

DIRECTORATE:

FET CURRICULUM FET PROGRAMMES

LESSON PLANS

TERM 3

LIFE SCIENCES

GRADE 11

FOREWORD

The following Grade 10, 11 and 12 Lesson Plans were developed by Subject Advisors during May 2009. Teachers are requested to look at them, modify them where necessary to suit their contexts and resources. It must be remembered that Lesson Plans are working documents, and any comments to improve the lesson plans in this document will be appreciated. Teachers are urged to use this document with the following departmental policy documents: Subject Statement; LPG 2008; SAG 2008; Examination Guidelines 2007 and Provincial CASS Policy / Guidelines. **Educators are reminded that these lesson plans will have to be changed in 2010 as Grade 11 will be implementing the new content framework.**

Lesson planning is the duty of each and every individual teacher but it helps when teachers sometimes plan together as a group. This interaction not only helps teachers to understand how to apply the Learning Outcomes (LOs) and Assessment Standards (ASs) but also builds up the confidence of the teachers in handling the content using new teaching strategies.

It must please be noted that in order to help teachers who teach across grades and subjects, an attempt has been made to **standardise lesson plan templates** and thus the new template might not resemble the templates used in each subject during the NCS training. However, all the essential elements of a lesson plan have been retained. This change has been made to assist teachers and lighten their administrative load.

Please note that these lesson plans are to be used only as a guide to complete the requirements of the Curriculum Statements and the work schedules and teachers are encouraged to develop their own learner activities to supplement and /or substitute some of the activities given here (depending on the school environment, number and type of learners in your class, the resources available to your learners, etc).

Do not forget to build in the tasks for the Programme of Assessment into your Lesson Plans.

Strengthen your efforts by supporting each other in clusters and share ideas. Good Luck with your endeavours to improve Teaching, Learning and Assessment.

		CES GRADE: 11 LESSON PLAN 1	1	ERM 3 TIME:	16hrs		
	LO 2 AS						
Integrated Life Sciences LOs and ASs:		S 2 and 3; LO 3 # AS 2 and 3					
Possible integration with other subjects	Geograp	phy, Mathematics					
Knowledge Area	Environn	nental Studies					
Prior Knowledge	Energy f	low in ecosystems					
Topic	Food Py	ramids					
Links to next lesson	Effects o	f environmental changes on food pyrami	ds				
LEARNING OUTCOME 1:	LEARNING OUTCOME 2: LEARNING OUTCOME 3:			:			
Scientific Inquiry & problem Solving Skills.		Constructs & Application of Life Science Knowledge.	es	Socie	nd its relationships to ⁻ ty and the Environmer	nt.	Jy ,
AS1: Learner identifies and questions phenomena and plans an investigation	1	AS1: Learner accesses knowledge	V	AS1: Learner explores & e	valuates scientific ideas of past an cultures	nd present	√
AS2: Learner conducts an investigation by collecting and manipulating da	ta √	AS2: Learner interprets and makes meaning of knowledge	V		raluates uses and developments ear impact on the environment & s		V
AS3: Learners analyses, synthesizes, evaluates data and communicates findings	V	AS3: Learner shows understanding of how Life Sciences knowledge is applied in everyday life	V	AS3: Learner compares the	e influence of different beliefs, atti on scientific knowledge		V
TEACHER ACTIVITIES		LEARNERS ACTIVITIES		D		DAT	- —
Activity 1: Revision of prior knowledge: LO 2 and AS 2	2# AS 1				Informal:		
Assesses learners' prior knowledge of ecologica concepts e.g. producers, herbivores etc through questioning and diagrammatic illustrations of foc chains, food webs and food pyramids.	verbal	Learners respond to questions and diagrammatic illustrations verbally and writing.	in	Textbooks, chalkboard, charts	Teacher Peer		

TEACHER ACTIVITIES	LEARNER ACTIVITY	RESOURCES	ASSESSMENT	DATE COMPLETED
Activity 2: Different types of food pyramids and different ways of presenting food pyramids: LO 1 # AS 3; LO 2 #AS 1, 2 and 3				
Uses different kinds of food chains, food webs and pictures that depict feeding relationships in respect of difference in numbers mass and energy of trophic levels. Explains to learner the two ways of presenting food pyramids, that is,: Triangle Rectangle	Learners work in pairs. Discuss feeding relationships and pictures and draw food chains, food webs and pyramids. Compare numbers, mass and amount of energy at different energy levels within the same food pyramid Grasp the concepts: • pyramid of number • pyramid of biomass and • pyramid of energy	Textbooks, chalkboard, OHP, charts, real ecosystems	Informal: Teacher Peer	
Activity 3: Effects of environmental changes on food pyramids: Overpopulation: LO 2 # AS 1nad 2 Asks learners to research the meaning of the terms and to present to the class: Population Population growth Under population growth Optimum population and Overpopulation	Learners carry out the given task and report back on the meaning of the different terms	Textbooks, Internet, Library, newspapers		

TEACHER ACTIVITY	LEARNER ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
Activity 4::Effects of human over population on ecological systems: LO 1 # AS 2 and 3; LO 2 # AS 1, 2 and 3; LO 3 #AS 2				
Instructs learners to research the effects of overpopulation on food pyramids Activity 5: Pesticides: LO 2# AS 1, 2 and 3; LO 3 # AS 2 and 3	Learners research, using various resources, to establish the effects of overpopulation e.g. Settlements Use of arable land Road construction Industrialization etc on food pyramids e,g. the eradication of natural vegetation Communicate their findings in the form of a verbal presentation	Textbooks, Internet, Libraries, newspapers, people	Informal: Teacher and peer assessment	
Introduces the term pesticide by asking learners to mention a few domestic pesticides and their use.	Learners establish pesticides used at home or in immediate environment	Extract from a relevant text	Informal: Self	
Divides learners in pairs and provides them with a passage/extract on pesticides.	Learners read passage			
Asks learners to explain the effects of pesticides on food chains from the passage provided	Explain the effects of pesticides on food chains			
Asks learners' opinions on traditional methods of dealing with pests	Express their opinion on traditional ways of controlling pests			

TEACHER ACTIVITIES	LEARNER ACTIVITIES	RESOURCES	ASSESSMENT	DATE COMPLETED
Allows learners to debate some advantages and disadvantages of using pesticides	Debate advantages and disadvantages of pesticide use			
Activity 6: Culling: LO 2 # AS 1,2; LO 3 # AS 3				
Refers learners to appropriate resources and instructs them to determine: • What culling is	Learners access the prescribed resources and establish the: • meaning of the term culling	Textbooks	Informal: Self	
At least three reason why animals are culled What the impact is of culling on food pyramids	 reasons why culling is done and impact of culling on food pyramids 	Textbooks, Internet, newspapers, people	Peer	
Asks learners to research attitudes of people towards culling	Research and report on their findings			
Activity 7: Pollution: LO 1 # AS 3; LO 2 # AS 1,2; LO 3 # AS 2				
 Gives learners a project on pollution. Structures the project in the following manner: Types of pollution Causes of the different types of pollution Effects on food pyramids of at least one example of each of the different types of pollution 	Access resources and communicate their findings in the form of a poster	Textbooks, Internet, Newspapers, Magazines Environment	Formal: Teacher Self Rubric	
Asks learners to present their finding in the form of a poster				

				DATE COMPLETED
TEACHER ACTIVITIES	LEARNER ACTIVITIES	RESOURCES	ASSESSMENT	
Activity 7: Deforestation: LO 2 # AS 1, 2 and 3; LO 3 # AS 2				
Supplies learners with extract on deforestation from Study and Master Life Sciences Learners book Grade 11: pp 332 to334	Access the extract on deforestation and complete the questions pp 333 and 334			
Refer learners to the questions based on the extract				
Activity 8: Global environment concerns: LO 2 # AS 2 and 3				
Refers learners to textbook or any other relevant	Access resources	Textbooks, Internet,	Informal:	
resources that deal with contemporary global environmental concerns, e.g. global warming, acid rain	Interprets and make meaning of information	newspapers, magazines	Self	
etc	Summarise information in the form of a table			
Asks learners to summarise, in the form of a table, the:				
meaning accuracy and				
causes andeffects				
of each of the following global concerns:				
global warminggreenhouse effect				
greenhouse effect acid rain				
ozone depletion				
Homework:				

Homework:

Learners are tasked to draw up a glossary of all the biological concepts encountered during the presentation of this lessons.

Enrichm	ent/Expanded Opportunities:			
Teacher	supplies learners with extra informative article	es on various topics covered	by the lessons	
Teacher	Reflections:			
	SIGNATURES:			
	TEACHER	DATE	HOD / SMT	DATE

SUBJECT: LIF	E SCIEN	CES GRADE: 11 LESSON PLAN 2	1	TERM 3 TIME:	12hrs		
Focus Learning Outcome/s:		1, 2 and 3					
Integrated Life Sciences LOs and ASs: Possible integration with other subjects		AS 1, 2, 3; LO 1 # 1, 2 and 3 phy, Life Orientation, Mathematics, Agricu	ltural S	Scionoce Physical Sci	nece		
Knowledge Area		nental Studies	illurai c	Trysical och	511063		
Prior Knowledge		nfluences on environment					
Topic		ment of our environment					
Links to next lesson LEARNING OUTCOME 1:	Air, land	and water borne diseases LEARNING OUTCOME 2:			RNING OUTCOME 3		
Scientific Inquiry & problem Solving Skills. AS1: Learner identifies and questions phenomena and plans an investigation AS2: Learner conducts an investigation by collecting and manipulating data and communicates findings		Constructs & Application of Life Scienc Knowledge. AS1: Learner accesses knowledge AS2: Learner interprets and makes meaning of knowledge AS3: Learner shows understanding of how Life Sciences knowledge is applied in everyday life	es V	Life Sciences and its relationships to Technology, Sand the Environment. AS1: Learner explores & evaluates scientific ideas of past and present cultures AS2: Learner compares & evaluates uses and developments of resources and their products & their impact on the environment & society. AS3: Learner compares the influence of different beliefs, attitudes and values on scientific knowledge		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
TEACHER ACTIVITIES		LEARNERS ACTIVITIES		RESOURCES	ASSESSMENT	COMPL	
Activity 1: Management of cause and effects pollution LO 1 # AS 2 and 3; LO 2 # AS 1, 2 at LO 3 # AS 2 Assesses prior knowledge by Dividing learners if three groups. Assign each group one pollution type to the whole class.	nd 3; nto ype	Explain to the whole class their assigned pollution type with reference to the posithat was designed during previous less plan	ter	Posters and notebooks	Informal: Teacher Self		

TEACHER ACTIVITIES	LEARNER ACTIVITY	RESOURCES	ASSESSMENT	DATE COMPLETED
Asks each group to brainstorm how their pollution type may be prevented and or controlled	Brainstorm on the type of pollution chosen.			
And how the effects of their pollution type may be reduced or eliminated				
Consolidates by presenting learners with a summary of preventative/controlled and reduction/ elimination pollution strategies.	Take down the summary.	Notebooks	Informal:	
Gives learners a research task whereby they have to:			Teacher Memorandum with	
 identify any one example of pollution in their school or local community e.g. littering identify the causes and effects and how these can be reduced 	Perform the research and present a written report	School premises or local community	rubric on synthesis	
Supplies learners with information on laws and policies supporting environmental management and sustainability and ask them to discuss it in their groups	Class discussion	Hand-out	Informal:	
Activity 2: Management of cause and effects of deforestation: LO 1# AS 1, 2 and 3; LO 2 #AS 3; LO 3 # AS 2	Verbal responses	Textbooks	Informal: Self	
Assesses prior knowledge with regard to the meaning of deforestation	Learners brainstorm causes and effects of deforestation. Compare the outcome of the brainstorming exercise with teacher feedback			
Allows learners to brain storm why deforestation takes place (causes) and possible consequences of deforestation (effects). Gives feedback with regard to brainstorming	and take notes where necessary		Informal: Self	
Supplies learners with Activity 5: "Exploring de-	Work through activities to discover some of the causes and effects of deforestation and	Hand - out		

forestation" and Activity 6: "To destroy or not", on pp 269 and 270 in the learners book of "Understanding Life Sciences Grade 11 – Screening addition 2006	the value of forests			
Teacher Activity	Learner Activity	Resources	Assessment	Date Completed
Asks learners to research the following reduction strategies on deforestation: Re – use of wood products e.g. paper Re – cycling of wood products Using alternative sources for fuel other than wood.	Research and communicate their findings in the form of written reports	Textbooks, Internet, Newspapers, magazines, site visits	Informal: Teacher assessment	
Allows learners to research on the following management strategies i.r.o. the effects of deforestation: Harvesting forest products in a more sustainable way Replanting to replace the trees that have been removed or destroyed	Research and communicate their findings in the form of a written report	Textbooks, Internet, Newspapers, magazines,	Informal: Teacher assessment	
Encouraging tree planting in schools and in local communities				
Activity 3: Management of use of land: LO 2 # AS1, AS 2 and 3; LO 3 # AS1 and 2 Divides learners into five groups. Assigns each group with one of the following topics relating to use of land. • Agriculture • Grazing • Housing • Industries • Mining	Discuss and write down problems and solutions related to their topic Report back	Textbooks, newspapers and magazines	Informal: Self and group assessment	
Instructs groups to discuss their topic in relation to problems around the above – mentioned uses of land				

and possible solutions to the problems				
Allows report back by groups				
Supplies learners with past and present policies on land tenure and presents learners with the following statement: "the present pattern of land use in the Republic of South Africa is a product of historical land tenure policy ." Allows learners to debate above statement in relation to: Agriculture Overgrazing Housing Industries and Mining	Debate the past and present tenure policies on the availability and use of land	Past and present policies	Informal: Teacher assessment	
		_		_
Teacher Activity	Learner Activity	Resources	Assessment	Date Completed
Activity 4: Management of the use of land: A practical application LO 1 # AS 1, 2 and 3; LO 2# AS 1, 2 AND 3; LO 3 # AS 2				
Supplies learners with the total surface area of the school campus with the following assignment:	Survey land and estimate land usage.	School grounds,	Informal: Teacher	
"Draw a pie chart to represent the usage of the school land for each of following purposes":	Draw pie chart	mathematical instruments	assessment	
school buildings				
parkingcultivated gardensnatural vegetation	Explain possible ways of improving school land	Textbooks, local municipality	Self assessment	

			-	
 sports fields/playgrounds 				
Asks learners to use the information from the pie chart to explain ways in which the school land could be improved from an environmental point of view				
Activity 5: Management of the cause and effects of extinction: LO 1# AS 1,2 and 3; LO 2 # AS 1,2, 3; LO 3 # AS1 and 2				
Provides learners with resources on the following information:				
Extinction of a species can be caused by:				
 loss of habitat poaching over – fishing Uncontrolled hunting introduction of invasive alien paint and animal species changes in habitat 				
 Arranges learners in groups and ask them to discuss each of the causes listed above describe how this can happen draw food chains to explain how the extinction of one species can affect the: Number of other species in the food 	 Discuss each of the causes describe how these causes can be brought about Draw food chains Present their ideas to another group or to the rest of the class. (Taken from Shuters Life Sciences Grade 11 learners book) 	Previous notes, hand –outs or textbooks	Informal: Group assessment	
pyramid The flow of energy in an ecosystem	Access information accepting	Hand - out	Informal: Self assessment	
Supplies learners with information that deals with the following consequences(impact) of extinction of plant and animal species	Access information supplied. Discuss, make meaning and summarise information			

 disruption of food chains through loss of biodiversity loss of medicinal products derived from extinct plants and animals loss of the effect of plants and animals as agents of pollination or dispersal(e.g. insects and birds); mosses and ferns in succession or leguminous plants that play a role in soil fertility(nitrogen – fixing bacteria) 			
Divide learners in groups. Assign each group with one of the following topics: • Wildlife reserves • Legislation • Red – data listing • Indigenous knowledge	Explain how their topic assists in the prevention of extinction	Textbooks, Hand – outs, news papers, magazines	Informal: Group
Asks each group to explain how above topics are used to prevent extinction and allows learners to share their explanation with the rest of the class Gives learner a research task on any one extinct animal	Shares their explanation with the rest of the class	Textbooks, Internet, News papers, Magazines	Informal: Teacher Observation sheet
 Where and when the organism existed What the organism ate The ecological role of the organism Circumstances that lead to its extinction 	Conduct research on given topics and communicate their findings in the form of a written report		Informal:
Group learners and assign each group one of the following human activities that may contribute to the extinction of species: • Excessive use of pesticides • Over – exploitation for purposes of food • Use of threatened or endangered species for	Access resources and summarise information. Share their information with the rest of the class.	Textbooks, Internet, New papers, magazines	Rubric

	medicines					
•	Habitat destruction (e.g. mining, fire,					
	deforestation settlements etc.					
,	delorestation settiements etc.					
Homewo	ork:					
Learners	are tasked to draw up a glossary of all the biolog	gical concepts encountered	d during the presentati	on of this lessons		
	are tached to aram up a greecary or an are store,	giodi compopio emecanica	a damig are processas			
	./= 1.10					
Enrichm	ent/Expanded Opportunities:					
Teache	r supplies learners with extra informative articles	on various topics covered	by the lesson plan.			
			o,			
latan dan	ralder page to actablish traditional ways bown	atival vacavivaca vices ava	named in the most			
interviev	volder people to establish traditional ways how n	atural resources were pres	served in the past.			
		Teacher Re	eflections:			
	SIGNATURES:					
						
	TEACHER	DATE	HOD / SMT	DA	Т	
			•			

SUBJECT: LIFE	SCIE	NCES GRADE: 11 LESSON PLAN 3	3	TERM 3 TIME: 8hrs		
Focus Learning Outcome/s:	O 3 AS	S1, 2 and 3				
Integrated Life Sciences LOs and ASs:	02#/	AS 1, 2, 3; LO 1 # 1, 2 and 3				
Possible integration with other subjects	Life Orientation, Mathematics, Physical Sciences					
Knowledge Area	wledge Area Environmental Studies					
Prior Knowledge	Management of our environment					
Topic	Air, land and water borne diseases					
Links to next lesson	inks to next lesson Revision					
LEARNING OUTCOME 1:		LEARNING OUTCOME 2:		LEARNING OUTCOME 3:		
Scientific Inquiry & problem Solving Skills.		Constructs & Application of Life Sciences Knowledge.		Life Sciences and its relationships to Technology, Society and the Environment.		
AS1: Learner identifies and questions phenomena and plans an investigation	V	AS1: Learner accesses knowledge	V	AS1: Learner explores & evaluates scientific ideas of past and present cultures	√	
AS2: Learner conducts an investigation by collecting and manipulating data	. \	AS2: Learner interprets and makes meaning of knowledge	V	AS2: Learner compares & evaluates uses and developments of resources and their products & their impact on the environment & society.	1	
AS3: Learners analyses, synthesizes, evaluates data and communicates	√	AS3: Learner shows understanding of how Life Sciences	1	AS3: Learner compares the influence of different beliefs, attitudes and	√	

knowledge is applied in everyday life

rest of the class

LEARNERS ACTIVITIES

Research and present their findings to the

Activity 1: Air borne diseases: LO 1 # AS1, 2 and 3;	
LO 2 # 1, 2 and 3; LO 3 # AS1, 2 and 3	

Divides learners into six groups where each group will be researching one of the following air borne diseases:

Influenza

TEACHING ACTIVITIES

Polio

findings

- Chickenpox
- Measles
- Tuberculosis & meningitis

values on scientific knowledge

ASSESSMENT

Informal: Group

assessment

DATE COMPLETED

RESOURCES

Textbooks,

magazines, newspapers, people, clinics,

hospitals etc

Internet,

TEACHER ACTIVITIES	LEARNER ACTIVITY	RESOURCES	ASSESSMENT	DATE COMPLETED
Instructs learners to research the disease under the following topics in groups and thereafter present. Causes and transmission Distribution Symptoms Effects Treatment: Traditional and scientific Management Supplies learners with available statistics(in the form of graphs, tables or text) on the incidence of these diseases and asks them to analyse and interpret it and to present their findings Activity 2: Land borne diseases: LO 1 # AS1, 2 and	Work in groups, access available resources, put together a presentation. Present to the class.	Textbooks, Internet, magazines, newspapers, people, clinics, hospitals etc	Informal: Group Teacher Rubric	
3; LO 2 # 1, 2 and 3; LO 3 # AS1, 2 and 3 Divides learners into four groups where each group will be researching one of the following land borne diseases: Round worms Sleeping sickness Tetanus Botulism Instructs learners to research the disease under the following topics Causes and transmission Distribution Symptoms Effects Treatment: Traditional and scientific Management	Research, analyse, synthesize and present their findings to the rest of the class	Textbooks, Internet, magazines, newspapers, people, clinics, hospitals etc	Informal: Group Teacher	

Teacher Activities	Learner Activity	Resources	Assessment	Date completed
Supplies learners with available statistics(in the form of graphs, tables or text) on the incidence of these diseases and asks them to analyse and interpret it and to present their findings				
Activity 3: Water borne diseases: LO 1 # AS1, 2 and 3; LO 2 # 1, 2 and 3; LO 3 # AS1, 2 and 3				
Divides learners into four groups where each group will be researching one of the following water borne diseases:	Research, analyse, synthesise and present their findings to the rest of the class	Textbooks, Internet, magazines, newspapers, people, clinics, hospitals etc Information sheets	Informal: Group/ Self	
CholeraAmoebic dysentryBilharziaTyphoid fever				
Instructs learners to research the disease under the				
: following topics				
 Causes and transmission Distribution Symptoms Effects Treatment: Traditional and scientific Management 	Analyse, interpret, synthesise and present information.			
Supplies learners with available statistics(in the form of graphs, tables or text) on the incidence of these diseases and asks them to analyse and interpret it and to present their findings			Formal: Controlled test	

Homework:							
Learners are tasked to draw up a glossary of all the biological concepts encountered during the presentation of this lessons							
Research other related diseases that have not been i	mentioned						
Enrichment/Expanded Opportunities:							
Teacher supplies learners with extra informative artic	les on various topics covered	by the lessons					
Teacher Reflections:							
SIGNATURES:							
							
TEACHER	DATE	HOD / SMT	DATE				