). Ghana association of science teachers: chemistry for senior high schools.
	Accra: Unimax MacMillan.
	Asabere-Ameyaw, A., & Oppong, E. K. (2013). Integrated science for the basic school teacher I. Winneba: IEDE.
	Oddoye, E. O. K., Taale, K. D., Ngman-Wara, E., Samlafo, V.&Obeng-Ofori, D. (2011). SWL integrated science
	for senior high schools: Students book. Accra, Ghana; Sam-Woode Ltd.
CPD	Training on Observation checklist construction.
Requirement	

Yea	r of B.Ed.	2	Semester	1	Place of lesso	n in semester	1 2 3 <b>4</b> 5 6 7 8 9 10 11 12					
Titl	e of Lesson		Measureme	nt and Scien	ce	Lesso	n Duration	3				
Les	son descriptio	n	This lesson introduces students to the very important concept of Measurement and Science. Tutor guides student teaches to acquire pedagogic content knowledge of the different units assigned to									
			measured of	taken throug	top conceptual	understanding a	and procedural	understanding. S	tudent			
Dro	vious student		Student teachers have been observing growth phenomena within their environment. They have									
tea	cher knowleds	90	heen using n	neasuring inst	ruments such a	s rulers mathe	matical sets and	hathroom scale				
pric	or learning	50,	been using n	icusuing inst	in annenits such t							
(ass	(assumed)											
Pos	sible barriers	to	Possible mis	conceptions	that student tea	achers may bring	g to classroom.	For example, abo	out the units			
lear	rning in the le	sson	of measurem	nent			-					
Les	son Delivery –		Face-to-	Practical	Work-	Seminars	Independent	e-learning	Practicum			
cho	sen to suppor	t	face	Activity	Based		Study	opportunities				
stu	dents in achie	ving	V	v	Learning		V	V				
the	outcomes											
Les	son Delivery –	main	Face-to face:	Discussions,	demonstration	s and observation	ons, Group worl	k and designing				
mo	de of delivery		Independent	Study: Refle	ctions							
cho	dent teachers	l in	e-learning O	pportunities:	Simulations, vio	leo presentation	15					
ach	ieving the lea	ning										
out	comes.											
Pur	pose for the le	esson,	Get the	conceptual a	nd procedural u	nderstanding of	fmeasurement					
wha	at you want th	ne	Discard	the common	misconceptions	that student te	achers have ab	out measuremen	t and its			
stu	dents to achie	ve,	units									
serv	ves as basis fo	r the	<ul> <li>Designin</li> </ul>	ng activities to	teach measure	ement to early g	rade learners					
lear	rning outcome	es. An	(1)(TC)									
the	description	101		ra cantant kn	owladga pada		a and nodago	rical				
•	Write in full		content know	vledge for th	e school and gr	de they teach i	ge and pedagog n	jicai				
	aspects of th	e NTS	2e: Understa	inds how chile	dren develop a	nd learn in diver	se contexts and	applies				
	addressed		this in his or	her teaching.								
			3d: Manages	behaviour a	nd learning with	n small and large	e classes)					
•	Learning Out	come	Learning Out	tcomes	Learnii	ng Indicators	1	ldentify which cr	oss –			
	for the lesso	٦,						cutting Issues, co	re and			
	picked and							transferable skill	s,			
	developed fr	om						inclusivity. Equit	y and			
	the course							addressing diver	rossed or			
	Learning indi	cators						developed	lessed of			
-	for each lear	ning	Demons	trate concept	tual • R	ole play to demo	onstrate the	Sharing ideas in c	lass. the			
	outcome		understa	anding of the	C	oncepts of meas	uring the	Student-teachers	develop			
			concept	of measurem	nent. le	ngths, masses a	nd	the skills of comn	nunication,			
			Use dire	ct compariso	n to v	olumes.		collaboration and	l mutual			
			compare	e objects base	ed on 🔹 P	resent charts on	types of	respect why appr	eciating			
			their sha	apes.	s	napes	i	individual differe	nce and			
			Design si	imple method	ds to D	esigned activitie	es that can	abilities, critical t	ninking and			
			teach va	rious method	s ot b	e used to teach		responsibility thr	ion in group			
			measure	ment.	m	ieasurement.	lation to	work/discussion	well			
					• •	ideo silows III re leasurement		handling of devic	es, honesty			
								and accuracy.				

Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achie depending on delivery mode s collaborative group work or in	eve learning outcomes: elected. Teacher led, idependent study
			Teacher Activity	Student Activity
Measurement and Science	Recap of lesson 3	20 minutes	Face-to-face: Teacher allows student teachers to work in mixed ability groups to discuss previous lesson and assists them with areas that need further attention	Face-to-face: Student teachers discuss previous lesson and list areas that need further attention for discussion with tutor.
	Measuring mass and Length (Kindergarten Curriculum, N3)	30 minutes	Face-to-face/Independent Study: Teacher allows student teachers to reflect on various types of measurement, put them in mixed ability groups to perform simple measurement tasks	Face-to-face/Independent Study: Student teachers work in groups of 3 members in an inclusive, multi age, and developmentally to reflect, role play, discuss and perform various methods of measurement.
		40 minutes	Face-to-face: Teacher provides student teachers with appropriate multimedia simulations/videos showing different forms of measurement of mass and length	Face-to-face: Student teachers work in their groups to make presentations on the methods of measurement. Student teachers measure objects using everyday household items: paper clips, toothpicks, pen, pencil and more. They will work on choosing the right measuring tool for the size of the object, not mixing tools while measuring an object, and starting to measure at the end of an object not in the middle
	Measuring Volume and time	90 minutes	Face-to-face: Teacher guides the student teachers to prepare charts/make videos of activities that measure volumes. Time: Check time of day and how clock or digital is moving/changing. Students perform pencil and paper activities. I.e., to record what measurement they taking. They should explain the process for the measurement and record the name of the object and its shape. Teacher discusses with student teachers' ideas on the misconceptions/ incorrect ideas on volume measurement. For example, measuring the volume of	Face-to-face: Student teachers prepare videos, charts and models to demonstrate systems that facilitate measurement of volumes. Student teachers may use mangos, stones and other pieces of objects to show how to measure and record weight. Student teachers discuss units of time, and how to measure time and the units associated.

	mango which is of irregular shape.
Which cross cutting	Equity and SEN: through setting ground rules to protect vulnerable student-teachers and establishing
issues will be	an interactive and inclusive classroom atmosphere. Through the use of measuring devices to
addressed or	measure objects/things, student-teachers' acquire the skill of accuracy and carefulness.
developed and how	
Lesson assessments –	Assessment as learning: Student teachers produce simple measuring devices suitable for
evaluation of	teaching Early Grade science (20 marks)
learning: of, for and as	• Assessment of learning: Student – Teachers draw concept maps on physical quantities and their
learning within the	units. (10 marks)
lesson	
Teaching Learning	Clock, rulers, tape measure, measuring cylinders, paper clips, toothpicks, pen, pencil.
Resources	
Required Text (core)	NaCCA, MoE. (2019; September). <i>Kindergarten Curriculum (KG1&amp;2) for Preschool</i> . Accra: Ministry of
	Education
	Abbey, T. K., Alhassan, B., Ameyibor, K., Essiah, J. W., Fometu, E., &Wiredu, M.B. (2008). Ghana
	association of science teachers integrated science for senior high schools. Accra: Unimax MacMillan.
Additional Reading	Abbey, T. K., &Essiah, J.W. (1995). Ghana association of science teachers' physics for senior high
List	schools. Accra: Unimax Macmillan.
	Ameyibor, K., & Wiredu, M. B. (2006). Ghana association of science teachers: chemistry for senior high
	schools. Accra: Unimax MacMillan.
	Asabere-Ameyaw, A., & Oppong, E. K. (2013). Integrated science for the basic school teacher I.
	WINNEDA: IEDE.
	Oddoye, E. O. K., Taale, K. D., Ngman-Wara, E., Samaro, V., & Obeng-Ofori, D. (2011). SWL integrated
CDD Requirement	science jui seriior migri schools: Students book. Accra, Gnana; Sam-Woode Ltd.
CPD Requirement	rraining in improvisation and design of simple measuring instruments.

Year	of B.Ed.	2	Semeste	er 1	Place of	lesso	n in semester	12	3 4 <b>5</b> 6 7	89101112	
Title	of Lesson		Teaching	Measurement	in Science		Le	esson D	Duration	3 Hours	
Less	on descriptio	n	This lesso	n draws on th	e elements	of the	e lesson 4 and i	ntrodu	ices studen	ts-teachers to si	mple
activities that can be developed to teach the concepts of M							of Mea	surement a	and Science to ea	arly grade	
			learners.	This will help t	he student	teach	er to understa	ind how	v they need	d to use the ever	yday
				around children	en and with boir own "c	windu	fic conconts"	i dilu di thorofo	re used to,	toochor will onk	surement in
			knowledg	e in their futu	re expectat	ions.	ne concepts ,	liereio	Student		
Prev	vious student		Lesson four (4) introduced student-teachers to the nature of the concept measurement in science								n science.
teac	her knowledg	owledge,									
prior	r learning (as	sumed)									
Poss	ible barriers	to	Perceptio	ons that teachi	ng science	requir	es sophisticate	ed mate	erials that	student-teachers	may bring
learr	ning in the les	sson	to classro	om. For exam	ole, convers	sion o	f units, especia	ally fron	n imperial	system to the SI	units.
Less	on Delivery –		Face-	Practical	worк-ва	sea	Seminar v	indep	pendent	e-learning	Practicum
chos	en to suppor	l ving	10-Tace	ACTIVITY V	Learnir	ig		50	uay v	opportunities	
the	outcomes	VIIIS	•							•	
Less	on Delivery –	main	• F	ace-to-face: D	iscussion. [	)emoi	nstrations, Sort	ting			
mod	le of delivery	chosen	• F	Practical Activi	ties: Observ	ving. N	Anipulation a	nd Drav	wing		
to su	upport studer	nt	• 9	Seminar: Prese	ntations an	d role	playing activit	ties			
teac	hers in achiev	ving	•	ndependent S	tudy: Inquir	y lear	ning				
the l	learning outc	omes.	• E	E-learning: OEI	Rs and MOC	) Cs	-				
Purp	oose for the le	esson,	Get t	he conceptual	understand	ding o	f the use of eve	ery day	/ material t	o engage early le	earners to
what	t you want th	ne	learn	science.				_			
stud	ents to achie	ve,	<ul> <li>Pract</li> </ul>	ical hands-on	in developii	ng lea	rning activities	for spe	ecifically ea	arly grade learne	rs in
serve	es as basis to	rtne	meas	urement.				4 <b> </b>			
exna	anded version	of the	<ul> <li>Disca</li> <li>Docia</li> </ul>	rd the commo	n misconce	ption	s that student-	teache	ers nave on	measurement.	
desc	ription.	i or the	<ul> <li>Desig</li> </ul>	activities	to teach si	npie i	neasurements				
•	Write in full a	aspects									
	of the NTS	•									
;	addressed										
•	Learning Out	come	Learning	Outcomes	Learn	ing In	dicators		Identify w	hich cross – cutt	ing Issues,
f	for the lessor	n,							core and t	ransferable skill	s,
	picked and								inclusivity	. Equity and add	ressing
	developed fr	om the							alversity.	How will these b	e
	course specif	cation	• Ident	ify and coloct		Dr	acont a collago	of	Sharing id	oas in class, the S	itudont
	for each lear	ning	• ident	snecific gen	• Ier	m m	esent a collage aterials that ca	in l	teachers d	levelon the skills	of
	outcome		sensi	tive and		be	e used to prepa	are	communic	ation. collaborat	ion and
			appro	opriate materi	als	ac	tivities for earl	lv	mutual res	spect why appred	ciating
			for te	aching the		gr	ade learning	<i>'</i>	individual	difference and a	bilities,
			conce	ept of	•	Pr	esent reports o	on	critical thi	nking and respor	sibility
			meas	urement in ea	rly	ас	tivities develo	ped	through ca	areful participation	on in group
			grade	2.		fo	r early grade		work/disc	ussion, well hand	lling of
						cla	assroom teachi	ing	devices, h	onesty and accur	асу.
			<ul> <li>Designation</li> </ul>	n appropriate	•	De	emonstrate ho	w to			
			activi	ties for early		te	ach the activity	y			
			grade	e learners to p	lay	de	eveloped in pee	er			
			and l	earn		te	aching activitie	es.			
			meas	surement in							
			scien	LE							
		<u> </u>									

Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomes: depending on delivery mode selected. Teacher led, collaborative group work or independent study				
		Ŭ	Teacher Activity	Student Activity			
Teaching Measurement in Science	• Recap of Lesson 4 Measurement in Science		Face-to-Face: Tutor Discussion on measurement of time, volume and mass and their units to review the previous lesson.	Face-to-Face: Student teachers reflect and discuss measurement quantities of time, volume and mass with their units and measuring devices.			
	<ul> <li>Developing early grade science activities for teaching Measurem</li> </ul>	40 minutes	Face-to-Face/e-learning: Teacher Introduces the Student Teachers to identifying and selecting materials that are grade specific, gender sensitive and readily available in the environment through Demonstration and from videos presentations or OERs	Face-to-Face/e- learning:Student-teachers Views demonstrations and using a checklist for appropriateness, compare the materials observed from videos.			
ent in Science		60 minutes	<b>Face-to-Face/e-learning:</b> Teacher models how to form groups with student teachers, into inclusive multi age and developmentally appropriate groups (with the help of videos - <u>https://www.youtube.com/watch?v=pzr5x2cLlig</u> and PD theme 4) and task them to collect materials from the environment and use them to design activities for teaching the grade specific lessons	<b>Face-to-Face/e-learning:</b> Student Teachers practice putting themselves in into an inclusive, multi-age, and developmentally appropriate groups, to discuss and design the activities for teaching and assessing measurement in science.			
		50 minutes	<b>Face-to-face:</b> Students are allowed to role play their activities in a seminar style, to their peers through peer teaching (10 minutes per group)	<b>Face-to-face:</b> Student teachers role play their activities in a seminar style, to their peers through peer teaching (10 minutes per group)			
Which cross cutting issues will be addressed or developed and how	Equity and SEN: interactive and i critical thinking	through se nclusive cla and collabo	tting ground rules to protect vulnerable student-tea issroom atmosphere. Through nature walk and inqu ration. The observe nature and identify diversity.	achers and establishing an airy, student teachers develop			
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	<ul> <li>Student–Te marks. The</li> <li>Assessment teaching an</li> </ul>	achers pres reports are of learning d assessme	ent reports on activities designed will be assessed a preserved as part of portfolio. g: Student – Teachers peer teaching to demonstrate nt (30 marks)	as learning and score for 10 how activities are used for			
Teaching Learning Resources	Videos, <u>https://v</u> available materi	www.youtu	be.com/watch?v=pzr5x2cLljg or similar videos (retr ponment. Unifix cubes, leafs, papers, pens, pencils, c	ieved on 18 -06-2019), Readily rab shells and others.			
(core)	Abbey, T. K., Alh	assan, B., A ers integrat	meer J. Mindergarten Curriculum (KG1&2) for Presch meyibor, K., Essiah, J. W., Fometu, E., &Wiredu, M. red science for senior high schools. Accra: Unimax N	B. (2008). <i>Ghana association</i> lacMillan.			

Additional	Abbey, T. K., & Essiah, J.W. (1995). Ghana association of science teachers physics for senior high schools.
Reading List	Accra: Unimax Macmillan.
	Ameyibor, K., &Wiredu, M. B. (2006). Ghana association of science teachers: chemistry for senior high
	schools. Accra: Unimax MacMillan.
	Asabere-Ameyaw, A., & Oppong, E. K. (2013). Integrated science for the basic school teacher I. Winneba: IEDE.
	Oddoye, E. O. K., Taale, K. D., Ngman-Wara, E., Samlafo, V.&Obeng-Ofori, D. (2011). SWL integrated science
	for senior high schools: Students book. Accra, Ghana; Sam-Woode Ltd.
CPD	Training in lesson activity designing for grade specific lessons.
Requirement	Practicing to measure accurately and carefully using measuring devices
	<ul> <li>Training in peer teaching styles and grouping for grade specific activities</li> </ul>

Year of B.Ed.	2	Semester	1	Place of lessor	n in semester	1 2 3 4 5 <b>6</b> 7 8 9 10 11 12				
Title of Lesson		Course R	eview I wit	h STS seminar		l	Lesson Duration	3 hours		
Lesson descriptio	n	This less review a teaching	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)							
Previous student knowledge, prior (assumed)	student teacher       Lessons learnt from lesson 1 through lesson 5 in all learning approaches and observations/experiences during STS.         a)       b)									
Possible barriers in the lesson	to learnin	g Miscond understo	eption to so od by stude	ome concepts n ent - teachers.	ot adequately	dealt with.	Lessons not approp	oriately		
Lesson Delivery – support students the outcomes	chosen to in achievi	ng to-face	Practical Activity	Work-Based Learning	Seminars √	Independ Study V	dent e-learning / opportuniti v	es Practicum		
Lesson Delivery – of delivery chose student teachers the learning outc	main moon n to suppo in achievi omes.	de Face-to-l ort Practical ng Indepen e-learnir	Face: Discus Activity: M dent Study: ng Opportur	sion, group wo odelling, Conce Tutor and stud <b>hities:</b> OERs and	rk in same abil pt Mapping ar ent teacher re Video presen	ity group w nd Cartoon flections (in tations	vorks. ing. ndividually and colle	ectively)		
<ul> <li>Purpose for t what you wa students to a serves as bas learning outo expanded ve description.</li> <li>Write in full a the NTS addr</li> </ul>	he lesson, nt the ichieve, is for the comes. An rsion of th aspects of ressed	<ul> <li>Asce</li> <li>Test</li> <li>Prov</li> <li>Corr</li> <li>Build</li> </ul>	ertain the lev various skil vide remedia ect misconc d the necess	vel of understar Is and cross – cr al tuition/tutoria ceptions and mi sary support goi	nding of conce utting issues als on where n sinformation ing forward on	pts. ecessary fo SEN and G	or experiences durir Gender issue	ig STS		

•	Learning Outcome for the lesson, picked and developed from the course specification Learning indicators for	Learning Outcomes	Learning Indicators	Identify which cross – cutting Issues, core and transferable skills, inclusivity. Equity and addressing diversity. How will these be addressed or developed	
	each learning outcome	<ul> <li>Identify weakness and strengths in learning the science lesson for the period under review</li> </ul>	Make a list of     Weaknesses and     strengths on poster     papers for sharing	Collaborations, Communication and Research: Through group work and presentation	
		<ul> <li>Be able to reflect on lessons learnt so far STS and state new insights and/or grey areas needing remedies</li> </ul>	<ul> <li>Provide a reflection report on STS and demonstrations and illustrations on a given media of lessons learnt so far</li> </ul>	Equity and Reflection is developed from reflective activities	
		<ul> <li>Correct misconception/misi nformation for earlier (lesson 1 – 5) lessons</li> </ul>	<ul> <li>Present concept maps and/or models linking misconceptions/misi nformation to new insights</li> </ul>	Creativity and critical thinking is developed in developing models and concept maps	

Content of lesson picked and developed from the course specification	Sub Topic	Time or Stage	Teaching and learning to ac depending on delivery mod collaborative group work or	hieve learning outcomes: e selected. Teacher led, · independent study
Topic Title	•		Teacher Activity Facilitate and provides the necessary tool for	Student Activity
Course Review 1 with STS seminar	Reviewing the understanding of lessons on Living and Non-living things I and II, How to teach Living and Non-Living things, how to teach measurement in science and discussion of observations during STS	60 minutes 90 minutes	<b>Students activities.</b> <b>Face-to-face:</b> Teacher led brainstorming session with student teachers to unearth the weaknesses and strengths of student teachers in the lessons 1 – 5. Initiate discussion/Talk for learning approach using groupings (Same ability and then mixed groups) to identify student teachers' strengths and weakness in the lessons learnt so far. <b>STS Seminar:</b> Teacher allows two or three resource persons to make presentations on STS based on the NTS. Tutor	Face-to-face:Student teachers discuss their problems in the previous lessons and provide a checklist to identify and record all possible weaknesses and strengths. STS Seminar:Student teachers listen to various presentations from their observation in STS on how science learning is conducted in the schools. Student
			then guides student teachers through problem- based learning on National Teacher's Standards and reflection on observations made during STS.	teachers then discuss observations made during STS based on the National Teacher's Standards, reflect and provide a checklist of lessons learned and problems identified and how they can be addressed. Student teachers then provide a reflection report on STS.
	Remedies to course topics	30 min ute s	<b>Face-to-face:</b> Teacher groups student teachers according to remedy need and provide specific task assistance in the areas on concept needing remedy.	Face-to-face: Students work in the special groups (Same remedy need group) on tasks to remedy their learning need. They then present concept maps and/or models linking misconceptions/misinformati on to new insights.
Which cross cutting issues will be addressed or developed and how	Equity and SEN: throu and establishing an ir Through modelling ar	ugh mixed and s nteractive and ir nd group work, o	ame group work to protect vu Iclusive classroom atmosphere collaboration is established.	Inerable student - Teachers e.
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	<ul> <li>Student teachers assess them of le</li> <li>Assessment for a helps to assess th</li> </ul>	' presentations arning (20 mark nd as learning: nem for and as l	during group work and model ‹s) Student teachers working in g earning (20 marks)	work presentation helps to roups on remedial tutoring
Teaching Learning Resources	Cardboards, Course n	nanual, Poster p	paper	
Required Text (core)	NaCCA, MoE. (2019; S of Education Abbey, T. K., Alhassar Ghana association of MacMillan.	september). <i>Kin</i> n, M. B., Ameyib science teacher	dergarten Curriculum (KG1&2, oor, K., Essiah, J. W., Fometu, E s integrated science for senior	) for Preschool. Accra: Ministry ., &Wiredu, M.B. (2008). high schools. Accra: Unimax

Additional Reading List	Abbey, T. K., & Essiah, J.W. (1995). Ghana association of science teachers physics for senior high
	schools. Accra: Unimax Macmillan.
	Ameyibor, K., & Wiredu, M. B. (2006). Ghana association of science teachers chemistry for senior
	high schools. Accra: Unimax MacMillan.
	Asabere-Ameyaw, A., & Oppong, E. K. (2013). Integrated science for the basic school teacher I.
	Winneba: IEDE.
	Oddoye, E. O. K., Taale, K. D., Ngman-Wara, E., Samlafo, V., &Obeng-Ofori, D. (2011). SWL
	integrated science for senior high schools: Students book. Accra, Ghana; Sam-Woode Ltd.
CPD Requirement	Training on preparation of checklist and Reflection guides

Year of B.Ed. 2	Sem	nester	1	Pla	ace of lesson in se	mester	123	3 4 5 6 <b>7</b> 8	9 10	) 11 12	
Title of Lesson	Sun and	d Earth						Less Dur	on ation	3 Hours	
Lesson description	In this I system deepen belief t the ear relatior	esson, the T and its com their unde hat the Sun th as agains nship among	utor will ponents rstanding moves. S t cultural g the sun,	ass asp g of Simil I bel , mo	ist the student-tea pects of which wer the apparent mov larly, they would a lief that the earth pon and the sun ar	acher to re e studied ement of ible to exp is flat. The nd the effe	eview in sen the Su plain tr e studr ect on	previous kno ior high scho in to be able o their futur ent-teacher humans.	owled ool. Th to ex e pupi will al	ge on the Solar ne lesson will then plain away the ils the shape of so appreciate the	
Previous student teacher knowledge, prior learning (assumed)	Studen school	t-teachers h level.	ave studi	ied <sup>-</sup>	the solar system, i	including	their e	ffect on hur	nans a	at the senior high	
Possible barriers to	Studen	Student-teacher might still have some unscientific ideas about the sun earth moon and stars and									
learning in the lesson	the act	ivities of the	ese bodie	s or	n humans.			,	,		
Lesson Delivery – chosen to support students in achieving	Face- to- face	Practical Activity √	Work- Based Learnin	ıg	Seminar	Indepen Study	dent	e-learning opportunit √	ties	Practicum	
	V Face to	face Diam	scien T-	11, 5		chociet	- امريقون	nt togeher		tations ICT and	
Lesson Delivery – main	Face-to	-face: Discu	ission, Ta	ik to	or learning approa	ches with	stude	ent-teacher p	oreser	itations, ICI and	
mode of delivery	multim	multimedia presentations.									
chosen to support	Practica	<b>Practical activity:</b> student teachers work in groups to produce samples of exercises on the heaven									
student teachers in	bodies	in their wor	k books a	and	summarise their i	deas on th	ne app	arent move	ment	of the sun.	
achieving the learning											
outcomes.											
Purpose for the lesson,	Deeper	n student-te	achers' le	evel	l of understanding	of concep	ots abo	out the Sun,	moon	, earth and	
what you want the	movem	ient of the e	arth and	the	e moon; and the el	fect of th	e mov	ement of th	e eart	h on humans.	
students to achieve,	Correct	: misconcep	tions and	l inc	correct ideas abou	t heavenly	y bodi	es			
serves as basis for the	Build th	ne necessary	/ support	goi	ing forward on SEN	N and Gen	ider is	sue			
learning outcomes. An	The stu	dent-teache	er will de	velc	op skills of data co	llection ar	nd pre	sentation or	the a	pparent	
expanded version of	movem	ent of the s	un and th	he e	effects of the move	ement of t	the ea	rth on huma	ns.		
the description.	The les	sson should	help the	stu	dent-teacher deve	lop skills	of data	a collection a	and re	port writing	
Write in full aspects of	Provide	e student tea	acher wit	h tr	ne requisite knowl	edge and	skills t	o be able to	teach	the topic 'Sun	
the NTS addressed	and Ear	rth'									
Learning Outcome for	Learnin	ng Outcome	S		Learning Indicate	ors		Identify wh	ich cro	oss – cutting	
the lesson, picked and								Issues, core	and t	ransferable	
developed from the								skills, inclusivity. Equity and			
course specification								addressing	divers		
Learning indicators for	Fauma	rata abiasta	in the clu		Droduco complet	of overei		These be ad	aress	ed or developed	
	Enume		in the sk	y	in student teache workbooks on he bodies	ers' eavenly	ses	diagnostic t misconcept skills of con	ests to ions a imuni	bout diseases, cation	
	Demon of the a of the S	strate unde apparent mo Sun.	rstanding ovement	5	Prepare summar the apparent mo the Sun by stude	ized notes vement o nt teache	s on f rs	Develop Ski	lls of s	summary writing	
	Demonstrate knowledge and understanding of the shape of the Earth				rate knowledge and Mold the shape of the Earth nding of the shape rth Produce audio-recordings on the description of the shape of the Earth			th Develop skills of construction of model of the earth			
	criticall	y and collec	tively	Т	Prepare/Write no	otes on th	e	Develop ski	lls for	construction of	
	reflect	on the form	ation of		formation of day	and night	t.	model of th	e eart	h, report writing	
	day and	d night and i	ts effect		Produce a report	on effect	s of	on effects o	f day	and night on	
	on hum	nan activitie	s.		day and night on	human		humans' ac	tivities	S	

		activities Demonstr skills to te	rate knowledge and each the topic Developing Social collaboration and attention and care to individual needs (SEN) through role play		
Content of lesson picked and developed from the course specification	Sub Topic	Time or Stage	Teaching and learni depending on delive collaborative group	ng to a ery mo work c	chieve learning outcomes: de selected. Teacher led, or independent study
Topic Title			Teacher Activity		Student Activity
Humans and their environment	Teaching objects in the sky: sun, moon, and stars (K1.6.8)	10 minutes	Face-to-face:Tutor discuss perceptions about objects in the	sky	Face-to-face: Student teachers to in diverse groups discuss their perceptions about the objects in the sky and present their reports for further discussion
		15 minutes	Face-to-face: Lutor to present a video on the objects in the sky and guide student-teachers to discuss their observations		Face-to- face:Studentteachers identify and discuss their observations from the video
	Sun (K1.6.8)	35 minutes	Face-to-face:Tutor t student-teachers to researchinformation from the internet an textbooks on appare movement o: the su before the lesson.	o ask n id ent n	<b>Face-to-face:</b> Student- teachers to present reports on their researchfindings on the apparent movement of the sun in the sky
			Face-to-face:The Tu presents a video on movement of the pla and lead students to discuss their reports the apparent movem of the sun in the sky	tor the anets o on nent	Face-to-face:Student- teachers to relate their research findings with their observations from the video and the apparent movement of the sun and discuss their findings
	The Earth	30 minutes	Face-to-face:Tutor t present an Audio- visual/video on the shape of the earth to student-teachers an guide them to discus their observations	o o d ss	<b>Face-to-face</b> :Student- teachers to discuss their observation from the audio- visual presentation on the shape of the earth
		60 minutes	Face-to-face:Tutor t assist student-teach to use paper Marche show the shape of th earth	o ers e to he	Face-to-face/Group activity:Student-teachers in diverse groups produce shape of the earth from the use of paper Mache
Which cross cutting issues will be addressed or developed and how	Equity and SEN: through settir establishing an interactive and weakness and Strengths will be	ng ground ru inclusive cl e identified	ules to protect vulnera assroom atmosphere. and catered for.	able stu Stude	ıdent - Teachers and nt – Teachers specific
Lesson assessments – evaluation of learning: of, for and as learning	Assessment as learning: Studer earth for their portfolios (10 m Assessment for Learning: Stude	nt – Teache Iarks) ent Present	rs to prepares Marche ations of 5 minutes ea	e paper ach (20	models of the sun and the marks)
Teaching Learning Resources	The Course Manual, Computer cards, work sheets, slides, vide	, projectors	s, Flip Charts, Pens, Pe	ncils, 'A	A' 4 sheets, markers, health
Required Text (core)	NaCCA, MoE. (2019; Septembe Education	er). <i>Kinderge</i>	arten Curriculum (KG1	&2) foi	r Preschool. Accra: Ministry of

	Abbey, T. K., Alhassan, B., Ameyibor, K., Essiah, J. W., Fometu, E., &Wiredu, M.B. (2008). Ghana
	association of science teachers integrated science for senior high schools. Accra: Unimax MacMillan.
	Oddoye, E. O. K., Taale, K. D., Ngman-Wara, E., Samlafo, V.&Obeng-Ofori, D. (2011). SWL integrated
	science for senior high schools: Students book. Accra, Ghana; Sam-Woode Ltd
Additional Reading List	Yeboah, S. K., Ahordji, & Mensah, S. K. (2016). Science for primary schools: Pupil's book 5, Accra: Sam-
	Woode Ltd.
	Available Primary and Junior high school science textbooks
CPD Requirement	Training on construction of models and development of observational skills; skills development for
	writing for note taking and summary writing

Yea	r of B.Ed.	2	Seme	ester	1	Place	of lesson in semester	1234567	8 <b>9</b> 10 11 12			
Title	e of Lesson		Night ar	nd Day I				Lesson	Duration	3 Hours		
Les	son descriptio	n	In this lesson, the Tutor will assist the student-teacher to review previous knowledge on the Sun and the movement of the Earth and causes of day and night, aspects of which were studied in senior high school. The lesson will then deepen their understanding of the position of the sun in the universe and the movement of the earth in relation to the sun, causing day and night and seasons. The lesson would expose them to teaching strategies and material so that they will effectively handle similar topics for early grade science classrooms. The student-teacher will also appreciate the relationship between humans and the sun and the earth as their activities have effects on humans									
Pre tea pric (ass	vious student cher knowledg or learning sumed)	ge,	Student	-teachers ha	ve studie	ed the	solar system at the sen	ior high school l	evel.			
Pos	sible barriers	to	Student-teacher might still have some unscientific ideas about especially the position of the Sun and									
lear	rning in the le	sson	the movement of the earth									
chosen to support students in achieving the outcomes			Face- to- face √	Activity V	Work- Based Learnin	ng	seminars	Independent Studyv	e-learning opportunities V	Practicum		
Les: mo cho stud ach out	son Delivery – de of delivery sen to suppor dent teachers ieving the lear comes.	• main t in rning	based teaching, and multimedia presentations. <b>Practical activity:</b> student teachers work in groups and present charts and reports <b>Independent study:</b> student-teachers would search for information from internet and textbooks on the position of the sun and movement of the earth in relation to causes of day and night and seasons									
•	Purpose for t lesson, what want the stur- to achieve, so as basis for t learning outcomes. An expanded ve of the descrip Write in full aspects of th addressed	he you dents erves he n rsion ption. e NTS	<ul> <li>Dee ear</li> <li>Cor</li> <li>Buil</li> <li>The libr.</li> <li>The of t</li> <li>Pro 'po:</li> <li>NTS:</li> <li>1a- Criti</li> <li>1f-Deve</li> <li>2b-Has of learning</li> </ul>	epen student th in relation rect miscono d the necess student-tea ary e lesson shou he subtopics vide student sition of the cally and col lops a positive comprehension	teacher to day a ceptions a cary supp cher will uld help t teacher sun and lectively ve teacher ive know	rs' leve and nig and in port go I devel the stu s with causes reflec er ider vledge	el of understanding of th ght and seasons. correct ideas about pos bing forward on SEN and lop skills of searching fo udent-teacher develop a the requisite knowledg s of day and night ets to improve teaching a htity and acts as a good of the official school cu	ne position of the sition of the sun d Gender issue r information fr a model as a pro e and skills to b and learning. role model for s rriculum, includ	e sun and mover and movement of om the internet a oduct of their und e able to teach th students ing	nent of the of the earth and the derstanding ne topic		
•	Learning Out for the lesson picked and developed fr the course specification Learning	come n, om	Learnin	g Outcomes		L	earning Indicators		Identify which cutting Issues, transferable sk inclusivity. Equ addressing dive will these be ac developed	cross – core and ills, ity and ersity. How ddressed or		
	indicators for each learning outcome	r 3	• Der on t in t	nonstrate kn the position he universe	owledge of the Su	e • in	<ul> <li>Student teacher to p written report on th the sun as gathered from textbooks and</li> </ul>	present a le position of from a search the internet	Develop skills f report based or information ob through interne and from textb	or writing a tained tsearch ooks		

	<ul> <li>critically and collectively reflect on the formation of day and night</li> <li>Demonstrate with globe and light the rotation of the earth to explain causes of day and night</li> <li>Prepare/Write notes on the formation of day and night</li> </ul>	<ul> <li>Student teachers should submit a chart/models to explain formation of day and night</li> <li>Student teacher should submit a chart on the rotation of the earth to explain the causes of day and night</li> <li>Student teacher provides prepared report or written notes on the formation of day and night</li> <li>Develop skills of making charts and demonstration of natural phenomena</li> <li>Student teacher provides prepared report or written notes on the formation of day and night</li> <li>Demonstrate knowledge and skills to teach the topic</li> <li>Develop skills for making charts and demonstration of natural phenomena</li> </ul>			
Content of lesson picked and developed from the course specification	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomes: depending on delivery mode selected. Teacher led, collaborative group work or independent study		
Topic Title			Teacher Activity	Student Activity	
Sun and Earth	Teaching the Position of the Sun	10 minutes	Face-to-face:Tutor through question to review student- teachers' to prior knowledge/unscientific idea about the position of the su	Face-to-face: Student teachers reflect to come out with their ideas about the position of the sun	
		minutes	video on and pictures taken satellites from space on the arrangements of the planets in relation to the sun and lead the student-teachers to discuss their observations.	<ul> <li>Face-to-face: Student</li> <li>teachers in groups</li> <li>compare their prior</li> <li>ideas about the</li> <li>position of the sun</li> <li>with their</li> <li>observations from the</li> <li>videos and present</li> <li>written reports for</li> <li>further class</li> <li>discussion</li> </ul>	
	Causes of Day and Night (K1.6.8)	15 minutes	Face-to-face:Tutor through questioning identify student teachers' misconceptions about causes of day and night	Face-to-face: Student teachers to in groups present designs of diagnostic tool to unearth learners' misconceptions about the causes of day and night	
		35 minutes	Face-to-face:Tutor shows a video from international space station on the rotatio of the earth which causes day and night and use animation to show formatio of day and night Tutor guides discussion of student-teachers' observations	Face-to-face:Student teachers to think critically about what is happening in the video and how the earth moves from day to night and back. They should report their observations in their work book/journal	
		40 minutes	Face-to-face:Tutor to assist student-teachers to demonstrate the rotation of the earth using a globe and flash light to explain the causes of day and night	Face-to-face: Student teachers, in groups of 5-9 prepare and present chart to explain the causes of day and night	

		30 minutes	Face-to-face:Tutor assists student-teachers to write notes on formation of day and night as from their observation of the video on	Face-to-face: Student teachers to present their write up on the formation of day and night			
			the rotation of the earth and the demonstration using the				
			globe and flashlight to explain causes of day and				
			night				
Which cross cutting	Equity and SEN: through setting	ground rules	to protect vulnerable student tea	achers and establishing			
issues will be	an interactive and inclusive class	room atmosp	here. Student teachers specific v	weakness and Strengths			
addressed or	will be identified and catered for.						
developed and now	Account for looming. St.						
evaluation of learning:	<ul> <li>Assessment for learning: Stu the universe(20 marks)</li> </ul>	ident teacher	s to provide written report on th	e position of the sun in			
of for and as learning.	Assossment as learning: Stu	dont toochors	present chart and a written ren	ort to ovalain the			
within the lesson	<ul> <li>Assessment as learning: student teachers present chart and a written report to explain the formation of day and night(20 marks)</li> </ul>						
Teaching Learning	The Course Manual, Computer, p	projectors, Fli	p Charts, Pens, Pencils, 'A' 4 shee	ets, markers, work			
Resources	sheets, videos, globe, flashlight						
Required Text (core)	Nacca, Moe. (2019; September)	. Kindergartei	n Curriculum (KG1&2) for Presch	ool. Accra: Ministry of			
	Abbey, T. K., Alhassan, B., Ameyi	bor, K., Essiah	n, J. W., Fometu, E., &Wiredu, M	.B. (2008). Ghana			
	association of science teachers in	ntegrated scie	nce for senior high schools. Accr	a: Unimax MacMillan.			
	Oddoye, E. O. K., Taale, K. D., Ng	man-Wara, E.	, Samlafo, V.&Obeng-Ofori, D. (2	2011). SWL integrated			
	science for senior high schools: S	tudents book.	Accra, Ghana; Sam-Woode Ltd				
Additional Reading	Yeboah, S. K., Ahordji, & Mensah	, S. K. (2016).	Science for primary schools: Pupi	l's book 5, Accra: Sam-			
List	Woode Ltd.						
	Available Primary and Junior high	h school scien	ce textbooks				
Lesson Policy							
CPD Requirement	Training on critical thinking, skill	s developmen	t on construction of charts and o	demonstrations of			
	natural phenomena and report w	writing skills					

Year of B.Ed.	2	Semester	1	Place of	f lesson in semeste	123456	1 2 3 4 5 6 7 8 <b>9</b> 10 11 12				
Title of Lesson		Day and Nig	sht ll		Les	son Duration	3 Hours				
Lesson descriptio	on	In this lesson, the Tutor will assist the student-teacher to identify human activities that are influenced by the cycle of day and night and model play based activities that will be used to teach early grade learner. The student-teacher would acquire knowledge and pedagogic skills to teach the effect of the cycle of day and night on human activities classrooms.									
Previous student	teacher	Student-tea	chers hav	e studied s	ome concents of na	atural resources	and their uses ar	nd human			
knowledge, prior (assumed)	learning	activities that degrade the environment at junior high school level.									
Possible barriers	to	Student-tea	cher migl	nt still have	some unscientific i	deas about the o	cycle of day and r	night on			
learning in the le	sson	human activities									
Lesson Delivery -	- chosen	Face- Pr	actica	Work-	Seminars	Independent	e-learning	Practicum			
to support students in		to- I		Based		Study	opportunities				
achieving the ou	tcomes	face V Ac	tivity	Learning√			V				
Lesson Delivery mode of delivery to support stude teachers in achie learning outcom	- main c chosen nt ving the es.	Face-to-face Practical act Work-Based	e: Discuss tivity: pro l learning	ion, multim oducing lists : Nature w	nedia presentations s from personal exp alk to observe hum	, group presenta eriences, nature an activities dur	ations e walk and videos ing the day				
<ul> <li>Purpose for lesson, what want the stu achieve, serv basis for the outcomes. A expanded ve the descript</li> <li>Write in full of the NTS a</li> </ul>	the you dents to ves as learning n ersion of on. aspects ddressed	<ul> <li>To deep activitie</li> <li>Test val</li> <li>Build th</li> <li>The less resourc activitie</li> <li>To deve</li> <li>NTS:</li> <li>1a- Critically</li> <li>1f-Develops</li> <li>2b-Has com learning out</li> </ul>	<ul> <li>To deepen student-teacher understanding of effect of cycle of day and night on human activities and note the cyclical nature of human activities in relation to cycle of day and night</li> <li>Test various skills and cross – cutting issue</li> <li>Build the necessary support going forward on SEN and Gender issue</li> <li>The lesson should help the student-teacher to carry out a mini-project to map out natural resources and their uses in the community and to investigate some effects of human activities on the environment.</li> <li>To develop the knowledge and skills to teach the topic</li> <li>NTS:</li> <li>1a- Critically and collectively reflects to improve teaching and learning.</li> <li>1f-Develops a positive teacher identity and acts as a good role model for students</li> <li>2b-Has comprehensive knowledge of the official school curriculum, including</li> </ul>								
Learning Out	tcome for	Learning Ou	itcomes		Learning Indicato	rs	Identify wh	ich cross –			
<ul> <li>the lesson, p</li> <li>developed fr</li> <li>course speci</li> <li>Learning ind</li> <li>for Teaching</li> </ul>	vicked and rom the fication icators and						cutting Issu transferabl inclusivity. addressing How will th	es, core and e skills, Equity and diversity. nese be			
learning out	come						addressed	or developed			
	-	Describ     cycle of     human	e the effe day and activities	ect of the night on	<ul> <li>Student-teach written report cycle of day a human activit</li> </ul>	her to present t on effect of nd night on ties	Develop ski taking, and	lls notes report writing			
		Prepare activitie and nig note th these a	e list of hu es during ht respec e cyclical ctivities	iman the day tively and nature of	<ul> <li>Student – Tea present flash activities duri night respect</li> <li>Demonstrate teaching skill:</li> </ul>	acher in groups cards of human ng the day and ively knowledge and s for the topic	Developing collaboratic attention a individual n through rol	Social on and nd care to ieeds (SEN) e play			

Content of lesson picked and developed from the course specification	Sub Topic	Time or Stage	Teaching and learning to ach depending on delivery mode collaborative group work or	ieve learning outcomes: e selected. Teacher led, independent study	
Topic Title			Teacher Activity	Student Activity	
Sun and Earth	Teaching the effect of day and night on cycle of human activities (K1.6.8)	120 minutes	Face-to-face: Tutor to let student teachers undertake nature walk around the community to note various activities humans are engaged in during the day Video on human activities such as from farm, market places, and local indigenous factories,	Face-to-face: Student teachers in class and in groups prepare a list of observed human activities from nature walk and the video and explain how these activities take place during the day and explain the cyclical nature of these activities	
		60 minutes	<b>Face-to-face:</b> Tutor to assist student teachers to enumerate from their experiences human activities that take place during the night	Face-to-face: Student teachers in diverse groups prepare summaries of human's activities that take place in the night and explain the cyclical nature of these activities	
Which cross cutting issues will be	Equity and SEN: through	setting ground	rules to protect vulnerable stu	ident teachers and	
	Student teachers specifi	ic weakness and	Strengths will be identified an	d catered for.	
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	<ul> <li>Assessment for lear place during the da</li> <li>Assessment as lear place during the nig</li> </ul>	ming: Student te y time(20 marks ning: Student te ght (20 marks)	eachers to provide list of huma :) achers present summaries on l	n activities that take numan activities that take	
Teaching Learning Resources	The course manual, Flip that take place during th	Charts, Pens, Pens, Pens, Pe	encils, 'A' 4 sheets, markers, vie	deos on human activities	
Required Text (core)	NaCCA, MoE. (2019; September). <i>Kindergarten Curriculum (KG1&amp;2) for Preschool</i> . Accra: Ministry of Education Abbey, T. K., Alhassan, B., Ameyibor, K., Essiah, J. W., Fometu, E., &Wiredu, M.B. (2008). <i>Ghana</i> <i>association of science teachers integrated science for senior high schools</i> . Accra: Unimax MacMillan. Oddoye, E. O. K., Taale, K. D., Ngman-Wara, E., Samlafo, V.&Obeng-Ofori, D. (2011). <i>SWL</i> <i>integrated science for senior high schools</i> : <i>Students hook</i> . Accra: Ghana: Sam-Woode Ltd				
Additional Reading List	Yeboah, S. K., Ahordji, ,& Sam-Woode Ltd. Available Primary and II	& Mensah, S. K. ( unior high schoo	2016). <i>Science for primary scho</i>	ols: Pupil's book 5, Accra:	
CPD Requirement	Training on note-taking collage making	and report writi	ng, skills development on cons	struction of T-charts and	

Yea	r of B.Ed.	2	Semester	1	Place o	f lesson in ser	nester	1 2 3 4 5 6 7 8 9 <b>10</b> 11 12			
Titl	e of Lesson		Early Grad	de Science (	Curriculum	L	Lesson	Duratio	n	3 Hours	
Les: EGE	son descriptio 5 Science 1	n	In this less student te within the conceptua Furthermo environmo science.	In this lesson, the Tutor introduces the Science Curriculum and discusses the major features with student teachers. The importance of understanding the curriculum is sequenced and its role within the training of the early grade child is also discussed. This will enable student teachers to conceptualize their own roles as teachers in the life of the early grade child in a holistic manner. Furthermore, the science course will enable young student teachers to create inclusive learning environments by providing the necessary adaptable and safe environment for the study of science							
Pre kno (ass	vious student wledge, prior sumed)	teacher learning	Student te 121	Student teachers have been taken through the introduction to the integrated science course SCE 121							
Pos leai	sible barriers rning in the lea	to sson	Student t	eachers ma	ay lack know	wledge about	the feat	ures of e	early grad	e science.	
Lesson Delivery – chosen to support students in achieving the outcomes		Face- to-face √	Practical Activity	Work- Based Learning	Seminar √	Indepe Study	endent	e-learni opportu √	ng Inities	Practicum	
Less mo to s tea lear	son Delivery – de of delivery support studer chers in achie rning outcome	main chosen nt ving the es.	Discussion as importa Seminar: I	n: student t ant variable Presentatio	eachers ma es in early g ns for the o	ake presentat grade science development	ions (in r of resear	nixed at rch, colla	bility grou	ps) on wha and comm	t they consider nunication skills
•	Purpose for t lesson, what the students achieve, serv basis for the outcomes. A expanded ve the descripti Write in full the NTS addr	the you want to res as learning n rsion of on. aspects of ressed	<ul> <li>Introductor</li> <li>Introductor</li> <li>Peruu</li> <li>Acqui</li> <li>Acqui</li> <li>Acqui</li> <li>Acqui</li> <li>Acqui</li> <li>TS:</li> <li>1a: Critica</li> <li>2c: Has set for the scl</li> <li>3b: Carrie</li> <li>3e: Emplot thinking.</li> <li>3g: Emplot classes)</li> </ul>	duce the stu ing such as duce child s se the new ire the skills ire skills to fully and colle cure conter hool and gr s out small- hys a variety	udent teac honesty, c itudy styles Early grade s to compil- evaluate co ectively ref nt knowled ade they te -scale actio v of instruct onal strate	her to the ess arefulness, ac e science curr e/document a pursework, lea lects to impro ge, pedagogio each in. n research to tional strategi gies appropria	ential att iccuracy a icculum a iccademic arning pr ove teach cal know improve es that e ate for m	titudes a nd man nd how work a ogress a ning and ledge ar practic encourag	and values y more. to begin o nd other o and acade learning nd pedago e. ges studen ility, mult	s of profess developing educationa mic achiev ogical conte nt participa ilingual and	sional science themes. I evidence. ement. ent knowledge ation and critical d multi-age
•	Learning Out the lesson, p developed fr course specif Learning indi	come for icked and om the ication cators for	Learning	Outcomes	ľ	earning Indic	ators			Identify w cutting Iss transferab inclusivity addressing	hich cross- ues, core and le skills, Equity and diversity.
	each learning outcome	3	Demonstr characteri inclusive t attitudes) engageme 13)	rate the istics of an eacher (val in class ents. (NTS, 1	lues & 2e, Pg.	<ul> <li>Provide a the value thinking, accommon character teacher.</li> <li>Write a ru character teacher a engagem</li> </ul>	checklis s of patie tolerance odation a istic of a eflective istics of s observe ents.	t to ider ence, cri e, ind forti n early g report c an inclu ed in cla	ntify tical tude, grade on the sive ISS	Providing c communic collaborati respect wh individual abilities, cr and respor careful par group disc	hecklist of ation, on and mutual lile appreciating difference and itical thinking nsibility through ticipation in ussion.

Topic/Title	Sub Topic	Time or	Teaching and learning to achieve learning outcomes:			
		Stage	depending on delivery mode	selected. Teacher led,		
			Teacher Activity	Student Activity		
Early Grade Science Curriculum Studies I	Review of lesson 9 The nature of the Early Grade Curriculum and Science learning	20 minutes 160 minutes	Face-to-face:Tutor allows student teachers to work in mixed ability groups to discuss previous lesson and assists them with areas that need further attention	Discussion:Student teachers discuss previous lesson and list areas that need further attention for discussion with tutor. Group activity:Student		
			Face-to face:Tutor introduces the lesson by asking student teachers tell what they learned about science in Year 1 Face-to-face: Tutor led	teachers engage in Think, Pair, Share, share discussions, reflections and rhyming. Use OERs and MOOCs and write a report.		
			discussions with student teachers on appropriateness of those science concepts for early grade learners Face-to-face/Group activity: Tutor allows student teachers to form	Face-to-face: Student teachers reflect and talk about science concepts learned in Year 1. Student teachers then discuss with tutor the appropriateness of their science course for early grade learners		
			groups of mixed abilities, to peruse the EGE science syllabus PD Theme 4, pg 23-30	Face-to-face/Group activity: Student teachers in groups of mixed abilities peruse the EGE science syllabus PD Theme 4, 35-46		
Which cross cutting issues will be addressed or developed and how	Equity and SEN: Through the By practicing how to develop science activities into workab	establishm skills in rev le themes	ent of an interactive and inclus viewing, differentiating and cat	ive classroom atmosphere. egorizing early grade		
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	<ul> <li>Student teachers' in grou suitable for EG learners()</li> <li>Student teachers write s developmentally approp</li> </ul>	ups use dev 20 marks) equenced s riate mann	eloped checklist to identify cor cience themes in an inclusive, er (Assessment of learning).(20	nmon sequenced themes multi-age, and I marks)		
Teaching Learning Resources	The EGE Science syllabus, per	ns and pape	ers.			
Required Text (core)	NaCCA, MoE. (2019; Septemb of Education Handbook for PD Coordinato	per). <i>Kinder</i> rs Themes :	garten Curriculum (KG1&2) for 1- 10	Preschool. Accra: Ministry		
CPD Requirement	<ul> <li>Improving teaching and</li> <li>Practicing how to interp compilation of documer</li> <li>Perseverance and accur</li> </ul>	educationa oret and cat ots to illustr acy in comp	al development. egorise appropriately. That is, l ate what a teacher understanc piling data	knowing the appropriate		

Yea	ar of B.Ed.	2	Semester	1	Plac	e of lesson in s	emester	1 2 3 4 5 6 7 8 9 10 <b>11</b> 12				
Titl	e of Lesson		Early Gra	de Science (	Curriculu	m Studies II	L	esson Dur.	ration	3 Hours		
Les EGI Pre	son descriptio E Science 1	n	In this less Curriculu it is seque enable st grade chi learning e grade lea Student t	In this lesson, the Tutor further discusses the nuances embedded in the Early Grade Science Curriculum and how it could be translated practically. The importance of understanding the way it is sequenced and its role within the training of the early grade child is emphasised. This will enable student-teachers to conceptualise their own roles as teachers in the life of the early grade child in a more holistic manner as it will enable young student-teachers to create inclusive learning environments by providing the necessary adaptable and safe environment for the early grade learner.								
kno Pos	owledge, prior sible barriers	learning to	211 Student-teachers may lack knowledge about the features of early grade science.									
lea	rning in the les	son						-				
Les to s ach	son Delivery – support studer ileving the out	chosen nts in comes	Face- to- face √	Practical Activity	Work- Based Learnii	Seminar ng √	Indeper Study	ident	e-learning opportunities	Practicum		
Les mo to s tea lea	son Delivery – de of delivery support studer chers in achiev rning outcome Purpose for t	main chosen nt ving the es he	Discussio as import	Discussion: student-teachers make presentations (in mixed ability groups) on what they consider as important variables in early grade science								
•	Purpose for t lesson, what want the stur achieve, serv basis for the outcomes. An expanded ve the descriptio Write in full a of the NTS ac	ne you dents to es as learning n rsion of on. aspects Idressed	<ul> <li>Acce teacl</li> <li>Emp</li> <li>Appr</li> <li>Con requ</li> <li>Acqu portf</li> <li>Acqu</li> <li>Acqu</li> <li>NTS:</li> <li>1a: Critic:</li> <li>2c: Has so for the so</li> <li>3b: Carrie</li> <li>3e: Emple</li> <li>thinking.</li> <li>3g: Emple</li> <li>classes)</li> </ul>	<ul> <li>Accentuate the student teacher to the essential attitudes and values of professional science teaching such as honesty, carefulness, accuracy and many more.</li> <li>Emphasise child study styles taking into consideration cultural and gender issues</li> <li>Appreciation of gender responsive and child-adaptive teaching strategies</li> <li>Continue to peruse the new Early grade science curriculum and how to interpret the requirements</li> <li>Acquire the skills to compile/document academic work and other educational evidence for portfolios</li> <li>Acquire skills to evaluate coursework, learning progress and academic achievement</li> <li>NTS:</li> <li>1a: Critically and collectively reflects to improve teaching and learning</li> <li>2c: Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in.</li> <li>3b: Carries out small-scale action research to improve practice.</li> <li>3e: Employs a variety of instructional strategies that encourages student participation and critica thinking.</li> <li>3g: Employs instructional strategies appropriate for mixed ability, multilingual and multi-age</li> </ul>								
•	<ul> <li>Learning Outcome for the lesson, picked and developed from the course specification</li> <li>Learning indicators for each learning outcome</li> <li>Demonstrate the characteristics of a inclusive science te (values &amp; attitudes class engagements (NTS, 2e, Pg. 13)</li> </ul>			Outcomes rate the ristics of an science tead attitudes) i agements. Pg. 13)	ther n	<ul> <li>Provide a c the values thinking, tc accommod characteris teacher</li> </ul>	hecklist to of patienc ilerance, ation and tic of an e	identify e, critical fortitude, arly grade	Identify which cr Issues, core and transferable skill inclusivity. Equity addressing divers Providing checklis communication, collaboration and respect while app young learners' in difference and ab critical thinking a	oss-cutting s, y and sity. st of d mutual preciating ndividual pilities, nd		

		<ul> <li>Make a reflective presentation on the characteristics of an inclusive science teacher as observed in EG class</li> </ul>		responsibility through careful participation in group discussion.		
Topic/Title	Sub Topic	Time or Stage Teaching and learnir outcomes: dependin Teacher led, collabor independent study		ng to achieve learning ng on delivery mode selected. rative group work or		
Early Science Curriculum Studies II	Modelling Inclusivity, Values and appropriate attitudes in the Science lessons on the Early Grade curriculum	180 minutes	Teacher ActivityFace-to face: Tutorintroduces thelesson by askingstudent-teachers torecall some of thethemes/conceptsthey studied inLesson 10Face-to-face:Tutorled modelling, roleplaying and rhymingfollowed bydiscussions withstudent teachers onthe development ofscientific skills asenshrined in theEGE SciencecurriculumFace-to-face/Groupactivity: Tutorallows studentteachers to formgroups of mixedabilities, to perusethe EGE sciencesyllabus andtranslate itpracticallyPD Theme 4, pg 23-20	Student ActivityFace-to-face: Student- teachers reflect and recall science concepts learned in Lesson 10Face-to-face/Group activity:Student teachers engage in modelling, role playing and rhyming and then discuss with tutor processes for the actualisation of SEN- responsive scientific skillsFace-to-face/Group activity: Student-teachers in groups of mixed abilities peruse the EGE science syllabus and translate it through presentations and modelling PD Theme 4, 35-46		
Which cross cutting issues v be addressed or developed and how	vill Equity and SEN: Throu classroom atmospher	Through the establishment of an interactive, inclusive and demonstrative sphere.				
Lesson assessments – evaluation of learning: of, f and as learning within the lesson Teaching Learning Resource	Student teachers that colleague tra Student-Teachers developmentally The EGE Science sylla	teachers' in groups use developed checklist to identify scientific learning skills league trainees are demonstrating (20 marks) -Teachers write sequenced science themes in an inclusive, multi-age, and omentally appropriate manner (Assessment of learning). (20 marks) ence syllabus, pens and papers.				
Required Text (core)	NaCCA, MoE. (2019; S Ministry of Education Handbook for PD Coo	y; September). <i>Kindergarten Curriculum (KG1&amp;2) for Preschool</i> . Accra: on oordinators Themes 1- 10				
CPD Requirement	<ul> <li>Improving teaching strategies.</li> <li>Practicing how to appropriate complements</li> <li>Learning perseve</li> </ul>	ing and educational development in resource and Assessment o interpret and categorise appropriately. That is, knowing the pilation of documents to illustrate what a teacher understands erance and accuracy in compiling data				

Yea	r of B.Ed.	2	Semester	1	Place of lesson in semester 1		12345	234567891011 <b>12</b>		
Titl	e of Lesson		Course Revie	w II with S	ith STS seminar Lesson Duration 3 hours				3 hours	
Less Pre kno	son descriptio vious student wledge, prior sumed)	n teacher learning	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 the supported teaching in schools (STS) and peer review of teaching and learning portfolios.         Lessons learnt from lesson 1 through lesson 5 in all learning approaches and observations/experiences during STS.					as review ) and peer		
Pos	sible barriers	to	Misconception to some concepts not adequately dealt with. Lessons not appropriately					y		
lear	rning in the les	son	understood k	by student -	teachers.	<b>6</b>			Duration	
to s	son Delivery – support studer ieving the out	cnosen Its in comes	to-face A	Activity	Learning	v v	t Study √	e-learning opportunities √	Practicum	
Less mo to s tea lear •	son Delivery – de of delivery support studer chers in achiev rning outcome Purpose for t lesson, what want the stud achieve, serv basis for the outcomes. An expanded ve the descriptic Write in full a of the NTS ac	main chosen at ving the <u>s</u> . he you dents to es as learning trsion of on. aspects ldressed	Face-to-Face Practical Acti Independent e-learning Op Ascertain Test vari Provide of Correct of Build the (NTS 1a: Critically 2c: Has secur for the school 3b: Carries of 3e: Employs a thinking. 3g: Employs i classes)	: Discussion vity: Model Study: Tuto oportunities in the level of ous skills ar remedial tu misconcept e necessary and collecti re content k of and grade ut small-sca a variety of instructiona	n, group work i lling, Concept or and student s: OERs and Vir of understandi nd cross – cutt ition/tutorials ions and misin support going ively reflects to chowledge, per they teach in ale action resea instructional s al strategies ap	n same ability g Mapping and Ca teacher reflecti deo presentation ng of concepts. ing issues on where neces formation forward on SEN o improve teach dagogical knowl arch to improve strategies that en opropriate for m	roup works. rtooning. ons (individual ns sary for experi and Gender is ing and learnin edge and peda practice. ncourages stuc ixed ability, mu	ly and collectively ences during STS sue gogical content ki lent participation iltilingual and mul	) nowledge and critical Iti-age	
•	Learning Out for the lessor and develope the course specification	come n, picked ed from	Learning Out	comes	Learning l	Learning Indicators		Identify which cross – cutting Issues, core and transferable skills, inclusivity. Equity and addressing diversity. How will these be		
•	Learning indi for each learn outcome	cators ning	<ul> <li>Identify and stren learning lesson fo period u</li> </ul>	weakness ngths in the science or the nder reviev	Make and st paper	<ul> <li>Make a list of Weaknesses and strengths on poster papers for sharing</li> </ul>		Collaborations, Communication and Research: Through group w and presentation		
			<ul> <li>Be able t lessons l STS and insights a areas ne remedie</li> <li>Peer revi teaching learning</li> </ul>	o reflect or earnt so far state new and/or grey eding s iew and portfolios	n Provic on STS and ill media far Preser learni develo semes	le a reflection re 5 and demonstra ustrations on a g of lessons learn nt teaching and ng portfolios oped throughourster.	port Equity ations from given at so	/ and Reflection is reflective activitie	developed s	

	<ul> <li>Correct misconception/misi nformation for earlier (lesson 7 – 11) lessons</li> </ul>	<ul> <li>Present concept maps and/or models linking misconceptions/misinforma tion to new insights</li> <li>Creativ develog and control</li> </ul>		vity and critical thinking is oped in developing models oncept maps	
Content of lesson picked and developed from the course specification	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomes: depending on delivery mode selected. Teacher led, collaborative group work or independent study		
Topic Title Course Review 1 with STS			Teacher Activity Facilitate and provi necessary tool for students activities.	des the	Student Activity
seminar	Reviewing the understanding of lessons on teaching concepts in Sun and Earth, Day and Night I, Day and Night II, Early Grade Curriculum Studies I, Early Grade Curriculum Studies II and discussion of observations during STS since week 6.	60 minutes 30 minutes	<b>Face-to-face:</b> Tutor led brainstorming session with student teachers to unearth the weaknesses and strengths of student teachers in the lessons 7 11. Initiate discussion/Ta for learning approach using groupings (Same ability and then mixed groups) to identify student teachers' strengths and weakness the lessons learnt so far.		<b>Face-to-face:</b> Student teachers discuss their problems in the previous lessons and provide a checklist to identify and record all possible weaknesses and strengths.
		60 minutes	STS Seminar: Teach allows two or three resource persons to presentations on S <sup>T</sup> based on the NTS. T then guides studen teachers through problem-based lead on National Teache Standards and refle on observations ma during STS.	ner o make TS Tutor t rning er's ection ade	STS Seminar: Student teachers listen to various presentations from their observation in STS on how science learning is conducted in the schools. Student teachers then discuss observations made during STS based on the National Teacher's Standards, reflect and provide a checklist of lessons learned and problems identified and how they can be addressed. Student teachers then provide a reflection report on STS.
			Seminar: Student teachers por review teaching and learning portfolios.	eer d	Seminar: Student teachers peer review their teaching learning portfolios as they cross share their portfolios

Remedies to course topics30minutesFace-to-face: Teacher groups student teachers groups student teachers according to remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Students work in the special groups (Same remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Students work in the special groups (Same remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Students work in the special groups (Same remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Students work in the special groups (Same remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Students work in the special groups (Same remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Student secontal the remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Student secontal the remedy need and provide specific task assistance in the areas on concept needing remedy.Face-to-face: Student secontal the remedy need group) on tasks to remedy inking mistorm ation to new insights.Which cross cutting issues will be addressed or developed and howEquity and SEN: through mixed and same group work to protect vulnerable student teachers and establishing an interactive and inclusive classroom atmosphere. Through modelling and group work, collaboration is established.Lesson the lesson• Student teachers' presentations during group work and model work presentation helps to a				· · ·			
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