

INTRODUCTION TO THE LEARNING ACHIEVEMENT TARGETS (LATs) HANDBOOK

The Learning Achievement Targets (LATs) booklet is an important source of reference material for teachers in the preparation of teaching and learning guides or notes. This version has been aligned with the revised syllabi and course textbooks for the Upper Basic, in the Core Subjects (English, Mathematics, Science and Social and Environmental Studies). Similar targets have been developed for the Lower Basic and shall in due course be developed for the Senior Secondary level as well. In addition, the revised booklet lays great emphasis on the three domains of teaching and learning, namely: **knowledge, skills and attitudes**. Hence, for effective lesson preparation and delivery, LAT booklets should not be used in isolation but alongside with the syllabi, textbooks and teachers' guides.

As the Ministry of Basic and Secondary Education strives to achieve its policy objectives of Quality Education by the year 2015, we call upon all stakeholders at school level particularly teachers in the classroom to effectively use this LAT booklet to adequately prepare our children who are our future generation, for responsible citizenship. Teachers should acquaint themselves with the content of the booklets and endeavour

to see that pupils achieve the targets stated therein at the end of each term and school year respectively. This is because items/questions for the National Assessment Tests (NAT) are developed from the LATs and failure to achieve the targets may pose a problem for pupils during NATs.

In a similar vein MOBSE calls on both internal monitors such as head teachers and senior teachers/heads of department and external monitors including Cluster Monitors and Regional Officers to familiarize themselves with the LATs in order to ensure their proper usage in the classroom. In addition, we urge monitors to closely monitor the impact of the LATs on pupils' performances, as well as provide support to teachers wherever needed. In fact, this is the main route for the Quality Assurance of Teaching and Learning in schools as encapsulated in the MoSBSE Quality Assurance Framework (QAF). Stakeholders at different levels i.e. classroom teachers, head teachers, deputies, senior teachers/heads of departments and SMCs, cluster monitors and regional officers are expected to provide support to those who work under them to achieve quality education. Furthermore, the LAT booklets can also serve as an important source of

reference material for professional development activities of teachers at school, cluster and regional levels.

On a final note, MOBSE wishes to acknowledge with sincere gratitude, the effort, commitment and input of all partners who in one way or the other, took part in the development and validation of the LATs for the Upper Basic Schools.

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Permanent Secretary

LEARNING ACHEIVEMNT TARGETS FOR SCIENCE

GRADE 7- 9

DISTRUBUTION OF THEMES BY TERM

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**GRADE 7
TERM 1**

THEME 1: NATURE OF SCIENCE

	KNOWLEDGE	SKILLS	ATTITUDE
Unit 1 What Is Science?	<ul style="list-style-type: none"> • Define Science • State and define different branches of Science and show their inter-relationship. • State the importance of Science in 	<ul style="list-style-type: none"> • Discuss the importance of Science in daily life. e.g. Prevention of diseases, Communication . • Draw and label simple Science Apparatus. 	<ul style="list-style-type: none"> • Appreciate the role of third world Scientists. • Value the importance of Science in their everyday life. • Appreciate the systematic

	<p>everyday life.</p> <ul style="list-style-type: none"> • Name some Scientists (including 3rd world Scientists) and their contributions. • Name some common Science apparatus. 	<ul style="list-style-type: none"> • Use simple Science apparatus. • Demonstrate knowledge of the Scientific method. 	<p>nature of Science.</p>
<p>UNIT 2 Living And Non-Living Things</p>	<ul style="list-style-type: none"> • State the differences between living and non-living things. 	<ul style="list-style-type: none"> • Classify objects according to size, color and shape. • Group organisms into living and non-living things. 	<ul style="list-style-type: none"> • Appreciate the difference between the living and the non-living things <p>Value the</p>

	<ul style="list-style-type: none"> • State and explain the (7) characteristics of living things. • State the differences between plants and animals. 		<p>differences between organisms.</p> <ul style="list-style-type: none"> • Respect and care for plants and animals.
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THEME 2: MATTER

Unit 1 States Of Matter	KNOWLEDGE	SKILLS	ATTITUDE
	<ul style="list-style-type: none"> • Define matter • Identify and state the states of matter. 	<ul style="list-style-type: none"> • Collect a variety of things and classify them into solid, liquid 	<ul style="list-style-type: none"> • Appreciate the role of heat and pressure in the

	<ul style="list-style-type: none"> • State the properties of the different states (forms) of matter. • State the effects of changes in temperature and pressure on the state of matter. 	<p>and gas.</p> <ul style="list-style-type: none"> • Carry out simple experiments or activities to show the changes of states of matter. • Carry out (conduct) simple activities to show the different effects of temperature and pressure on the states of matter. • Demonstrate that matter can 	<p>formation of the states of matter.</p> <ul style="list-style-type: none"> • Recognize the importance of heat and pressure in our daily life.
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		be changed from one form to another.	
Unit 2 Density	<ul style="list-style-type: none"> • Define density. • S I Units of density. 	<ul style="list-style-type: none"> • Measure volume and mass of various objects and find their densities. 	<ul style="list-style-type: none"> • Appreciate the importance of density in daily life e.g. sinking, floating of substance (in fluids).
Unit 3 Forces & energy	<ul style="list-style-type: none"> • Define force • Define energy. • Identify different sources and forms of energy. 	<ul style="list-style-type: none"> • Perform simple activities on forces and energy. 	Appreciate the uses of energy and force in their daily life.

	<ul style="list-style-type: none"> • State and explain the different types of forces. 		
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THEME 3: CHEMICAL CHANGE

	KNOWLEDGE	SKILLS	ATTITUDE
Unit 1 Mixtures and compounds	<ul style="list-style-type: none"> • Define the terms Elements, Mixtures and Compounds. • Chemical Symbols of the first twenty elements. 	<ul style="list-style-type: none"> • classify substances into elements, mixtures and compounds. • prepare simple mixtures • Prepare simple 	Appreciate the importance of individual elements mixtures and compounds in our daily live. E.g. cooking, Soap-making e.t.c.

	<ul style="list-style-type: none"> • Physical properties of the common elements. • Differentiate between elements, mixtures and compounds. • Prepare mixtures. 	<p>compounds CuO, FeS, Co₂).</p>	
<p>Unit 2 Separation of mixtures</p>	<ul style="list-style-type: none"> • State and explain the different methods of separating mixtures into their 	<ul style="list-style-type: none"> • use different methods to separate simple mixtures such as sand, salt, and water, kerosene and 	<ul style="list-style-type: none"> • Appreciate the fact that mixtures can be separated into their components.

	components.	water etc	
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GRADE 7

TERM 2

THEME 4: AIR AND WATER

	KNOWLEDGE	SKILLS	ATTITUDE
Unit 1 Air	<ul style="list-style-type: none">• Define Air.• State the composition of Air.• State the importance of the different components of Air.	<ul style="list-style-type: none">• Perform activities to show that Air is necessary in burning, breathing, photosynthesis, winnowing etc.	<ul style="list-style-type: none">• value the importance of Air in everyday life
Unit 2 Water	<ul style="list-style-type: none">• State the properties of water.• State the sources of	<ul style="list-style-type: none">• Draw and name the components of the water cycle.	<ul style="list-style-type: none">• Appreciate the importance of water.• Appreciate the processes in

	<p>water.</p> <ul style="list-style-type: none"> • State the importance of water. • Explain the processes involved in water cycle 		<p>the water cycle.</p> <ul style="list-style-type: none"> • Appreciate the role of plants in the water cycle.
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THEME 5: ECOLOGY

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Ecological terms	<ul style="list-style-type: none"> • Define ecology. • Define the following ecological 	<ul style="list-style-type: none"> • Visit and study a habitat and identify different 	<ul style="list-style-type: none"> • Recognize the importance of organisms. • Appreciate the

	<p>terms.</p> <ul style="list-style-type: none">• Ecosystem• Food chain• Food web• Community• Population• Ecological niche• Biosphere• Consumers• Producers• Decomposers• Habitat	<p>population.</p>	<p>role of the decomposers in the re-cycling of materials.</p>
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	<ul style="list-style-type: none"> • Prey • Environment • Predator 		
<p>Unit 2</p> <p>Inter-relationship between organisms in the ecosystem</p>	<ul style="list-style-type: none"> • Explain the concept of inter-relationship between organisms and their environment. • Identify and explain the feeding relationships between 	<ul style="list-style-type: none"> • Observe organisms in their environment and identify how they are related to each other. • Record their observation • Construct simple food chain and food 	<ul style="list-style-type: none"> • Appreciate the role of individual organism in nature.

	organisms.	web.	
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THEME 6: FOOD

Unit 1 Classes of food	KNOWLEDGE	SKILLS	ATTITUDE
	<ul style="list-style-type: none"> • Define Food • Name substances that can be regarded as food • State the sources of food. • State the functions 	<ul style="list-style-type: none"> • Classify foods into their various groups. <p>Prepare a balanced diet</p>	<ul style="list-style-type: none"> • Appreciate that food is necessary in life • Respect food and prevent wastage.

<p>Unit 2 Balanced diet</p>	<p>of the different classes of food.</p> <ul style="list-style-type: none">• Define balanced diet.• State what constitutes a balanced diet• State the importance of a balance diet.		<ul style="list-style-type: none">• Appreciate the fact that a balanced diet is necessary for healthy living• Eat a balanced diet
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GRADE 7

TERM 3

THEME 7: SENSE ORGANS

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
The sense organs	<ul style="list-style-type: none">• List and identify the Sense Organs• State the functions of the Sense Organs• State the stimulus to which the Sense Organs are sensitive	<ul style="list-style-type: none">• Draw simple diagrams of the Sense Organs	<ul style="list-style-type: none">• Appreciate the importance of the Sense organs• Take proper care of the sense organs

THEME 8: HYGIENE AND HEALTH

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Personal cleanliness and health	<ul style="list-style-type: none"> • Give reasons why the body should be kept clean. • Describe the ways to keep the body clean • Personal and environmental hygiene practices 	<ul style="list-style-type: none"> • Demonstrate how to keep the body clean 	<ul style="list-style-type: none"> • Practice good health and hygiene
Unit 2	<ul style="list-style-type: none"> • State the 	<ul style="list-style-type: none"> • Practice proper 	<ul style="list-style-type: none"> • Appreciate the

Exercise and rest	importance of proper exercise and rest	exercise and rest	importance of proper exercise and rest. <ul style="list-style-type: none"> • Perform exercise and have rest
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THEME 9: TECHNOLOGY

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Simple appropriate and advanced technology	<ul style="list-style-type: none"> • Define the term Technology. • Differentiate between simple, appropriate and advanced 	<ul style="list-style-type: none"> • Demonstrate how to operate simple, advanced (computers) and appropriate technological 	<ul style="list-style-type: none"> • Appreciate the use of technology in their everyday life

	<p>technology</p> <ul style="list-style-type: none"> • State the use of the different technologies 	<p>devices.</p>	
<p>Unit 2</p> <p>Technological processes</p>	<ul style="list-style-type: none"> • State and discuss technological processes e.g. soap making recycling, etc 	<ul style="list-style-type: none"> • Apply the knowledge of technological processes in daily life. 	<ul style="list-style-type: none"> • Appreciate the importance of technological processes in daily life

GRADE 8

TERM 1

THEME 1: NATURE OF SCIENCE

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Magnifying instruments	<ul style="list-style-type: none">• What are magnifying instruments?• Name parts and state functions of hand lens and microscope.• Discuss the functions of the parts of the	<ul style="list-style-type: none">• Use the hand lens and microscope correctly• Observe and identify the parts of hand lens and microscope.• Draw and label the parts of a	<ul style="list-style-type: none">• Appreciate the fact that magnifying instruments make objects look larger.

	microscope and the hand lens.	hand lens and microscope.	
Unit 2 Cells	<ul style="list-style-type: none"> • What is a cell? • State cell as the basic unit of life. • Differentiate between plant and animal cells. • State the functions of the <u>parts</u> of the plant and animal cells. 	<ul style="list-style-type: none"> • Draw and label the parts of plant and animal cell. • Observe prepared slides of plant and animal cells. • Prepare and observe cheek and onion cells. • Draw different cell types. 	<ul style="list-style-type: none"> • Appreciate that all organisms are made of cell(s). • Appreciate that different cells perform different functions.

<p>UNIT 3</p> <p>Structure and functions of organisms</p>	<ul style="list-style-type: none"> • Describe the structure and functions of the parts of a flowering plant. • Define monocotyledons and dicotyledons plants. • State the importance of the parts of a flower. • Define unicellular and multi cellular 	<ul style="list-style-type: none"> • Draw and label a flower • Carry out activity to illustrate decay organic substance by micro-organisms • Collect specimen/ samples of monocot and dicot plants. • Observe and draw unicellular and multi 	<ul style="list-style-type: none"> • Value the importance of microscopic and multicellular organisms in our daily life.
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	<p>organisms.</p> <ul style="list-style-type: none">• Physical processes in living organisms e.g. osmosis and diffusion• Study the structure and functions of unicellular and multicellular organisms.• State the differences between unicellular and multi cellular	<p>cellular organisms in terms of their structure.</p>	
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	<p>organisms.</p> <ul style="list-style-type: none">• State the economic importance of micro-organisms (advantages and disadvantages).		
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THEME 2: MATTER

	KNOWLEDGE	SKILLS	ATTITUDE
UNIT 1 Simple machines	<ul style="list-style-type: none">• Define a simple machine.• What is a lever?• Differentiate between the three types of levers.• Define moment.	<ul style="list-style-type: none">• Construct simple machines• Calculate mechanical advantages, velocity ratio, energy input, energy output and moment of machines.• Use simple objects to demonstrate	<ul style="list-style-type: none">• Appreciate the fact that simple machines do make work easier.

		order of levers <ul style="list-style-type: none"> • Observe some simple machines 	
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THEME 3: CHEMICAL CHANGE

	KNOWLEDGE	SKILLS	ATTITUDE
Unit 1 Physical and chemical change	<ul style="list-style-type: none"> • Define physical and chemical changes. • Differentiate between physical and chemical 	<ul style="list-style-type: none"> • Heating of iron filling with sulphur to show chemical change • Heating of water to show 	<ul style="list-style-type: none"> • Appreciate the inter-conversion of forms of energy in everyday life

	<p>change.</p> <ul style="list-style-type: none"> • Give examples of the processes that involve the two types of changes 	<p>physical change</p> <ul style="list-style-type: none"> • Burning of candle, wood, and paper to show chemical change. 	
<p>UNIT 2</p> <p>Inter-conversions of forms of energy</p>	<ul style="list-style-type: none"> • State the laws of inter-conversions of energy • Identification of energy conversion 	<ul style="list-style-type: none"> • Carry out simple activities to observe a variety of conversion e.g. burning candle, wood, paper or charcoal. • striking match 	<ul style="list-style-type: none"> • Appreciate the inter-conversion of energy

		<ul style="list-style-type: none"> • rubbing hands together 	
Unit 3 Solution	<ul style="list-style-type: none"> • Define and differentiate between the following • solute • solvent • solution • solubility • crystallization • Describe the 	<ul style="list-style-type: none"> • Demonstrate how to grow crystals from solution. • Draw solubility graphs. • Prepare common salt • Measure solubility of solutes 	<ul style="list-style-type: none"> • Appreciate the importance of water as a universal solvent. • Appreciate the importance of solutions in life

	<p>factors that affect solubility of solutes</p> <ul style="list-style-type: none"> • State why water is a universal solvent 	<ul style="list-style-type: none"> • Investigate factors affecting solubility. e.g. changing solvent volume, temperature, solute size 	
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THEME 4: AIR AND WATER

	KNOWLEDGE	SKILLS	ATTITUDE
Unit 1 Burning and rusting	<ul style="list-style-type: none"> • Explain the role of oxygen in 	<ul style="list-style-type: none"> • Carry out activities to 	<ul style="list-style-type: none"> • Appreciate the importance of

	<p>burning and rusting.</p> <ul style="list-style-type: none"> • State ways to prevent rusting of iron 	<p>show the role of oxygen in burning and rusting</p> <ul style="list-style-type: none"> • Carry out activities to show that water and air make iron to rust 	<p>air in burning and rusting</p>
<p>Unit 2</p> <p>Water and air pressure</p>	<ul style="list-style-type: none"> • Define pressure. • State that water exerts pressure depending on 	<ul style="list-style-type: none"> • Carry out activities to show that air and water exert pressure e.g. Using cans with different holes 	<ul style="list-style-type: none"> • Appreciate the importance of air and water pressure in daily life

	<p>depth.</p> <ul style="list-style-type: none"> • State that air exerts pressure based on space occupied 	<p>and different heights.</p>	
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THEME 5: ECOLOGY

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
<p>Environmental management and protection</p>	<ul style="list-style-type: none"> • Definition of environmental protection and management • Identify the natural resources in the 	<ul style="list-style-type: none"> • Field trips to observe and assess the environment • Tree planting exercise • Develop 	<ul style="list-style-type: none"> • Recognize the need to protect and manage the environment. • Participate in cleaning

	<p>environment.</p> <ul style="list-style-type: none"> • State the effect of man's activities on the community's resources • State the methods of protecting and managing the environment. 	<p>posters to show the effects of Man's activities on the environment</p>	<p>exercise.</p>
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THEME 6: FOOD

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Deficiency	<ul style="list-style-type: none"> • Define deficiency 	<ul style="list-style-type: none"> • Investigations into 	<ul style="list-style-type: none"> • Appreciate

<p>diseases</p>	<p>disease.</p> <ul style="list-style-type: none"> • Name the main deficiency diseases, their causes and prevention. • State and describe the signs and symptoms of deficiency diseases. 	<p>the causes of deficiency diseases</p> <ul style="list-style-type: none"> • Identify signs and symptoms of deficiency diseases 	<p>the importance of food in preventing deficiency diseases</p> <ul style="list-style-type: none"> • Care for people with deficiency diseases
<p>Unit 2</p> <p>Food preservation and contamination</p>	<ul style="list-style-type: none"> • Define food preservation and contamination. • State various ways of food preservation. 	<ul style="list-style-type: none"> • Demonstrate methods of food preservation • Develop posters showing people suffering from diseases caused by 	<ul style="list-style-type: none"> • Appreciate the importance of food preservation.

	<ul style="list-style-type: none"> • State how food can be contaminated or spoiled. • Name diseases caused by eating contaminated/spoiled food 	<ul style="list-style-type: none"> contaminated/spoiled food. • Practice different methods of food preservation. 	
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TERM 3

THEME 7: HUMAN BODY

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Structure and functions of the human body	<ul style="list-style-type: none"> • Describe the cellular organisation of the body i.e. 	<ul style="list-style-type: none"> • Dissect an animal and identify the major organs. 	<ul style="list-style-type: none"> • Appreciate the importance of the organs.

	<p>cells, tissues organs, systems.</p> <ul style="list-style-type: none"> • State the major internal organs of the body and describe their functions. 	<ul style="list-style-type: none"> • Draw and label the organs identified. • Make models (using card boards, clay etc of the organs. 		
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THEME 8: HEALTH AND HYGIENE

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Sanitation	<ul style="list-style-type: none"> • Define sanitation. • Define waste. • State and describe the types of waste. 	<ul style="list-style-type: none"> • Observe effect of the different types of waste on the 	<ul style="list-style-type: none"> • Appreciate the effects of waste on our health and

	<ul style="list-style-type: none"> • Importance of waste management. • Describe proper methods of waste disposal. 	<p>environment</p> <ul style="list-style-type: none"> • list and sort out the different types of waste. 	<p>environment</p> <ul style="list-style-type: none"> • Appreciate the importance of health and hygiene.
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THEME 9: TECHNOLOGY

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Communication devices	<ul style="list-style-type: none"> • Define Communication device. • List and differentiate traditional and 	<ul style="list-style-type: none"> • Demonstrate how to operate communication devices • Make some 	<ul style="list-style-type: none"> • Appreciate the importance of technology in communicati

	<p>modern communication devices.</p> <ul style="list-style-type: none"> • State the uses of communication devices. 	<p>simple communication devices.</p>	<p>on</p>
<p>Unit 2 Computers</p>	<ul style="list-style-type: none"> • What is a computer? • Name and state uses of parts of computers. 	<ul style="list-style-type: none"> • Use models , real or charts to identify and discuss the components of a computer • Use the internet correctly. 	<ul style="list-style-type: none"> • Appreciate the use of computers in modern technology.

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GRADE 9:

TERM 1

THEME 1: NATURE OF SCIENCE

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Adaptation	<ul style="list-style-type: none"> • Define Adaptation. • State and explain the features which enable various organisms to live in their various habitats. 	<ul style="list-style-type: none"> • Observe and draw organisms. • Observe and list the features which enable the following 	<ul style="list-style-type: none"> • Recognized the importance of adaptive features of organisms.

		<p>organisms (fish, toad, lizard, birds and Mammals) and plants to live in their habitat.</p>	
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THEME 2: MATTER

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
<p>Atomic theory, atoms and sub - atomic particles, atomic numbers and mass</p>	<ul style="list-style-type: none"> • Define atom • State the atomic theory • State the sub- 	<ul style="list-style-type: none"> • Draw atomic structure showing electrons, 	<ul style="list-style-type: none"> • Appreciate the fact that atoms are composed of sub-atomic particles.

<p>numbers</p>	<p>atomic particles.</p> <ul style="list-style-type: none"> • Define atomic number and mass number 	<p>protons and neutrons</p> <ul style="list-style-type: none"> • Calculate the mass number, neutron and atomic number of elements. 	
<p>UNIT 2</p> <p>Periodic table, electron arrangement, and valency</p>	<ul style="list-style-type: none"> • Define Periodic Table. • State the names and symbols of the first 20 elements of the periodic table. • Determine the 	<ul style="list-style-type: none"> • Draw the Periodic table. • Conduct a sample calculation to determine valencies of 	<ul style="list-style-type: none"> • Appreciate the arrangement of elements in the Periodic table based on their properties.

	<p>periods and groups of elements.</p> <ul style="list-style-type: none"> • State the Chemical symbol of other elements eg. Zinc etc and compounds eg. MgO etc. • Show the electronic configuration of the first 20 elements. 	<p>elements.</p> <ul style="list-style-type: none"> • Determine symbols of compounds based on knowledge of their valencies. 	
<p>Unit 3 Compounds</p>	<ul style="list-style-type: none"> • Define compound and give examples. • State the molecular formulae of common compounds. 	<ul style="list-style-type: none"> • Perform simple calculation to determine the formulae of 	<ul style="list-style-type: none"> • Appreciate the formation of compounds from elements as rearrangement

	<ul style="list-style-type: none"> • State that chemical reaction is re-arrangement of atoms. 	<p>compounds.</p> <ul style="list-style-type: none"> • Carry out simple activities to formulate compounds. 	<p>of atoms.</p>
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THEME 3: CHEMICAL CHANGE

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
acids ,bases and salts	<ul style="list-style-type: none"> • Define acids, bases and salts in terms of their effect on litmus. • State the properties of acids, bases and salt. • Describe the reaction 	<ul style="list-style-type: none"> • Prepare salt from acids and bases. • Prepare copper sulphate from 	<ul style="list-style-type: none"> • Appreciate the role of chemical change in daily life

	<p>of acids with metals, carbonates and bases.</p> <ul style="list-style-type: none"> • State the importance of acids, bases and salts. • State the qualitative nature of neutralization. 	<p>copper oxide and sulphuric acid, calcium carbonate and hydrochloric acid.</p>	
<p>Unit 2</p> <p>Electrolysis of water</p>	<ul style="list-style-type: none"> • Explain the concept of electrolysis of acidified water. • State the uses of oxygen and hydrogen in electrolysis. • State the properties of 	<ul style="list-style-type: none"> • Test the presence of oxygen and hydrogen • Carry out electrolysis of water. 	<ul style="list-style-type: none"> • Appreciate the role of chemical substances in daily life.

	oxygen and hydrogen.		
Unit 3 Hard and soft water	<ul style="list-style-type: none"> • Define hard and soft water • State the properties of hard and soft water. • Differentiate between hard and soft water. • Differentiate between the types of hardness. • State methods to remove hardness of water. 	<ul style="list-style-type: none"> • Collect samples of water from different sources. • Investigate hardness in water samples and discuss ways of making them soft. • Investigate the different 	<ul style="list-style-type: none"> • Appreciate the role of chemical changes in our daily life.

		reactions of different water with soap.	
Unit 4 Purification of water	<ul style="list-style-type: none"> • What is water purification? • State and describe the stages in purifying water. • State the importance/uses of purified water. 	<ul style="list-style-type: none"> • Carry out simple purification activities. 	<ul style="list-style-type: none"> • Purify water for domestic use

THEME 4: ENERGY

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Movement of	<ul style="list-style-type: none"> • State and explain 	<ul style="list-style-type: none"> • Demonstrate 	<ul style="list-style-type: none"> • Appreciate

<p>heat, light, sound and electrical energy</p>	<p>the different forms of energy.</p> <ul style="list-style-type: none"> • Explain the different ways in which heat, light, sound and electrical energy move. • Describe the effects of the movement of light energy on mirrors, water, glass, lenses and prism. • Differentiate between the three forms of heat 	<p>knowledge on heat transfer.</p> <ul style="list-style-type: none"> • Construct simple electric circuits. • Construct pin-hole cameras, model periscope and kaleidoscope. • Carry out activities/experiments to investigate energy transfers. • Carry out experiments to show that different solids conduct heat 	<p>the importance of energy in everyday life.</p>
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	<p>transfer.</p> <ul style="list-style-type: none"> • State eye defects and the ways of correcting them. • Describe the process of hearing. • Calculates the speed of sounds. 	<p>at different rates</p> <ul style="list-style-type: none"> • Measure the speed of sound through air 	
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THEME 5: THE BODY SYSTEMS

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
The systems	<ul style="list-style-type: none"> • Define the term system. • Name the body systems and state their 	<ul style="list-style-type: none"> • Make models of the body systems • Draw the body 	<ul style="list-style-type: none"> • Value the importance of the inter

	<p>functions.</p> <ul style="list-style-type: none">• Name the parts of the various body systems.• Describe the processes in the various body systems.• Explain the inter - relationship between the systems.	<p>systems.</p> <ul style="list-style-type: none">• Conduct practical activities on digestion and respiration.	<p>relationships between systems.</p>
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GRADE 9

TERM 3

THEME 6: HEALTH AND HYGIENE

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Community health	<ul style="list-style-type: none">• Define community health• Identify the health problems in a community.• Suggest ways of solving health problems	<ul style="list-style-type: none">• Participate in the improvement of community health.• Demonstrate ways of preventing community health problems	<ul style="list-style-type: none">• Value the importance of working together to find solutions to health related problems.
Unit 2 Communicable and non	<ul style="list-style-type: none">• Define the terms communicable and non-communicable	<ul style="list-style-type: none">• Draw posters showing people with some of the	<ul style="list-style-type: none">• Appreciate the importance

communicable diseases	<p>diseases.</p> <ul style="list-style-type: none"> • State methods of prevention and cure of communicable and non-communicable diseases. 	<p>communicable and the non-communicable diseases.</p> <ul style="list-style-type: none"> • Community/peer sensitization 	<p>of hygiene in the prevention of communicable and non-communicable diseases</p>
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THEME 7: PROJECT WORK ON TECHNOLOGY

Unit 1	KNOWLEDGE	SKILLS	ATTITUDE
Project work on technology	<ul style="list-style-type: none"> • Explain the processes involved in the construction of solar panels from foil papers. - Biogas from organic 	<ul style="list-style-type: none"> • Apply the knowledge of simple technology in everyday life. 	<ul style="list-style-type: none"> • Value the importance of technology in

	<p>matter</p> <ul style="list-style-type: none">- Hydro -electric devices- Recycle materials e.g. used polyethene bags into toys.		<p>everyday life</p>
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