

Four-Year B.Ed. Course Manual

Early Grade Science II

















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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.

We are indebted to the Ministry of Education and the Ghana Tertiary Education Commission (GTEC) for the general support and specific helpful advice provided during production of the course manuals. Recognition and thanks must go to Chief Technical Advisor for T-TEL and Policy Advisor to the National Education Reform Secretariat, Akwasi Addae-Boahene, Prof. Mohammed Salifu, the Director General of GTEC and Mr. Jerry Sarfo the coordinator for the colleges of education, who in diverse ways supported during the course manual writing workshops.

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

Y	ear of B.Ed.	2	Se	emester	2	Place of lesso	n in semester		1 2 3 4 5 6 7 8 9 10 11 12) 11 12	
Tit	e of Lesson			Sunlight				1	Lesson Du	ration	3 Hour	rs	
Les Pre kno	son descriptio	n teacher learning		In this lesson, the Tutor will assist the student teacher to review previous knowledge on sunlight as source of energy and its importance to plant, aspects of which were studied in senior high school. The lesson will then deepen their conceptual understanding of uses and importance of sunlight to plants. They will be exposed to teaching strategies and material so that they will effectively handle similar topics in their future science classrooms. This first lesson introduces student teachers to the course learning outcomes and the three assessment components of the course. Student teachers have studied solar energy, sunlight and its role in manufacture of food by plants									
(as Pos	sumed) ssible barriers	to learnin	g in	Student	teacher m	ight still have	misconception	is abo	ut origin o	f the sun	and a n	aïve belief	
the Les sup	e lesson son Delivery – oport students	chosen to in achievi	o ing	that light Face- to-face	is not a for Practical Activity	orm of energy Work- Based	Seminars	Inde Stud	pendent yv	e-learr opport	ning cunities	Practicum	
Les del stu the	ison Delivery – ivery chosen to dent teachers learning outco	main mo o support in achievi omes.	de of ng	Face-to-face: Discussion, Talk for learning approaches with student teacher presentations, multimedia presentations (video clip clips, animation, and pictures on PowerPoint). NTS 3j, pg. 14 Practical activity: student teachers work in mixed ability and gender based group									
•	Purpose for t what you wa students to a as basis for th outcomes. An version of the Write in full a NTS addresse	he lesson nt the chieve, se ne learnin n expande e descript aspects of	erves g ed ion. the	 Deel plan Corridea Build The Protthe the Protthe the The reali 2c: Has s knowled 3f: Pays a Needs, e 3j: Explai 	pen stude ts ect studer s about lig d the nece student te vide stude copic use of zation of t ecure con ge for the attention t nsuring th ns concep	nt teachers' m sht not being a ssary support eacher will dev int teachers w of sunlight and these intentior tent knowledg school and gra to all learners, leir progress.	isconceptions isconceptions form of energy going forward relop skills of e ith the requisit l importance o ns can be found ge, pedagogica ade they teach especially girls g examples far	on the about gy on SE experir te kno f sunli d in th I knov i in. s and miliar	uses and i the origin N and Ger mentation. wledge an ight to plan ie followin vledge and students w	mportar of the sinder issu d skills tr nts. g NTS: I pedago vith Spec s.	nce of su un and ir e o be able gical cor ialEduca	nlight to ncorrect e to teach ntent ntional	
•	Learning Out lesson, picked developed fro specification Learning indi learning outc	come for d and om the co cators for come	the urse each	Iden abou sun bein NTS	Outcome tify misco ut the orig and about g a form c 2c	nceptions in of the light not of energy	Student t construct misconce origin of incorrect is not a fo with corr correct so	cators ceache t a che ption: the su idea t orm of espon cience	ers ecklist of s about n and that light f energy ding	Identifi cutting transfe inclusiv addres will the develo Develo constru Theme	y which (stasues, e rable sk vity. Equi sing dive ese be ac ped p skills c uction of 8, pg 40	cross – core and ills, ity and ersity. How ddressed or ddressed or	

	 Demonstrate a knowledge and understanding sunlight is the l for most plants Mention some importance of simportance of simportance of simportance of sinvestigate con cultural beliefs origin of the su not being a for 	dequate that basic need uses and sunlight oject to nmunity's about the n and light m of	•	Use video clips to demonstrate experimental set up illustrating that sunlight is the basic need for plants to produce their own food Student teachers to show sample exercises on the importance of sunlight Student teachers in groups report on investigation on cultural beliefs about origin of the Sun and	Dee exp tha nee the the coll and (SE NTS	velop skills for setting up beriment to demonstrate at sunlight is the basic ed for plants to prepare eir food NTS 2c veloping Social laboration and attention d care to individual needs N) through group work S 3f
Content of lesson picked and developed from the course specification	Sub Topic	Time or Stage		of energy Teaching and learning to depending on delivery m collaborative group work	achi iode c or i	ieve learning outcomes: selected. Teacher led, ndependent study
Topic Title				Teacher Activity		Student Activity
Sunlight B1.2.1.2.1 B2.2.1.1.1	Introduction to Y2S2 Course Manual	10minutes	;	Face-to-Face: Tutor Initia discussion to do self- introduction and require student teachers to do same.	tes of	Face-to-Face: Student teachers responds to tutors discussion to do self-introduction.
		10 minute	S	Face-to-Face: Make available copies of Y2S2 course Manual to student teachers to introduce Course manual to student teachers and allow them discuss their expectations for the semester as well a critique the previous semesters challenges	t to s as	Face-to-Face: discuss the Course manual for Y2S2 and state their expectations for the semester as well as critique the previous semester's manual
	Uses of sunlight	40 minute	s	Tutor through diagnostic questioning identify stude teachers' misconceptions about the origin of the su and incorrect idea that lig is not a form of energy	ent in ght	Student teachers in groups to present list of misconceptions and incorrect ideas that light is not a form of energy with corresponding correct science concepts
		50 minute	S	Tutor to show animation/pictures on PowerPoint to stimulate student teachers on the uses of sunlight NTS 3j Tutor to guide student teachers to mention the importance of sunlight		Student teachers to discuss the uses of sunlight by plants and other organisms Student teachers in mixed ability groups to provide reports on importance of sunlight
	Sunlight as a basic need of most plants 70 minute		s	Tutor to guide student teachers to design and perform an experiment o sunlight as basic need of most plants	n	Student teachers to, in mixed ability groups/gender-based groups present reports on the experimentation to establish sunlight as a basic need of most plants

Which cross cutting issues will	Equity and SEN: through setting ground rules to protect vulnerable student teachers and
be addressed or developed and	establishing an interactive and inclusive classroom atmosphere. Student teachers specific
how	weakness and Strengths will be identified and catered for.
Lesson assessments –	Assessment for Learning: Student teachers to provide checklist on misconceptions on
evaluation of learning: of, for	the origin of the sun and incorrect idea that light is not a form of energy with
and as learning within the	corresponding correct science concepts
lesson	NTS3j: Explains concepts clearly using examples familiar to students.
	 Assessment as Learning: Student teachers present report in diverse ways to
	demonstrate their knowledge and conceptual understanding of how sunlight is a basic
	need of most plants
	NTS 3f: Pays attention to all learners, especially girls and students with Special
	Educational Needs, ensuring their progress
	 Assessment of learning: student teachers present group summaries on the uses and
	importance of sunlight to most plants and other organisms including humans in the
	environment
	NTS 2c:Has secure content knowledge, pedagogical knowledge and pedagogical content
	knowledge for the school and grade they teach in.
Teaching Learning Resources	The Course Manual, Computer, video clips, appropriate apparatus and materials for
	experiments on sunlight as a basic need for plants to produce food, investigate Flip Charts,
	Pens, Pencils, 'A' 4 sheets, markers, work sheets,
Required Text (core)	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower
	Primary. 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.
	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 skills on construction of checklists, skills in designing experiments and
	developing skills in formation of mixed/differentiated ability groups.
Course Assessment	¹ Component 1: Subject Portfolio Assessment (30% overall score)
	 Selected Item of Student work (3 items – 10%) = 30%
	 Midterm assessment – 20%
	Reflective Journal – 40%
	 Organization of the Subject Portfolio- 10% (How its presented/organized)
	² Component 2: Subject Project (30% overall Semester score)
	 Introduction; a clear statement of aim and purpose of the project -10%
	 Methodology; What the student teacher has done and why to achieve the
	purpose of the project – 20%
	 Substantive/Main section of the work – 40%
	Conclusion – 30%
	Component 3: End of Semester Examination – (40% overall Semester Assessment

 ¹ See rubrics on subject Portfolio Assessment in Annex 6 of NTEAP
 ² See rubrics on Subject Project Assessment in Annex 6 of NTEAP

Year of B.Ed. 2 Semester 2 Place of lesson in semester	1 2 3 4 5 6 7 8 9 10 11 12
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Title o	of Lesson	Teachin	g Food I				Lesson Duration	3	3 hrs			
Lesso	n description	This less and what and act	son introduces th at food type give ivities appropriat	ne student-te s energy. The re to teach th	eacher e stude lese co	to the co ent teach oncepts to	ncept of the f ers learn how o early grade l	ood a to de earne	around us, its evelop teachin ers.	uses, kinds ng materials		
Previo know	ous student teacher ledge, prior ing (assumed)	Lessons	on food and Nu	trition from S	SHS an	d concep [.]	ts from semes	ster 1	year 2.			
Possik	ble barriers to	Miscon	ceptions on food	types and ca	ategor	isations						
Lessor to sup achiev	n Delivery – chosen oport students in ving the outcomes	Face- to- face √	Practical Activity	Independen t Study √	e-l op √	learning pportunities	Practicum					
Lesson mode to sup teach learni	n Delivery – main of delivery chosen oport student ers in achieving the ing outcomes.	in Face-to-Face: Discussion, Same ability, mixed ability and gender based group works. Independent Study: Nature walk e-learning Opportunities: OERs and Video presentations the										
 P lé w a b b o e th w o th w o 	urpose for the esson, what you vant the students to chieve, serves as asis for the learning utcomes. An xpanded version of he description. Vrite in full aspects f the NTS addressed	• Uni NTS: 2a) Den 2b) Has 2c) Has for the s	 Understanding the use of games and rhymes to make early grade learning meaningful NTS: 2a) Demonstrates familiarity with the education system and key policies guiding it. 2b) Has comprehensive knowledge of the official school curriculum, includinglearning outcomes. 2c) Has secure content knowledge, pedagogical knowledge and pedagogicalcontent knowledge for the school and grade they teach in 									
La fc p d c	earning Outcome or the lesson, icked and eveloped from the ourse specification	Learnin	g Outcomes		Learr	ning Indic	ators	Ident Issues skills, addre these devel	tify which cros s, core and tra , inclusivity. Ec essing diversit e be addressed loped	s – cutting ansferable quity and y. How will d or		
• La fa o	earning indicators or each learning utcome	 Development Developm	velop an underst ideas early grad y have about foc m monstrate signifi design and engag ctical activities a ernative interacti essment practice & 23)	anding of e learners d around cant ability ge in nd other ve es (NTS, 14,	laborations, mmunication and Research: ough group work and sentation							
		 Der kno tha ano boo 	monstrate adequ owledge and und t food gives ener d protection to th dy. (NTS, 2c, Pg. 2	ate erstanding gy, growth ne human L3)	• F r c t	Provide a report and questions copic	reflection d answer on the	Equit devel activi	ty and Reflecti loped from re ities	on is flective		

	Correct misconception n on the conce	n/misinformatio ept foods	 Present concept maps and/or models linking misconceptions/mis information to new insights 	Creativity and critical thinking is developed in developing models and concept maps
Content of lesson picked and developed from the course specification Topic Title	Sub Topic	Time or Stage	Teaching and learning to a depending on delivery mo collaborative group work Teacher Activity	achieve learning outcomes: de selected. Teacher led, or independent study Student Activity
			Facilitate and provides the necessary tool for students activities.	5
Teaching Food K1.1.4.1.1	Uses of Food	10 mins	Face-to-Face: Brainstormir with student – teachers to initiate discussion on food uses, relying on their personal need for food	Face-to-Face: Student – Teachers responds to Tutor questions on mentions some uses for food.
		50mins	Face-to-Face/e-Learning Opportunities: Put student teachers in groups (mixed ability), provide them with videos/computer simulations/OERs on songe rhymes and games for student teachers to develop/adapt them that of be use used to teach early grade learners on the uses food https://www.youtube.com watch?v=UaqISEs_uj0 (accessed 28/06/2019)	Face-to-Face/e-Learning Opportunities: student teachers work in groups (mixed ability), Reflecting and discussing how to adapt or develop games (Breakfast energy, Lunch replacement and others), rhymes, songs etc from videos/computer of simulations/OERs on songs, rhymes and games provided by the tutor.
	Kinds of Food	10mins	 Face-to-Face: Brainstorming with student – teachers to initiate discussion on food kinds, relying on the earlier activity. 	 Face-to-Face: Student Teachers responds to Tutor questions on mentions some kinds of food. Eace-to-Face/e-
		50mins	Face-to-Face/e-Learnin Opportunities: Put student teachers in groups (mixed ability), provide them with videos/computer simulations/OERs on songs, rhymes and games for student teachers to develop/adapt them that can be use used to teach early grade learners on the kinds of food	ng Learning Opportunities: student teachers work in groups (mixed ability), Reflecting and discussing how to adapt or develop games (veggie guessing bag, Letter of the week and others), rhymes, songs etc. o from videos/computer simulations/OERs on songs, rhymes and games provided by the tutor

		1 Emine	Natura Walk, Taka student	Natura Walks student							
	Energy giving	12111112	teachers on a nature walk teacher take a nature walk								
	1000		round the school compound	with tutor and note any							
			and make them observe any	food plant within school							
			food	compound.							
				'							
				Face-to-Face/e-learning							
		25mins	Face-to-Face/e-learning	opportunities: student							
			opportunities: Initiate a	teachers respond to							
			general discussion for	discussion and share their							
			student teachers to share	observations as well as							
			use the food plants can be	plants can be put to							
			nut to	piants can be put to.							
		20mins		Student teachers work in							
			Put student teachers in	groups (mixed ability), to							
			groups (mixed ability), to list	list the foods discussed							
			the foods discussed into	into energy giving foods							
			energy giving foods and non-	and non-energy giving							
			foodshttps://www.voutubo.c	10005							
			om/watch?v=RiPdDI9dNmk								
Which cross cutting	Equity and SEN: th	Equity and SEN: through mixed and same group work to protect vulnerable student - Teachers									
issues will be addressed	and establishing ar	n interactive and in	nclusive classroom atmosphere.								
or developed and how	Through modelling	and group work,	collaboration is established.								
Lesson assessments –	Assessment of Lea	rning: End of Sem	ester Examination on concepts ir	n food, kinds of food, uses of							
evaluation of learning:	food and energy gi	ving foods. NTS: 2	a) Demonstrates familiarity with	the education system and							
of, for and as learning	key policies guiding	g it, 2c) Has secure	e content knowledge, pedagogic	al knowledge and							
within the lesson		it knowledge for t	the school and grade they teach								
	Assessment for an	d as learning: Stud	lent – Teachers working in group	os (checklist for							
	collaborations), Co	ncepts maps, rhyr	mes, songs and reflective report.	NTS: 2c) Has secure content							
	knowledge, pedage	ogical knowledge	and pedagogical								
	content knowledge	e for the school an	nd grade they teach in								
Teaching Learning	Cardboards Cours	e manual Poster i	naper game cards OFRs Compu	iters internet							
Resources	https://www.youti	ube.com/watch?v	=RjPdDL9dNmk,	,							
	https://www.youti	ube.com/watch?v	=UaqISEs uj0 (accessed 28/06/2	019)							
Required Text (core)	NaCCA, Ministry of	Education (2019)	. Science Curriculum for Kindergo	arten and Lower Primary.							
	Accra: N	linistry of Educatio	on.								
	Abbey, T. K., Alhas	san, M. B., Ameyik	oor, K., Essiah, J. W., Fometu, E.,	& Wiredu, M.B. (2008).							
	Grana association	of science teacher	rs integrated science for senior n	ign schools. Accra: Unimax							
Additional Reading List	Abbey, T. K., &Essi	ah. J.W. (1995). G	hana association of science teach	hers physics for senior high							
	schools. Accra: Uni	max Macmillan.		iere prijeres jer serner mgn							
	Ameyibor, K., & W	iredu, M. B. (2006). Ghana association of science t	eachers chemistry for senior							
	high schools. Accra	: Unimax MacMill	lan.								
	Asabere-Ameyaw,	A., & Oppong, E. H	<. (2013). Integrated science for t	the basic school teacher I.							
	Winneba: IEDE.										
	Uddoye, E. O. K., T	aaie, K. D., Ngmar for conior high col	i-wara, E., Samiato, V.,& Obeng-	UTORI, D. (2011). SWL							
CPD Requirement	Training on develo	ning games rhym	es and songs for food activities	na, Sam-WOOUE LLU.							
e. B neganement		~···o o~···cə, ···yiii									

Y	ear of B.Ed.	2	Semest	ter 2	Place	Place of lesson in semester 12 3 4 5 6 7 8 9 10 11				11 12				
T:41			E unthe e n er	*****	la a una ina	- 1- 1		a d		Lassan Dunation		2 1 1 2 1 1 2 1 2 2		
IITI	e of Lesson		Further s	trategies on	learnin	ig to tea	ach about Fo	ooa		Lesson Duration		3 Hours		
Les	son descriptio	n	In this les growth, a conceptu and main material s student to milk whic	son, the Tut ispects of wh al understan tain the hum so that they eacher will a ch support gr	or will a nich wer nding of nan bod will effe Iso app rowth.	assist th re studi how nu ly from ectively reciate	e student te ed in senior utrients from lesson 2. The handle simil the local foo	acher to re high schoo the food ey will be ar topics i od substan	eview ol. The for gr expose n thei ces in	previous knowle e lesson will then owth are used to ed to teaching st r future science o cluding eggs, me	dge o deep pror rateg classr at, le	In food for Ien their note growth ies and ooms. The gumes, and		
Pre kno (as	vious student wledge, prior sumed)	teacher learning	Student t that are r high scho	eachers have needed in sm ool level and	e studie nall quar from les	ed food ntities b sson 2.	substances v out protect t	which supp he human	port g body	rowth and welfar against infection	re suk s at t	ostances he senior		
Pos	sible barriers	to	Student t	Student teacher might still have some unscientific cultural beliefs about children being fed on										
lea	rning in the les	son	protein-ri	ich food subs	stances	such as	eggs and ta	boos invo	lving p	plant and animal	speci	es which		
			otherwise	e could provi	ide good	d sourc	es of protein	and vitan	nins.					
Les	son Delivery –	chosen	Face-	Practical	Work	-	Seminars	Indepen	den	e-learning	Pra	cticum		
tos	support studer	its in	to-face	Activity V	Based	1 		t Study		opportunitie				
les	son Delivery –	main	V		Learn	ingv				5				
mo	de of delivery	chosen	Face-to-fa	ace: Discussi	on. Talk	c for lea	rning approa	aches with	n stude	ent-teacher prese	entat	ions.		
to s	support studer	nt ving the	problem-based teaching, multimedia presentations.											
lea	rning outcome	food and how to teach it										port on		
			lood alla											
٠	Purpose for t	he	• Deep	oen student t	teachers	s' level	of understar	nding of co	oncept	ts: proteins and f	ood r	nutrients		
	lesson, what	you	Corre	ect student t	eachers	s' misco	nceptions ar	nd incorre	ct idea	as about consum	ption	of some		
	want the stu	dents to	prote	ein-rich food	substar	nces								
	achieve, serv	es as	Build	the necessa	iry supp	ort goi	ng forward o	n SEN and	Geno	der issue				
	basis for the	learning	The s	student teac	her will	develo	p skills of dat	ta collectio	on and	d presentation or	n loca	l food		
	evpanded ver	1 rsion of	subst	tances that p	promote	e growt	h and protec	tion wher	1 cons	umed.				
	the description	on.	 The thoir 	lesson snoul	a neip t ing putr	ionts	ient teacher	develop a	chart	t of local food sur	ostan	ces with		
•	Write in full a	aspects	Provi	ide student t	ng nuu eacher	s with t	he requisite	knowledg	e and	skills to be able t	o tea	ch the tonic		
	of the NTS ad	dressed	'Furt	her strategie	es on lea	arning t	o teach aboi	it food'.	c ana	Skiis to be able t	o ica	en the topic		
			The realiz	ation of the	se inten	ntions ca	an be found	in the follo	owing	NTS:				
			3f: Pays a	ittention to a	all learn	ers, esp	ecially girls a	and stude	nts wi	th Special Educat	ional	Needs,		
			ensuring	their progres	ss.									
			3j:Assessi	ment as Lear	rning: St	tudent	teachers pre	sent repoi	rt to o	n how to use div	erse	strategies to		
			demonstr	rate their kno	owledge	e and co	onceptual ur	iderstandi	ng of	how the human	body	uses the		
			3g: Emplo	bisumed for bys instructio	onal stra	i. ategies	appropriate	for mixed	ability	y, multilingual an	d mu	lti-age		
			3k: Integr	rates a variet	y of ass	sessmer	nt modes int	o teaching	g to su	pport learning				
•	Learning Out	come for	Learning	Outcomes		Learni	ng Indicators	S		Identify which	cros	s – cutting		
	the lesson, pi	icked and								Issues, core ar	nd tra	nsferable		
	developed fro	om the								skills, inclusivi	ty. EC	uity and		
	Learning indi	cators								these be addr		lor		
ľ	for each lear	ning								developed	23500			
	outcome		• Diagr	nostic test to)	• St	udent teach	ers should		Develop skills	for c	onstruction		
			ident	tify unscienti	fic	su	bmit a Chart	of unscie	ntific	of diagnostic t	ests	to identify		
			ideas	and		id	eas and misc	onception	าร	pupils' miscor	ncept	ions about		
			misco	onceptions a	bout	ab	out consum	ption of so	ome	consumption	ot soi	ne tood		
			food	substances	ome	TO	ou substance	25		SUDSLATICES				

	 Prepare ch local food s that suppo growth Demonstra adequate k and unders that food g growth to f 	ecklist of substances rt human ite mowledge standing jives the human	•	Student teachers in groups should submit checklist on local food substances that support human growth Exhibit scripts on what food does to the body in relation to growth	Develop skills for construction of checklists , on local food substances Developing Social collaboration and attention and care to individual needs (SEN) through role play			
	Design mini-project to investigate community's cultural beliefs about consumption of some food substances that support human growth		• De to Gr	Student teachers in groups present reports on investigation on cultural beliefs about consumption of food substances that promote human growth emonstrate knowledge and skills teach the topic, Food for rowth				
Content of lesson picked and developed from the	Sub Topic	Time or Stage		Teaching and learning to achieve depending on delivery mode sel	e learning outcomes: ected. Teacher led,			
course specification	-	Ū.		collaborative group work or inde	ependent study			
Further strategies on	Teaching	10 minutes		Tutor to guide student teachers	Student teachers brainstorm			
learning to teach about food K1.1,4.1.1	Food for Growth	ang To minutes h 30 minutes				to explain food for growth, protein, and food substances	to come out with explanations food for growth, protein, and food substances	
				30 minutes		Tutor through diagnostic questioning identify student teachers' cultural beliefs about consumption of some local food substances in the community	Student teachers in groups to present list of cultural beliefs about consumption of some food substances in the community	
		40 minutes		Tutor to assist student teachers to identify food substances in their communities that are rich in protein	Student teachers in diverse groups present charts of common food substances that are rich in protein			
		60 minutes		Tutor to assist student teachers to discuss how the consumption of the protein rich food substance promote human growth	Student teachers to provide a written report to explain how the body uses the protein form the food substances to grow, repair damaged tissues and to replace worn out tissues			
	40 minutes			Tutor to guide student teachers to design a mini project to investigate cultural beliefs in their communities on consumption of some protein rich food substances	Student teachers in groups present designs to investigate cultural beliefs on consumption of some protein- rich food substances in their communities			
Which cross cutting issues will be addressed or developed and how	Equity and SEN establishing an weakness and S	: through set interactive a Strengths will	ting nd i I be	ground rules to protect vulnerable nclusive classroom atmosphere. St identified and catered for.	e student teachers and tudent teachers specific			
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	 Assessmer substances NTS 3j:Pro enhance le Assessmer 	It for Learning in their com duces and us earning It as Learning	g: St mur es a ;: Sti	tudent teachers to provide charts of nities to show understanding variety of teaching and learning ro udent teachers present report to o	of common protein-rich food esources including ICT, to on how to use diverse strategies			
	to demons the proteir	trate their kr	owl or g	ledge and conceptual understandin rowth.	ng of how the human body uses			

	NTS 3g:Employs instructional strategies appropriate for mixed ability, multilingual and multi- age classes
	NTS 3k: Integrates a variety of assessment modes into teaching to support learning
Teaching Learning	The Course Manual, Computer, Flip Charts, Pens, Pencils, 'A' 4 sheets, markers, work sheets,
Resources	samples of local food substances rich sources of protein
Required Text (core)	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Primary.
	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.
	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 diagnostic test construction, skills development on construction of charts on local
	food substances rich in protein, project proposal writing

Y	ear of B.Ed.	2	Seme	ster	2	Place of	lesson in sei	mester	123456789101112					
Titl	e of Lesson			Simple Electronics Lesson Duration 3 Hours										
Les	son descriptio	n		In this lesson, the Tutor and student teacher discuss the common electronic gadgets										
				used in nomes. For example, the cell phone, the Wireless and television. This lesson will enable student teachers to appreciate the importance of science and its investigate that										
				are classified as wonders of the world.										
Pre	vious student	teacher		Student teachers have been using cell phone, wireless, TV and other electronic gadgets										
kno	owledge, prior	learning		and ho	me or	their previo	ous schools.							
(as	sumed)													
Pos	sible barriers	to learnin	g in the	Studen	t teach	hers have fe	ear of using	some of the	electronic appliar	ices and may not	t know			
less	son			that so	me ap	pliances at	home are of	f electronics						
				Studen	t teacr	her might n	ot have seel	n personal co	omputer before o	r nave not being	using			
Loc	son Delivery -	choson to	•	Eace-to		Practical	Work-	Sominar	Independent	e-learning				
SUP	nort students	in achievi	ng the	face	,-		Based	Jennia	Study	onnortunities				
out	comes	in demet	ing the				Learning		otady	opportunities				
Les	son Delivery –	main mo	de of	Discuss	ion: al	though bas	sic Electronio	s Componer	nts comprises of v	arious types				
del	ivery chosen to	support	student	of com	of components, which are classified into two types active components like transistors									
tea	, chers in achiev	/ing the le	arning	diodes,	diodes, IC's; and passive components like capacitors. resistors. inductors. etc. student									
out	comes.			teacher explain part play by these components and how simply life become with the use										
				of electronic gadgets or appliance. Tutor and student teacher interactions on the										
				operation of computers/cell phone. Mixed group activities to press keys on the										
				comput	ter or (cell phone.								
•	Purpose for t	he lesson	, what	• Me	ention	the various	s types of ele	ectronic com	ponents, such as,	resistors, capaci	itors,			
	you want the	students	to	tra	nsisto	rs, etc., tha	t make the o	cell phone oi	TV work.					
	achieve, serv	es as basi	s for the	• IVI6	ention	the various	s types of ele	ectronic gad	gets or appliances	in the homes ar	Id			
	learning outo	omes. An		scr	100ls.	с. I								
	expanded ve	rsion of th	ne	• Io	enable	e female st	udent teach	ers touch an	d manipulate the	r cell phones, di	gital			
	description.			wa	itch an	id or the co	mputer.	c						
				• En	courag	ge proper re	ecord keepir	ng of most of	the appliances th	ney come into co	ntact.			
				Foi	r exam	iple, Micro	wave oven, a	air condition	er, Stacked washi	ng machine and				
•	Write in full	spaces of	the NTS	clothes dryer, Gas fireplace, Refrigerators, Vacuum cleaner, Electric water heater										
•	addrossod	ispects of	the NTS	tar	1к, S m	all twin wir	idow fan, Ce	ell phone, dig	gital watch, etc.					
	auuresseu			Nations		hors' Ston	larda. Tha ta	achar						
						o contont k	arus: me te		nowlodgo and po	dagagical conto	nt			
				2C) Has	dre fo	r the schoo	l and grade	they teach i	n		iit.			
				3d) Ma	nages	behaviour	and learning	with small :	and large classes					
				3e) Em	plovs a	a variety of	instructiona	I strategies	that encourages s	tudent participat	tion			
				and crit	tical th	inking.								
				3f) Pays	s atten	ntion to all l	earners, esp	becially girls	and students with	Special Education	onal			
				Needs,	ensuri	ing their pr	ogress.							
				3g) Em	ploys i	nstructiona	al strategies	appropriate	for mixed ability,	multilingual and	multi-			
				age clas	sses.									

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		
 Identify bas electronic component: basic electro gadgets aro learners' en that can be for use to te grade learner 	ic s from onic und the vironment adapted each early ers.	 List of electronic components from readily available electronic gadgets identified by student teacher 	Face-to-face: Student teachers mention some components of cell phone and computer they have heard before. Face-to-face: Student teachers answer open-ended questions to bring their incorrect ideas on electronic components. Sharing ideas in class, the		
 Develop tea activities to simple elect early grade 	iching teach cronics to learners	 Poems/Songs/Rhym es/ simple play activities collected for portfolio 	Student teachers develop the skills of communication, collaboration and mutual respect while appreciating individual difference and abilities, critical thinking and responsibility through careful participation in group work/discussion, well handling of devices, honesty and accuracy.		
Sub Topic	Time or Stage	Teaching and learning to depending on delivery m	achieve learning outcomes: ode selected. Teacher led,		
		collaborative group work	or independent study		
		Teacher Activity	Student Activity		
i. Simple Electronic Compone nts	e 90 onic minutes one	I. Face-to-face: Tutor introduces the lesson b asking Student teachers mention some example electronic gadgets they have used/seen before.	Face-to-face: Student teachers mention some components of cell phone and computer they have heard before.		
		ii. Tutorgroups student teachers and provide pictures and/or videos of simple electronic components and ask students to identify the for their uses.	of Student teachers, working in groups sort electronic components according to their use		
Simple Electronic Gadgets	90 minutes	Face-to-face: Tutor provi pictures of simple electro gadgets/appliances and a students to identify the u and the components with and make a concept map the observation. i. (a) Open-ended questio elicit misconceptions/ incorrect ideas about electronic appliances. Practical Activity: Student Teachers form groups of	 de Practical Activity: Presentation Sk Each student reviews their thought about the electronic gadgets they brought from home which they presented to the class. Student arrange the appliances in categories they again think necessary. 		
	 Learning Outcor Identify bas electronic component basic electri gadgets aro learners' en that can be for use to te grade learner Develop tea activities to simple elect early grade Sub Topic Simple Electronic Compone nts Simple Electronic Gadgets 	Learning Outcomes•Identify basic electronic components from basic electronic gadgets around the learners' environment that can be adapted for use to teach early grade learners.•Develop teaching activities to teach simple electronics to early grade learnersSub TopicTime or Stagei.Simple Electronic Compone ntsSimple Electronic Gadgets90 minutes	Learning OutcomesLearning Indicators•Identify basic electronic gadgets around the learners' environment that can be adapted for use to teach early grade learners.•List of electronic components from readily available electronic gadgets identified by student teacher•Develop teaching activities to teach simple electronics to early grade learners•Poems/Songs/Rhym es/ simple play activities collected for portfolioSub TopicTime or StageTeaching and learning to depending on delivery m collaborative group work Teacher Activityi. Simple Electronic Compone nts90i. Face-to-face: Tutor introduces the lesson bi asking Student teachers mention some example electronic componets and ask students to identify the is Tutorgroups student teachers and provide pictures of simple electronic componets minutesSimple Electronic Gadgets90Face-to-face: Tutor provide pictures and/or video of simple electronic componets and ask students to identify the us and make a concept map the observation.Simple Electronic Gadgets90Face-to-face: Tutor provide pictures of simple electronic gadgets/appliances and ask students to identify the us and make a concept map the observation.i. (a) Open-ended questio elict misconceptions/ incorrect ideas about electronic cappliances.Practical Activity: Student Practical Activity: Student electronic appliances.		

		(b) Practical activities that				
		require the students take a				
		tour on the school to identify				
		some electronic appliance use				
		in the school				
		iii Concept mapping of				
		electronic gadgets/				
		annliances				
		Face-to-face: Tutor				
		describes the process of				
		designing activities for				
		teaching and the process				
		of inquiry learning to				
		student teachers.				
		Face-to-face: Teacher				
		allows student teachers				
		to make group power				
		point presentation on				
		how to teach Basic				
		electronics at the basic				
		level of education				
Which cross cutting issues will be	Equity and SEN: through setting ground rules to protect vulnerable student teachers and					
addressed or developed and how	establishing an interactive	e and inclusive classroom atmosphere. Through round table				
	they should discuss variou	us electronic components as far as they can, student teachers'				
	accuracy, honesty and carefulness will be addressed.					
Lesson assessments – evaluation of	Assessment of learning: Student teachers list the electronic gadgets/appliances and					
learning: of, for and as learning	their corresponding uses					
within the lesson	NTS2c: Has secure content knowledge, pedagogical knowledge and pedagogical					
	content knowledge for the school and grade they teach in					
	NTS 3d: Manages behaviour and learning with small and large classes teaching and					
	learning According Student teachard de group active active active					
	 Assessment as learning: student teachers do group power point presentations on how to simulate some functions of electronic appliances for differentiated teaching 					
	NTS 3e: Employs a variety of instructional strategies that oncourages student					
	NIS 38: Employs a variety of instructional strategies that encourages student					
	NTS 3f: Pays attention to all learners, especially girls and students with Special					
	Educational Needs, ensuring their progress.					
	NTs 3g: Employs instructional strategies appropriate for mixed ability, multilingual					
	and multi-age classes	S.				
	Assessment for learn	ing: Drawing of concept maps on electronic gadgets/appliances				
	to assess what student teachers have learnt at the end of the lesson					
	NTS 2c: Has secure co	ontent knowledge, pedagogical knowledge and pedagogical				
	content knowledge f	or the school and grade they teach in				
Teaching Learning Resources	Electronic components br	rought by students and/or bought from the market. E.g.,				
	resistors, capacitors, tran	sistors, potentiometers, etc.				
Required Text (core)	NaCCA, Ministry of Educa	tion (2019). Science Curriculum for Kindergarten and Lower				
	Abboy T.K. Albassar, D.	Willistry OF Education.				
	Ghang association of solo	, Ameyiuur, K., Essidii, J. W., Formetu, E., & Wiredu, M.B. (2008).				
	Unimax MacMillan	nee teachers integratea science jur senior nigh schools. Actid:				
Additional Reading List	Abbey T K & Feeish 1 M	(1995) Ghana association of science teachers physics for				
	senior high schools	Accra: Unimax Macmillan				
	Amevibor, K., & Wiredu I	M. B. (2006). Ghana association of science teachers, chemistry				
	for senior high schoo	ols. Accra: Unimax MacMillan.				
	Asabere-Ameyaw, A., & C	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	i. Extra reading to understand the basic principles by which these electronic
	components operate.
	ii. Training in how to report findings from research (such as classroom studies)
	honestly and objectively

Ye	ear of B.Ed.	2	Seme	ester	2 Place	of lesson in sem	ester	1 2 3 4 5 6 7 8 9 10 11 12		3 9 10 11 12
Title	e of Lesson	F	urther Teac	hing Activi	ties on Sim	ple Electronics		Lesson Dura	ation	3 Hours
Less	son description	n li t t	n this lessor neir homes. eachers to a	, the Tutor For examp appreciate	and studen le, the cell p the importa	t teacher discuss phone, toy cars a nce of science ar	the commo nd toy orgar d electronic	n electronic t ns. This lessor s that are ma	oys use n will ena king life	by children in Ible student easy.
Prev teac prio (ass	vious student cher knowledg or learning sumed)	g e, t	student teachers have been using cell phone, wireless, TV and other electronic gadgets and home or their previous schools.							
Pos lear	sible barriers t ning in the les	to l ison e S	Fear of using some of electronic appliances and may not know that some appliances at home of electronics. Student teacher might not have seen toy car before.							
Less chos stuc the	son Delivery – sen to support dents in achiev outcomes	t f	ace-to- ace 1	Practical Activity	Work- Based Learning	Seminar	Independe Study	ent e-learni opportu	ng Inities	
Less mai deli sup teac the out	son Delivery – n mode of very chosen to port student chers in achiev learning comes.	ving	Discussion, student teacher explain how simply life become with the use of electronic gadgets or appliance. Tutor and student teacher interactions on the operation of computers/cell phone. Mixed group activities to press keys on the computer or cell phone.							
•	Purpose for ti lesson, what want the students to achieve, serve as basis for th learning outcomes. Ar expanded version of the description. Write in full aspects of the NTS addresse	he • you • es N he 2 h 3 e t 3 e t 3 e 3 d	 Mention the various types of electronic toys in the home and school. To enable female student teachers touch and manipulate their cell phones and or the computer. Encourage proper record keeping most of the appliances they come into contact. For example, toy cars toy babies, etc. National Teachers' Standards: The teacher 2c) Has secured content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in. 3d) Manages behaviour and learning with small and large classes. 3e) Employs a variety of instructional strategies that encourages student participation and critical thinking. 3f) Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress. 3a) Employs instructional strategies appropriate for mixed ability, multilingual and multi are classes. 							
•	Learning Outcome for lesson, picked and develope from the cour specification Learning indicators for each learning outcome	the d rse S	earning Ou urther Tead imple Elect	tcomes hing Activi	ties on	Eearning Indicat Face-to-fa the lesson teachers to examples they have Prepa variou	etors ce: Tutor int by asking St o mention sc of electronic used/seen b re a list/char us electronic	croduces udent ome gadgets efore. t of appliance	Identify cutting transfer inclusiv address How wi address Face-to teacher compor phone a they ha Face-to teacher	which cross – Issues, core and rable skills, ity. Equity and ing diversity. Il these be ed or developed -face: Student s mention some nents of cell and computer ve heard before. -face: Student s answer open-

			 copied from the internet using their cell phones of computer. Concept cartoons to illustrated varieties of the Prepare a chart of the risks/injuries from elect toys. Prepare a chart of how reduce the risk of injury electronic toys. In addit to general toy safety tea addresses the major electrical, mechanical a thermal hazards of elect toys. Show designed activity teaching safety of electronys. 	ttbring their incorrector theideas on electroniccomponents.oys.Sharing ideas in class, the Student teachersroniccommunication, collaboration and mutual respect while appreciating individual ioniondifference and abilities, critical thinking and responsibility through careful participation in group work/discussion, well handling of devices, honesty and accuracy.
Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achieve leadelivery mode selected. Teacher leadelivery mode selected.	arning outcomes: depending on I, collaborative group work or
			Teacher Activity	Student Activity
Further teaching on Simple Electronics B2.4.2.2.7	Operations Of Electronic Toys	90 minutes	 Face-to-face: Tutor gives a broad definition of appliance as "an instrument or device designed for a particular use or function" Teachers provide pictures of simple electronic components and ask students to guess what they use for. i. (a) Open-ended questions to elicit misconceptions/ incorrect ideas about electronic components. Practical Activity: Student teachers form groups of mixed abilities to perform hands-on practical with available toys. iii. Concept mapping of the use, danger and safety of electronic toys. 	 Face-to-face: Student teacher discuss risks and safety precautions associated with the use of electronic toys. Practical Activity: Student teachers List the different types of electronic toys and their possible risks in our homes and schools. List the different types of electronic toys and their possible safety measures in our homes and schools. Student teachers draw concept maps of the toys in relation to their risks and safety precautions
	Vaste	60 minutes	 Face-to-face: Tutor provides pictures of components (copied form the internet) and suggest possible risks by looking at the tiny and piecing nature of the components. For example, injury as a result of swallowing any of the components. Face-to-face: Tutor describes the process of 	Practical Activity: Presentation Face-to-face: Each student could bring a simple electronic gadgets from home and present it to the class. Students should describe their gadgets and explain what they are used for. Practical Activity: Student teachers

	designing activities for • List the dif	fferent types					
	teaching toy related of annlian	ces used in					
	accidents	s he it					
	electronic	ornot					
	Face-to-face: Tutor	01 1101.					
	describes the process of • Student te	eachers draw					
	designing activities for concept m	haps of the					
	teaching and the process appliances	S.					
	of inquiry learning to	-					
	student teachers.						
	Face-to-face: Teacher						
	allows student-teachers						
	to make group power						
	point presentation on						
	how to teach Basic						
	electronics at the basic						
	level of education						
Which cross cutting	Equity and SEN: through setting ground rules to protect vulnerable student teachers and e	establishing					
issues will be	an interactive and inclusive classroom atmosphere. Through the use of electronic toys, the	e					
addressed or	accident/risk/danger and safety precaution, student–teachers' accuracy, honesty and care	efulness will					
developed and now	be addressed.	the alive					
evaluation of	Assessment of learning: student teachers list some electronic the electronic toys and corresponding uses	their					
learning: of, for and	NTC2s: Has secure content knowledge, pedagogical knowledge and pedagogical contents	ant					
as learning within the	knowledge for the school and grade they teach in	ent					
lesson	NTS 3d: Manages behaviour and learning with small and large classes teaching with small and large classes teaching and learning with small and large classes teaching and learning with small and large classes teaching with sma	arning					
	 Assessment as learning: Student teachers do group power point presentations on how 	w to simulate					
	some functions of electronic toys for differentiated teaching						
	NTS 3e: Employs a variety of instructional strategies that encourages student participation and						
	critical thinking						
	NTS 3f: Pays attention to all learners, especially girls and students with Special Educational Needs,						
	ensuring their progress.						
	NTs 3g: Employs instructional strategies appropriate for mixed ability, multilingual and	d multi-age					
	classes.	- + - + + +					
	Assessment for learning: Design diagrams of electronic gadgets like toys to assess what toochore have learned of the learner.	at student					
	NTC 20 Ups secure sectors knowledge redegesical knowledge and redegesical cent	ant					
	 NTS 2C. Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in 	ent					
Teaching Learning	Electronic toys brought by students and/or bought from the market E.g. toy cars, phones	s habies etc					
Resources	Licentine to yo brought by students and or bought from the market. L.g., toy cars, phones	, 505103, 010.					
Required Text (core)	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Prim	ary. 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 N	/lacMillan.					
Additional Reading	Abbey, I. K., &Essiah, J.W. (1995). Ghana association of science teachers physics for senior	r high					
List	Schools, Actid: Unimax Macmillian.	senior high					
	schools. Accra: Unimax MacMillan	senioi nign					
	Asabere-Ameyaw, A., & Oppong, E. K. (2013). Integrated science for the basic school teach	ner 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 teachers to understand the design principles and operations of some el	lectronic					
	toys.						

Ye	ear of B.Ed.	2	Semes	ster 2	Place o	of lesson in semester		23456789101112		
Title	e of Lesson	C	Course Review I and STS Seminar Lesson 3							
Less	son description	n Tł di	is lesson is a scussion of le	a review and essons learr	d audit of th ned, reflecti	e lessons for the fir on on observations	st half o made d	of the seme luring the	Duration ester as well as re supported teachi	Hours eview and ng in
		sc	hools (STS).							
Pre	vious student	Le	ssons learnt	from lesso	n 1 through	lesson 5 in all learn	ing app	roaches ar	nd observations/e	experiences
tea	cher knowledg	; e, du	iring STS.							
pric	or learning									
(ass	sumed) sible besuiese t						م ا ماهان			
POS	sible barriers t		lisconceptio	n to some c orc	oncepts not	adequately dealt v	vith. Les	sons not a	ippropriately und	erstood by
	on	SL		215.						
Les	son Delivery –	Ea	ce-to-face	Practical	Work-	Seminars V	Inden	endent	e-learning	Practicum
cho	sen to support			Activity	Based	Seminars	Study	V	opportunities	ridetteutti
stud	dents in			√ √	Learning		,	-	V	
ach	ieving the									
out	comes									
Less	son Delivery –	Fa	ce-to-Face:	Discussion,	Same ability	, mixed ability and	gender	based gro	up works.	
mai	n mode of	Pr	actical Activ	ity: Modelli	ng, Concept	Mapping and Carto	ooning,	manipulat	ions.	
deli	very chosen to) In	dependent S	Study: Tutor	and studer	t-teacher reflection	ns (indiv	idually and	d collectively) and	d inquiry
sup	port student	e-	learning Opp	portunities:	OERs and V	ideo presentations				
tea	chers in achiev	ring Se	minar: Prese	entations or	n progress i	n STS and discussion	าร			
the	learning									
out	comes.									
•	Durnaca for t		Accortain	the level of	undorstand	ling of concents				
•	Purpose for the	·	Ascertain							
	lesson, what	•	Test vario		r cross - cut	ting issues	、 .			
	you want the	•	Provide re	emedial tuit	ion/tutorial	s on topic (concept	s) where	e necessar	У	
	students to	•	Correct m	isconceptio	ns and misi	nformation				
	achieve, serve	•	Build the i	necessary si	upport goin	g forward on SEN a	nd Geno	der issue		
		le								
	learning									
	outcomes. An		S: Manrovos r	arconalan	d profossion	al davalanmant th	rough lit	folong loor	ning and Continu	
	expanded		ofessional D	evelonmen	t profession		loughtin	leiong leai		lous
	version of the	20	Has secure	content kn	owledge na	edagogical knowled	ge and	nedagogic	al content knowl	edge for the
	description.	sc	hool and gra	de they tea	ch in.		Se una	peadboble		euge for the
•	write in full	20	l) At pre-prir	nary the cu	rriculum for	the years appropri	ate to n	nultigrade	classes; has good	knowledge
	aspects of the	i of	how to teac	, h beginning	g reading an	d numeracy and sp	eaking,	listening, r	eading and writi	ng, and to
	NTS addresse	a us	e at least on	e Ghanaian	language a	s a medium of instr	uction.	-	-	_
		36	e) Employs a	variety of ir	nstructional	strategies that enc	ourages	student p	articipation and	critical
		th	inking.							
		3f) Pays attent	tion to all le	arners, espe	ecially girls and stud	lents wi	th Special	Educational Nee	ds, ensuring
		th	eir progress.					1		
		38) Employs in	structional	strategies a	ppropriate for mixe	ed ability	y, multilin <u></u>	gual and multi-ag	e classes.
•	Learning	Le	arning Outc	omes		Learning indicato	rs		Identify which cr	oss – cutting
	Outcome for	the							skills inclusivity	Equity and
	iesson, picked	¹ .							addressing diver	sity How
	and develope	a							will these he add	ressed or
	from the cour	se							developed	
	specification	•	Identifv w	eakness an	d	Make a list of	fweakn	esses	Collaborations.	
•	Learning		strengths	in learning	the	and strength	s on pos	ter	Communication a	and
	indicators for		science le	sson for the	period	papers for sh	aring	-	Research: Throu	gh group

each learning	under review				work and presentation
outcome					
	 Be able to reflect on lessons learnt so far and state new insights and/or grey areas needing remedies 			Provide a reflection report and answer questions on topics learnt so far through demonstrations and illustrations on a given media	Equity and Reflection is developed from reflective activities
	Correct misconception/m for earlier (lesson	isinformation 1 – 5) lessons	•	Present concept maps and/or models linking misconceptions/misinforma tion to new insights	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	2	Teaching and learning to achie depending on delivery mode so collaborative group work or in	ve learning outcomes: elected. Teacher led, dependent study
Topic Title				Teacher Activity	Student Activity
				Facilitate and provides the necessary tool for students activities.	
Course Review I and STS Seminar	Reviewing the understanding of the lessons Sunlight, Food I, Food II, Simple Electronics I and Simple Electronics II Remedies to course topics	30 mins 30mins 60mins		Face-to-Face: Brainstorming with student teachers to initiate the weaknesses and strengths of student – teachers in the lessons 1 – 5. Face-to-Face: 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. The groups are provided with checklist on each topic so that they are able to list weakness and strengths. Face-to-Face: Group student teachers according to remedy need and provide specific task assistance in the areas on concept needing remedy.	Face-to-Face: Student teachers responds to Tutor questions on weaknesses and strengths Face-to-Face: Working in groups and with the checklist student teachers identify and record all possible weaknesses and strengths in the lessons learnt so far. Face-to-Face: Student teachers work in the special group (Same remedy need group) on tasks to remedy their
	STS Seminar	60mins		Seminar: Teacher allows two or three resource persons to make presentations on STS based on the NTS. Tutor then guides student teachers through problem-based learning on National Teacher's Standards and reflection on observations made during STS.	Iearning need. 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.
Which cross cutting	Equity and SEN: through mixed and same group work to protect vulnerable student teachers and
issues will be	establishing an interactive and inclusive classroom atmosphere.
addressed or	Through modelling and group work, collaboration is established.
developed and how	
Lesson assessments	Assessment for learning: Student teachers make presentations during group work and model work
- evaluation of	presentation helps to assess them for professional development
learning: of, for and	NTS 1a: Improves personal and professional development through lifelong learning and continuous
the lesson	Professional Development.
	Assessment for and as learning: Student teachers working in groups on remedial tutoring helps to
	assess them for and as learning
	knowledge for the school and grade they teach in
	NTS 2d: At pre-primary the teacher knows the curriculum for the years appropriate to multigrade
	classes; has good knowledge of how to teach beginning reading and numeracy and speaking,
	listening, reading and writing, and to use at least one Ghanaian language as a medium of
	instruction.
	NTS 3e: Employs a variety of instructional strategies that encourages student participation and
	critical thinking.
	NTS 3f: Pays attention to all learners, especially girls and students with Special Educational Needs,
	ensuring their progress. NTS 2g: Employs instructional stratogies appropriate for mixed ability, multilingual and multi-age
	classes
Teaching Learning	Cardboards. Course manual. Poster paper
Resources	
Required Text (core)	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Primary. Accra:
	Ministry of Education.
	Abbey, T. K., Alhassan, M. 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
Additional Deading	MacMillan.
List	ADDEY, T. K., RESSIGH, J. W. (1995). GHUHU USSOCIULION OF SCIENCE LEUCHERS PHysics for senior high schools.
List	Amevibor, 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 to be given on preparation of checklist and Reflection guides

Year of B.Ed.	2	Semest	Semester 2 Place of lesson in semester 12345678			3 4 5 6 7 8 9 10 1	5 6 7 8 9 10 11 12			
Title of Lesson		Teachir	ng Personal	Hygiene			Lesson Duratio	n 3 Hours		
Lesson descriptio	'n	This top bodies	bic introduc and clothing ways of har	es student teach g to preserve ov	ners to basic the prin erall health and we	nciples of mai Ilbeing. This su	ntaining cleanline ub-heading deals of keeping the te	ess of their with weth clean		
Previous student knowledge, prior (assumed)	teacher learning	Studen	t teachers a	re familiar with	daily cleanliness act	ivities both at	home and in sch	ool.		
Possible barriers in the lesson	to learnin	g Possible not kee to lack	Possible misconceptions that student teachers may bring to the classroom about the effec not keeping personal hygiene. For example, the cause certain infections may not be attribute to lack of personal hygiene.							
Lesson Delivery - support students achieving the out	- chosen to in tcomes	Face- to- face √	Practical Activity/	Work-Based Learning	Seminars I	ndependent Study√	e-learning opportunities √	Practicum		
Lesson Delivery - mode of delivery support student achieving the lea	- main chosen to teachers in rning	Face-to Practica Indeper e-learn	face: Discu al Activities: ndent Study ing Opportu	ssions, demonst Individual dem r: Reflections inities: Simulatio	rations and observa onstrations of hand ons, video presentat	ations washing, bath ions	ing and cleaning	teeth		
Purpose for the I you want the stu achieve, serves a the learning outo expanded version description. • Write in full the NTS add	esson, wh dents to s basis for omes. An n of the aspects of ressed	t Ge the De Dis De NTS, Th 1a) Imp Profess 2c) Has	 Get the conceptual understanding of personal hygiene in terms of handwashing, clean the teeth and bathing the body. Demonstrate proper ways of handwashing, cleaning the teeth and bathing the body Discard the common misconceptions that student-teachers have about personal hygie Designing activities to teach personal hygiene NTS, The teacher Improves personal and professional development through lifelong learning and continu Professional Development. 							
		content 3d) Ma 3e) Em particip 3f) Pays Educati 3g) Em multi-a	 2c) has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in. 3d) Manages behaviour and learning with small and large classes. 3e) Employs a variety of instructional strategies that encourages student participation and critical thinking. 3f) Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress. 3g) Employs instructional strategies appropriate for mixed ability, multilingual and 							
 Learning Out the lesson, p developed fr course speci Learning ind 	come for icked and om the fication icators for	Learnin	ig Outcome	s Learning In	dicators	Ident issues skills, addre these	Identify which cross- cutting issues, core and transferable skills, inclusivity. Equity and addressing diversity. How will these be addressed or developed			
each learnin	g outcome	De exp me per hyg De un and to cle and boo	fine and blain what is cant by rsonal giene monstrate derstanding d show how wash hands an the teetl d bath the dy.	Define person Ro pr ha an Th 4, of ha ted	and explain what al hygiene is. le play to demonstr oper ways of washir nds, cleaning the te d bathing the body eme 1, pg. 44; PD Tl pg. 112) esent charts and mc proper ways of was nds and cleaning the eth. (PD Theme 5, pg	Throu of ide ate devel ag comn eth and n (PD appre heme and a skills odels critica hing accur e throu g. 37) group	igh discussions ar as in class studen op the skills of nunication, collab nutual respect wh eciating individual bilities. They also in handling device al thinking, hones acy and responsil gh active particip o work/discussion	nd sharing at teachers oration hile difference acquire es, develop ty, pility ation in		

	 Erase misconception about persona hygiene. 	Designed Designed	igned activities that can used to teach personal jene.			
Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomesdepending on delivery mode selected. Teacher led,collaborative group work or independent studyTeacher ActivityStudent Activity			
Teaching Personal Hygiene K1.1.3.1.1 K1.1.5.1.1 K2.1.3.1.1 K2.1.3.1.3 K2.1.3.1.5	Hygiene Meaning of personal hygiene 60		Face-to-face/Group activity: Tutor led discussion on the meaning of personal hygiene. Allow student teachers to reflect individually and write down their opinions about personal hygiene. Put them in mixed ability groups to discuss their individual views to arrive at a common meaning.	Face-to-face/Group activity: Student teachers reflect individually and write down their views of what personal hygiene is. Work in mixed ability groups to discuss the meaning of personal hygiene and write down their findings for presentation.		
	Handwashing	60 minutes	 i. Face-to-face/Group activity: Tutor allows students teachers to work in groups to agree on proper ways of handwashing. ii. Face-to-face/Group activity: Tutor allows group leaders to demonstrate ways of handwashing and watch videos of handwashing techniques. 	 i. Face-to-face/Group activity: Student- teachers work in groups of four to discuss the characteristics of living and non-living things. ii. Face-to-face/Group activity: Student teachers work in their groups (inclusive, mixed-age and developmentally appropriate form) to demonstrate and make presentations on proper handwashing techniques, watch videos and simulations on handwashing techniques (PD Theme 8, pg. 40; PD Theme 4, pg. 23-46) 		
	Importance of cleaning teeth and bathing of the body	61 minutes	i. Face-to-face/Group activity: Tutor instructs student teachers to work in groups (mixed ability) to discuss the importance of cleaning the teeth and bathing and how to do it (i.e.; necessary for prevention of illness and infections from bacteria and viruses).	i. Face-to-face/Group activity: Student teachers prepare workbooks, charts and models outlining the importance of cleaning the teeth and bathing the body. Student teachers demonstrate how to clean the teeth. Watch short videos on how to clean the teeth.		

Which cross cutting issues	Equity and SEN: through effective formation of mixed ability groups to undertake classroom
will be addressed or developed and how	activities vulnerable student-teachers are protected and an interactive and inclusive classroom atmosphere is created.
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	 Assessment for learning: student teachers write half a page essays on handwashing and the importance of bathing and cleaning the teeth NTS 1a: Improves personal and professional development through lifelong learning and continuous Professional Development. NTS 2c: Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in. Assessment as learning: student teachers provide workbooks on personal hygiene; proper handwashing techniques and how to clean the teeth NTS 3d: Manages behaviour and learning with small and large classes teaching and learning Assessment of learning: student teachers peer review chats and models showing handwashing techniques and proper methods of bathing and cleaning the teeth NTS 3e: Employs a variety of instructional strategies that encourages student participation and critical thinking. NTS 3f: Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress. NTS 3g: Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.
Teaching Learning Resources	Cardboards, poster papers, poster colours, phones, tablets, desktop computers with internet
	https://www.youtube.com/watch?v=vYwypSLiaTU
	https://www.youtube.com/watch?v=Kusluq8wu_0
Required Text (core)	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Primary.
	Abbey, T. K., Alhassan, B., Ameyibor, K., Essiah, J. W., Fometu, E., & Wiredu, M.B. (2008). <i>Ghana</i>
	association of science teachers integrated science for senior high schools. Accra: Unimax MacMillan: Handbook for PD Coordinators Themes 1 – 10.
Additional Reading List	Abbey, T. K., & Essiah, J.W. (1995). Ghana association of science teachers physics for senior high
	schools. Accra: Unimax Macmillan. Amevibor, 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. Oddove F O K Taale K D. Nøman-Wara F. Samlafo V & Obenø-Ofori D. (2011). SW/
	integrated science for senior high schools: Students book. Accra, Ghana; Sam-Woode Ltd.
CPD Requirement	Training in the preparation of models, workbooks and use online learning resources

Year of B.Ed. 2		2	Sen	nester	2	Place	ace of lesson in semester			1 2 3 4 5 6 7 8 9 10 11 12		
Titl	e of Lesson		Further Strategies on Teaching Personal Hygiene Lesson Duration 3 Hour									
Les	son descriptio	n	This is a continuation of Lesson 7 which introduced student teachers to the basic principles of maintaining cleanliness of their bodies and clothing to preserve overall health and wellbeing. The lesson is intended to give student teachers knowledge and skill in relation to keeping their finger nails short and clean and the care of hair in order to prevent contracting illnesses through bacteria and viruses.									
Pre tea prio (as:	vious student cher knowledg or learning sumed)	ge,	Student teachers are familiar with daily cleanliness activities both at home and in school and based on Lesson 7 know about the importance of handwashing, bathing the body and cleaning the teeth.									
Pos	sible barriers t rning in the les	to	Possible m	isconception	ons that	stude	ent-teachers n Iong finger n	hold about ails and long h	t the e	ffects of not keeping p	ersonal	
Les	son Delivery –	53011	Face-to-	Practical	Work	-	Seminars		ident	e-learning	Practicum	
cho stu the	osen to suppor dents in achiev	t ving	face √	Activity	Based Learn	d Ning		Studyv		opportunities V		
Les	son Delivery –		Face-to fa	ce: Discussi	ions. der	monst	rations and o	bservations				
main mode of delivery chosen to support student teachers in achieving the learning Practical Activities: Individual and group demonstrations of how to keep finger nails and hair clear Independent Study: Reflections e-learning Opportunities: Simulations, video presentations								ir clean				
Pur	pose for the		Get th	ne concepti	ial unde	rstan	ding of persor	al hygiene in r	relatio	n to keeping finger nai	ls and hair	
less	son, what you		clean						ciucio		s and nun	
wa	nt the student	s to	• Demo	onstrate pro	oper way	ys of k	eeping the fir	ger nails and h	hair cle	ean.		
ach	ieve, serves as	5	• Discar	rd the comi	mon mis	conce	eptions that st	udent-teacher	rs have	e about long finger nail	s and	
bas	is for the learn	ning	unkempt hair.									
out	comes. An		Designing activities to teach personal hygiene									
exp	anded version	n of										
the	description.		NTS, The teacher;									
•	Write in full	•	2c) Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for									
	NTS addresse	e Ad	the school and grade they teach in. 3d) Manages behaviour and learning with small and large classes									
			3d) Manages behaviour and learning with small and large classes.							critical		
			thinking.									
			3f) Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring									
			their progress.									
L			3g) Emplo	ys instructi	onal stra	ategie	s appropriate	for mixed abil	ity, mι	Itilingual and multi-ag	e classes.	
•	Learning	46.4	Learning (Outcomes			Learning Indi	cators		Identify which cross-	cutting	
	Outcome for	the l								skills, inclusivity, Equ	sterable	
	and develope	u ad								addressing diversity	How will	
	from the cou	rse								these be addressed of	or	
	specification									developed		
•	Learning	Γ	• Demo	onstrate			• Stud	ent teachers		Through discussions	and sharing	
	indicators for	r	under	standing a	nd show	,	desc	ribe ways of		of ideas in class stude	ent-	
	each learning	5	how t	o keep the	finger		keep	ing the finger	nails	teachers develop the	skills of	
	outcome		nails a	and hair cle	an		and	hair clean.		communication, colla	vhilo	
			Prese	nt activity	odole to		Kole	piay to		and mutual respect v	al	
			chow	how to kee	oueis iO an the		annr	onriate wave o	of	difference and abiliti	es.	
			finger	nails and h	air clea	n.	keen	ing the finger	nails	They also acquire skil	lls in	
			• Erase	misconcep	onceptions and hair clean (PD handling devices, dev						/elop	

about long finger nails and hair.	 Theme 1, pg. 44; PD Theme 4, pg. 112) Present charts and models on how to keep the nails and hair clean (PD Theme 5, pg. 37) Designed activities that can be used to teach proper care of the
	proper care of the finger nails and hair.

Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomes:				
			depending on delivery mode select	ed. Teacher led,			
			collaborative group work or indepe	ndent study			
			Teacher Activity	Student Activity			
Further Strategies on Teaching Personal Hygiene B1.5.1.1.1 B1.5.1.1.2 B1.5.1.1.3 B2.5.1.1.1 B3.5.1.1.1	Keeping finger nails short and clean	90 minutes	i. Face-to-face/Group activity: Tutor led discussion on the need to keep the finger nails short and clean.	Face-to-face/Group activity: Student teachers work in mixed gender and ability groups to discuss the reasons for keeping the finger nails short and clean. The groups report back to the whole class in 5 minutes presentations.			
	Care of the hair	60 minutes	 <u>i.</u> Face-to-face/Group activity: Tutor allows students teachers to work in groups to agree on proper ways of taking care of the hair. Make available short videos on hair care for both males and females. ii. Face-to-face/Group activity: Tutor allows group leaders to demonstrate ways of taking care of the hair. 	 i. Face-to-face/Group activity: Student teachers work in groups of four to discuss ways of taking care of the hair. Watch videos on proper care of hair. ii. Face-to-face/Group activity: Student teachers work in their groups (inclusive, mixed gender and ability groups) to demonstrate hair care techniques (PDTheme 8, pg. 40; PD Theme 4, pg. 23-46) 			
	Handling misconceptions and consequences of bad nail and hair care	30 minutes	i. Face-to-face/Group activity: Tutor instructs student teachers to work in groups (mixed ability) to discuss misconceptions and consequences of keeping long finger nails and unkempt hair.	<u>i.</u> Face-to-face/Group activity <u>:</u> Student teachers prepare workbooks, charts and models showing finger nail and hair care techniques. Student teachers demonstrate how to communicate these care techniques.			
Which cross cutting	Equity and SEN: t	hrough effective fo	rmation of mixed ability groups to un	dertake classroom activities			
issues will be	vulnerable studer	nt teachers are pro	tected and an interactive and inclusive	e classroom atmosphere is			
addressed or	created.						
developed and how							
Lesson assessments	Assessment of	of learning: student	t teachers are taken through a quiz on	care of hair and finger nails			
- evaluation of	NTS 2c: Has s	secure content kno	wledge, pedagogical knowledge and p	edagogicalcontent			
learning: of, for and	knowledge fo	or the school and g	rade they teach in.				
as learning within	Assessment a	as learning: studen	t teachers provide workbooks on pers	onal hygiene; how to keep			
the lesson	finger nails c	lean and care of ha	ir				

	NTS 3d: Manages behaviour and learning with small and large classes.									
	NTS 3e: Employs a variety of instructional strategies that encourages studentparticipation and									
	critical thinking.									
	Assessment for learning: student teachers peer review group reports on how to keep finger na									
	clean and care the of hair.									
	NTS 3f: Pays attention to all learners, especially girls and students with SpecialEducational Need									
	ensuring their progress.									
	NTS 3g: Employs instructional strategies appropriate for mixed ability, multilingual andmulti-age									
	classes.									
Teaching Learning	Cardboards, poster papers, poster colours, phones, tablets, desktop computers with internet access,									
Resources	nail cutting kit, barbering kit.									
	https://www.youtube.com/watch?v=QJOuM-fpDao									
Required Text	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Primary. Accra:									
(core)	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; Handbook for PD Coordinators Themes 1 – 10.									
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.									
	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 in the use of online learning resources									

Year of B.	.Ed.	2	Semeste	er 2	Place of le	esson in semeste	r 12	1 2 3 4 5 6 7 8 9 10 11 12					
Title of Less	son		Teaching	Teaching Simple MachinesLesson Duration3 Hours									
Lesson description			In this lesson, Tutor discusses simple machines with student-teachers. Usually, student teachers think of machines as those with complicated systems like automobiles, airplanes, computers and farm machines. This lesson will introduce student teachers to simple machines that we see in our homes, schools and on the playgrounds and how these machines are important for daily life.										
Previous st knowledge	udent te , prior le	eacher earning	Student teachers have been using hammer to nail a wood, opener to open bottle-tops, a pair of scissors to to cut materials and incline planes to offload goods from trucks.										
(assumed) Possible barriers to learning in the lesson			Student t	 Student teachers may: Have the misconception that simple machines may also include all the sophisticated systems of machines. 									
Lesson Deli	ivery – c	hosen	Face-to-	Practical	Work-	Seminars	Independent	e-learning	Practicum				
to support	student	s in	face v	Activity	Based		Study√	opportunities					
achieving t	he outco	omes		V	Learning			V	of stands				
Lesson Deli mode of de support stu in achieving outcomes.	ivery – n elivery cl udent tea g the lea	nain nosen to achers rning	Face-to Fa machines Practical A Independe	Face-to Face: Discussion, Tutor and student teachers' interactions on the functions of simple machines Practical Activity: Practical manipulation of simple machines Independent Study: Inquiry and reflections									
Purpos	se for the	e lesson,	Identify some common machines or tools as simple machines										
what y	ou want	the	Make sketches of some simple machines										
studen	its to acl	nieve,	Demo	onstrate the	skill and kno	owledge to teach	the subject m	atter					
serves learnin expand the des • Write i the NT	as basis ng outco ded vers scriptior in full as S addres	for the mes. An ion of pects of ssed	National T 2c) Has se knowledg 3d) Manag 3e) Emplo critical thi 3f) Pays at ensuring t 3g) Emplo classes.	 National Teachers' Standards: The teacher; 2c) Has secured content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in. 3d) Manages behaviour and learning with small and large classes. 3e) Employs a variety of instructional strategies that encourages student participation and critical thinking. 3f) Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress. 3g) Employs instructional strategies appropriate for mixed ability, multilingual and multi-age 									
Learnir	ng Outco	me for	Learning	Outcomes	I	earning Indicato.	rs Identify	which cross – cut	ting Issues,				
the less develo	son, picl ped fror	ked and n the ation					inclusivi diversity	ty. Equity and add . How will these b	s, Iressing De				
Learnir	ng indica	itors for					address	ed or developed					
each le	earning c	putcome	Dema know under simpl and th functi scisso crowh pliers whee and k	onstrate ade ledge and rstanding or e devices/m heir corresp ions (bottle ors, pincers, bar, screw d , hammer, s l barrow, sp nives). (NTS	equate • • • • • • • • • • • • • • • • • • •	 Sketches of simple devices/macl es and their correspondin functions. 	g Correct/ devices, machine Student commu individu critical t through work/di	I handling and use good identifications, sharing ideas in teachers develop nication, collabora respect while approaches al difference and a hinking and respo careful participat scussion.	s of on of simple a class, skills of ition and reciating abilities, nsibility ion in group				

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 about Simple Machines B1.4.3.2.1	i. Simple devices/machines for work (bottle opener, scissors, pincers, crowbar, screw driver, pliers, hammer, wheel barrow, spanner and knives)	120 minutes	 by asking Student teachers to mention some examples of machines they have used before. ii. Face-to-face: Open- ended questions to elicit misconceptions/ incorrect ideas about simple machines iii. E-Learning/Practical Activity opportunities: Tutor guides Student teachers to form groups of 3 members of mixed intellectual ability to identify simple machines using charts from the internet and manipulate real simple machines (PD Theme 4 pg 23-30). iv. Independent study: iv. Independent 						
			iv. Independent study: Student teachers to make sketches of simple machines (individual task).	iv. Independent study: Individual student teachers make sketches of simple machines					
	ii. Teaching of Simple Machines to the Basic School Learner	60 minutes	ii. Face-to-face: Tutor allows student teachers to do short power point/poster presentation on how to teach simple machines to Basic school learner (Group presentation).	ii. Face-to-face: Student teachers do power point/poster presentation on how to teach simple machines to the Basic School Learner.					
Which cross cutting issues will be addressed or developed and how	Equity and SEN: through settin an interactive and inclusive cla teachers' difficulties in manipu	g ground rules to p ssroom atmospher lating/handling ski	protect vulnerable student tea re. By practicing with simple m Ils of simple machines will be	chers and establishing nachines, student– addressed.					
Lesson assessments – evaluation of learning: of, for and as learning within the lesson	 Assessment as learning: Student teachers' identification of simple machines using charts from the internet and real objects of simple machines (identification of named simple machines/to NTS 3e: Employs a variety of instructional strategies that encourages student participation an critical thinking. NTS 3f: Pays attention to all learners, especially girls and students with Special Educational Needs, ensuring their progress. 								

	observation skills and adequate manipulation of appliances (Examinable sketches)
	NTS 2c: Has secured content knowledge, pedagogical knowledge and pedagogical content
	knowledge for the school and grade they teach in.
	NTS 3d: Manages behaviour and learning with small and large classes.
	• Assessment for learning: Student teachers do short presentations (3-5 minutes each) on how to
	teach simple machines and reflection on presentations.
	NTS 3g: Employs instructional strategies appropriate for mixed ability, multilingual and multi-age
	classes.
Teaching Learning	Projector, bottle opener, a pair of scissors, pincers, crowbar, screw driver, pliers, hammer, wheel
Resources	barrow, spanner and knives (some simple machines like pulley, wheel and axle, wedge and inclined
	planes will be shown on chart/ desktop computers with internet access).
	https://www.youtube.com/watch?v=jtk2V0M6k3M
	https://www.education.com/activity/article/simple-machines-at-home/
	https://www.buildingmoxie.com/simple-machines-home/
	https://www.livescience.com/49106-simple-machines.html
Required Text	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Primary. Accra:
(core)	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; Handbook for PD Coordinators Themes 1- 10
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.
	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	i. Practicing how to handle simple machines appropriately

Year of B.Ed. 2		Semester	Semester 2 Place of lesson in semester				1 2 3 4 5 6 7 8 9 10 11 12					
T:+1	o of Losson		Taashing the	uses of C	imple Mae		accon Duration	2 110.000				
III	e of Lesson		reaching the uses of Simple Machines									
Lesson description Previous student teacher knowledge, prior learning (assumed) Possible barriers to			In this lesson, the Tutor discusses the uses of simple machines with student teachers. Basically, student teachers have read and used some simple machines without necessary knowing that they are simple machines. For instance, student teachers have read about how a ramp helps one to do work and also use a shovel to do work. A ramp is a type of inclined plane, and a shovel is a type of lever. An inclined plane and a lever are both simple machines. Student teachers will get to know that there are six machines on which all other mechanical machines are based (inclined plane, lever, the wheel and axle, pulley, wedge, and screw). This lesson will introduce student teachers to the uses of the six simple machines. Student teachers have studied examples of simple machines in their previous lesson, like bottle opener, scissors, pincers, crowbar, screw driver, pliers, hammer, wheel barrow, spanner and knives.									
Pos	sible barriers t	to	Student teac	hers may	/: that cortain	a tools are simple ma	shinos likowi	and avla mice	oncontion			
lea	rning in the les	son	 Hav that Not Not Basi 	e doubt f simple r know th have the ic School	that certain machines m e uses of so e skills in te learner.	n tools are simple man nay also include all th ome simple machines raching the six types o	chines, like wi e sophisticate ıf simple macl	eel and axle, misc d systems of mach ines and their use	onception lines. s to the			
Les	son Delivery –	chosen	Face-to- Pr	actica	Work-	Seminars	Independent	e-learning	Practicum			
to s ach	ieving the out	its in comes	face V I	tivity	Based Learning		Studyv	opportunities				
			√	,	8							
Les	son Delivery –	main	Face-to Face: Discussion, Tutor and student teachers' interactions on the functions of simple									
mo	de of delivery	chosen	machines Bractical Activity: Bractical manipulation of simple machines									
tea	chers in achiev	ing the	Independent Study: Inquiry and reflections									
lea	rning outcome	s.	e-learning opportunities: Use of internet, simulations and video presentations									
•	Purpose for t	he	 Identify s 	ome con	nmon macl	hines or tools as simp	le machines					
	lesson, what	you want	Acquire the skills of using the six types of simple machines									
	the students	to	Demonstrate the skill and knowledge to teach the six types of simple machines.									
	achieve, serv	es as										
	outcomes. Ar	וearning ו	National Teachers' Standards: The teacher									
	expanded ver	rsion of	2c) Has secured content knowledge, pedagogical knowledge and pedagogical content knowledge									
	the description	on.	for the school and grade they teach in.									
•	Write in full a	spects of	30) initializes behaviour and learning with small and large classes. 3e) Employs a variety of instructional strategies that encourages student participation and critical									
	the NTS addr	essea	thinking.									
			3f) Pays attention to all learners, especially girls and students with Special Educational Needs,									
			ensuring their progress. 3g) Employs instructional strategies appropriate for mixed ability, multilingual and multi-age									
			classes.						0 -			
•	Learning Out	come for	Learning Out	comes		Learning Indicators		dentify which cros	ss – cutting			
	the lesson, pi	cked and						ssues, core and tr skills inclusivity F	ansferable quity and			
developed from the								addressing diversit	ty. How will			
•	Learning indi	cators for						hese be addresse	d or			
	each learning	5	Domonst	rate ade	quate	State the functions	uses of	Correct/ handling	and uses of			
	outcome		knowledg	ge and	quale	the six simple mach	ines.	devices, good iden	itification of			
			understa	nding on	various			simple machines, s	sharing			
			simple devices/machines ideas in class, Student									

and their corresponding functions (inclined plane, lever, the wheel and axle, pulley, wedge, and screw). (NTS, 2c)	teachers develop skills of communication, collaboration and mutual respect while appreciating individual difference and abilities,
(NTS, 2c)	difference and abilities, critical thinking and
	participation in group work/discussion.

Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomes: depending				
			on delivery mode selected. Teacher led, collaborative group v				
			or independent study				
			Teacher Activity	Student Activity			
Teaching the uses of Simple Machine B2.4.3.2.1 B3.4.3.2.1	i. Functions/ uses of simple machines	60 minutes	i. Face-to-face: Tutor introduces the lesson by asking Student teachers to mention some examples of simple machines they studied in their previous lesson.	i. Face-to-face: Student teachers mention examples of simple machines they studied in their previous lesson.			
			ii. Face-to-face: Open-ended questions to elicit some of the doubts student teachers may have in some simple devices to belong to simple machines for correction.	ii. Face-to-face: Student teachers answer open- ended questions to bring some of the doubts they have in some simple devices to belong to simple machines.			
			iii. E-Learning/Practical Activity opportunities: Tutor guides Student teachers to form groups of 3 members of mixed intellectual ability, on the functions/uses of the six simple machines using charts from the internet and real objects of simple machines (PD Theme 4 pg 23-30).	iii. E-Learning/ Practical Activity opportunities: Student teachers practice on the functions/uses of the six simple machines using charts from the internet and real objects of simple machines.			
			iv. Independent study: Student teachers list 5 examples each of the six simple machines (individual task).	iv. Independent study: Individual student teachers list 5 examples of the six simple machines.			
	ii. Skills for using the Six Simple Machines	60 minutes	E-Learning/Practical Activity opportunities: Tutor guided Student teachers to form groups of 3 members of mixed intellectual ability to manipulate simple machines using charts from the internet and manipulate real simple machines (PD Theme 4 pg 23-30).	E-Learning/ Practical Activity opportunities: Student teachers manipulate the six simple machines using charts from the internet and real simple machines (Group work)			
	iii. Teaching of the functions/uses of the Six Simple Machines to the Basic School Learner	60 minutes	Face-to-face: Tutor allows student teachers to do short power point/poster presentation on how to teach the functions/uses of the six simple machines to Basic school learner (Group presentation).	Face-to-face: Student teachers do power point/poster presentation on how to teach the functions/uses of the six simple machines to Basic school learner (Group presentation).			

Which cross cutting	Equity and SEN: through setting ground rules to protect vulnerable student teachers and establishing an
issues will be	interactive and inclusive classroom atmosphere. By practicing with simple machines, student-teachers'
addressed or	difficulties in manipulating/handling skills of simple machines will be addressed.
developed and how	
Lesson assessments	Assessment of learning: Student teachers' identification of the functions of the six simple machines
– evaluation of	using charts from the internet and real objects of simple machines (identification of functions/uses
learning: of for and	of the size in a ship of the ship of the size in a ship of the size in the size of the size in the size of the siz
as loarning within	of the six simple machines/tools)
the lesser	NTS 2c: Has secured content knowledge, pedagogical knowledge and pedagogical content
thelesson	knowledge for the school and grade they teach in.
	NTS 3d: Manages behaviour and learning with small and large classes.
	Assessment as learning: Student teachers list 5 examples each on the six types of simple machines
	NTS 3e: Employs a variety of instructional strategies that encourages student participation and
	critical thinking.
	NTS 3f: Pays attention to all learners, especially girls and students with Special Educational Needs.
	ensuring their progress.
	 Assessment for learning: Student teachers do short presentations (3-5 minutes each) on how to
	tooch functions uses of the six simple machines
	teach functions/uses of the six simple machines
	N IS 3g: Employs instructional strategies appropriate for mixed ability, multilingual and multi-age
	Classes
Teaching Learning	Projector, some simple machines like pulley, wheel and axle, wedge and inclined planes (real objects
Resources	and charts/ desktop computers with internet access
Resources	and charts/ desktop computers with internet access https://www.youtube.com/watch?v=fvOmaf2GfCY
Resources	Projector, some simple machines like pulley, wheel and axle, wedge and inclined planes (real objects and charts/ desktop computers with internet access <u>https://www.youtube.com/watch?v=fvOmaf2GfCY</u> <u>https://www.vexrobotics.com/vexiq/education/iq-curriculum/simple-machines-and-motion/six-types-</u>
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Resources Required Text (core)	Projector, some simple machines like pulley, wheel and axle, wedge and inclined planes (real objects and charts/ desktop computers with internet access <u>https://www.youtube.com/watch?v=fvOmaf2GfCY</u> <u>https://www.vexrobotics.com/vexiq/education/iq-curriculum/simple-machines-and-motion/six-types- of-simple-machines</u> <u>https://www.livescience.com/49106-simple-machines.html</u> NaCCA, Ministry of Education (2019). <i>Science Curriculum for Kindergarten and Lower Primary</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
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Ye	ear of B.Ed.	2	S	emester	2	I	Place of less	on in seme	ster	1 2 3 4 5 6 7 8 9 10 11 12		
Titl	e of Lesson		EGE Science Student-teachers as ResourcesLesson Duration3 Hours									
Lesson description EGE Science Student-teachers as Resources			ers	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.								
Pre	vious student	teacher learning		Student teachers have already been introduced to the science curriculum studies course,								
Pos	sible barriers	to learning	g in	Student	teacher	's ma	y lack know	ledge abou	t the featu	ires of	early grade scienc	e.
the lesson Lesson Delivery – chosen to support students in achieving the outcomes			o ing	Face- to- face √	Practica Activity	al y	Work- Based Learning	Seminar √	Independ Study	ndependent e-lean itudy oppo		Practicum
Less of c stuc the	son Delivery – lelivery choser dent teachers learning outco	de ort ng	Discussion: student teachers make presentations (in mixed ability groups) on what they consider as important variables in early grade science Seminar: E-learning opportunities: use of internet, simulations, video and computer demonstrations									
•	Purpose for t what you wa students to a serves as bas learning outc expanded ver description. Write in full a NTS addresse	he lesson, nt the chieve, is for the omes. An rsion of th aspects of ed	, the	 Accession Emp App Conreque Acquestion Acquestion<th>entuate nce teac ohasise of reciation tinue to uiremen uire the portfolic uire skill teache cally and secure of ge for the es out s loys a va hinking.</th><th>the sching child n of per ts skill: os ls to r: d coll onte he sc small ariety</th><th>studentteac g such as hor study styles gender resp ruse the new s to compile evaluate co lectively refl ent knowled chool and gr l scale action y of instructi</th><th>her to the e hesty, caref taking into onsive and rearly grad /document ursework, he ects to imp ge, pedagog ade they te oresearch t onal strate gies approp</th><th>essential at ulness, acc o considera child-adap e science o academic earning pr rove teach gical knowl ach in. o improve gies that e</th><th>ttitude curacy ation c otive te curricu work ogress ing an ledge a practi ncours</th><th>is and values of pro- and many more. ultural and gender eaching strategies lum and how to in and other education and academic ach d learning and pedagogical co ce. ages student partion bility, multilingual</th><th>ofessional issues iterpret the onal evidence nievement ontent cipation and and multi-age</th>	entuate nce teac ohasise of reciation tinue to uiremen uire the portfolic uire skill teache cally and secure of ge for the es out s loys a va hinking.	the sching child n of per ts skill: os ls to r: d coll onte he sc small ariety	studentteac g such as hor study styles gender resp ruse the new s to compile evaluate co lectively refl ent knowled chool and gr l scale action y of instructi	her to the e hesty, caref taking into onsive and rearly grad /document ursework, he ects to imp ge, pedagog ade they te oresearch t onal strate gies approp	essential at ulness, acc o considera child-adap e science o academic earning pr rove teach gical knowl ach in. o improve gies that e	ttitude curacy ation c otive te curricu work ogress ing an ledge a practi ncours	is and values of pro- and many more. ultural and gender eaching strategies lum and how to in and other education and academic ach d learning and pedagogical co ce. ages student partion bility, multilingual	ofessional issues iterpret the onal evidence nievement ontent cipation and and multi-age
• Learning Outcome for the lesson, picked and developed from the			the	Learning Outcom	es	Lea	irning Indica	tors	Identify transfe addres	y whic rable s sing di	h cross-cutting Issi skills, inclusivity. E versity.	ues, core and quity and
•	course specif Learning indi each learning	ication cators for ; outcome	2	Demons the characte of stude teachers resource	trate ristics nt as s	•	Student t resource: diversity Pg. 13)	eachers as about (NTS, 2e,	Studen Practic that an learned and tra Core sk careful	t teacl al Acti e emb d/grou insfera kills to <u>ness, a</u>	ners prepare Conc vities, & story boa edded with evider p work/ equity an ble skills be acquired: Hone accuracy and toler	ept Maps, rds or others nce of values d inclusivity esty, ance

Topic/Title	Sub Topic	Time or Stage	Teaching and learning to achieve learning outcomes:				
			collaborative group work or inde	pendent study			
			Teacher Activity	Student Activity			
Science Curriculum Studies II	 Modelling inclusivity and appropriate values/attitud es in the EGE Science classroom 	90 minutes	i. Face-to face:Tutor introduces the lesson by asking student teachers to recall some of the themes/concepts they studied in Semester 1 (Science Curriculum I & II) and tools that will be required to achieve concept acquisition	<u>i</u> .Face-to-face: Student teachers reflect and come out with some themes/concepts in the science curriculum			
	ii. Creation of gender- friendly and inclusive science teaching materials	90 minutes	 ii. Face-to-face: Tutor led discussions with student teachers on the development of simple teaching/learning materials for EG learners iii. Group activity: Tutor allows student teachers to form groups of mixed abilities to prepare science TLMs PD Theme 4, pg. 23-30 	 <u>ii.</u>Face-to-face: Student teachers discuss with tutor parameters for the creation/improvisati on of SEN-friendly science resources iii. Group activity: Student teachers in groups of mixed abilities prepare science TLMs PD Theme 4, pg. 35-46 			
Which cross cutting issues will be addressed	Equity and SEN: Through the establishment of an interactive, inclusive and demonstrative classroom atmosphere.						
or developed and how							
evaluation of learning:	Assessment of learning: Student-teachers in groups prepare EGE Science TLMs for teaching NTS 1a: Critically and collectively reflects to improve teaching and learning						
of, for and as learning	NTS 2c: Has secure content knowledge, pedagogical knowledge and pedagogical content						
within the lesson	knowledge for the school and grade they teach in.						
	Assessment as and for learning: Student-teachers prepare professional inclusive, multi-age,						
	and developmentally appropriate resources NTS 3b: Carries out small scale action research to improve practice.						
	NTS 3g: Employs a variety of instructional strategies that encourages student participation and						
	critical thinking.						
	NTS 3e: Employs instructional strategies appropriate for mixed ability, multilingual and multi-age classes.						
Teaching Learning Resources	The EGE Science sylla	bus, pens and pap	ers.				
Required Text (core)	NaCCA, Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Primary. Accra: Ministry of Education.						
CPD Requirement	Early Grade Science Syllabus; Handbook for PD Coordinators Themes 1- 10						
e. 5 hequitement	 Practice how to interpret the science curriculum to prepare inclusive and child-friendly resources 						

Y	ear of B.Ed.	2	Semester	· 2	Place of l	f lesson in semester		1	1234567891011 12	
Titl	e of Lesson		Course B	Course Deview II				3 Hours		
litle of Lesson			Course N					Less	Duration	SHOUIS
Les EGE	son description E Science	n	To review student t	To review and audit the lessons for the second half of the semester. It is also expected that student teachers will reflect during this lesson on their own progress in the course so far.						
Pre	Previous student teacher Lessons learnt from lesson 7 through lesson 11									
kno	owledge, prior	learning								
Pos	sible barriers	to learnin	ng Misconceptions about some concepts not adequately dealt with or misunderstood by student							
Int	ne lesson	ahasan ta	Leachers.	Dreatical	Mork		Indonou	dont		Drasticum
Les	son Denvery –	in in		Activity	Rased	Seminar	Independent e-le		opportunities	Practicum
ach	ieving the out	comes	V	Activity	Learning	V	Study		√	
Les	son Delivery –	main	Independ	dent Study:	Reflections	. Modelling co	ncept ma	ps and c	artoons	
mo	de of delivery	chosen to	Seminar:	Presentati	ons of mode	els, cartoons ar	nd maps o	f the co	ncepts	
sup	port student t	eachers ir	e-learnin	g opportun	ities: Comp	uter simulation	is and OE	Rs on co	ntent and teachi	ng activities
ach	ieving the lear	ning	for conte	nts.						
out	comes									
•	Purpose for t what you was students to a serves as bas learning outc expanded ver description. Write in full a the NTS addr	he lesson, nt the chieve, is for the omes. An rsion of th aspects of essed	 Asce Test Prov Corri Build NTS, 1a, 1 1a) Critic 2c) Has so knowledg 3b) Carrie 3e) Emplo 	 Ascertain the level of understanding and teaching methods of concepts. Test various skills and cross-cutting issues Provide remedial tuition/tutorials where necessary Correct misconceptions and misinformation Build the necessary support going forward on SEN and Gender issue NTS, 1a, Pg. 12; NTS 2c, pg. 13, NTS 3b, 3e & 3g, pg. 14; NTECF pg. 20 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. 3b) Carries out small scale action research to improve practice. 						
			classes. 3g) Emple	classes. 3g) Employs a variety of instructional strategies that encourages student participation and						
•	Learning Out	come for	Learning	Outcomes		Learning Indicators		Identify w	hich cross-	
•	the lesson, pi developed fro course specif Learning indi	cked and om the ication cators for	Learning	outcomes			itors		cutting Issu transferab inclusivity. addressing	Jes, core and le skills, Equity and diversity.
	each learning	outcome	Identify v	veaknesses	and	 Make a list 	t of weak	nesses a	nd Collaborat	ions,
			strengths science le period ur	s in learning esson for th nder review	g the le	strengths on poster papers for sharing PD Theme 4, pg. 111		for Communic L Research t work and p	Communication and Research through group work and presentation	
			Reflect of far and st and/or gr remedies	n lessons le tate new in rey areas no	arnt so sights eeding	 Provide a and answ topics lea demonst illustration 	a reflectiv ver questi arnt so fai trations ar ons on a g	e report ons on r throug าd iven me	Equity and developed h reflective a Theme 1. p edia 41	Reflection is from activities PD og. 12-15; pg.
			Correct misconce on for ea lessons	eption/misi rlier (lessor	nformati n 7 – 11)	 Present of and/or n misconce misinform insights 	concept m nodels linl eptions or mation to	naps king new	Creativity a thinking ar developing concept m	and critical e developed in 5 models and aps

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 inc	lependent study		
			Teacher Activity	Student Activity		
Course Overview II	i. Reviewing the understanding and teaching of lessons on Personal Hygiene, Simple Machines, and preparation of Resources for EGE	120 minutes	 Brainstorming with student teachers to initiate the weaknesses and strengths of student-teachers in lessons 7 – 11 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. 	<u>i.</u> Student teachers responds to Tutor questions on weaknesses and strengths Working in groups and with the checklist student-teachers identify, reflect and record all possible weaknesses and strengths in the lessons learnt so far. PD Theme 4, pg. 35- 46		
			they are able to list weakness and strengths.			
	Remedial Teaching (Formal Tutorial)	60 minutes	Group student teachers according to remedy need and provide specific task assistance in the areas on concept needing remedy.	Students work in the special group (Same remedy need group) on tasks to remedy their learning need.		
Which cross cutting issues will be addressed	Equity and SEN: through mixed and same group work to protect vulnerable student teachers and establishing an interactive and inclusive classroom atmosphere					
or developed and how	Through modelling and group work, collaboration is established.					
Lesson assessments –	Assessment of learning: Student teachers make presentations in groups (Presentations to last					
evaluation of learning:	for each group a 3-5	mins).				
of, for and as learning within the lesson	NTS 1a: Critically and collectively reflects to improve teaching and learning NTS 2c: Has secure content knowledge, pedagogical knowledge and pedagogical content knowledge for the school and grade they teach in.					
	Assessment for learning: Student teachers engage inpeer remedial lessons					
	NTS 3b: Carries out small scale action research to improve practice.					
	NTS 3g: Employs a variety of instructional strategies that encourages student participation and critical thinking					
	 Assessment as learning: Written assessment will be used to assess progress 					
	NTS 3e: Employs instructional strategies appropriate for mixed ability, multilingual and multi- age classes.					
Teaching Learning Resources	The EGE Science syllabus, pens and papers.					
Required Text (core)	NaCCA. Ministry of Education (2019). Science Curriculum for Kindergarten and Lower Primary					
	Accra: Ministry of Education.					
	Early Grade Science Syllabus; Handbook for PD Coordinators Themes 1- 10					
CPD Requirement	iii. Training on pre	eparation of teach	ing and learning resources			

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