

W K	L S N	Strand	Sub-strand	Lesson Learning Outcome	Learning Experiences	Key Inquiry Question	Learning Resources	Assessment	Refl
1	1	Mixtures ,Elements and Compounds.	Structure of the Atom.	By the end of the lesson, the learner should be able to: <ul style="list-style-type: none"> <li>a) Define the term Atom.</li> <li>b) Describe the structure of the atom.</li> <li>c) Draw a circle showing the general structure of an atom.</li> <li>d) Acknowledge the structure of the atom.</li> </ul>	In groups or pairs, learners are guided to: <ul style="list-style-type: none"> <li>brainstorm and present the meaning of Atom.</li> <li>use digital or print resources to search for information on the structure of the atom.</li> <li>discuss the structure of the atom and illustrate its structure using a diagram.</li> </ul>	How is the structure of the atom important?  What are the components of an atom?	Digital devices.  Charts.  Learner's Book.  Lesson notes.	Observation.  Oral questions.  Written tests.  Assessment rubrics.  Checklists.	
	2	Mixtures ,Elements and Compounds.	Structure of the Atom.	By the end of the lesson, the learner should be able to: <ul style="list-style-type: none"> <li>a) Differentiate between Atomic number and Mass number.</li> <li>b) Determine the mass number of the twenty elements.</li> <li>c) Prepare charts showing the mass</li> </ul>	In groups or pairs, learners are guided to: <ul style="list-style-type: none"> <li>use digital or print resources to find the meaning of Atomic and Mass number.</li> <li>discuss the difference between mass and atomic number.</li> </ul>	What is the difference between Atomic and Mass number?  How do determine the mass number of elements?	Lesson notes.  Learner's Textbook.  Charts.  Digital devices	Checklists.  Written tests  Oral questions.  Assessment rubrics.	

				<p>number of the twenty elements.</p> <p>d) Enjoy determining the mass number of elements.</p>	<p>work out the mass number of the twenty elements collaboratively.</p> <p>prepare charts showing the twenty elements and their mass number.</p>					
	3	Mixtures ,Elements and Compounds.	Structure of the Atom.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Define the term Electron arrangement.</p> <p>b) Draw the electron arrangement in atoms using dots and cross diagrams.</p> <p>c) Show interest in drawing electron arrangement in atoms using dots or cross diagrams.</p> <p>.</p>	<p>In groups or pairs,learners are guided to:</p> <p>explain the meaning of electron arrangement and energy level.</p> <p>observe the teacher or video clip on drawing electron arrangement in atoms using dots or cross diagrams.</p> <p>illustrate the electron arrangement in atoms using dots or cross diagrams.</p>	What is electron arrangement?	<p>Learner's books.</p> <p>Lesson notes.</p> <p>Digital devices.</p> <p>Video clips.</p>	<p>Observation.</p> <p>Oral questions.</p> <p>checklists.</p> <p>Illustration.</p> <p>Written questions.</p>		
	4	Mixtures ,Elements and Compounds.	Structure of the Atom.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Draw electron arrangement of the twenty elements on charts and books.</p>	<p>In groups or pairs,learners are guided to:</p> <p>collaborate in drawing electron arrangement of the twenty elements using dots or cross</p>	How do you draw the electron arrangement of elements?	<p>Learner's book.</p> <p>Lesson notes.</p> <p>Charts.</p> <p>Marker Pens.</p>	<p>Observation.</p> <p>Oral questions.</p> <p>Checklists.</p>		

				<p>b) Enjoy drawing the electron arrangement of the twenty elements in periodic table.</p>	<p>diagrams on charts and exercise books.</p> <p>display their charts in class and peers to assess them and give feedback.</p>		<p>Pair of compasses.</p> <p>Circular objects.</p>	<p>Peer Assessment.</p> <p>Assessment rubrics.</p>	
	5	Mixtures ,Elements and Compounds.	Structure of the Atom.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Identify the feature used to distinguish metals and non-metals based on electron arrangement.</p> <p>b) Explain how the number of valence electrons distinguishes metals from non-metals based on their tendency to lose or gain electrons.</p> <p>c) Search for information on how you can classify elements into metals or non-metals based on electron arrangement.</p>	<p>In groups or pairs, learners are guided to:</p> <p>use digital devices to search for information on which feature one can use to distinguish metals and non-metals based on electron arrangement.</p> <p>discuss how the number of valence electrons distinguishes metals from non-metals based on their tendency to lose or gain electrons.</p> <p>watch clips on how one can distinguish elements as either metals or non-metals.</p>	<p>What are valence electrons?</p> <p>How can you distinguish metals and non-metals elements based on electron arrangement?</p>	<p>Learner's book.</p> <p>Lesson notes .</p> <p>Digital devices.</p> <p>Video clips.</p>	<p>Observation.</p> <p>Oral questions.</p> <p>Written questions.</p> <p>Assessment rubrics.</p>	

				d) Acknowledge how one can easily classify elements as metals or non-metals.					
2	1	Mixtures ,Elements and Compounds.	Structure of the Atom.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Classify elements into metals and non-metals based on the electron arrangement.</p> <p>b) Prepare charts showing the metals and non-metals elements.</p> <p>c) Show interest in classifying elements into metals and non-metals .</p>	<p>In groups or pairs,learners are guided to;</p> <p>use electron arrangement to classify the twenty elements into metals and non-metals.</p> <p>collaborate on preparing charts showing the elements classified as metals and non-metals.</p>	How can you determine an element is a metal or non-metal ?	<p>Lesson notes.</p> <p>Charts.</p> <p>Learner's book.</p> <p>Dots and cross diagrams of the twenty elements.</p>	<p>observations.</p> <p>Questions and answers.</p> <p>Checklists.</p> <p>Assessment rubrics.</p>	
	2-3	Mixtures ,Elements and Compounds.	Structure of the Atom.	<p>By the end of the lesson,the learner should be able to:</p> <p>a) Identify the locally available materials to use in modelling the atomic structure of selected elements of the periodic table.</p>	<p>In groups,learners are guided to;</p> <p>collaborate on brainstorming on the suitable locally available materials to use in modelling elements.</p> <p>collect the identified locally available</p>	Which locally available materials can you use to model the elements of the periodic table?	<p>Digital devices.</p> <p>Environment.</p> <p>Cartons, buttons,beads, cardboards etc.</p> <p>Learner's book.</p>	<p>Checklists.</p> <p>Observation schedule.</p> <p>Assessment rubrics.</p> <p>Portfolios.</p> <p>Project.</p>	

				<p>b) Model the atomic structure of the selected elements of the periodic table using locally available materials.</p> <p>c) Enjoy modeling the atomic structure of the selected elements of the periodic table using locally available materials.</p>	<p>materials needed for modelling the elements.</p> <p>collaborate in modelling the twenty elements of the periodic table.</p> <p>display their models in class for assessment.</p>				
	4	Mixtures ,Element s and Compou nds.	Structure of the Atom  Assessment.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Attempt questions on the sub-strand: Structure of the atom.</p>	<p>Individually or in pairs,learners are guided to:</p> <p>answer the questions on the sub-strand: Structure of the atom correctly.</p>		<p>. Learner's Textbook.</p> <p>Teacher's Assessment Questions Book.</p> <p>Digital devices.</p>	<p>Written Questions.</p> <p>Assessment rubrics.</p> <p>Checklists.</p>	
	5	Mixtures ,Element s and Compou nds.	Metals and Alloys.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Identify the physical properties of metals.</p> <p>b) Describe the physical properties of metals.</p> <p>c) Search the internet for information on</p>	<p>In groups or pairs,learners are guided to;</p> <p>use digital or print resources to search for information on the physical properties of metals.</p> <p>identify the physical properties of metals.</p>	<p>What is a metal?</p> <p>What are the physical properties of the metals?</p>	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Digital devices.</p> <p>Charts.</p> <p>Posters or flashcards.</p>	<p>Assessment rubrics.</p> <p>Checklists.</p> <p>Oral questions.</p> <p>Written questions.</p>	

				<p>the physical properties of metals.</p> <p>d) Acknowledge the physical properties of the metals.</p>	<p>discuss the physical properties of the metals.</p> <p>prepare posters or flashcards showing the physical properties of metals and display in class.</p>				
3	1	Mixtures ,Elements and Compounds.	Metals and Alloys.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Carry out experiments to demonstrate the physical properties of metals.</p> <p>b) Enjoy carrying out the experiments to determine the physical properties of metals.</p>	<p>In groups,learners are guided to:</p> <p>study the procedure for conducting the experiments on physical properties of metals.</p> <p>collaborate in carrying out experiments to demonstrate the physical properties of metals.</p> <p>observe, record and discuss their observations.</p> <p>present their findings from the experiments.</p>	Which experiment can you conduct to determine the physical properties of metals?	<p>Laboratory.</p> <p>Experiment requirements.</p> <p>Learner's Textbook.</p> <p>Lesson notes.</p>	<p>Demonstration.</p> <p>Checklists.</p> <p>Observation.</p> <p>Oral questions.</p> <p>Assessment rubrics.</p>	
	2	Mixtures ,Elements and Compounds.	Metals and Alloys.	<p>By the end of the lesson,the learner should be able to:</p> <p>a) Define the term Alloys.</p>	<p>In groups or pairs,learners are guided to:</p> <p>brainstorm on the meaning of alloy.</p>	<p>What is an Alloy?</p> <p>Which examples of alloys do you know?</p>	<p>Lesson notes.</p> <p>Digital devices</p> <p>Learner's Textbook.</p> <p>Charts.</p>	<p>Oral questions.</p> <p>Checklists.</p> <p>Written questions.</p>	

				b) Describe the composition of the alloys. c) Search the internet for information on the composition of common alloys. d) Acknowledge the composition of common alloys.	give examples of common alloys and identify the elements in them.  use digital devices to search for information on composition of common alloys.  discuss the composition of the common alloys.			Assessment rubrics.	
	3	Mixtures ,Elements and Compounds.	Metals and Alloys.	By the end of the lesson,the learner should be able to:  a) Identify the physical properties of the common Alloys. b) Describe the physical properties of Alloys. c) Search the internet for information on physical properties of Alloys. d) Acknowledge the physical properties of Alloys.	In groups or pairs,learners are guided to:  use digital or print resources to search for information on the physical properties of alloys.  identify the physical properties of alloys.  discuss the physical properties of alloys.  prepare flashcards and charts showing the physical properties of alloys.	What are the physical properties of alloys?	Lesson notes.  Learner's Textbook.  Charts  Flashcards.  Digital devices.  Internet.	Checklists.  Oral questions.  Written questions.  Assessment rubrics.	

4	Mixtures ,Elements and Compounds.	Metals and Alloys	<p>By the end of the lesson, the learner should be able to:</p> <ol style="list-style-type: none"> <li>Identify the uses of different metals in day to day life.</li> <li>Discuss the uses of the different metals.</li> <li>Prepare flashcards or charts showing the uses of the metals in the society.</li> <li>Appreciate the uses of the different metals in the society.</li> </ol>	<p>In groups or pairs,learners are guided to:</p> <p>mention some of items made of metals in the locality.</p> <p>use print or digital resources to search for information on the uses of metals.</p> <p>identify and discuss the uses of the different metals</p> <p>collaborate in preparing flashcards or charts showing the uses of the different metals.</p>	What are the uses of the different metals in the locality?	<p>Lesson notes.</p> <p>Learner's textbook.</p> <p>Digital devices.</p> <p>Flashcards</p> <p>Pictures.</p> <p>Items made from metals.</p> <p>Charts.</p>	<p>Assessment rubrics.</p> <p>Checklists.</p> <p>Written questions.</p> <p>Oral questions.</p>	
5	Mixtures , Elements and Compounds.	Metals and Alloys	<p>By the end of the lesson,the learner should be able to:</p> <ol style="list-style-type: none"> <li>Identify the uses of alloys in day to day life.</li> <li>Discuss the uses of the alloys in day to day life.</li> <li>Prepare flashcards or charts showing the uses of alloys in day to day life.</li> </ol>	<p>In groups or pairs,learners are guided to;</p> <p>collaborate in identifying some of the items in the locality made of alloys.</p> <p>use print or digital resources to search for information on uses of common alloys.</p>	<p>What are the uses of the common alloys in the locality?</p> <p>What items are made of alloys in the locality?</p>	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Digital devices.</p> <p>Charts.</p> <p>Flashcards.</p> <p>Items made from alloys.</p> <p>Pictures.</p>	<p>Checklists.</p> <p>Oral questions.</p> <p>Written questions.</p> <p>Assessment rubrics.</p>	



				<p>d) Appreciate the uses of the different alloys in day to day life.</p>	<p>identify and discuss the uses of the common alloys in the locality.</p> <p>collaborate in preparing charts or flashcards showing the uses of the common alloys in the locality.</p>				
4	1	Mixtures ,Element s and Compou nds.	Metals and Alloys.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) State the meaning of Rust in metals</p> <p>b) Identify the causes of rusting in metals.</p> <p>c) Describe the causes of rusting in metals.</p> <p>d) Acknowledge the causes of rusting in metals.</p>	<p>In groups or pairs,learners are guided to:</p> <p>observe rusted items e.g nails,</p> <p>brainstorm on the meaning of rusting and present in class.</p> <p>use digital or print resources to search for information and clips on causes of rusting in metals.</p> <p>discuss the causes of rusting in metals.</p>	<p>What is rust?</p> <p>What are the causes of rusting in the environment?</p>	<p>Lesson notes</p> <p>Learner's Textbook.</p> <p>Digital devices.</p> <p>Video clips.</p> <p>Rusted nails etc.</p>	<p>Checklists.</p> <p>Assessment rubrics.</p> <p>Written questions.</p> <p>Oral questions.</p> <p>Observation.</p>	
	2	Mixtures ,Element s and Compou nds.	Metals and Alloys.	<p>By the end of the lesson,the learner should be able to:</p> <p>a) Carry out simple experiment on the</p>	<p>In groups,learners are guided to:</p> <p>prepare the requirements for the experiment.</p>	<p>What is your observations from the experiment on causes of rusting?</p>	<p>Nails.</p> <p>kitchen Oil.</p> <p>Drying agent.</p> <p>Containers.</p>	<p>Checklists.</p> <p>Demonstratio n.</p> <p>Practical.</p>	

				<p>causes of rusting on metals.</p> <p>b) Enjoy carrying out the experiment on causes of rusting on metals.</p>	<p>collaborate in carrying out the experiment on causes of rusting.</p> <p>observe,record and discuss their observation after a few days.</p>		<p>Water.</p> <p>Laboratory.</p> <p>Learner's textbook.</p> <p>Lesson notes.</p>	<p>Observation schedule.</p> <p>Oral questions.</p>	
	3	Mixtures , Elements and Compounds.	Metals and Alloys.	<p>By the end of the lesson,the learner should be able to:</p> <p>a) Identify the effects of rusting on metals.</p> <p>b) Discuss the effects of rusting on metals.</p> <p>c) Search the internet for information on the effects of rusting on metals.</p> <p>d) Acknowledge the effects of rusting on metals in the environment.</p>	<p>In groups or pairs,learners are guided to:</p> <p>observe some of the metallic objects that have rusted.</p> <p>identify the effects of rusting on metals.</p> <p>use digital or print resources to search for information on the effects of rusting on metals.</p> <p>discuss the effects of rusting on metals.</p>	What are the effects of rusting on metals?	<p>Lesson notes</p> <p>Digital devices</p> <p>Learner's Textbook.</p> <p>Rusted metallic objects.</p>	<p>Oral questions.</p> <p>Written questions.</p> <p>Checklists.</p> <p>Observation.</p> <p>Assessment rubrics.</p>	
	4	Mixtures ,Elements and Compounds.	Metals and Alloys.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) State ways of controlling rusting of metals in the environment.</p>	<p>In groups or pairs, learners are guided to:</p> <p>brainstorm on the different ways of controlling rusting on metals.</p> <p>use digital or print resources to search for</p>	Which ways can you use to control rusting on metals?	<p>Lesson notes.</p> <p>Digital devices.</p> <p>Learner's Textbook.</p> <p>Video clips.</p>	<p>Written questions.</p> <p>Checklists.</p> <p>Observation.</p> <p>Oral questions.</p>	

				b) Discuss the different ways of controlling rusting on metals. c) Search the internet for information on the ways of controlling rusting on metals. d) Acknowledge the different ways of controlling rusting on metals.	information on ways of controlling rusting on metals.  discuss the different ways of controlling rusting on metals.			Assessment rubrics.	
	5	Mixtures ,Element s and Compou nds.	Metals and Alloys;  Assessment.	By the end of the lesson,the learner should be able to:  a) Attempt assessment questions on the sub-strand: Metals and Alloys.	In pairs or individually,learners are guided to:  answer the assessment questions on the sub-strand:Metals and Alloys in their exercise books.		Assessment books.  Learner's Textbook.  Teacher's Assessment Questions.	Written questions.  Checklists.  Assessment rubrics.	
5	1	Mixtures ,Element s and Compou nds.	Water Hardness.	By the end of the lesson, the learner should be able to:  a) Identify the physical properties of water. b) Describe the physical properties of water. c) Search the internet for information on	In groups or pairs,learnersare guided to;  brainstorm on the physical properties of water and present in class.  discuss the physical properties of water.	What are the physical properties of water?	Lesson notes.  Learner's Textbook.  Different sources of water:tanks, boreholes,dams  Digital devices.	Checklists.  Oral questions.  Written questions.  Assessment rubrics.	

				<p>physical properties of water.</p> <p>d) Acknowledge the physical properties of water.</p>	<p>collect and observe water from different sources.</p> <p>compare the water collected in terms of appearance, odour, taste and boiling points.</p> <p>record observations and present in class.</p>					
	2	Mixtures, Elements and Compounds.	Water Hardness.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) State the meaning of hard Water.</p> <p>b) Discuss the properties of hard water.</p> <p>c) Search the internet for information on properties of hard water.</p> <p>d) Acknowledge the properties of hard water.</p>	<p>In groups or pairs, learners are guided to:</p> <p>brainstorm on the meaning of hard water and present.</p> <p>use digital or print resources to search for information on the properties of hard water.</p> <p>discuss the properties of hard water.</p>	<p>What is hard water?</p> <p>What are the properties of hard water?</p>	<p>Lesson notes</p> <p>Learner's Textbook.</p> <p>Digital devices.</p> <p>Internet.</p>	<p>Checklists.</p> <p>Written questions.</p> <p>Oral questions.</p> <p>Assessment rubrics.</p>		
	3	Mixtures, Elements and Compounds.	Water Hardness.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) State the meaning of Soft water.</p>	<p>In groups or pairs, learners are guided to:</p> <p>brainstorm on the meaning of soft water and present in class.</p>	<p>What are the properties of soft water?</p>	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Digital devices.</p>	<p>Checklists.</p> <p>Oral questions.</p> <p>Written questions.</p>		

				<ul style="list-style-type: none"> <li>b) Discuss the properties of soft water.</li> <li>c) Search the internet for information on properties of soft water.</li> <li>d) Acknowledge the properties of soft water.</li> </ul>	<p>use digital or print resources to search for information on properties of soft water.</p> <p>discuss the properties of soft water.</p>		Flashcards.	Assessment rubrics.	
	4	Mixtures ,Elements and Compounds.	Water Hardness.	<p>By the end of the lesson, the learner should be able to:</p> <ul style="list-style-type: none"> <li>a) Conduct the soap lather test to distinguish between hard and soft water.</li> <li>b) Group the samples of water into hard and soft water.</li> <li>c) Enjoy carrying out the activity.</li> </ul>	<p>In groups,learners are guided to;</p> <p>collaborate in identifying the materials and steps to follow in conducting the soap lather test.</p> <p>carry out activities to compare the lathering abilities of various samples of water.</p> <p>observe, record and discuss their observations.</p> <p>group the samples of water into either hard or soft water and present in class.</p>	Which test can you conduct to determine hard and soft water?	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Samples of water.</p> <p>Soap detergent.</p> <p>containers.</p> <p>Digital devices.</p>	<p>Checklists.</p> <p>Oral questions.</p> <p>Written questions.</p> <p>Practical Activity.</p> <p>Demonstration.</p> <p>Observation.</p>	
	5	Mixtures ,Elements and	Water Hardness.	By the end of the lesson,the learner should be able to:	In groups or pairs,learners are guided to:	How can we soften temporary	Lesson notes.	Demonstration.	

		Compounds.		a) Identify the methods of softening hard water in day to day life. b) Describe boiling as a method of softening temporary hard water. c) Conduct an activity to soften hard water using the boiling method. d) Appreciate boiling as one of the method of softening temporary hard water.	identify the methods of softening temporary hard water in our daily life.  use print or digital resources to search for information on boiling as a method of softening hard water.  discuss boiling as a method of softening temporary hard water.  collaborate in softening hard water using the boiling method and record their observation.	hard water in the environment?	Learner's Textbook.  Sample of hard water.  Source of heat: Bunsen burner.  Beakers.  Filter papers and Funnels.	Practical Activity.  Checklists.  Oral questions.  Written questions.  Observation.	
6	1	Mixtures ,Elements and Compounds.	Water Hardness.	By the end of the lesson, the learner should be able to:  a) Describe addition of washing soda as a method of softening temporary hard water.  b) Carry out an activity to soften temporary hard	In groups,learners are guided to;  use digital or print resources to search for information on addition of washing soda as a method of softening temporary hard water.  discuss addition of washing soda as a method	How do addition of washing soda soften temporary hard water?	Lesson notes.  Digital devices.  Learner's Textbook.  Sample of temporary hard water.  Sodium Carbonate (washing soda).	Checklists.  Practical Activity.  Written questions.  Observation schedule.  Assessment rubrics.	

				<p>water using addition of washing soda.</p> <p>c) Acknowledge use of washing soda as a method of softening temporary hard water.</p>	<p>of softening temporary hard water.</p> <p>collaborate in conducting an activity to soften temporary hard water by adding washing soda.</p> <p>observe, record and discuss their observations.</p>		<p>Beaker.</p> <p>Stirring rods.</p> <p>Filter paper</p> <p>Funnel.</p>	Demonstration.	
	2	Mixtures, Elements and Compounds.	Water Hardness.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Describe distilling as a method of softening temporary hard water.</p> <p>b) Conduct an activity to soften temporary hard water by distilling method.</p> <p>c) Appreciate distilling as a method of softening temporary hard water.</p>	<p>In groups, learners are guided to:</p> <p>brainstorm and present the meaning of distilling method.</p> <p>use digital or print resources to search for information on distilling as a method of softening temporary hard water.</p> <p>discuss distilling as a method of softening temporary hard water.</p> <p>carry out an activity to soften temporary hard water using distilling method.</p> <p>observe, record and discuss their findings.</p>	How can we soften temporary hard water using the distilling method?	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>condenser.</p> <p>Sample of temporary hard water.</p> <p>Source of heat: Bunsen burner.</p> <p>Distillation apparatus.</p>	<p>Checklists.</p> <p>Oral questions.</p> <p>Practical Activity.</p> <p>Observation.</p> <p>Assessment rubrics.</p>	

	3	Mixtures ,Elements and Compounds.	Water Hardness.	<p>By the end of the lesson,the learner should be able to:</p> <ol style="list-style-type: none"> <li>Outline the advantages and disadvantages of hard water.</li> <li>Discuss the advantages and disadvantages of hard water.</li> <li>Search the internet for information on advantages and disadvantages of hard water.</li> <li>Acknowledge the advantages and disadvantages of hard water</li> </ol>	<p>In groups or pairs,learners are guided to;</p> <p>brainstorm on the advantages and disadvantages of hard water and present.</p> <p>use digital and print resources to search for advantages and disadvantages of hard water.</p> <p>discuss the advantages and disadvantages of hard water.</p> <p>write their findings and present in class.</p>	<p>Why is hard water preferred for drinking?</p> <p>What are the advantages of hard water?</p> <p>What are the disadvantages of hard water?</p>	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Digital devices.</p> <p>Charts or flashcards.</p>	<p>Checklists.</p> <p>Oral questions.</p> <p>Written questions.</p> <p>Assessment rubrics.</p>	
	4	Mixtures ,Elements and Compounds.	Water Hardness.	<p>By the end of the lesson, the learner should be able to:</p> <ol style="list-style-type: none"> <li>Outline the advantages and disadvantages of soft water in our daily life.</li> <li>Discuss the advantages and disadvantages of soft water.</li> </ol>	<p>In groups or pairs,learners are guided to;</p> <p>brainstorm on the advantages and disadvantages of soft water and present.</p> <p>use digital or print resources to search for information on the advantages and</p>	<p>What are the advantages of soft water?</p> <p>What are the disadvantages of soft water?</p>	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Digital devices.</p> <p>Charts or flashcards.</p>	<p>Checklists.</p> <p>Oral questions.</p> <p>Written questions.</p> <p>Assessment rubrics.</p>	



				<p>c) Search the internet for information on the advantages and disadvantages of soft water.</p> <p>d) Acknowledge the advantages and disadvantages of soft water in the environment.</p>	<p>disadvantages of soft water.</p> <p>note down their findings.</p> <p>discuss their findings on the advantages and disadvantages of soft water and present in class.</p>				
	5	Mixtures ,Elements and Compounds.	Water Hardness.	<p>By the end of the lesson,the learner should be able to:</p> <p>a) State the applications of soft water in day to day life.</p> <p>b) Discuss the applications of soft water in our daily life</p> <p>c) Search the internet for applications of soft water in our daily life.</p> <p>d) Appreciate the applications of soft water in our daily life.</p>	<p>In groups or pairs,learners are guided to:</p> <p>brainstorm and present the applications of soft water in our daily life.</p> <p>use digital or print resources for information on applications of soft water in our daily life.</p> <p>discuss the applications of soft water in our daily life.</p> <p>prepare charts showing the applications of soft water in our daily life.</p>	What are the applications of soft water in our daily life?	<p>Lesson notes.</p> <p>Charts.</p> <p>Digital devices.</p> <p>Learner's Textbook.</p>	<p>Written questions.</p> <p>Oral questions.</p> <p>Assessment rubrics.</p> <p>Checklists.</p>	
7	1	Mixtures , Elements and	Water Hardness.	By the end of the lesson, the learner should be able to:	In groups,learners are guided to;	What are the applications of hard water	<p>Lesson notes.</p> <p>Learner's Textbook.</p>	<p>Written tests.</p> <p>Oral questions.</p>	

		Compounds.		a) State the applications of hard water in our daily life. b) Discuss the applications of hard water in our daily life. c) Search the internet for applications of hard water in our daily life. d) Appreciate the applications of hard water in our day to day life.	brainstorm and present the applications of hard water in our daily life.  use digital or print resources to search for information on applications of hard water in our daily life.  discuss the applications of hard water in our daily life.  prepare charts showing the applications of hard water and present in class.	in our daily life?	Digital devices  Internet.  Charts or flashcards.	Checklists.  Assessment rubrics.	
2	Mixtures , Elements and Compounds.	Water Hardness; Assessment.	By the end of the lesson,the learner should be able to;  a) Attempt assessment questions on the sub-strand;Water Hardness.	In pairs or individually,learners are guided to;  answer the assessment questions on the sub-strand correctly.			Assessment books.  Learner's Textbook.  Teacher's Assessment Questions.	Written questions.  Assessment rubrics.	
3	Living Things and Their Environment.	Nutrition in Plants.	By the end of the lesson,the learner should be able to:  a) Identify the external parts of a leaf.	In groups or pairs,learners are guided to;  use a hand lens to observe fresh leaves of plants.	What are the external features of a leaf?		Lesson notes.  Learner's Textbook.  Pictures.	Observation.  Checklists.  Oral questions.	

				b) Describe the external parts of a leaf. c) Draw and label the external parts of a leaf. d) Enjoy drawing and labeling the external parts of a flower.	identify the external parts of a leaf.  discuss the external parts of a leaf.  draw and label the external parts of a leaf on charts and in exercise books.		Digital devices. Hand lens. Fresh leaves.	Written questions. Drawing.	
	4	Living Things and Their Environment.	Nutrition in Plants.	By the end of the lesson, the learner should be able to:  a) Identify the internal parts of a leaf. b) Describe the internal features of a leaf. c) Draw and label the internal features of a leaf. d) Enjoy drawing the internal parts of a leaf.	In groups or pairs, learners are guided to;  use digital devices or study diagrams showing the internal parts of a leaf.  identify the different internal parts of a leaf from the diagrams.  discuss the functions and locations of the internal parts of a leaf.  individually, learners to draw and label the internal parts of a leaf on books and on charts.	Which internal parts of a leaf do you know?	Lesson notes. Pictures. Diagrams. Learner's Textbook. Charts.	Checklists. Assessment rubrics. Oral questions. Written questions.	

	5	Living Things and Their Environment.	Nutrition in Plants.	<p>By the end of the lesson,the learner should be able to:</p> <ul style="list-style-type: none"> <li>a) State the adaptations of a leaf to photosynthesis.</li> <li>b) Discuss the adaptations of the leaf to photosynthesis.</li> <li>c) Prepare charts showing the adaptations of the leaf to photosynthesis.</li> <li>d) Acknowledge the adaptations of the leaf to photosynthesis.</li> </ul>	<p>In groups,learners are guided to;</p> <p>use digital or print resources to search for information on the adaptations of a leaf to photosynthesis.</p> <p>note their findings in books.</p> <p>discuss the adaptations of the leaf in relation to their roles in photosynthesis.</p> <p>make charts showing the adaptations of the leaf to photosynthesis and present in class.</p>	How is the leaf adapted to ensure photosynthesis?	<p>Lesson notes.</p> <p>Digital devices.</p> <p>Charts.</p> <p>Learner's Textbook.</p>	<p>Written questions.</p> <p>Checklists.</p> <p>Oral questions.</p> <p>Assessment rubrics.</p>	
8	<b>MID-TERM BREAK</b>								
9	1	Living Things and Their Environment.	Nutrition in Plants.	<p>By the end of the lesson, the learner should be able to:</p> <ul style="list-style-type: none"> <li>a) Identify the parts of the chloroplast.</li> <li>b) Discuss the structure of the chloroplast and its role in photosynthesis.</li> </ul>	<p>In groups or pairs,learners are guided to:</p> <p>observe the structure of the chloroplast on charts/photomicrographs.</p> <p>identify the parts of the chloroplast.</p> <p>discuss the role of structure of the</p>	How is the chloroplast adapted to its function?	<p>Charts</p> <p>Photomicrograph of chloroplast.</p> <p>Lesson notes.</p> <p>Digital devices.</p> <p>Learner's Textbook.</p>	<p>Checklists.</p> <p>Assessment rubrics.</p> <p>Oral questions.</p> <p>Written questions.</p> <p>Observation.</p>	

				c) Draw and label the parts of the chloroplast. d) Appreciate the role of chloroplasts in photosynthesis.	chloroplast in photosynthesis.  draw and label the parts of the chloroplast on charts & exercise books and display in class.				
	2	Living Things and Their Environment.	Nutrition in Plants.	By the end of the lesson, the learner should be able to:  a) Define the term Photosynthesis in plants. b) Describe the process of photosynthesis in plants. c) Search the internet for information on the process of photosynthesis in plants. d) Appreciate the process of photosynthesis in nature.	In groups or pairs, learners are guided to;  use books, dictionary or internet to search the meaning of photosynthesis.  use print or digital devices to search for information on the process and products of photosynthesis.  discuss the process of photosynthesis in plants and share their findings in class.  watch clips on the process of photosynthesis.	What is photosynthesis?  What are the products of photosynthesis?	Lesson notes.  Digital devices.  Learner's Textbook.  Video clips.	Checklists.  Assessment rubrics.  Oral questions.  Written questions.	
	3	Living Things and Their	Nutrition in Plants.	By the end of the lesson, the learner should be able to:  a) Identify the conditions	In groups or pairs, learners are guided to;	What are the necessary conditions for	Lesson notes.  Digital devices.	Checklists.  Oral questions.	

		Environ- ment.		<p>necessary for photosynthesis to occur in plants.</p> <p>b) Discuss the conditions necessary for photosynthesis to take place in plants.</p> <p>c) Search the internet for information on conditions necessary for photosynthesis to occur in plants.</p> <p>d) Acknowledge the conditions necessary for photosynthesis to occur.</p>	<p>use digital devices or print resources to search for information on conditions necessary for photosynthesis to take place.</p> <p>identify the conditions necessary for photosynthesis to take place.</p> <p>discuss the conditions necessary for photosynthesis to take place and present their findings.</p> <p>prepare posters or charts showing the conditions necessary for photosynthesis to occur.</p>	photosynthesi s to occur?	Learner's Textbook.  Charts/Posters.	Written questions.  Assessment rubrics.	
4	Living Things and Their Environ- ment.	Nutrition in Plants	<p>By the end of the lesson, the learner should be able to:</p> <p>a) State the importance of photosynthesis in nature.</p> <p>b) Discuss the importance of photosynthesis in nature.</p>	<p>In groups or pairs, learners are guided to:</p> <p>brainstorm and present the importance of photosynthesis in nature.</p> <p>use digital or print resources to search for information on importance of photosynthesis in nature.</p>	<p>What is the importance of photosynthesi s in nature?</p>	Lesson notes.  Digital devices.  Learner's Textbooks.	Checklists.  Assessment rubrics.  Written questions.  Oral questions.		

				<p>c) Search the internet for information on importance of photosynthesis in nature.</p> <p>d) Acknowledge the importance of photosynthesis in nature.</p>	discuss the importance of photosynthesis in nature and present in class.				
	5	Living Things and Their Environment.	Nutrition in Plants.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Outline the procedure for testing the necessity of light for photosynthesis (Starch test)</p> <p>b) Set up an experiment to show that light is necessary for photosynthesis.</p> <p>c) Enjoy conducting the experiment.</p>	<p>In groups, learners are guided to;</p> <p>identify the requirements for setting up the experiment.</p> <p>outline the procedure to follow in setting up an experiment to show that light is necessary for photosynthesis.</p> <p>collaborate in setting up the experiment to show that light is necessary for photosynthesis.</p> <p>observe, record and discuss their findings from the experiment.</p>	How can we determine that light is a necessity for photosynthesis to take place in plants?	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Laboratory.</p> <p>Ethanol.</p> <p>A beaker of boiling water.</p> <p>Iodine solution.</p> <p>Petri dish.</p> <p>Black paper or Aluminum foil.</p> <p>Source of heat.</p> <p>forceps.</p> <p>A healthy potted plant.</p>	<p>Practical Activity.</p> <p>Demonstration.</p> <p>Checklists.</p> <p>Oral questions.</p> <p>Assessment rubrics.</p> <p>Observation schedule.</p>	

10	1	Living Things and Their Environment.	Nutrition in Plants.	<p>By the end of the lesson, the learner should be able to:</p> <ul style="list-style-type: none"> <li>a) Outline the procedure for testing chlorophyll is necessary for photosynthesis to occur.</li> <li>b) Set up an experiment to show that chlorophyll is necessary for photosynthesis to take place.</li> <li>c) Enjoy carrying out the experiment.</li> </ul>	<p>In groups, learners are guided to;</p> <p>outline and discuss the procedure for testing that chlorophyll is necessary for photosynthesis to occur.</p> <p>identify and prepare the necessary requirements.</p> <p>collaborate in setting up an experiment to show that chlorophyll is necessary for photosynthesis to happen.</p> <p>observe, record and discuss their findings.</p>	How can we determine that chlorophyll is necessary for photosynthesis to take place?	<p>Variegated plant.</p> <p>Iodine solution.</p> <p>Beaker of boiling water.</p> <p>Ethanol.</p> <p>Source of heat.</p> <p>Laboratory.</p> <p>Lesson notes.</p> <p>Learner's textbook.</p>	<p>Practical Activity.</p> <p>Checklists.</p> <p>Observation schedule.</p> <p>Assessment rubrics.</p> <p>Oral questions.</p>	
	2	Living Things and Their Environment.	Nutrition in Plants.	<p>By the end of the lesson, the learner should be able to:</p> <ul style="list-style-type: none"> <li>a) Outline the procedure for testing that carbon (IV) oxide is necessary for photosynthesis to occur.</li> <li>b) Set up an experiment to show that carbon</li> </ul>	<p>In groups, learners are guided to;</p> <p>outline and discuss the procedure to follow in testing that Carbon (IV) oxide is necessary for photosynthesis to occur.</p> <p>identify and prepare all the requirements needed for the experiment.</p> <p>collaborate in setting up the experiment to show that Carbon (IV) Oxide is</p>	How can we determine that Carbon (IV) Oxide is necessary for photosynthesis to occur?	<p>Variegated plant.</p> <p>Sodium hydroxide pellets.</p> <p>Iodine solution.</p> <p>Petroleum jelly.</p> <p>Transparent airtight container .</p> <p>Learner's Textbook.</p> <p>Lesson notes.</p>	<p>Practical Activity.</p> <p>Checklists.</p> <p>Observation.</p> <p>Assessment rubrics.</p> <p>Oral questions.</p>	



				<p>(IV) oxide is necessary for photosynthesis to take place.</p> <p>c) Enjoy carrying out the experiment.</p>	<p>necessary for photosynthesis.</p> <p>observe, record and discuss their observation.</p>		Laboratory.		
	3	Living Things and Their Environment.	Nutrition in Plants: Assessment.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Attempt assessment questions on the sub-strand: Nutrition in Plants.</p>	<p>In pairs or individually, learners are guided to:</p> <p>answer the questions on the sub-strand; Nutrition in Plants.</p>		<p>Assessment books.</p> <p>Learner's Textbook.</p> <p>Teacher's Assessment Questions Book.</p>	<p>Written questions.</p> <p>Assessment rubrics.</p> <p>Checklists.</p>	
	4	Living Things and Their Environment.	Nutrition in Animals.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Identify the modes of nutrition in animals.</p> <p>b) Describe parasitic and saprophytic modes of nutrition in animals.</p> <p>c) Search the internet for information on parasitic and saprophytic as modes of nutrition in animals.</p>	<p>In groups, learners are guided to;</p> <p>identify the different modes of nutrition in animals.</p> <p>use digital or print resources to search for information on parasitic and saprophytic as modes of nutrition in animals.</p> <p>discuss parasitic and saprophytic as modes of nutrition in animals and give examples.</p>	How do different animals feed?	<p>Lesson notes.</p> <p>Digital devices.</p> <p>Learner's Textbook.</p>	<p>Written questions.</p> <p>Oral questions.</p> <p>Checklists.</p> <p>Oral discussion.</p> <p>Assessment rubrics.</p>	

				d) Acknowledge the different modes of nutrition in animals.					
	5	Living Things and Their Environment.	Nutrition in Animals.	<p>By the end of the lesson,the learner should be able to:</p> <p>a) Explain the symbiosis and holozoic as modes of nutrition in animals.</p> <p>b) Search the internet for information on holozoic and symbiosis as modes of nutrition in animals.</p> <p>c) Appreciate the different modes of nutrition in animals.</p>	<p>In groups,learners are guided to:</p> <p>use digital or print resources to search for information on holozoic and symbiosis as modes of nutrition in animals and note their findings.</p> <p>discuss holozoic and symbiosis as modes of nutrition in animals and give relevant examples.</p>	What is the difference holozoic and symbiosis mode of nutrition in animals?	<p>Lesson notes.</p> <p>Learner's Textbook.</p> <p>Digital devices.</p> <p>Internet.</p>	<p>Written questions.</p> <p>Oral questions.</p> <p>Checklists.</p> <p>Assessment rubrics.</p>	
11	1	Living Things and Their Environment.	Nutrition in Animals.	<p>By the end of the lesson, the learner should be able to:</p> <p>a) Define the term Dentition.</p> <p>b) Describe the homodont and heterodont dentition in animals.</p>	<p>In groups,learners are guided to:</p> <p>use internet or print resources to search for meaning of dentition and types of dentition.</p> <p>discuss the homodont dentition.</p>	What is the difference between homodont and heterodont dentition?	<p>Lesson notes.</p> <p>Digital devices.</p> <p>Learner's Textbook.</p>	<p>Written questions</p> <p>Oral questions.</p> <p>Checklists.</p> <p>Assessment rubrics.</p>	

				<p>c) Search the internet for information on homodont and heterodont dentition in animals.</p> <p>d) Acknowledge the different types of dentition in animals.</p>	discuss the heterodont dentition including information on the carnivorous, herbivorous and omnivorous.				
2	Living Things and Their Environment.	Nutrition in Animals.	<p>By the end of the lesson,the learner should be able to:</p> <p>a)</p>						
3	Living Things and Their Environment.	Nutrition in Animals.	<p>By the end of the lesson,the learner should be able to:</p> <p>a) Identify the different types of teeth in animals.</p> <p>b) Describe the structure of the different types of teeth in animals.</p> <p>c) Draw the different types of teeth in animals.</p> <p>d) Acknowledge the structure of the</p>	<p>In groups,learners are guided to:</p> <p>observe charts/models or digital media to identify the different types of teeth in animals.</p> <p>discuss the structure of the different types of teeth in animals.</p> <p>individually,learners to draw the different types of teeth in animals on books and charts.</p>	Which types of teeth are found in animals?	<p>Lesson notes</p> <p>Digital devices.</p> <p>Pictures/photos.</p> <p>Learner's Textbook.</p> <p>Charts.</p>	<p>Checklists.</p> <p>Drawing.</p> <p>Assessment rubrics.</p> <p>Oral questions.</p> <p>Written questions.</p>		

				different types of teeth in animals.					
4	Living Things and Their Environment.	Nutrition in Animals.	By the end of the lesson, the learner should be able to:  a) Outline the functions of the different types of teeth in animals.  b) Discuss the functions of the different types of teeth in animals.  c) Prepare posters showing the functions of the different types of teeth in animals.  d) Acknowledge the functions of the different types of teeth.	In groups,learners are guided to;  use digital devices or print resources to search for information on functions of different types of teeth.  write down their findings in books.  discuss the functions of the different types of teeth (canines,molars, premolars and incisors)  prepare posters or charts showing the functions of the different types of teeth.	What are the functions of the different types of teeth in animals?	Lesson notes.  Digital devices.  Learner's Textbook.  Charts.	Assessment rubrics.  Checklists.  Written questions.  Oral questions.		
5	Living Things and Their Environment.	Nutrition in Animals.	By the end of the lesson,the learner should be able to:  a) Identify the dentition characteristics of different animals.  b) Classify animals based on their dentition.	In groups,learners are guided to;  outline the dentition characteristics of the herbivores, carnivores and omnivores.  use charts/specimens/models/ digital media to study	How can you classify animals based on their dentition?	Lesson notes.  Learner's Textbook.  Models/Specimens/charts.  Digital media.	Checklists.  Assessment rubrics.  Oral questions.  Oral presentation.		

				c) Have fun classifying different animals based on their dentition.	dentition in different animals.  classify different animals based on their dentition and share their findings in class.				
12	REVISION & END OF TERM ASSESSMENT								
13	CLOSURE OF SCHOOL								