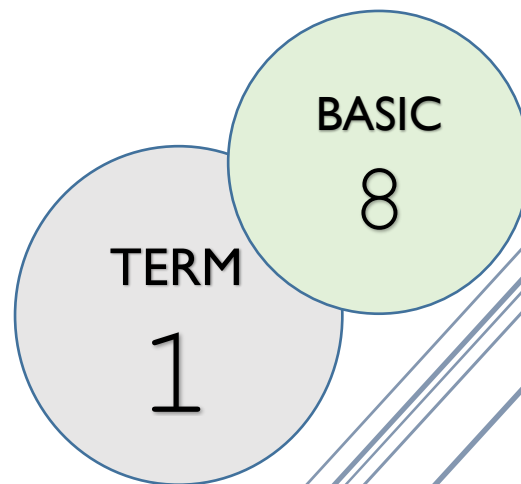


# LESSON PLANS FOR JUNIOR HIGH SCHOOLS

## SCIENCE



- Weekly forecast
- Detailed lesson plans



ONE VISION EXAMINATIONS CENTER (OVEC)

[onevisionexams@gmail.com](mailto:onevisionexams@gmail.com)

0241487330 / 0248482827

Kumasi

# FIRST TERM SCIENCE LESSON NOTES – BASIC 8

## SCHEME OF LEARNING – TERM I

WEEKS	STRAND	SUB STRAND	INDICATORS	RESOURCES
1	Diversity Of Matter	Mixtures	B8.1.1.1.1	Powder, pebbles, bottle tops
2		Separation Of Mixtures	B8.1.1.1.2	salt, sugar, sand
3	Diversity of Matter	Living Cells	B8.1.2.1.1	Pictures and charts
3	Cycles	The Carbon Cycle	B8.2.1.1.1-2	Pictures and charts
5		Life Cycle Of The Anopheles Mosquito	B8.2.2.1.1-2	Pictures and charts
6	Cycles	Crop production B8.2.3.1	B8.2.3.1.1	Pictures and charts
7	Cycles	Crop production B8.2.3.1	B8.2.3.1.1	Pictures and charts
8	Cycles	Animal Production	B8.2.4.1.1-2	Pictures and charts
9	Cycles	Animal Production	B8.2.4.1.1-2	Pictures and charts
10	Systems	The human body system	B8.3.1.1.1-2	Pictures and charts
11		The human body system	B8.3.1.1.3	Pictures and charts
12		The human body system	B8.3.1.1.3	Pictures and charts
13	REVISION			
14	EXAMINATION AND VACATION			



**FIRST TERM  
WEEKLY LESSON NOTES  
WEEK 1**

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Diversity Of Matter
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Mixtures
<b>Content Standard:</b> B8.1.1.1. Demonstrate knowledge of types of mixtures, and understanding of the processes of scientific ways of separating the components of mixtures		<b>Indicator:</b> B8.1.1.1.1 Identify types of mixtures by name and characteristics
		<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can identify types of mixtures by name and characteristics		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:
<b>References:</b> Science Curriculum Pg.		
<b>Phase/Duration</b>	<b>Learners Activities</b>	<b>Resources</b>
<b>PHASE 1: STARTER</b>	Revise with learners on the previous lesson.  Share learning indicators and introduce the lesson.	
<b>PHASE 2: NEW LEARNING</b>	Brainstorm to come out with the meaning of the term mixture.  Identify classes of mixtures and give examples: Solid – solid; Solid – liquid; liquid – liquid; solid – gas; gas – liquid; gas – gas.  Group materials such as powder, pebbles, bottle tops, salt, sugar, sand, gari, gravel, oil, water and others into two main categories: solids and liquids  Put any two of the materials (in 1) together and describe the resultant nature of the product formed  Draw observable conclusions on homogeneous and heterogeneous characteristics from mixtures of two or more materials such as sand and gravel; sand and water; oil and water  Compare and contrast solutes and solvents based on their physical characteristics  Identify and separate mixtures such as sand and sugar mixture, sugar and salt mixture and solutions such as salt solution, sugar solution, fruit juice, vinegar solution based on their physical properties  Identify a suspension as a type of mixture e.g. mixture of groundnut paste and water in a glass.  Differentiate between a colloid and a suspension and show the colloidal effect.  <u>Assessment</u> What is a mixture?	powder, pebbles, bottle tops, salt, sugar, sand, gari, gravel, oil, water



	State the types of mixtures and give an example in each case.	
<b>PHASE 3: REFLECTION</b>	Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.  Take feedback from learners and summarize the lesson.	

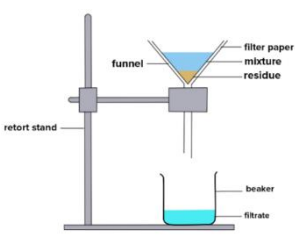



<b>Week Ending:</b>		<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Diversity Of Matter	
<b>Class:</b> B8	<b>Class Size:</b>		<b>Sub Strand:</b> Mixtures
<b>Content Standard:</b> B8.1.1.1. Demonstrate knowledge of types of mixtures, and understanding of the processes of scientific ways of separating the components of mixtures		<b>Indicator:</b> B8.1.1.1.1 Identify types of mixtures by name and characteristics	<b>Lesson:</b> 2 of 2
<b>Performance Indicator:</b> Learners can identify types of mixtures by name and characteristics		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:	
<b>References:</b> Science Curriculum Pg.			
<b>Phase/Duration</b>	<b>Learners Activities</b>		<b>Resources</b>
<b>PHASE 1: STARTER</b>	Revise with learners on the previous lesson.  Share learning indicators and introduce the lesson.		
<b>PHASE 2: NEW LEARNING</b>	<p>Brainstorm to bring out the meaning of the terms solute, solvent and solution.</p> <p>List some solvents in the home and school and discuss their uses. List some common solutes and name their appropriate solvents.</p> <p>Compare and contrast solutes and solvents based on their physical characteristics.</p> <p>Guide learners to prepare of mixtures. Example: Weigh 5g of common salt and add it to 250ml of water. Stir for the salt to dissolve. Discuss their observation.</p> <p>Weigh 5g of powdered chalk and add it to 250ml of water. Stir vigorously and allow to stand. Observe and discuss the differences between this and the previous mixture.</p> <p>Add some palm oil to water in a container. Shake vigorously and allow it to stand. Discuss their observation.</p> <p><u>Assessment</u> 1. Define the following terms i. Solute ii. Solvent and iii. Solution</p> <p>2. In groups, learners prepare named mixtures.</p>		powder, pebbles, bottle tops, salt, sugar, sand, gari, gravel, oil, water
<b>PHASE 3: REFLECTION</b>	Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.  Take feedback from learners and summarize the lesson.		



## WEEK 2

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Diversity Of Matter
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Separation Of Mixtures
<b>Content Standard:</b> B8.1.1.1. Demonstrate knowledge of types of mixtures, and understanding of the processes of scientific ways of separating the components of mixtures		<b>Indicator:</b> B8.1.1.2 Design and perform processes for separating kinds of mixtures.
<b>Performance Indicator:</b> Learners can identify types of mixtures by name and characteristics		<b>Lesson:</b> 1 of 2
<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:		
<b>References:</b> Science Curriculum Pg.		

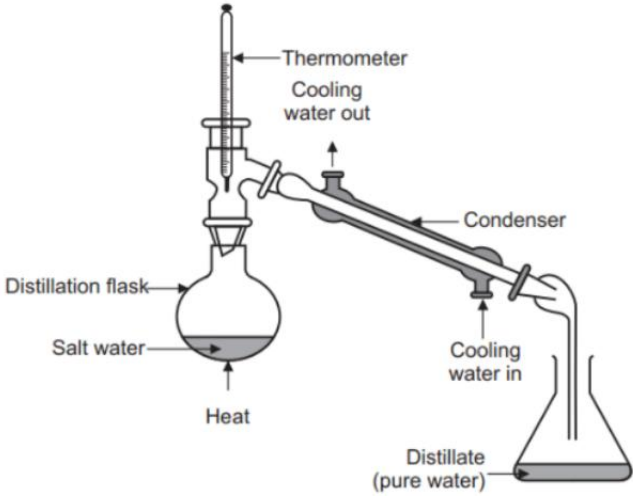
Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Guide learners to discuss some methods for separating mixtures. Filtration, Sieving, Evaporation, Magnetization, Distillation, Use of separating funnel, Sublimation, Crystallization, Winnowing, etc.</p> <p><b>Filtration</b>  <i>The process in which solid particles (insoluble solid) in a liquid or gaseous fluid are removed by the use of a filter medium that permits the fluid to pass through but retains the solid particles.</i>                      In groups, engage learners to separate the mixture, sand and water using the filtration method.</p> <div style="text-align: center;">  </div> <p><b>Evaporation</b>  <i>The process by which water changes to gas. This process is used to separate a soluble solid or solute from its solvent. E.g. salt and water.</i>                      In groups, engage learners to separate the mixture, salt and water using the evaporation method.</p> <div style="text-align: center;">  </div> <p>Perform experiments to separate different kinds of mixtures and present a report on your findings using drawing and written work.</p> <p>Guide learners to identify the application or industrial use of the filtration, evaporation, etc. methods of separation.</p>	<p>powder, pebbles, bottle tops, salt, sugar, sand, gari, gravel, oil, water</p>

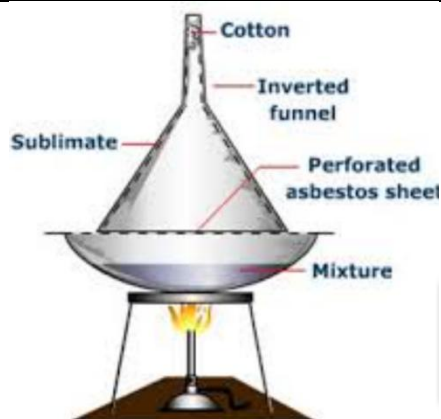


	<p><u>Assessment</u></p> <p>Name the method which could be used to separate each of the following mixtures into their components</p> <ol style="list-style-type: none"> <li>i. Alcohol and water</li> <li>ii. Salt and water</li> <li>iii. Powdered charcoal and iron filings</li> <li>iv. Powdered chalk and water</li> </ol>	
<p>PHASE 3: <b>REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Diversity Of Matter
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Separation Of Mixtures
<b>Content Standard:</b> B8.1.1.1. Demonstrate knowledge of types of mixtures, and understanding of the processes of scientific ways of separating the components of mixtures		<b>Indicator:</b> B8.1.1.1.2 Design and perform processes for separating kinds of mixtures.
<b>Performance Indicator:</b> Learners can identify types of mixtures by name and characteristics		<b>Lesson:</b> 1 of 2
<b>References:</b> Science Curriculum Pg.		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:

Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Revise with learners on some methods for separating mixtures. Filtration, Sieving, Evaporation, Magnetization, Distillation, Use of separating funnel, Sublimation, Crystallization, Winnowing, etc.</p> <p><b>Distillation</b> It is process of separating the components or substances from a liquid mixture by using selective boiling and condensation, usually inside an apparatus known as still. In groups, engage learners to separate the mixture, salt water using the simple distillation method.</p>  <p><b>Sublimation</b> This is used to separate substances that sublime from those that do not. A substance that sublime is the one that changes directly from the solid state to the gaseous state especially when heated without passing through the liquid state examples of such substance are iodine crystals, ammonium chloride and camphor In groups, engage learners to separate the mixture, iodine crystals and sand using the sublimation method.</p>	<p>powder, pebbles, bottle tops, salt, sugar, sand, gari, gravel, oil, water</p>



Perform experiments to separate different kinds of mixtures and present a report on your findings using drawing and written work.

Guide learners to identify the application or industrial use of the filtration, evaporation, etc. methods of separation.

Assessment

State one solvent for each of the following substances

- i. Common salt
- ii. Oil paint
- iii. Coal tar
- iv. Sucrose
- v. chlorophyll

**PHASE 3:  
REFLECTION**

Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.

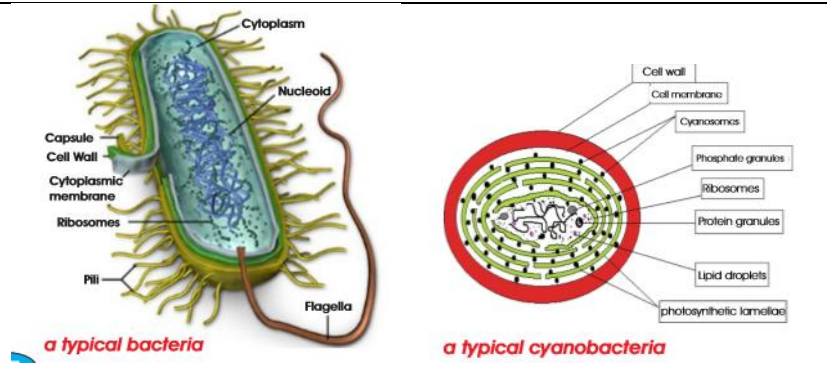
Take feedback from learners and summarize the lesson.

## WEEK 3

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Diversity Of Matter
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Living Cells
<b>Content Standard:</b> B8.1.2.1 Demonstrate an understanding of the types of cells and their structure in relation to different organisms		<b>Indicator:</b> B8.1.2.1.1 Examine and describe the structure of prokaryotic and eukaryotic cells.
<b>Performance Indicator:</b> Learners can examine and describe the structure of prokaryotic and eukaryotic cells		<b>Lesson:</b> 2 of 2
<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:		
<b>References:</b> Science Curriculum Pg. 54		

Phase/Duration	Learners Activities	Resources										
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>											
<b>PHASE 2: NEW LEARNING</b>	<p>Revise with learners on the definition of a cell.</p> <p>Guide them to explain the concepts in the learner's book.</p> <p>Brainstorm learners to explain the terms;            A prokaryotic cell is a type of cell that lacks a membrane-bound nucleus and other membrane-bound organelles, such as mitochondria, endoplasmic reticulum, and Golgi apparatus.            An eukaryotic cell is a type of cell that has a membrane-bound nucleus and other membrane-bound organelles, such as mitochondria, endoplasmic reticulum, and Golgi apparatus.</p> <p>Compare and contrast prokaryotic and eukaryotic cells.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Prokaryotes</th> <th style="width: 50%;">Eukaryotes</th> </tr> </thead> <tbody> <tr> <td>I. Prokaryotic cells are the type old of cells</td> <td>I. Eukaryotic cells are the cells modern/new which came from the prokaryotic cells</td> </tr> <tr> <td>They have do not a definite nucleus</td> <td>They have a definite shape</td> </tr> <tr> <td>The chromatin bodies remain scattered within the cytoplasm</td> <td>The chromatin bodies are enclosed by a nuclear membrane</td> </tr> <tr> <td>Asexual reproduction like binary fission occurs in prokaryotes</td> <td>Both sexual and asexual reproduction occurs in eukaryotes</td> </tr> </tbody> </table> <p>Create a table to show a chart or a slideshow depicting images and labels of the types of cells. Identify their differences and similarities after observation.</p> <p>Put learners into groups, let them draw and label a prokaryotic cell and a eukaryotic cell and make a presentation on what is observed.</p>	Prokaryotes	Eukaryotes	I. Prokaryotic cells are the type old of cells	I. Eukaryotic cells are the cells modern/new which came from the prokaryotic cells	They have do not a definite nucleus	They have a definite shape	The chromatin bodies remain scattered within the cytoplasm	The chromatin bodies are enclosed by a nuclear membrane	Asexual reproduction like binary fission occurs in prokaryotes	Both sexual and asexual reproduction occurs in eukaryotes	Pictures and charts
Prokaryotes	Eukaryotes											
I. Prokaryotic cells are the type old of cells	I. Eukaryotic cells are the cells modern/new which came from the prokaryotic cells											
They have do not a definite nucleus	They have a definite shape											
The chromatin bodies remain scattered within the cytoplasm	The chromatin bodies are enclosed by a nuclear membrane											
Asexual reproduction like binary fission occurs in prokaryotes	Both sexual and asexual reproduction occurs in eukaryotes											





Guide learners to discuss the importance of prokaryotic and eukaryotic cells.

- Most enzymes in the digestive system that assist in the breakdown of food are in the form of prokaryotes.
- Pathogenic microbes are forms of prokaryotes that from harmful protect us micro-organisms.
- Some prokaryotes help our immune system to function properly.
- Plants are eukaryotic organisms that provide humans with most of the requirements of life like; oxygen, food, medicine, etc.
- Lower class organisms like; worms’ termites play active roles in the decay of organic matter into humus; which is ready form of plant food.

Assessment  
 Describe briefly how prokaryotes are different from eukaryotes.  
 Name two [2] single bound membrane organelles in eukaryotic cells

**PHASE 3:  
 REFLECTION**

Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.

Take feedback from learners and summarize the lesson.

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science	
<b>Duration:</b> 100mins		<b>Strand:</b> Diversity Of Matter	
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Classification of Organisms	
<b>Content Standard:</b> B8.1.2.1 Demonstrate an understanding of the types of cells and their structure in relation to different organisms		<b>Indicator:</b> B8.1.2.1.2 Classify organisms (plants or animals) as prokaryotic or eukaryotic based on the type of cells they are made of	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can classify organisms as prokaryotic or eukaryotic		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:	
<b>References:</b> Science Curriculum Pg. 54			

Phase/Duration	Learners Activities	Resources
PHASE 1: <b>STARTER</b>	Revise with learners on the previous lesson.  Share learning indicators and introduce the lesson.	
PHASE 2: <b>NEW LEARNING</b>	<p>Have learners observe and list examples of organisms; plants and animals as prokaryotic or eukaryotic based on each cell type.</p> <p><u>Prokaryotic Organisms:</u></p> <ol style="list-style-type: none"> <li>1. Bacteria (e.g., <i>Escherichia coli</i>, <i>Streptococcus</i>)</li> <li>2. Archaea (e.g., <i>Halobacterium</i>, <i>Methanobacterium</i>)</li> <li>3. Cyanobacteria (e.g., <i>Anabaena</i>, <i>Synechocystis</i>)</li> </ol> <p><u>Eukaryotic Plants:</u></p> <ol style="list-style-type: none"> <li>1. Mosses (e.g., <i>Physcomitrium patens</i>)</li> <li>2. Ferns (e.g., <i>Pteridium aquilinum</i>)</li> <li>3. Flowering plants (e.g., <i>Arabidopsis thaliana</i>, <i>Rosa hybrid</i>)</li> </ol> <p><u>Eukaryotic Animals:</u></p> <ol style="list-style-type: none"> <li>1. Roundworms (e.g., <i>Caenorhabditis elegans</i>)</li> <li>2. Insects (e.g., <i>Drosophila melanogaster</i>, <i>Apis mellifera</i>)</li> <li>3. Fish (e.g., <i>Danio rerio</i>, <i>Salmo salar</i>)</li> <li>4. Reptiles (e.g., <i>Chelonia mydas</i>, <i>Python regius</i>)</li> <li>5. Birds (e.g., <i>Gallus gallus</i>, <i>Passer domesticus</i>)</li> <li>6. Mammals (e.g., <i>Homo sapiens</i>, <i>Mus musculus</i>, <i>Canis lupus</i>)</li> </ol> <p>Explain the impact of prokaryotes and eukaryotes on humans' health and devise safety measures to protect them.</p> <p><u>Prokaryotes:</u></p> <ol style="list-style-type: none"> <li>1. <i>Beneficial Impact:</i> Prokaryotes play a crucial role in human health. Beneficial bacteria, such as those in the gut microbiota, help with digestion, nutrient absorption, and the synthesis of vitamins. They also provide protection against harmful pathogens by competing for resources and producing antimicrobial substances.</li> <li>2. <i>Pathogenic Impact:</i> Some prokaryotes can cause diseases in humans. Examples include bacteria like <i>Escherichia coli</i>, <i>Streptococcus pneumoniae</i>, and <i>Mycobacterium tuberculosis</i>, which can lead to conditions such as urinary tract infections, pneumonia, and tuberculosis, respectively.</li> </ol> <p><u>Safety Measures:</u></p> <ol style="list-style-type: none"> <li>1. <i>Good Hygiene Practices:</i> Practicing good hygiene, such as regular handwashing with soap and water, helps prevent the spread of pathogenic</li> </ol>	Pictures and charts



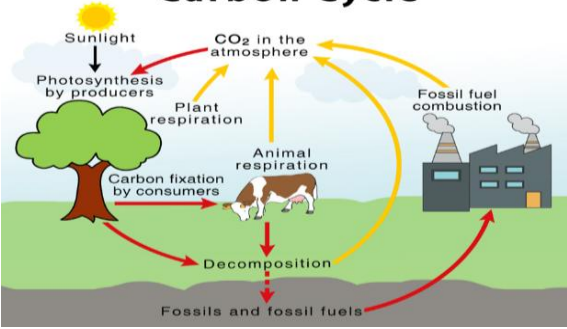
	<p><i>bacteria. This is especially important before handling food, after using the restroom, and when in contact with individuals who are sick.</i></p> <p><i>2. Vaccination: Vaccines are available for several bacterial infections, such as tetanus, diphtheria, pertussis, and pneumococcal diseases. Ensuring appropriate vaccination helps protect against these pathogens.</i></p> <p><b>Eukaryotes:</b></p> <p><i>1. Beneficial Impact: Eukaryotes have various positive effects on human health. For example, plants provide us with essential nutrients, medicinal compounds, and oxygen through photosynthesis. Additionally, beneficial eukaryotic organisms like fungi contribute to the decomposition of organic matter and the formation of healthy soils.</i></p> <p><i>2. Pathogenic Impact: Some eukaryotes can cause diseases in humans. Examples include fungi such as Candida albicans, which can cause yeast infections, and parasitic organisms like Plasmodium spp., responsible for malaria, and Trypanosoma cruzi, causing Chagas disease.</i></p> <p><b><u>Safety Measures:</u></b></p> <p><i>1. Personal Hygiene: Maintaining personal hygiene, including regular bathing, cleaning of living spaces, and proper handling and storage of food, helps minimize the risk of fungal and parasitic infections.</i></p> <p><i>2. Vector Control: Controlling vectors like mosquitoes and ticks helps prevent the transmission of diseases caused by parasitic eukaryotes. Measures include using insect repellents, wearing protective clothing, and eliminating breeding sites.</i></p> <p><i>3. Proper Food Handling: Properly washing, cooking, and storing food helps prevent the growth and spread of eukaryotic pathogens. This includes refrigerating perishable items, avoiding cross-contamination, and following food safety guidelines.</i></p> <p><b><u>Assessment</u></b></p> <ol style="list-style-type: none"> <li>1. What is the role of beneficial bacteria in human health?</li> <li>2. Give an example of a prokaryotic organism that can cause disease in humans.</li> <li>3. How can good hygiene practices help prevent the spread of pathogenic bacteria?</li> <li>4. Name a eukaryotic organism that provides essential nutrients to humans.</li> <li>5. What are some safety measures to protect against fungal infections?</li> <li>6. How can vector control help prevent the transmission of diseases caused by eukaryotic parasites?</li> <li>7. What is the importance of proper food handling in relation to eukaryotic pathogens?</li> <li>8. Which type of cell, prokaryotic or eukaryotic, is found in plants?</li> <li>9. How do eukaryotic fungi contribute to healthy soils?</li> <li>10. Name a vaccine-preventable bacterial infection.</li> </ol>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



## WEEK 4

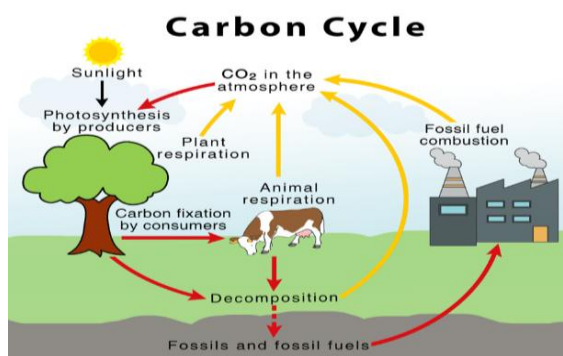
<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> The Carbon Cycle
<b>Content Standard:</b> B8.2.1.1 Demonstrate understanding of the process of Carbon cycle as an example of repeated pattern of change in nature and how it relates to the environment		<b>Indicator:</b> B8.2.1.1.1 Explain the process of the carbon cycle.
		<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can describe the process of the carbon cycle.		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:
<b>References:</b> Science Curriculum Pg. 57		
Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	Revise with learners on the previous lesson.	
	Share learning indicators and introduce the lesson.	
<b>PHASE 2: NEW LEARNING</b>	Brainstorm learners to name different forms of carbon that they have encountered.	Pictures and Charts
	<p>Revise with learners to define key terms such as photosynthesis and respiration.</p> <p>Have learners discuss the role of carbon dioxide in the atmosphere.</p> <p>Guide learners to explain the carbon cycle. The carbon cycle is the biological cycle by which carbon is exchanged among the biosphere, pedosphere, geosphere, and atmosphere of earth.</p> <p>Let learners identify the carbon cycle from charts or pictures and write short notes on what happens at each stage.            Stage 1: <i>Carbon enters the atmosphere as CO<sub>2</sub>.</i>            Stage 2: <i>CO<sub>2</sub> is absorbed by autotrophs such as green plants.</i>            Stage 3: <i>Animals consume plants, thereby, incorporating carbon into their system.</i>            Stage 4: <i>Animals and Plants die, their bodies decompose and carbon is reabsorbed back into the atmosphere.</i></p> <p>Produce a flow chart to trace the process of the carbon cycle in nature</p>	



	<p style="text-align: center;"><b>Carbon Cycle</b></p>  <p>Explain the process of the carbon cycle depicting processes such as  a) Photosynthesis b) Respiration c) Burning d) Decay</p> <p>Have learners compile information on the carbon cycle and give reasons why it is a repeated pattern  e.g. it is because the carbon is circulated continuously in the environment</p>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science	
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles	
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> The Carbon Cycle	
<b>Content Standard:</b> B8.2.1.1 Demonstrate understanding of the process of Carbon cycle as an example of repeated pattern of change in nature and how it relates to the environment		<b>Indicator:</b> B8.2.1.1.1 Explain the process of the carbon cycle.	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can describe the process of the carbon cycle.		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:	
<b>References:</b> Science Curriculum Pg. 57			

Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Brainstorm learners to name different forms of carbon that they have encountered.</p> <p>Revise with learners to define key terms such as photosynthesis and respiration.</p> <p>Have learners discuss the role of carbon dioxide in the atmosphere.</p> <p>Guide learners to explain the carbon cycle. The carbon cycle is the biological cycle by which carbon is exchanged among the biosphere, pedosphere, geosphere, and atmosphere of earth.</p> <p>Let learners identify the carbon cycle from charts or pictures and write short notes on what happens at each stage.  Stage 1: Carbon enters the atmosphere as CO<sub>2</sub>.  Stage 2: CO<sub>2</sub> is absorbed by autotrophs such as green plants.  Stage 3: Animals consume plants, thereby, incorporating carbon into their system.  Stage 4: Animals and Plants die, their bodies decompose and carbon is reabsorbed back into the atmosphere.</p> <p>Produce a flow chart to trace the process of the carbon cycle in nature</p>	Pictures and Charts

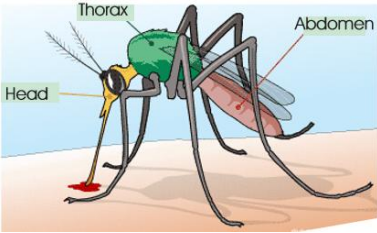


	<p>Explain the process of the carbon cycle depicting processes such as a) Photosynthesis b) Respiration c) Burning d) Decay</p> <p>Have learners compile information on the carbon cycle and give reasons why it is a repeated pattern e.g. it is because the carbon is circulated continuously in the environment</p>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	

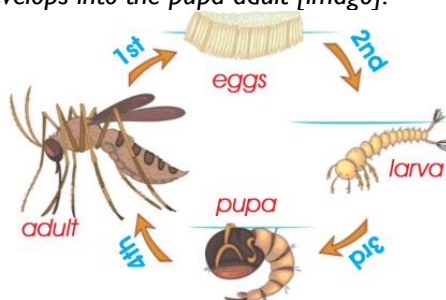


## WEEK 5

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Life Cycle Of The Anopheles Mosquito
<b>Content Standard:</b> B8.2.2.1 Demonstrate an activity to show the life cycle of the Anopheles mosquito and show how the effects of the mosquito on humans can be managed		<b>Indicator:</b> B8.2.2.1.1 Describe the life cycle and economic importance of the Anopheles mosquito
<b>Performance Indicator:</b> Learners can describe the life cycle and economic importance of the Anopheles mosquito		<b>Lesson:</b> 1 of 1
<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:		
<b>References:</b> Science Curriculum Pg. 59		

Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson. Ask learners to mention some common insects in their home and why they dislike them.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Paste a chart of pictures of common insects on the board. Let learners identify the names of these insects.</p> <p>Have learners relate to these insects and tell which are harmful and not harmful.</p> <p>Brainstorm learners to describe a mosquito. <i>The mosquito is a parasite that breeds in stagnant water bodies like; choked gutters ponds bushy, and even in surroundings</i></p> <div style="text-align: center;">  </div> <p>Explain to learners that, most of these species of mosquitoes do not bite humans nor transmit any kind of a disease, but the female anopheles mosquito does.</p> <p>In groups, have learners research on the internet to find more information on the female anopheles mosquito. <i>Example: The female anopheles mosquito is the vector/carrier of plasmodium which is the causative agent; i.e. causes the disease malaria.</i></p> <p>Observe and draw the different stages of the life cycle of the Anopheles mosquito e.g. by breeding the mosquito in a glass jar.</p> <ol style="list-style-type: none"> <li>1. The adult female anopheles mosquito adult lays eggs onto the surface of a stagnant water body.</li> <li>2. The eggs hatch into larvae in eggs 2-5 days after they are laid.</li> <li>3. The larvae grows to become the larvae pupa.</li> </ol>	Pictures and Charts

4. The pupa develops into the pupa adult [imago].



Guide learners to describe the economic importance of the Anopheles mosquito.

Example:

1. Mosquitoes visit flowers for nectar and in the process cause pollination of the flowers of such plants
2. Mosquitoes help to preserve fossil when their larvae feed on microorganisms such as algae and microbes that speed the decay of organic matter.
3. Mosquito larvae aquatic food chain by serving as food sources for many predators like fish and birds.

Assessment

- Describe the stages in the life cycle of a mosquito
- State three economic importance of the Anopheles mosquito

PHASE 3:  
**REFLECTION**

Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.

Take feedback from learners and summarize the lesson.

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science	
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles	
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Life Cycle Of The Anopheles Mosquito	
<b>Content Standard:</b> B8.2.2.1 Demonstrate an activity to show the life cycle of the Anopheles mosquito and show how the effects of the mosquito on humans can be managed		<b>Indicator:</b> B8.2.2.1. 2 Discuss the impact of the Anopheles mosquito on humans and how it can be controlled	<b>Lesson:</b> 1 of 1
<b>Performance Indicator:</b> Learners can discuss the impact of the Anopheles mosquito on humans and how it can be controlled		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:	
<b>References:</b> Science Curriculum Pg. 59			

Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	Revise with learners on the previous lesson.  Share learning indicators and introduce the lesson.	
<b>PHASE 2: NEW LEARNING</b>	Put learners in groups of four. Let them discuss the impact of the female Anopheles mosquito as a vector of plasmodium on humans.  Give learners enough time for this activity. Have them present their findings to the whole class for discussion. Example: 1. Mosquitoes cause various diseases in humans and other animals  Brainstorm learners to mention some methods to control malaria. <ul style="list-style-type: none"> <li>• the environmental control method,</li> <li>• the chemical control method</li> <li>• the biological control method</li> <li>• The genetic method.</li> </ul> Guide learners to discuss each of the methods of controlling malaria in Ghana. <ol style="list-style-type: none"> <li>1. <i>The environmental method of mosquito control involves; the draining of choked gutters [stagnant/standing water] and the weeding/clearing of bushes in order to destroy the breeding grounds of the female anopheles mosquito.</i></li> <li>2. <i>The chemical method of controlling mosquitoes involves the use of chemicals like; insecticides or pesticides to kill the mosquitoes during the various stages of their development.</i></li> <li>3. <i>The biological method involves the use of the natural enemy mosquito parasite to control its population. For instance, mosquito eating fishes like; Tilapia and Guppies could be introduced into mosquito infested ponds to feed on the mosquito eggs and larvae and thus control their population</i></li> <li>4. <i>The genetic method involves the breeding [producing] and the release of sterile [infertile] male mosquitoes; i.e. male anopheles mosquitoes into the environment [surroundings]. When the sterile male mosquitoes mate with the fertile female mosquitoes, there are no eggs laid.</i></li> </ol>	Pictures and Charts



	<p>Have learners role play to generate solutions to control malaria in Ghana.</p> <p><u>Assessment</u></p> <ol style="list-style-type: none"> <li>1. State and explain the methods to control malaria in Ghana.</li> <li>2. Write two advantages and two disadvantages each for the following; <ol style="list-style-type: none"> <li>I. the environmental control method,</li> <li>II. the chemical control method</li> <li>III. the biological control method</li> <li>IV. The genetic method</li> </ol> </li> </ol>	
<p><b>PHASE 3:</b> <b>REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



WEEK 6

<b>Week Ending:</b>		<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles	
<b>Class:</b> B8	<b>Class Size:</b>		<b>Sub Strand:</b> Crop production
<b>Content Standard:</b> B8.2.3.1 Show an understanding of differences in maturities of different crops grown in different soils and different seed beds		<b>Indicator:</b> B98.2.3.1.1 Observe and describe differences in maturation of crops grown in different soils and on different seed beds.	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can observe and record the maturation stages of different crops in various soils and seed beds.		<b>Core Competencies:</b> Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy (DL), Creativity and Innovation	
<b>References:</b> Science Curriculum Pg. 96			
<b>Key words:</b> Maturation Stages, Soil Influence, Seed Bed Impact, <b>Soil Composition:</b>			
<b>Phase/Duration</b>	<b>Learners Activities</b>	<b>Resources</b>	
<b>PHASE 1: STARTER</b>	<p>Begin the lesson with a brief discussion about the factors that influence plant growth.</p> <p>Ask learners to share their thoughts on what plants need to grow successfully.</p> <p>Emphasize the importance of these factors in the growth and maturity of crops.</p> <p>Share learning indicators and introduce the lesson.</p>		
<b>PHASE 2: NEW LEARNING</b>	<p>Set up different stations with various soils and seed beds. Plant different crops in each station. Assign groups to each station.</p> <p>In their groups, learners observe and record the maturity stages of the crops in each station. They can use notebooks or observation sheets to document their findings.</p> <p>After a set time, rotate the groups to different stations, allowing learners to observe and record the maturity stages of different crops in various soils and seed beds.</p> <p>Have each group share their observations and recordings with the class. Discuss the differences in maturity stages among the different crops in different environments.</p> <p>Engage the class in a discussion about the impact of soil and seed bed variations on plant growth.</p> <p>Encourage learners to share their insights and draw connections between their observations and the key words introduced earlier.</p> <p><u>Assessment</u></p> <p>1. "How did the different soils and seed beds influence the maturity stages of the crops you observed?"</p>	<p>Various crops (e.g., beans, corn, or radishes) Different types of soil (e.g., clay, sand, loam) Various seed beds (e.g., raised beds, traditional beds)</p>	



	<ol style="list-style-type: none"> <li>2. "What patterns or similarities did you notice in the growth of crops in specific soil types or seed beds?"</li> <li>3. "Reflect on the role of soil composition in supporting plant growth. How does it affect maturity stages?"</li> <li>4. "In what ways does observing and recording crop maturity stages enhance our understanding of plant development and agricultural practices?"</li> </ol>	
<b>PHASE 3: REFLECTION</b>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



<b>Week Ending:</b>		<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles	
<b>Class:</b> B8	<b>Class Size:</b>		<b>Sub Strand:</b> Crop production
<b>Content Standard:</b> B8.2.3.1 Show an understanding of differences in maturities of different crops grown in different soils and different seed beds		<b>Indicator:</b> B8.2.3.1.1 Observe and describe differences in maturation of crops grown in different soils and on different seed beds.	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can compare and contrast the maturity stages of crops and seedlings in the community/school garden with those grown in external locations.		<b>Core Competencies:</b> Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy (DL), Creativity and Innovation	
<b>References:</b> Science Curriculum Pg. 96			
<b>Key words:</b> Comparative Analysis, Environmental Factors, Community/School Garden			
<b>Phase/Duration</b>	<b>Learners Activities</b>		<b>Resources</b>
<b>PHASE 1: STARTER</b>	<p>Begin the lesson with a reflective question: "What factors do you think influence the growth and maturity of plants in our community/school garden?"</p> <p>Allow learners to share their thoughts and experiences.</p> <p>Share learning indicators and introduce the lesson.</p>		
<b>PHASE 2: NEW LEARNING</b>	<p>In small groups, provide learners with notebooks or observation sheets. Ask them to observe and record the maturity stages of crops and seedlings in the community/school garden.</p> <p>Visual Aids: Use visual aids, such as pictures or charts, to show images of crops and seedlings grown in external locations.</p> <p>Discuss the environmental factors that may influence their growth.</p> <p>Encourage groups to discuss and compare their observations with the images of crops from external locations.</p> <p>Learners should focus on similarities and differences in maturity stages and consider environmental factors.</p> <p>Each group shares their comparative analysis findings with the class. Encourage learners to articulate their observations and insights.</p> <p>Facilitate an open discussion where learners can ask questions, express opinions, and engage with their peers.</p> <p>Encourage critical thinking and deeper analysis of the factors influencing crop maturity.</p> <p><u>Assessment</u></p> <ol style="list-style-type: none"> <li>"What similarities and differences did you observe in the maturity stages of crops in our community/school garden compared to external locations?"</li> <li>"Reflect on the impact of environmental factors on crop maturity. How do they contribute to the differences observed?"</li> </ol>		Seeds or small plants from the community/school garden



	<p>3. "In what ways does a comparative analysis enhance our understanding of plant growth and environmental influences?"</p> <p>4. "How might community or school initiatives improve the conditions for crop growth, considering what you've learned about external environments?"</p>	
<p><b>PHASE 3:</b> <b>REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



WEEK 7

<b>Week Ending:</b>		<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles	
<b>Class:</b> B8	<b>Class Size:</b>		<b>Sub Strand:</b> Crop production
<b>Content Standard:</b> B8.2.3.2 Demonstrate knowledge and understanding of uses of different crops at different maturity stages		<b>Indicator:</b> B8.2.3.2.1 Observe and record the uses of different crops at different maturity stages	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can discuss and write about the uses of each maturity stage of identified crops.		<b>Core Competencies:</b> Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy	
<b>References:</b> Science Curriculum Pg. 96			
<b>Key words:</b> Maturity Stages, Utilization, Agricultural Products, Culinary			
<b>Phase/Duration</b>	<b>Learners Activities</b>	<b>Resources</b>	
<b>PHASE 1: STARTER</b>	<p>Begin the lesson with a thought-provoking question: "Can you think of ways in which different stages of plant growth might be useful to us?"</p> <p>Allow learners to share their initial thoughts and experiences.</p> <p>Share learning indicators and introduce the lesson.</p>		
<b>PHASE 2: NEW LEARNING</b>	<p>Define the term "maturity stages" in the context of crop development. Discuss the significance of each stage in the life cycle of a crop.</p> <p>Divide the class into small groups and assign each group a common crop (e.g., wheat, rice, tomato, maize).</p> <p>Instruct each group to research and discuss the uses of each maturity stage of their assigned crop.</p> <p>Groups create a visual representation or chart listing the uses at each stage.</p> <p>Each group presents their findings to the class, contributing to a collective chart on the board.</p> <p><u>Assessment</u></p> <ol style="list-style-type: none"> <li>1. What environmental factors influence the germination stage, and how can farmers optimize them for better crop establishment?</li> <li>2. How does nutrient management play a vital role in maximizing the vegetative stage, and what are the potential challenges in nutrient uptake?</li> </ol>	Pictures and charts	
<b>PHASE 3: REFLECTION</b>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>		



<b>Week Ending:</b>		<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Cycles	
<b>Class:</b> B8	<b>Class Size:</b>		<b>Sub Strand:</b> Crop production
<b>Content Standard:</b> B8.2.3.2 Demonstrate knowledge and understanding of uses of different crops at different maturity stages		<b>Indicator:</b> B8.2.3.2.1 Observe and record the uses of different crops at different maturity stages	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can categorize crops based on their different maturity stages and identify their uses.		<b>Core Competencies:</b> Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy	
<b>References:</b> Science Curriculum Pg. 96			
<b>Key words:</b> Categorization, Crop Maturity Stages, Utilitarian, Collaborative Learning			
<b>Phase/Duration</b>	<b>Learners Activities</b>		<b>Resources</b>
<b>PHASE 1: STARTER</b>	<p>Begin the lesson with a visual stimulus: display images of crops in different maturity stages.</p> <p>Ask learners to describe what they observe and think about how the maturity stages might impact the uses of these crops.</p> <p>Share learning indicators and introduce the lesson.</p>		
<b>PHASE 2: NEW LEARNING</b>	<p>Briefly review the concept of crop maturity stages and their importance in agriculture.</p> <p>Introduce the lesson's objective: to categorize crops based on their maturity stages and understand their uses.</p> <p>Discuss why it's valuable for farmers and agriculturalists to know the maturity stages of different crops.</p> <p>Provide information on various crops, including details about their maturity stages and common uses. Ensure diversity in the types of crops presented.</p> <p>Divide the class into small groups. Assign each group a set of crops to categorize based on their maturity stages and uses.</p> <p>Groups collaboratively categorize the assigned crops, creating charts or diagrams to represent their findings.</p> <p>Encourage discussions on the reasoning behind their categorizations.</p> <p>Each group presents their categorization to the class, explaining the rationale behind their decisions.</p> <p>Ask each student to write a brief reflection on the collaborative categorization activity.</p> <p><u>Assessment</u></p> <p>1. "In what ways does categorizing crops by maturity stages and uses align with the utilitarian aspect of agriculture?"</p>		Pictures and charts



	<p>2. What are the key factors influencing successful pollination during the reproductive stage, and how can farmers enhance pollination efficiency?</p> <p>3. How can farmers determine the optimal time for harvesting, and what factors contribute to the overall quality of the harvested crop?</p>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject: Science</b>	
<b>Duration: 100mins</b>		<b>Strand: Cycles</b>	
<b>Class: B8</b>	<b>Class Size:</b>	<b>Sub Strand: Crop production</b>	
<b>Content Standard:</b> B8.2.3.2 Demonstrate knowledge and understanding of uses of different crops at different maturity stages		<b>Indicator:</b> B8.2.3.2.2 Evaluate the importance of knowledge of maturity stages of different crops to human beings	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can evaluate the importance of knowledge about the maturity stages of different crops.		<b>Core Competencies:</b> Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy (DL), Creativity and Innovation	
<b>References: Science Curriculum Pg. 98</b>			
<b>Key words: Agricultural Sustainability, Interdependence, Ecosystem Services, Holistic Perspective</b>			
<b>Phase/Duration</b>	<b>Learners Activities</b>	<b>Resources</b>	
<b>PHASE 1: STARTER</b>	<p>Begin the lesson with a thought-provoking question: "Why do you think it's important for farmers and gardeners to understand the different stages of a plant's growth?"</p> <p>Allow learners to share their initial thoughts and experiences. This will set the stage for discussing the importance of knowledge about crop maturity stages.</p> <p>Share learning indicators and introduce the lesson.</p>		
<b>PHASE 2: NEW LEARNING</b>	<p>Define the term "crop maturity stages" and discuss the different stages (seedling, vegetative, flowering, fruiting, ripening).</p> <p>Explain that each stage has specific uses and benefits for humans, other crops, animals, and the environment.</p> <p>Present examples of different crops and discuss the specific uses and benefits at each maturity stage. Use the whiteboard or chart paper to create a visual representation.</p> <p>Break the class into small groups and provide each group with information on a specific crop.</p> <p>Instruct them to research and create a presentation on the uses of each maturity stage for humans, other crops, animals, and the environment.</p> <p>Each group presents their findings to the class, fostering a collective understanding of the diverse uses of crop maturity stages.</p> <p>Conduct a brief discussion on how climate and geographical factors can influence the timing of maturity stages in crops.</p> <p>Relate this information to the importance of selecting suitable crops for a specific region.</p>	<p>Pictures and charts, Information on various crops, maturity stages, and uses</p>	



	<p><u>Assessment</u></p> <ol style="list-style-type: none"> <li>1. How did considering the uses of each maturity stage from a holistic perspective contribute to your understanding of agricultural sustainability?"</li> <li>2. In what ways do the uses of crop maturity stages illustrate the interdependence of humans, other crops, animals, and the environment?"</li> <li>3. How might a farmer or gardener benefit from having a comprehensive understanding of the uses of different maturity stages in crop management?"</li> <li>4. How do the uses of crop maturity stages contribute to the provision of ecosystem services?"</li> </ol>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject: Science</b>	
<b>Duration: 100mins</b>		<b>Strand: Cycles</b>	
<b>Class: B8</b>	<b>Class Size:</b>	<b>Sub Strand: Crop production</b>	
<b>Content Standard:</b> B8.2.3.2 Demonstrate knowledge and understanding of uses of different crops at different maturity stages		<b>Indicator:</b> B8.2.3.2.2 Evaluate the importance of knowledge of maturity stages of different crops to human beings	<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can compare different stages of maturity of crops in the community with those used in other places		<b>Core Competencies:</b> Critical Thinking and Problem Solving (CP), Communication and Collaboration (CC) Digital Literacy (DL), Creativity and Innovation	
<b>References: Science Curriculum Pg. 98</b>			
<b>Key words: Agroecology, Optimization, Cultivar, Comparative Analysis</b>			
<b>Phase/Duration</b>	<b>Learners Activities</b>	<b>Resources</b>	
<b>PHASE 1: STARTER</b>	<p>Begin the lesson with a scenario-based question: "Imagine you are a farmer and have a choice of growing two different crops.</p> <p>What factors would you consider in selecting the crops to plant?" Allow learners to brainstorm and share their thoughts.</p> <p>Share learning indicators and introduce the lesson.</p>		
<b>PHASE 2: NEW LEARNING</b>	<p>Provide information on various crops, including details about their maturity stages, growth conditions, and optimal uses.</p> <p>Divide the class into small groups. Assign each group a specific crop to explore in terms of maturity stages and crop management.</p> <p>Groups collaboratively explore and discuss how knowledge of the maturity stages of their assigned crop helps a farmer in crop selection, timing of harvest, and other aspects of crop management. Encourage a practical and agro ecological perspective.</p> <p>Each group presents their findings to the class, focusing on the practical applications of knowledge about crop maturity stages for crop management.</p> <p>Ask each student to write a brief reflection on what they learned about the role of maturity stages in crop management. How might this knowledge impact their decisions as a farmer?</p> <p><u>Assessment</u></p> <ol style="list-style-type: none"> <li>1. How does knowledge of maturity stages contribute to effective crop selection and management?"</li> <li>2. In what ways does understanding crop maturity stages align with the principles of agroecology?"</li> <li>3. "How might a farmer benefit from optimizing crop management based on knowledge of maturity stages, especially in terms of harvest timing?"</li> <li>4. Compare the crop management strategies discussed in your group with those of another group. What similarities or differences did you find?"</li> </ol>	Pictures and charts, Samples of crops from the community	



<b>PHASE 3: REFLECTION</b>	Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.  Take feedback from learners and summarize the lesson.	
--------------------------------	---	--



## WEEK 8

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Life Cycles Of Organisms
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Animal Production
<b>Content Standard:</b> B8.2.4.1 Recognize the different types of feed for different types of animals		<b>Indicator:</b> B8.2.4.1.1 Compare and contrast the different types of feed for different types of animals
		<b>Lesson:</b> 1 of 2
<b>Performance Indicator:</b> Learners can compare and contrast the different types of feed for different types of animals		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:
<b>References:</b> Science Curriculum Pg. 62		
<b>Phase/Duration</b>	<b>Learners Activities</b>	<b>Resources</b>
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Display pictures or illustrations of different animals and ask the learners to identify them.</p> <p>Initiate a class discussion by asking the learners about the types of food they think these animals eat.</p> <p>Explain that different animals have different dietary needs and require specific types of feed to stay healthy and thrive.</p> <p>Present a list of common types of animals (e.g., cows, chickens, dogs, cats, rabbits, birds) on the board or chart paper.</p> <p>Discuss each animal one by one, asking the learners to suggest the types of feed that are suitable for each animal.</p> <p>Facilitate a class discussion to identify the specific dietary requirements of each animal and the types of feed they consume.</p> <p>Introduce the concept of categorizing animal feed based on its source and form.</p> <p>Explain that animal feed can be broadly categorized into three groups:</p> <ul style="list-style-type: none"> <li>• plant-based feed,</li> <li>• animal-based feed, and</li> <li>• processed feed.</li> </ul> <p>Discuss examples of feed types within each category, such as grass, grains, insects, meat, and commercial pellet feed.</p> <p>Write these categories and examples on the board or chart paper. Have learners match the animals with the appropriate feed types by drawing lines or writing the corresponding numbers.</p>	Pictures and charts



	<p><u>Assessment</u></p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p><b>Animals:</b></p> <p>Cow</p> <p>Cat</p> <p>Dog</p> <p>Chicken</p> <p>Rabbit</p> <p>Bird</p> </div> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p><b>Types of Feed:</b></p> <p>a. Grass</p> <p>b. Pellet feed</p> <p>c. Meat</p> <p>d. Grains</p> <p>e. Insects</p> <p>f. Hay</p> </div> </div>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



## WEEK 9

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Life Cycles Of Organisms
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Animal Production
<b>Content Standard:</b> B8.2.4.2 Demonstrate understanding of the importance of water and animal feed to the growth of animals		<b>Indicator:</b> B8.2.4.2.1 Explain the importance of water and animal feed to the growth of animals
<b>Performance Indicator:</b> Learners can explain the importance of water and animal feed to the growth of animals		<b>Lesson:</b> 1 of 2
<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:		
<b>References:</b> Science Curriculum Pg. 63		

Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Discuss the types of nutrients and their sources in the different types of animal feed.</p> <p>1. Carbohydrates:</p> <ul style="list-style-type: none"> <li>• Sources: Grains (such as corn, wheat, barley, and oats), grasses, hay, silage, and root crops (like potatoes and beets).</li> <li>• Function: Carbohydrates provide energy for animals' daily activities, growth, and reproduction.</li> </ul> <p>2. Proteins:</p> <ul style="list-style-type: none"> <li>• Sources: Soybean meal, fishmeal, meat and bone meal, poultry by-products, legumes (such as alfalfa and clover), and some grains (like soybeans and field peas).</li> <li>• Function: Proteins are essential for muscle development, tissue repair, enzyme production, and the formation of hormones and antibodies.</li> </ul> <p>3. Fats and Oils:</p> <ul style="list-style-type: none"> <li>• Sources: Vegetable oils (like soybean oil and canola oil), animal fats, fish oils, and oilseeds (such as sunflower seeds and flaxseeds).</li> <li>• Function: Fats and oils are concentrated sources of energy and provide essential fatty acids. They also aid in the absorption of fat-soluble vitamins.</li> </ul> <p>4. Vitamins:</p> <ul style="list-style-type: none"> <li>• Sources: Fresh forage, green leafy vegetables, grains, and commercial vitamin supplements.</li> <li>• Function: Vitamins are necessary for various metabolic processes, proper growth, and the maintenance of overall health. They include vitamins A, D, E, K, and B-complex vitamins.</li> </ul> <p>5. Minerals:</p> <ul style="list-style-type: none"> <li>• Sources: Mineral supplements, salt blocks, bone meal, fishmeal, and various feed ingredients.</li> </ul>	Pictures and charts



- *Function: Minerals, such as calcium, phosphorus, potassium, magnesium, and trace minerals (like iron, zinc, copper, and selenium), are critical for bone development, nerve function, enzyme systems, and other physiological processes.*

**6. Water:**

- *Sources: Clean drinking water is the primary source.*
- *Function: Water is essential for hydration, nutrient absorption, digestion, temperature regulation, and overall cellular function in animals.*

Select and discuss appropriate feed for animal based on the proportions of nutrients indicated on the package or labels

List and discuss the usefulness of water and feed for the growth and reproduction of animals.

Water:

- *Hydration: Water is crucial for maintaining proper hydration in animals. It is involved in various physiological processes, including digestion, nutrient absorption, and waste elimination. Adequate water intake helps animals regulate their body temperature and maintain overall physiological balance.*
- *Nutrient Transport: Water acts as a carrier for nutrients, aiding in their absorption and transportation throughout the animal's body. It helps dissolve and distribute essential nutrients, such as carbohydrates, proteins, minerals, and vitamins, to the cells and tissues where they are needed for growth, repair, and reproduction.*
- *Metabolic Reactions: Water is a vital component of many metabolic reactions that occur within an animal's body. These reactions are responsible for energy production, synthesis of proteins and enzymes, and the breakdown and utilization of nutrients. Without sufficient water, these processes can be compromised, leading to reduced growth and reproduction.*
- *Milk Production: In lactating animals, water intake is crucial for milk production. Adequate hydration ensures sufficient milk volume and quality, which is vital for the growth and development of offspring.*
- *Reproduction: Proper hydration is necessary for successful reproduction in animals. Water is involved in various reproductive processes, including the development of reproductive organs, hormone regulation, semen production, and the maintenance of pregnancy.*

Feed:

- *Energy and Nutrient Source: Feed provides animals with the necessary energy and nutrients for growth, development, and reproduction. It supplies carbohydrates, proteins, fats, vitamins, minerals, and other essential nutrients that support various physiological functions and promote optimal body condition.*
- *Growth and Development: Adequate and balanced feed promotes proper growth and development in young animals. It provides the necessary nutrients for bone formation, muscle development, and overall body growth. Proper nutrition during early stages is crucial for achieving optimal adult size and body composition.*
- *Reproductive Performance: High-quality feed plays a significant role in the reproductive performance of animals. It supports optimal reproductive organ function, hormone production, and fertility. Balanced nutrition*

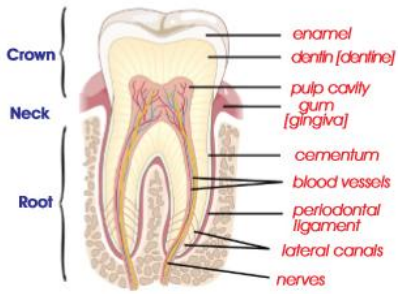


	<p><i>ensures proper ovulation, sperm production, and successful conception, leading to healthy offspring.</i></p> <ul style="list-style-type: none"> <li>• <i>Milk Production: For lactating animals, appropriate feed is essential for sustaining milk production. It supplies the necessary energy and nutrients required for milk synthesis, ensuring proper nutrition for the young animals.</i></li> </ul> <p>Learners in their groups predict what will happen to animals who are not provided with adequate water.</p> <p><u>Assessment</u></p> <ol style="list-style-type: none"> <li>1. Why is water important for animals?</li> <li>2. How does water help in nutrient transport within an animal's body?</li> <li>3. Name one way in which water is involved in the reproductive processes of animals.</li> <li>4. What role does feed play in providing energy to animals?</li> <li>5. How does feed support the growth and development of young animals?</li> </ol>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



## WEEK 10

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Systems
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Mammalian Tooth
<b>Content Standard:</b> B8. 3.1.1 Demonstrate knowledge of parts of mammalian tooth and the functions of the different types of teeth in relation to feeding in man		<b>Indicator:</b> B8.3.1.1.1 Identify parts of a mammalian tooth
<b>Performance Indicator:</b> Learners can identify parts of a mammalian tooth		<b>Lesson:</b> 1 of 1
<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:		
<b>References:</b> Science Curriculum Pg. 59		

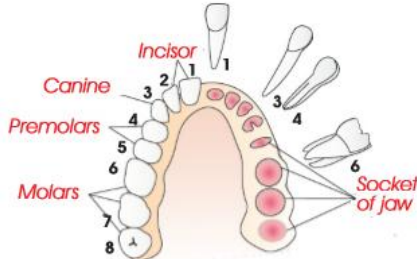
Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson. Ask learners to mention some common insects in their home and why they dislike them.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Brainstorm learners to explain the dentition. Dentition refers to the shape, number and the arrangement of in the teeth mouth of an animal</p> <p>Have learners understand that the type of dentition in an animal is mainly suited [adapted] to the animal's mode of feeding.</p> <p>Guide learners to discuss the types of dentition in mammals. Homodont dentition and Heterodont dentition</p> <p>Learners talk about the milk [deciduous teeth] and the permanent [wisdom] teeth.</p> <p>Guide learners to draw and label parts of a mammalian tooth.</p> <div style="text-align: center;">  </div> <p>In groups, learners discuss the three parts of the mammalian tooth.</p> <ul style="list-style-type: none"> <li>• The crown is the part of the tooth which is crown found above the gum</li> <li>• The is the part of the tooth which is root embedded in the jaw bone</li> <li>• The is the region [part] of the tooth neck where the crown meets the root</li> </ul> <p>Guide learners to explain the functions of each part of the mammalian tooth of humans.</p>	Pictures and Charts

	<ul style="list-style-type: none"> <li>• <i>The enamel is the outermost layer of the enamel tooth which forms the biting surface of the crown. It is the most hardest material in the human body.</i></li> <li>• <i>The dentine is the layer of the tooth which is found beneath the enamel. It forms a greater part of the tooth.</i></li> <li>• <i>The pulp cavity is a region within the tooth where the blood vessels are found.</i></li> <li>• <i>The gum is the flesh that holds the crown and the root together.</i></li> <li>• <i>The jaw bone contains the sockets that serve as a basement for the tooth.</i></li> <li>• <i>The cement is the adhesive substance that holds the tooth firmly in the jawbone and also to the periodontal fibers and membranes</i></li> </ul> <p><u>Assessment</u>  Draw a well labelled mammalian tooth.  State and explain the types of dentition with examples.  What is dentition?</p>	
<p><b>PHASE 3: REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	



## WEEK 11

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Systems
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Mammalian Tooth
<b>Content Standard:</b> B8. 3.1.1 Demonstrate knowledge of parts of mammalian tooth and the functions of the different types of teeth in relation to feeding in man		<b>Indicator:</b> B8.3.1.1.2 Discuss the functions of the different types of teeth such as incisors, canines, premolars, and molars.
<b>Performance Indicator:</b> Learners can discuss the functions of the different types of teeth		<b>Lesson:</b> 1 of 1
<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:		
<b>References:</b> Science Curriculum Pg. 59		

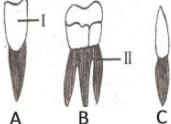
Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson. Ask learners to mention some common insects in their home and why they dislike them.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Discuss the functions of the different types of human teeth. Types of teeth</p> <ul style="list-style-type: none"> <li>• Incisors- The incisors are the front row teeth and are used for cutting food.</li> <li>• Canines- The canines are conical edged in shape and are used for shearing flesh from bones</li> <li>• Molars and Premolars- they have broad surfaces with some tiny projections on them called cups. They are used for grinding food.</li> </ul> <p>Engage learners to draw the different types of teeth.</p> <div style="text-align: center;">  <p>The diagram illustrates the different types of human teeth in a cross-section of the upper jaw. The teeth are numbered 1 through 8. 1 is an Incisor, 2 is a Canine, 3 and 4 are Premolars, and 5, 6, 7, and 8 are Molars. A label 'Socket of jaw' points to the base of the teeth.</p> </div> <p><u>Assessment</u> State one function of each of the following 1) Incisors 2) Canines 3) Molars 4) Premolars</p>	Pictures and Charts
<b>PHASE 3: REFLECTION</b>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	

## WEEK 12







<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Systems
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Tooth And Gum Decay
<b>Content Standard:</b> B8. 3.1.1 Demonstrate knowledge of parts of mammalian tooth and the functions of the different types of teeth in relation to feeding in man		<b>Indicator:</b> B8.3.1.1.3 Explain the causes and prevention of tooth and gum decay.
		<b>Lesson:</b> 1 of 1
<b>Performance Indicator:</b> Learners can explain the causes and prevention of tooth and gum decay		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:
<b>References:</b> Science Curriculum Pg. 65		

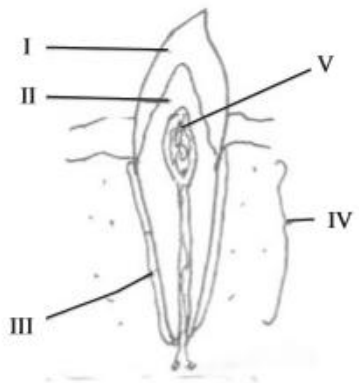
Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Brainstorm learners to mention some disease of the teeth. Write learners ideas on the board and discuss with them.</p> <p>Drill learners for the correct pronunciation and meaning of the keywords in the lesson. <i>There are many diseases that can affect the teeth, but the common among them includes; tooth decay, plaque and gum disease</i></p> <p>Guide learners to describe the causes of tooth decay, gum diseases and formation of plaque and the proper way of preventing tooth decay.</p> <p>1. Dental caries [tooth decay] <i>Tooth decay occurs when small holes are created in the enamel of the teeth. This is due to the accumulation of acids as a result of the action of some bacteria on sugary foods that are left on the enamel for a long time.</i></p> <p>2. Plaque <i>It consists of a sticky film layer deposit that is made up of food remains on the teeth which has been mixed with saliva by the action of bacteria and other microorganisms.</i></p> <p>3. Periodontal [gum] disease <i>Gum disease is an advanced form of plaque occurs when bacteria causes the gum to be inflamed; i.e. to feel painful when it is touched and to also bleed frequently. Periodontal disease may also lead to bad breath and the loss of teeth if it is not treated.</i></p> <p>Guide learners to discuss how each of the tooth diseases could be treated or prevented.</p> <p><u>Treatment of Tooth Decay</u></p> <p>1. <i>The affected tooth can be removed in order to prevent the infection from spreading.</i></p> <p>2. <i>The cavities that have been created within the tooth can either be removed or filled.</i></p>	Pictures and Charts



	<p><u>Treatment of Plague</u>  <i>Plague can easily be removed by the proper brushing of the teeth using a good tooth paste and brush.</i></p> <p><u>Treatment of Gum disease</u>  <i>1. The teeth should be brushed properly in order to prevent the accumulation of bacteria or plaque.</i>  <i>2. The teeth should be brushed at least twice daily.</i></p> <p><u>Assessment</u>  The diagrams below are illustrations of the different types of teeth in humans. Study them carefully and use them to answer the questions that follow.</p>  <p>i. Identify each type of teeth labeled A, B and C.  ii. Describe the shape of each of the teeth labeled A, B and C.  iii. State one function of each of the teeth labeled A, B and C.  iv. Name the parts of the teeth labeled I and II</p>	
<p><b>PHASE 3:</b>  <b>REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	

<b>Week Ending:</b>	<b>DAY:</b>	<b>Subject:</b> Science
<b>Duration:</b> 100mins		<b>Strand:</b> Systems
<b>Class:</b> B8	<b>Class Size:</b>	<b>Sub Strand:</b> Tooth And Gum Decay
<b>Content Standard:</b> B8. 3.1.1 Demonstrate knowledge of parts of mammalian tooth and the functions of the different types of teeth in relation to feeding in man	<b>Indicator:</b> B8.3.1.1.3 Explain the causes and prevention of tooth and gum decay.	<b>Lesson:</b> 2 of 2
<b>Performance Indicator:</b> Learners can explain the causes and prevention of tooth and gum decay		<b>Core Competencies:</b> DL 5.3: CI 6.8: DL 5.1: CI 6.6:
<b>References:</b> Science Curriculum Pg. 59		

Phase/Duration	Learners Activities	Resources
<b>PHASE 1: STARTER</b>	<p>Revise with learners on the previous lesson.</p> <p>Share learning indicators and introduce the lesson.</p>	
<b>PHASE 2: NEW LEARNING</b>	<p>Guide learners to discuss how to ensure a strong and a healthy teeth.</p> <ol style="list-style-type: none"> <li>Brush your teeth at least two [2] times daily; i.e. in the morning and in the evening, in order to remove plaque which leads to teeth decay.</li> <li>Avoid eating too much sugary foods</li> <li>Avoid eating either too hot or too cold foods.</li> <li>Change your toothbrush at least once every three months</li> <li>Frequently chew tough substances like bones and fibers like sugarcane in order to strengthen the teeth</li> <li>Avoid sharp pointed objects like pins, needles, knife, broom, sticks, etc.</li> <li>Visit the dentist regularly, at least twice a year for teeth examination, advice and treatment.</li> </ol> <p>Using pictures and charts demonstrate to learners the proper ways of cleaning the teeth.</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%; text-align: center;">  <p><b>1</b> Place the brush at a 45° angel to the front tooth surface. Bristles must contact both lines of tooth and gum.</p> </div> <div style="width: 33%; text-align: center;">  <p><b>2</b> Move the brush in a small, jiggling, circular motion.</p> </div> <div style="width: 33%; text-align: center;">  <p><b>3</b> Clean the inside surfaces of the back teeth by moving the brush in a small back and forth motion.</p> </div> <div style="width: 33%; text-align: center;">  <p><b>1</b> Place the brush at a 45° angel to the front tooth surface. Bristles must contact both lines of tooth and gum.</p> </div> <div style="width: 33%; text-align: center;">  <p><b>2</b> Move the brush in a small, jiggling, circular motion.</p> </div> <div style="width: 33%; text-align: center;">  <p><b>3</b> Clean the inside surfaces of the back teeth by moving the brush in a small back and forth motion.</p> </div> </div>	Pictures and Charts

	<p><u>Assessment</u>  The diagram below is an illustration of a longitudinal section of a canine tooth in humans  Study the diagram carefully and answer the questions that follow</p>  <p>I. Name each of the parts labeled I, II, III, IV and V.  ii. What is the function of each of the parts labeled I and III?  iii. Which of the labeled parts could be affected by tooth decay?  iv. State three ways by which tooth decay may be prevented.</p>	
<p><b>PHASE 3:</b>  <b>REFLECTION</b></p>	<p>Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.</p> <p>Take feedback from learners and summarize the lesson.</p>	