REPUBLIC OF ZAMBIA

MINISTRY OF EDUCATION, SCIENCE, VOCATION TRAINING AND EARLY EDUCATION

INTEGRATED SCIENCE SYLLABUS

GRADE 1 – 7

Published by the **ıt Centre**
P.O. Box 50092
Lusaka

2013

Vision

"A Zambia where every learner is receiving quality education that is relevant to individual and societal needs and contributes to national development".

PREFACE

The review of the Integrated Science syllabus was necessitated by the need to provide a curriculum that is interrelated and interconnected at all the levels of the education system in order to provide quality education. It is envisaged that it will transmit to the young learners the knowledge, skills, positive values and attitudes that allow them to live and grow into resourceful and useful members of their communities. Learners will therefore be provided with opportunities and experiences necessary for the development of mental, physical, emotional, social and hence realise their potentials. The syllabus will also provide young learners an opportunity to do hands-on, minds-on and hearts-on activities through manipulation of objects and models, interaction with nature through observation of living and non-living things in their environment as is required in the field of science. It will enhance children's readiness for learning science and as a foundation for lifelong learning.

This syllabus has incorporated the emerging needs of society (cross cutting issues) such as sexuality education, environment, gender, HIV and AIDS, Nutrition and Health, in order to ensure children's safety and equip them with basic knowledge, essential skills, values and develop positive attitudes needed for their progression in the field of science and the world of work.

It is hoped that this syllabus will encourage learners to be creative, problem solvers and critical thinkers and hence make science more meaningful enjoyable and contribute to the caring of their immediate environment.

It is also my sincere hope that this syllabus will encourage teachers to do science with their learners as opposed to teaching science to them.

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MINISTRY OF EDUCATION, SCIENCE, VOCATIONAL TRAINING AND EARLY EDUCATION

INTRODUCTION

The contributing subjects to this learning area are Environmental Science, Home Economics and Agricultural Science. It also integrates other cross cutting issues such as Environment, Reproductive Health, HIV/AIDS, Hygiene, Nutrition, Substance Abuse, sexuality education, Water and Sanitation.

METHODOLOGY

The success of Integrated Science can be achieved by maximum participation by learners. This learning area, that enhances creativity, analysis, problem solving and an investigative approach, can be taught effectively using a variety of methods both in the classroom and outside. Learners are expected to conduct experiments, study tours, field work and project work.

GENERAL OUTCOMES FOR GRADES 1 - 7

Integrated Science is an area in which learners are required to develop scientific knowledge, skills and attitudes which will help them to explore and understand their immediate environment and the world at large.

By the end of Grade 7 learners are expected to develop:

- an attitude of scientific curiosity and enquiry;
- the ability to generate new ideas;
- ability to co-operate;
- willingness to share knowledge;
- an understanding of human beings and their environment;
- awareness of a variety of life;
- an understanding of the relationship of living things in their environment; and
- Knowledge, skills and positive attitudes in health and nutrition.

Assessment

Continuous assessment will be emphasised by using various methods of testing according to topics and themes at various levels. The Examinations Council of Zambia (ECZ) will prepare detailed procedures on how continuous assessment will be conducted by the teachers. ECZ will also develop examination syllabus to provide teachers with guidelines on the Outcomes to be tested. The scheme of assessment will consists of school based assessment and final examination that will be conducted by the Examinations Council of Zambia.

School based assessment will be in the form of tests. Tests will be in the form of diagnostic, aptitude, achievement, oral, practice attitude and performance, learners.

Time and Period allocation

Time allocation for this syllabus will require at least five periods of 2hrs 30 minutes per week for grades 1 to 4 while for grades 5 to 7, six periods of 4hrs per week.

SCOPE and SEQUENCE

The following table shows the "Scope and Sequence" of integrated science syllabus from G1 to G7.

	Sub-Topics & Knowledge						
	G1	**G2**	**G3**	**G4**	**G5**	**G6**	**G7**
UNIT1: The Human Body	1.1.1 External parts of the human body • External parts of human body	2.1.1 The Internal parts of the human Body • Major internal parts • Functions of major parts			5.1.1 The Heart • Function of the heart • Structure of the heart • How to take the pulse	6.1.1 The Blood • Composition of blood • Functions of blood • Double circulation of blood in the body: Artery and Veins	
	1.1.2 The senses • Parts associated with the five senses		3.1.1 Mouth • Functions of mouth				7.1.1 The Digestive System •Digestive system • Organs of digestive system • The parts of alimentary canal • Undigested food
			3.1.2 Nose • Function of the nose		5.1.2 Breathing ・The roles of breathing: ・The types of organs in breathing ・The function of organs in breathing		
				4.1.1 Eyes • Basic parts of eyes • Function of eyes			

				4.1.2 The Ear • Basic parts of ears • Function of ears			
				4.1.3 The skin • Parts of the skin • Functions of the skin			
			3.1.3 Structure of the Body • Movement of arms and legs • Movable joints • Function of bones and muscles • Broken arm or leg • Parts of the human skeleton				
	1.1.3 Stages of human life • Stages in the human life cycle • Activities at different stages of human growth • Role of clinics				5.1.3 Puberty • Male and female parts of the body • Changes of human body at puberty	6.1.2 Features of pregnancy • Features of pregnancy • Signs and symptoms of pregnancy	
						6.1.3 Health risks • Health and social risks for teenage pregnancy • Health risks associated with early sexual debut	

UNIT2: Health		2.2.1 Food Hygiene • Importance of food hygiene • Danger of exposed food • The importance of clean and safe water	3.2.1 Food • Importance of food • Food nutrients • Composition of balanced diet			6.2.1 Food Nutrients • Sources of vitamins and minerals • Roles of vitamins and minerals • Well-balanced diets • Food labeling • Common dietary diseases • Interpreting the children's clinic cards	7.2.2 Fruits • Fruits used as food • Seeds used as food • Importance of fruits and seeds for health
	1.2.1 Hygiene • Importance of clean bodies in Prevention of diseases • Ways of Cleaning • Importance of hand washing • Importance of clean surrounding			4.2.1 Personal Hygiene • How to care for Eyes, ears, Feet and skins			
				4.2.2 Water in the body • Importance of water for the body • Effects of dehydration • Prevention and treatment of dehydration			
					5.2.1 Fresh Air • The importance of ventilation • The ways of good ventilation • First Aid treatment for a		

					suffocated person		
	1.2.2 Common Diseases • Communicable diseases				5.2.3 Malaria • Causes of malaria • Symptoms of malaria • Ways of preventing malaria		
			3.2.3 Illnesses and diseases • Common causes of diseases • Common diseases in the community • Infection and Non-infection disease • The ways for preventing disease		5.2.2 Air and water borne Diseases • Common air and waterborne diseases • Symptoms of common air borne and water borne diseases • Ways of preventing air and waterborne diseases		7.2.1 Diseases • Differences between a virus and bacteria • Effect of viruses and bacteria • Effect of disease prevalence on health services
		2.2.2 HIV and AIDS • The meaning of HIV and AIDS • HIV Transmission • Prevention of HIV			5.2.4 HIV and AIDS and STIs • Ways of STIs and HIV transmission • Ways of prevention • Care and treatment of AIDs patients	6.2.3 Living with HIV and AIDS • Challenges of living with HIV and AIDS	

			3.2.2 Drug Abuse • Common drugs • Effects of too much drugs		5.2.5 Harmful Substances and their effects • Harmful substances • Harmful effects • Effects of alcohol	6.2.2 Effects of harmful Substance • Effect of substance abuse on lives • How to Help substance addicts	
				4.2.3 Medicines • Traditional Medicines			
UNIT3: The Environment	1.3.1 The Environment • Features of the local environment • Urban and Rural Environment • Importance of environment	2.3.1 Our environment • Harmful things in environment • Wastes in environment • Effects of harmful things • Keeping homes and schools clean • Caring of surrounding by cleaning	3.3.1 Soil formation • Weathering • Agents of weathering • Soil layers		5.3.1 Soil • Importance of water in the soil • Retention of water in soil • Drainage rates of soils		
				4.3.3 Fertile Soils • Types of soils: • How to improve soil fertility • The superiority of natural methods	5.3.2 Fertilizers ・What organic and inorganic fertilizers are • Way of Preparing compost manure • Importance of maintain a supply of composted materials • Advantages and disadvantages of chemical fertilizers in agriculture		

				4.3.1 Forests • Importance of forests • Human activities • Ways of conserving forests			
				4.3.2 Game Management Areas (GMA) • Control of wild animals • Threats to wildlife • The importance of Conserving wild life			
				4.3.4 Pollution • Types of pollution • Sources of pollution • Conserving resources			
						6.3.1 The water cycle • The water cycle system • The process of Evaporation and Condensation of water in the environment. • Effects of water cycle	7.3.1 Water supply system • Sources of water for our life • Water treatment in urban and rural areas • Importance of water treatment • Water conservation

UNIT4: Plants and Animals	1.4.1 Local Plants • Local plants • Plant growth stages	2.4.1 Parts of Plants • Plant parts • The life cycle of a plant	3.4.1 Plant Classification • Classification of plants in Flowering and Non-Flowering; Flowering Plants		5.4.1 Non Flowering Plants • Types of non-flowering plants • The use of Ferns and Fungi for our life		
				4.4.1 Flowering plants • Function of parts of the flowering plant			7.4.1 The flower • Parts of a flower • Functions of parts of flower
							7.4.2 Pollination and fertilization in flowering plant • Pollination • Agents of pollination • Fertilisation in plants
							7.4.3 Fruits and seeds • The roles of seeds • The process of seed growth • Importance of improving seed varieties
							7.4.4 Seed dispersal • Seed dispersal • Ways of seed dispersal • Importance of seed dispersal

							7.4.5 Propagation • What plant propagation is • Methods of plant propagation • Plant propagation in local area
				4.4.2 Plant Growth • Conditions required for seed germination • Factors for plant growth • Steps in growing maize		6.4.1 Photosynthesis • The movement of water/mineral • Process by which plants make food ・The presence of starch in a leaf:	
	1.4.2 Animals around us • Wild animals • Common Activities of animals	2.4.2 Types of Animals • Different types of animals • Animals and food • Places where animals are found • Protection of animals from enemies • Conserving animals	3.4.2 Animal Classification • Classification of animals in Vertebrate and Invertebrate • Groups of vertebrates		5.4.2 Invertebrate Animals • Different types of Invertebrate Animals; • Basic Structures of insects and spiders • Usefulness of insects	6.4.3 Vertebrate animals • The different types of Vertebrate animals • Adaptation of vertebrates • Life cycle of vertebrate animals • The ways of conserving vertebrates	
			3.4.3 Homes of living things • Place of living	4.4.3 Domestic Animals • The types of domestic animals • Favorable	5.4.3 Pest and Parasites • Common pests and parasites • Harm caused by	6.4.2 Care for Domestic Animals • Basic needs of livestock • Importance of	

				pasture and conditions • Importance of domestic animals	pests and parasites • Parasite and pests control • Harm on environment caused by Chemical pesticides	cleanliness in the care of livestock • Farming Procedure of domestic animals	
UNIT5: Materials and Energy	1.5.1 Types and properties of Materials • Different types of Materials • Properties of materials • Uses of materials	2.5.1 Soluble and insoluble Materials • Matter in Solid and liquid form • Dissolving and non-dissolving substances • The different rate of dissolution of materials	3.5.2Solutions • Saturated and unsaturated solution	4.5.1 Making Mixtures • The differences between a substance and a mixture • The nature of mixtures • The types of mixtures	5.5.1 Separating substances • Separating of a soluble and an insoluble solid from water • Separation of iron fillings from sand		
			3.5.1 Three States of matter • Effects of heating and cooling on matter • Process of change of states	4.5.3 Air • What Air is • Uses of air • Advantages and disadvantages of winds		6.5.1 Nature of Air • Composition of air • Physical properties of air • Characteristics of air	
							7.5.5 Metals and Non-metals • Types of metals & Non-metals • Conduction and non-conduction of electricity

							7.5.6 Mining • Minerals mined in Zambia • Properties of copper • Extraction of copper • Items made from copper • Impact of mining
		2.5.2 Sources of Sound • Sources of sound • Different sounds				6.5.2 Sound • What sound is • How sound can make • Transmission of sound • Making sound louder	7.5.1 Energy • What Energy is • Types of energy • Energy conversion
		2.5.3 Light • Sources of light • Light & Shadow		4.5.5 Nature of Light • Movement of light • Passage of light through material			
				4.5.4 Magnets• The nature of magnet • Types of magnets • Magnetic Materials • Two types of poles of a magnet • The laws of repulsion and attraction • The uses of			

				magnet			
					5.5.2 Electricity • What electricity does • Sources of electricity • The application of electricity in our life • Conductors of electricity • Uses of good and bad conductors in our life		
					5.5.3 Heat Conductors • What heat is • Temperature measurement • Good and bad conductors of heat • Good insulators • The uses of good and bad conductors of heat in our life		
							7.5.2 Electric current and Circuits • What Electric current is • How to make a simple

							circuit • Two types of circuits • Action of a switch
							7.5.3 Lightning • Causes of lightning • Effects of lightning • Preventing damage from lightning • Importance of lightning
				4.5.2 Forces • Types of forces • What forces do • Use of force in daily life	5.5.6 Simple Machines • What simple machine is • 6 Kinds of simple machines • Application of simple machines		
					5.5.4 Measuring Matter • Instruments for measuring mass and weight • Effect of gravity • Difference between mass and weight		
						6.5.3 Pressure • Effects of pressure • The relation between area and force • Application of	

						pressure in our life	
					5.5.5 Volume • Instruments for measuring volume • Measuring Volume of given liquids • Measuring Volume of regular and irregular solid objects.		
						6.5.4 Communication • Methods of communication • Importance of communication • Use of sound waves	
							7.5.4 The solar system • The formation of Solar system • Difference between sun and the planets• Source of light in the solar system • The movement of the earth and the moon• The cause of day & night • The cause of seasons • Formation of solar and lunar eclipse

							• Uses of solar energy

SUBTOPIC-BASED FLOWCHART

The following chart shows the linkage of each sub-topic from G1 to G7. The relevant sub-topics are connected with solid lines.

GRADE 1

General Outcomes:	**Key Competences**
• Demonstrate an understanding of the basic facts about the human body • Develop investigative skills • Recognise the importance of personal health • Develop investigative skills on personal health • Develop knowledge, values and positive attitudes for the immediate environment • Develop investigative skills about the immediate environment • Develop knowledge, values and positive attitudes about materials and energy • Demonstrate investigative skills about materials and energy • Demonstrate an understanding of the basic facts about plants and animals • Develop investigative skills about plants and animals	• Demonstrate the ability to follow basic hygienic practices • Demonstrate an understanding and appreciation of the local environment

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
1.1.0 The human body	1.1.1 External parts of the human body	1.1.1.1 Identify the external parts of the human body.	• External parts of human body e.g. Head, neck, arm, elbow, hand, abdomen, knee, leg, ankle, foot.	• Observing the external parts of human body	• Appreciating the external parts of human body

	1.1.2 The senses	1.1.2.1 Identify the parts associated with the senses	• Parts associated with the five senses(Sight - eyes; smell- nose; hearing - ears; taste - tongue; touch –skin)	• Observing the parts associated with senses	• Appreciating the sense organs
	1.1.3 Stages of human life	1.1.3.1 Identify the stages in the human life cycle. 1.1.3.2 Describe what a human being can do at different stages of growth. 1.1.3.3 Mention what the clinic does for babies and children in the community	• Stages in the human life cycle such as Baby, toddler, infant, child, teenager, adult, aged person • Activities at different stages of human growth(Sitting; crawling; standing; running • Role of clinics such as; Vaccination of children and babies	• Classifying humans according to stage of growth • Communicating the role of clinics	• Cooperating during group activities • Appreciating human life cycle

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
1.2.0 Health	1.2.1 Hygiene	1.2.1.1 Explain the importance of keeping the body clean. 1.2.1.2 Demonstrate how to clean the face, teeth, hands and feet. 1.2.1.3 Explain the importance of washing hands. 1.2.1.4 Explain the importance of keeping the surroundings clean.	• Importance of clean bodies in Prevention of diseases • Ways of Cleaning the face, teeth, hands and feet. • Importance of hand washing in Prevention of transmission of germs(diseases) • Importance of clean surrounding in Prevention of breeding/transmission grounds of germs	• Communicating information on the importance of hygiene • Demonstrating hygiene practices • Observing hygiene practices	• Cooperating in group work • Practicing Personal and environmental care • Asking questions for more understanding

	1.2.2 Common Diseases	1.2.2.1 State common communicable diseases	• Communicable diseases such as Diarrhea, Dysentery, Cholera, HIV and AIDS, common colds	• Communicating information on common diseases	• Cooperating in group work

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
1.3.0 The Environment	1.3.1 The Environment	1.3.1.1 Identify the main features of the local environment. 1.3.1.2 Distinguish between urban and rural environment. 1.3.1.3 Explain the importance of the environment to living things.	• Features of the local environment(Plants, Rocks, animals Streams, buildings) • Refer to Houses, roads, heating and lighting, water supply • Importance of environment in providing Food, shelter, medicines, water, wood,	• Observing main features of local environment • Comparing urban and rural environment • Communicating the importance of the environment.	• Caring for the local environment • Cooperating in group work

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
1.4.0 Plants and Animals	1.4.1 Local Plants	1.4.1.1Identify plants in the local environment. 1.4.1.2 Observe the early stages of plant growth.	• Local plants e.g. Crops, weeds, decorative plant. • Plant growth stages (Seed, root and shoot).	• Comparing plants in the local environment • Observing stages of plant growth	• Appreciating plants in local environment • Asking questions for more understanding
	1.4.2 Animals around us	1.4.2.1 Identify wild and domestic animals in the local	• Wild animals(e.g. Lion, elephant, zebra) and	• Classifying animals in the local	• Appreciating all animals

		environment. 1.4.2.2 Name things that all animals do.	domestic animals(e.g. Cow, pig, sheep) • Common Activities of animals such as Moving, feeding, breathing, growing, reproducing, etc.	environment • Communicating what animals do	• Asking questions for more understanding

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
1.5.0 MATERIALS AND ENERGY	1.5.1 Types and properties of Materials	1.5.1.1 Identify different types of materials. 1.5.1.2 Describe properties of materials. 1.5.1.3 Explain different uses of materials.	• Materials(Wood, metal, plastic, stone, mud, textiles, water) • Properties of materials (Rough/smooth; hard/soft; flexible/rigid; strong/fragile, sinking, floating) • Uses of materials (Shelter, clothing, building, toys)	• Comparing materials according to type, properties and uses • Classifying materials according to properties	• Cooperating in group activities • Listening to others with respect. • Appreciating different uses of materials

Grade 2

General Outcomes:	**Key competences**
• Demonstrate an understanding of the basic facts about the human body • Develop investigative skills • Recognise the importance of health • Develop investigative skills on health Develop knowledge, values and positive attitudes for the immediate environment • Develop investigative skills about the immediate environment Demonstrate an understanding of the basic facts about plants and animals • Develop investigative skills about plants and animals • Develop knowledge, values and positive attitudes about materials and energy • Demonstrate investigative skills about materials and energy	• Demonstrate the ability to move legs and arms • Demonstrate an understanding of the importance of good hygiene • Demonstrate the existence of matter in solid, liquid and gas form

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
2.1.0 The human	2.1.1 The Internal	2.1.1.1 Name the major internal parts	• Major internal parts	• Communicating	• Participating in

body	parts of the human Body	2.1.1.2 Describe the functions of the major internal parts	(Brain, throat, lungs, stomach, intestines and heart) • Functions of major parts; Brain-thinking, throat -passing food, lungs - exchanging air, stomach-digesting food, intestine-food absorption, heart-pumping blood	the names of major internal organs • Communicating the functions of the major internal organs	class discussion actively • Appreciating the major internal organs

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
2.2.0 Health	2.2.1 Food Hygiene	2.2.1.1Explain the importance of washing of food before eating it 2.2.1.2 Explain the danger of eating exposed food. 2.2.1.3 Explain the need to drink clean and safe water.	• Importance food hygiene in getting rid of germs • Danger of exposed food: may cause diarrhoea • Drinking clean water to avoid taking in germs/disease	• Communicating importance of water and food hygiene	• Appreciating food and water hygiene
	2.2.2 HIV and AIDS	2.2.2.1 State what HIV and AIDS stand for. 2.2.2.2 Mention ways through which HIV can be transmitted 2.2.2.3 Explain how HIV can be prevented.	• HIV-Human Immuno-deficiency Virus; AIDS-Acquired Immune Deficiency Syndrome • HIV Transmission through contaminated Blood and body fluids. • Prevention by avoiding touching blood and body fluids, sharp objects.	• Communicating information on HIV, its transmission and prevention	• Awareness of HIV and AIDS • Cooperating in group work • Caring for the infected and affected

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
2.3.**0Environment**	**2.3.1 Our environment**	2.3.1. 1 List things that are harmful to human beings and the environment 2.3.1.2 Explain why wastes should be deposited in the right places. 2.3.1.3 Describe the effects harmful things on the environment 2.3.1.4 Explain the importance of keeping our homes and schools clean. 2.3.1.5 Explain what people in the community do to care for their surroundings.	• Harmful things (Waste dumps, toxic fumes from factories, automobiles and fires. • Depositing waste in the right places to avoid contamination of the Environment. • Effects of harmful things: cause diseases, kill plants and animals, change the habitat of living things. • Keeping homes and schools clean to avoid land and water pollution • Caring of surrounding by cleaning, planting flowers, trees and grass. Slashing, decorating.	• Communicating information on clean and dirty environment • Observing things harmful in the environment	• Appreciating the environment • Cooperating in group activities • Participating in voluntary activities on keeping the environment clean • Applying knowledge of keeping homes and schools clean.

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
2.4.0 Plants and Animals	2.4.1 Parts of Plants	2.4.1.1 Identify the main parts of a plant 2.4.1.2 Describe the life cycle of a plant	• Plant parts(Root, stem, leaf, flower, and fruits) • Seed- seedling-adult plant with flowers- adult plant with fruits-adult plant dies	• Observing the main parts of a plant • Comparing the life cycle of plants	• Appreciating wild plants • Caring for vital plants

	2.4.2 Types of Animals	2.4.2.1Name different types of animals in the environment. 2.4.2.2 Mention some animals which depend on others for food. 2.4.2.3 Mention some animals which feed on grass and crop plants. 2.4.2.4 Mention places where wild animals are found 2.4.2.5 Explain how animals protect themselves from their enemies 2.4.2.6 Explain the importance of conserving wild life.	• Insects and animals (e.g. mosquitoes, bees, worms; spider, lion, elephant, tilapia, snake, eagle, cow). • Animals that depend on others for food(Dog, cat, lion, fox, snake, leopard) • Animals that depend on plants for food(Goat, pig, cow, rabbit, impala) • Places where animals are found (bush, dessert, woods, river, lake, etc.) • Protection of animals from enemies by Camouflage, running, horns. • Conserving animals to avoid extinction, gain foreign exchange through tourism	• Observing animals in the environment • Communicating ways of conserving animals	• Appreciating animals in the environment • Caring for the animals in the environment. • Participating actively in group activities

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**

2.5.0 Materials and Energy	2.5.1 Soluble and insoluble Materials	2.5.1.1 Demonstrate the existence of materials in solid and liquid forms. 2.5.1.2 Demonstrate that some materials are soluble and others are insoluble 2.5.1.3 Show that some materials dissolve quicker in hot water than in cold water.	• Matter in Solid and liquid form • Dissolving and non-dissolving substances (e.g. Sugar, salt, chalk, dust, sand) • Comparing the dissolving rate of materials such as sugar and salt in hot and cold water	• Observing the change of liquid and solid state of materials • Investigating the solubility of different solids in cold and hot water • Inferring that soluble materials (sugar and salt) dissolve faster in hot water than in cold water	• Appreciating the solubility of substances • Asking questions for more understanding • Participating in class activities actively
	2.5.2 Sources of Sound	2.5.2.1 Mention the Sources of Sound. 2.5.2.2 Distinguish between different sounds.	• Sources of sound (Metals, drum, speakers, headphones, bell) • Different sounds such as Loud/soft, high pitch/low pitch,	• Communicating sources of sounds • Classifying different sounds	• Appreciating different sources of sound • Cooperating in group activities
	2.5.3 Light	2.5.3.1Mention the sources of light 2.5.3.2 Relate different positions of the source of light to shadow and shade at different times.	• Sources of light (Sun, fire, candle, bulb) • Relating the position of the light to the size of the shadow and shade at different times.	• Communicating the sources of light • Relating the position of light to shadows and shades	• Appreciating light and its sources • Cooperating in group activities

Grade 3

General Outcomes:	**Key competences**
• Demonstrate an understanding of the basic facts about the human body	• Show basic knowledge and skills in taking the pulse rate
• Develop investigative skills	• Show basic skills and knowledge in measuring

• Recognise the importance of personal health • Develop investigative skills on personal health Develop knowledge, values and positive attitudes for the immediate environment • Develop investigative skills about the immediate environment Demonstrate an understanding of the basic facts about plants and animals • Develop investigative skills about plants and animals • Develop knowledge, values and positive attitudes about materials and energy • Demonstrate investigative skills about materials and energy	temperature of various objects • Demonstrate the ability to classify plants and animals

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
3.1.0 The human body	3.1.1 Mouth	3.1.1.1 State the function of the teeth and tongue	• Functions; teeth for chewing the food, tongue for tasting with	• Communicating information on the function of the mouth	• Appreciating the function of the teeth and tongue • Cooperating in group work
	3.1.2 Nose	3.1.2.1 State the function of the nose	• Function of the nose: for smelling and breathing with	• Communicating information on the function of the nose	• Participating actively in class activities
	3.1.3 Structure of the Body	3.1.1.1 Demonstrate the movement of arms and legs 3.1.1.2 Name the major movable joints in the body. 3.1.1.3 Explain the role played by	• Movement of arms and legs • Movable joints (Elbow, knee, shoulder, hip, wrist and ankle).	• Comparing movement of legs and arms • Observing major movable joints of the body • Communicating	• Appreciating body movements • Asking questions for more understanding

		bones, joints and muscles. 3.1.1.4 Explain what happens if a bone gets broken. 3.1.1.5 Identify the major parts of the human skeleton	• Function of bones and muscles(Hold structure, support the body and help in movement • Broken arm or leg: pain, no movement or playing. • Parts of the human skeleton (Skull, neck, arms, ribs, hip, legs, feet, spine)	information on the human skeleton	

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**

3.2.0 Health	3.2.1 Food	3.2.1.1 State the importance of food 3.2.1.2 Classify foods according to their nutrients. 3.2.1.3 Demonstrate the composition of a balanced diet for health from available foods.	• Importance of food for: Energy, body building and protection. • Food nutrients such as Energy foods: rice nshima, potatoes; Body building foods: meat, eggs beans Protective foods: fruits, vegetables, • Composition of balanced diet: e.g. nshima, meat and vegetables	• Classifying foods according to nutrients • Communicating the composition of a balanced diet for health	• Appreciating food nutrients • Cooperating in group activities • Applying the knowledge of a balanced diet in everyday life
	3.2.2 Drug Abuse	3.2.2.1 Identify common drugs in the community. 3.2.2.2 Explain the effects of taking too much drugs	• Common drugs: paracentamol, quinine, vermox, alcohol. • Effects of too much drugs: addiction, death Poor/ bad health,	• Investigating common drugs • Communicating the effects of taking drugs	• Awareness of common drugs • Using drugs correctly
	3.2.3 Illnesses and diseases	3.2.3.1Identify the common causes of diseases 3.2.3.2 List common diseases in the community 3.2.3.3 Distinguish between infectious and non-infectious diseases 3.2.3.4 Explain different ways of preventing diseases .	• Common causes of diseases: Parasites, bacteria and viruses • Common diseases: Malaria, cholera, dysentery, colds, bilharzia. • Infectious (HIV, TB, Measles, chicken pox) .Non-infectious (Asthma, Malnutrition). • Personal hygiene, good sanitation, vaccination, healthy food.	• Investigating the common causes of diseases • Comparing infectious and non-infectious diseases • Communicating ways of preventing diseases	• Awareness of common diseases, their causes and prevention • Cooperating in group work • Caring for the sick

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
3.3.0 The Environment	3.3.1 Soil formation	3.3.1.1 State what weathering is. 3.3.1.2 Identify the agents of weathering in soil formation 3.3.1.3 Demonstrate the formation of soil layers.	• Weathering as the breaking up of rocks to form soil • Agents of weathering: Wind, trees, water, animals • Soil layers: top soil, subsoil and	• Communicating the agents of weathering • Investigating the layers of soil	• Appreciating the formation of soil • Cooperating in group work

			bedrock		

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	**SKILLS**	**VALUES**
3.4.0 Plants and Animals	3.4.1 Plant Classification	3.4.1.1 Classify plants into flowering and non- flowering.	• Flowering Plants(e.g. maize, beans ross flower) and non-flowering plants (e.g. ferns, moss, pine)	• Classifying plants into flowering and non- flowering	• Appreciating classes of plants
	3.4.2 Animal Classification	3.4.2.1 Classify animals into vertebrates and invertebrates. 3.4.2.2 Classify vertebrates into their groups.	• Vertebrates-e.g. Man, chicken, snake, fish, frog; Invertebrates-e.g. Worms spiders, insects. • Groups of vertebrates: Mammals, birds, amphibians, fish, reptiles	• Classifying vertebrate and invertebrates • Grouping vertebrates into their five groups	• Participating actively in class discussion • Appreciating groups of animals
	3.4.3 Homes of living things	3.4.3.1 Identify different places where animals and plants live	• Place of living (e.g. Land (forest, soil, plains, moulds, water (ponds, rivers, seas).	• Comparing places where animals and plants live	• Caring for environment where plants and animals live

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	**SKILLS**	**VALUES**
3.5.0 Materials and energy	3.5.1 Three States of matter	3.5.1.1 Demonstrate the effect of heating and cooling on matter 3.5.1.2 Demonstrate the process of melting, evaporation and freezing.	• Effects of heating and cooling on matter: change of state into solid liquid and gas • **Process** of: Melting, Evaporation freezing	• Investigating the effect of heating and cooling on matter • Communicating the process of melting, evaporation and condensation	• Cooperating in group activities • Appreciating change of state of matter • Applying Safety rules during demonstration on heating /cooling

			and condensation.		
	3.5.2Solutions	3.5.2.1 Demonstrate the existence of saturated and unsaturated solutions	Saturated and unsaturated solution of: Salt and sugar solutions	• Observing the existence of saturated and unsaturated solutions	• Cooperating in group activities

Grade 4

General Outcomes:	**Key competences**
• Demonstrate an understanding of the basic facts about the human body • Develop investigative skills Recognise the importance of personal health • Develop investigative skills on personal health • Develop knowledge, values and positive attitudes for the immediate environment • Develop investigative skills about the immediate environment • Demonstrate an understanding of the basic facts about plants and animals • Develop investigative skills about plants and animals • Develop knowledge, values and positive attitudes about materials and energy • Demonstrate investigative skills about materials and energy	• Show basic knowledge and skills in cleaning and caring for the external body parts • Demonstrate basic knowledge and skills in appreciating nature

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**

4.1.0 The human body	4.1.1 Eyes	4.1.1.1 Identify the basic parts of an eye. 4.1.1.2 State the function of eyes	• Basic parts of eyes: Eyelid, iris, pupil, eye lash; • Function of eyes: Sight, reading;	• Observing features of eyes • Investigating functions of eyes	• Appreciating the role of eyes as sense organs
	4.1.2 The Ear	4.1.2.1 Identify the basic parts of an ear. 4.1.2.2 State the function of ears.	• Basic parts of ears: Earlobe, middle ear and inner ear • Function of ears: hearing, balancing	• Communicating features and functions of ears	• Appreciating the role of ears as sense organs
	4.1.3 The skin	4.1.3.1 Identify the parts of the skin. 4.1.3.2 State the functions of the skin.	• Parts of the skin: Epidermis, dermis, hair follicle, sweat poles. • Functions of the skin: Protection, Sensitivity, stores fat, temperature control.	• Communicating different parts of the skin: • Communicating the effects of lightening creams	• Appreciating the skin and its functions • Awareness of the common skin diseases

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
4.2.0 Health	4.2.1 Personal Hygiene	4.2.1.1 Describe the care for eyes 4.2.1.2 Describe the care for ears	• **How to care for:** - Eyes; Washing, and protection of the eye. -ears: Cleaning and	• Communicating the care for ears, eyes, feet and skin	• Caring for ears, eyes feet and skin • Participating

		4.2.1.3 Describe the care of the feet. 4.2.1.4 Describe the care for the skin	protection of the ears - feet: Cleaning and protection of the feet - Skin: cleaning and protection of skin.		actively in class activity
	4.2.2 Water in the body	4.2.2.1 Explain the importance of water in the body. 4.2.2.2 Explain the effects of dehydration. 4.2.2.3 Explain how to prevent and treat dehydration	• Importance of water in dissolving substances, distributing heat, moistening skin • Effects of dehydration: Kidney failure, death • Prevention by: Oral rehydration Therapy (ORT), Drugs	• Investigating the effects of dehydration. • Communicating ways of preventing and treating dehydration	• Appreciating the importance of water • Asking questions for more understanding
	4.2.3 Medicines	4.2.3.1 Identify traditional and conventional medicines for common ailments.	• Traditional Medicines such as: (Tembusha/ aloe Vera, moringa, cinnamon, ginger, garlic; Conventional (paracetamol, antibiotics, malarial drugs)	• Communicating traditional and conventional medicines for common ailments	• Appreciating the use of medicines • Cooperating in group activities

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**

4.3.0 The Environment	4.3.1 Forests	4.3.1.1 Explain the importance of forests to people and other forms of life. 4.3.1.2 Explain the effects of human activities on forests. 4.3.1.3 Describe ways of conserving forests.	• Importance of forests: Wood, shelter, food, medicine, rainfall, reducing soil erosion. • Human activities leading to deforestation, soil erosion and droughts • Ways of conserving: Tree planting, avoiding bush fires, alternative heating system, logging	• Communicating the importance of forests • Investigating the effect of human activities on forests and ways of conserving forests	• Appreciating existence of forests for other forms of life • Asking questions for more understanding
	4.3.2 Game Management Areas (GMA)	4.3.2.1 Explain how to control the wild animal population in the GMA 4.3.2.2 Explain threats to wildlife 4.3.2.3State the importance of conserving wildlife.	• Control of wild animals: Game cropping and conservation. • Threats to wildlife: Poaching, encroachment, increase in human population • Conserving wild life for Tourism attraction, increasing wild life population, source of income	• Communicating ways of controlling animal population in GMAs • Investigating threats to wild life	• Appreciating conservation of wildlife • Cooperating in group activities • Asking questions for more understanding
	4.3.3 Soils	4.3.3.1 Classify soil samples according to types 4.3.3.2 Describe how soil fertility can be improved. 4.3.3.3 Explain why natural methods of improving soil fertility are better than artificial ones	• Types of soils: Clay, loam and sand. • Improving soil fertility by using: Inorganic and organic manures. • Retaining soil fertility by natural methods and making of soil acidic by artificial methods.	• Classifying soil according to types • Comparing natural and artificial methods of improving soil fertility	• Appreciating different types of soil • Cooperating in group work

	4.3.4 Pollution	4.3.4.1 Identify different types of pollution. 4.3.4.2 Identify the sources pollution in the community 4.3.4.2 Explain ways of conserving natural resources.	• Types of pollution: air, land and water pollution • **Sources** of: Burning, mining, quarrying, automobiles, industrial activities, farming. • Conserving resources: use of the three Rs of conservation(Reduce, Reuse and Recycle)	• Communicating types of pollution • Investigating the sources of pollution on	• Awareness of pollution • Cooperating in group work • Applying the three Rs of conservation

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
4.4.0 Plants and Animals	4.4.1 Flowering plants	4.4.1.1 Describe the functions of parts of the flowering plant.	• Function of: Roots for anchorage, stem for absorption, leaf for food making, and flower for reproduction	• Communicating the functions of the main parts of a plant	• Participating actively in class activities

	4.4.2 Plant Growth	4.4.2.1 Identify conditions necessary for seed germination 4.4.2.2 Investigate factors necessary for plant growth 4.4.2.3 Grow maize seeds to maturity	• Conditions required for seed germination such as: Moisture, favourable temperature, air • Factors for plant growth: Water, nutrients, sunlight, air, favourable temperature • Steps in growing maize: Soil preparation, planting, watering, removing weeds applying fertilizer / manure.	• Investigating conditions necessary for germination • Investigating factors necessary plant growth • Observing the growth of maize • Recording the growth of maize at every stage.	• Appreciating germination and growth of plants • Asking questions for more understanding • Cooperating in group activities
	4.4.3 Domestic Animals	4.4.3.1 List the main animals kept by farmers in the community 4.4.3.2 Explain why some animals are kept in certain areas only. 4.4.3.3 State the importance of animals in the community.	• Animals such as: Cattle, pigs, goats, sheep, chickens, ducks, guinea fowl • Favourable pasture and conditions, traditional practices • Importance of animals: Sources of food, hides, manure, ploughing and transportation.	• Investigate types of animals kept by farmers in community • Communicating the importance of keeping animals in the community	• Appreciating the role played by farmers in keeping animals • Cooperating in group activities

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
4.5.0 Materials and energy	4.5.1 Forces	4.5.1.1 Name two types of force 4.5.1.2 Describe what forces can do 4.5.1.2 Explain ways in which animals or	• Types of forces: pull or push • What forces do: moving objects, changing direction of objects, changing shape of objects. • Use of force in daily life; animals and machines in: Transportation, work,	• Comparing pulling and pushing forces • Observing what forces do • Communicating the use of forces in everyday life	• Appreciating the roles of forces • Applying forces in everyday life

		machines can help us to push or pull.	pumping water, ploughing		
	4.5.2 Air	4.5.2.1 Demonstrate the existence of air 4.5.2.2 Explain the uses of air. 4.5.2.2 Explain advantages and disadvantages of strong winds.	• Air as a form of matter that occupies space (Balloon and transparent cup & water experiment). • Uses of air: Breathing, burning, and making food • Advantages: Power generation, sailing of boats, drying things, seed dispersal and pollination; Disadvantages: Destruction of trees, buildings, spreading of bush fires	• Investigating the existence of air • Communicating the uses of air. • Observing the advantages and disadvantages of strong winds	• Appreciating the existence of air • Asking questions for more understanding • Participating actively in class activities
	4.5.3 Magnets	4.5.3.1 Explain what magnets do. 4.5.3.2 Identify different types of magnets 4.5.3.3 Identify magnetic & non-magnetic materials. 4.5.3.4 Identify the poles of a magnet. 4.5.3.5 Demonstrate the laws of repulsion and attraction. 4.5.3.6 Relate the poles of a magnet to the earth's north and south poles	• Moving, pushing and pulling of magnetic materials • Types of magnets: bar, horseshoe and circle magnets. • Magnetic Materials e.g. Iron and steel, etc. & Non-magnetic materials e.g. Copper, aluminium, plastic etc. • **Poles** of a magnet: North and South poles. • Like poles repel; unlike poles attract. • North-north and south-south direction of a freely	• Observing types of magnets and what they do. • Classifying materials into magnetic and non - magnetic • Observing the repulsion and attraction of magnets • Differentiating a magnet from a non-magnet • Comparing the poles of a magnet to the north and	• Appreciating magnets • Asking questions for more understandings • Cooperating in group activities

			suspended magnet.	south poles of the earth.	
	4.5.4 Light	4.5.4.1 Demonstrate the movement of light in a straight line 4.5.4.2 Investigate the passage of light through different materials.	• Movement of light in a straight line : • Passage of light through material: Transparent, opaque and translucent materials	• Observing path taken by light during its propagation • Demonstrating the passage of light through different materials	• Asking more questions for more understanding • Participating in group discussions actively as they perform experiments

Grade 5

General Outcomes:	
• Demonstrate an understanding of the basic facts about the human body • Develop investigative skills Recognise the importance of personal health • Develop investigative skills on personal health • Develop knowledge, values and positive attitudes for the immediate environment • Develop investigative skills about the immediate environment • Demonstrate an understanding of the basic facts about plants and animals • Develop investigative skills about plants and animals • Develop knowledge, values and positive attitudes about materials and energy • Demonstrate investigative skills about materials and energy	**Key competences** • Show basic knowledge and skills in measuring mass , weight and volume of different substances • Demonstrate basic understanding of good and bad conductors of electricity • Demonstrate basic understanding of pest control using natural pesticides

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	**SKILLS**	**VALUES**
5.1.0 The human body	5.1.1 The Heart	5.1.1.1 State the function of the heart. 5.1.1.2 Describe the structure of the heart 5.1.1.4 Demonstrate how to take the pulse.	• Function of the heart :Pumping blood • Structure of the heart • How to take the pulse	• Communicating information on the function of the heart • Measuring the number of pulses a minute	• Appreciating the function of the heart • Asking questions for more understanding • Cooperating in group work
	5.1.2 Puberty	5.1.1.1 Identify male and female parts of the body. 5.1.1.2 Describe changes that occur at puberty in human beings.	• Male and female parts of the body(Private and non-private parts) • Changes at puberty Physical: Pubic hair, beards, breaking of voice, pimples, pelvic girdle, enlargement of breasts. Emotional; moods, sexual feelings	• Comparing the body parts between boys and girls	• Showing respect for each other • Awareness of ones changes at puberty

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
5.2.0 Health	5.2.1 Fresh Air	5.2.1.1 Explain the importance of good ventilation 5.2.1.2 Explain ways of providing good ventilation in buildings 5.2.1.3 Demonstrate ways of treating a suffocated person.	• ventilation is good for health • ways of good ventilation; air conditioners, Air vents, Windows, Fans • Removing source of suffocation; artificial breathing, First Aid treatment for a suffocated person.	• Communicating the importance of good ventilation • Practising how to treat a suffocated person	• Applying good ventilation in everyday life • Appreciating the use of
	5.2.2 Air and water borne Diseases	5.2.2.1 Name common airborne and water borne diseases in Zambia 5.2.2.2 Describe symptoms of common air borne and water borne diseases. 5.2.2.3 Describe how to prevent air and water borne diseases	• Common air and waterborne diseases: Tuberculosis, pneumonia, cholera, typhoid, dysentery, measles and bilharzia. • Symptoms: TB prolonged cough, sweating at night, fever, loss of weight and appetite, eyes, rash, Dysentery: bloody stool • Ways of preventing air	• Identifying common airborne and waterborne diseases • Communicating symptoms of airborne and waterborne diseases	• Awareness of waterborne and airborne diseases • Cooperating in group work • Asking questions for more understanding

			and waterborne diseases: Good ventilation, and hygiene		
	5.2.3 Malaria	5.2.3.1 Identify causes of malaria 5.2.3.2 State the symptoms of malaria 5.2.3.3 Describe ways of preventing and treating of malaria	• Causes of malaria: Anopheles mosquito bite (plasmodium) • Symptoms of malaria: Fever, vomiting, headache, body pains, loss of appetite. • Ways of preventing malaria: Sleeping under Insecticide Treated Nets (mosquito nets), spraying Mosquito breeding places and homes, clearing Mosquito breeding places.	• Communicating causes, prevention, treatment, signs and symptoms of malaria	• Awareness of causes and prevention of malaria • Asking questions for more understanding • Appreciating the knowledge on malaria prevention
	5.2.6 HIV and AIDS and STIs	5.2.6.1 Describe ways in which STIs and HIV are transmitted. 5.2.6.2 Identify ways of preventing the spread of HIV and STIs 5.2.6.3 Describe the care and treatment for AIDS patients.	• Ways of STIs and HIV transmission, unprotected sexual activities; contaminated blood, breast milk and sharp instruments. . • Ways of prevention Abstinence, use of condoms etc. • Care and treatment of AIDs patients; Good nutrition, good hygiene, love and support ART	• Communicating ways of HIV and STIs transmission • Investigating ways of treating and caring for HIV and AIDS patients.	• Awareness of STIs and HIV • Cooperating in group activities • Empathy for patients
	5.2.7 Harmful Substances	5.2.7.1 Mention the substances which are harmful to the human body.	• Harmful substances: Cocaine, mandrax,	• Identifying substances that are harmful to	• Applying knowledge to avoid harmful

	and their effects	5.2.7.2 State the harmful effects of substance abuse on the body. 5.2.7.3 Explain the effects of drinking alcohol	heroin, petrol, alcohol, dagga. • Harmful effects: Aggressiveness, brain damage, unconsciousness, restlessness, nausea, addiction • Effects of alcohol: poor health, violence, accidents	the body	substances • Asking questions for more understanding

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
5.3.0 The Environment	5.3.1 Soil	5.3.1.1 Explain the importance of water in the soil. 5.3.1.2 Mention ways in which water can be retained in the soil. 5.3.1.3 Demonstrate the drainage rates of soils.	• Importance of water; Seed germination, and photosynthesis • Retention of water in soil: Mulching, shading terracing, weeding and intercropping • Drainage rates of clay, loamy and sandy soils	• Communicating the importance of water in soil • Observing the drainage rates of different soils	• Appreciating importance of water to life • Cooperating in group activities
	5.3.2 Fertilizers	5.3.2.1 Explain what organic and	• Organic-Natural	• Communicating	• Appreciating role

		inorganic fertilizers are. 5.3.2.2 Demonstrate how to prepare compost manure. 5.3.2.3 Explain the importance of maintaining a supply of composted materials. 5.3.2.4 Explain the advantages and disadvantages of chemical fertilizers in agriculture.	fertilizers, inorganic-man made fertilizers • Way of Preparing compost manure: pile of layers under the shade • Importance of maintain a supply of composted materials: Continuous supply of manure to plants. • Advantages: required nutrients, quick absorption. Disadvantages; spoil soil, leaching, cost	organic and inorganic fertilizers • Demonstrating how to make composite manure • Communicating advantages of and disadvantages of chemical fertilizers in agriculture	of fertilizers in agriculture • Asking questions for more understanding • Cooperating in group work

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
5.4.0 Plants and Animals	5.4.1 Non Flowering Plants	5.4.1.1 Identify different types of non-flowering plants. 5.4.1.2 Identify use of ferns and fungi.	• Types of non- flowering plants; Algae, ferns, moss, fungi (e.g. mushroom). • Ferns: Ornamental plants; Fungi: baking, beer brewing; food; medicine (e.g. penicillin)	• Comparing the difference among non-flowering plants • Communicating the use of ferns and fungi	• Cooperating in group activities • Applying the use of ferns and fungi in everyday life.
	5.4.2 Invertebrate Animals	5.4.2.1 Identify the different types of invertebrate animals 5.4.2.2 Investigate the basic	• Different Invertebrate Animals; Insects (bees, dragon flies, wasps, grasshoppers, beetles and butterflies), worms, spiders, crabs, lobsters and snails. • Basic Structures of insects	• Observing basic structure of insects and spiders • Communicating ways in which insects are useful • Comparing the basic structure of insects	• Appreciating the nutritional value of insects • Participating in group activities

		structure of insects 5.4.2.3 Explain the difference between insects and spiders 5.4.2.4 State ways in which insects are useful.	and spiders: insects (head, thorax, abdomen, antennae, six legs, wings) spiders(eight legs and two body section) • Usefulness of insects: Source of food; assist in pollination.	and spiders	
	5.4.3 Pest and Parasites	5.4.1.3 Identify common pests and parasites in the local environment. 5.4.1.4 Describe the harm caused by pests and parasites on plants and animals. 5.4.1.5 Explain how pests and parasites can be controlled using local plant materials and commercial chemicals. 5.4.1.6 Explain how chemical pesticides can cause harm to the environment.	• Common pests and parasites: Aphids, locusts, caterpillars, ticks, beetle, worm, flea weevils, termites, tsetse fly, lice • Harm caused by pests and parasites: Suck nutrients, cause diseases, affect growth of the host. Parasite and pests control; • Local: Spraying garlic, red pepper and ash; Commercial: Doom, Boam, Rogo • Harm on environment caused by Chemical pesticides: contamination of environment, killing of beneficial living things such as snails, worms, rats	• Investigating the common pests in local the environment • Communicating harm caused by pests and parasites • Investigating ways controlling pests and parasites using local and commercial chemicals • Communicating harmful effects of pesticides to the environment	• Appreciating the knowledge about pests and parasites • Cooperating in group activities • Asking questions for more understanding

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
5.5.0 Materials and energy	5.5.1 Electricity	5.5.1.1 State what electricity can do. 5.5.1.2 Identify sources of electricity 5.5.1.3 Identify electrical appliances used at home, school and in the community. 5.5.1.4 Identify good and bad conductors of electricity 5.5.1.5 Describe the uses of good and bad conductors of electricity. 5.5.1.6 Explain methods of conserving electricity in homes and schools.	• What electricity does: powers up appliances and lights • Sources of electricity: battery, hydroelectric power and thermal power station, electric generator, solar cells. • Electrical appliances used; Electric heater, stove, iron, fridge, fan. • Good conductors: Copper wire, iron sheets, carbon, Bad conductors: wood, plastic, rubber. • Uses of good and bad conductors: Electric wires and appliances; insulators and handles of electric appliances • Use of energy saver bulbs, switch and save practices, alternative sources of energy	• Observing the electrical appliances at home, school and in the community • Experimenting good and bad conductors of electricity • Inferring the use of good and bad conductor of electricity • Communicating methods of conserving electricity	• Applying safe use of electricity in everyday life • Participating actively in group work • Asking questions for more understanding • Applying energy serving practices in everyday life
	5.5.2 Heat Conductors	5.5.2.1 Describe what heat is 5.5.2.2 Determine the temperature of human body; boiling water; and air inside and outside the classroom.	• Heat; The flow of thermal energy from warmer object cooler objects • Temperature measurement: of human body; boiling water; and air inside	• Measuring Temperature of human body; boiling water; and air inside and outside the room • Comparing good and bad	• Measuring of temperature • Applying good and bad conductors of heat in everyday life

		5.5.3.2 Distinguish good and bad conductors of heat. 5.5.3.3 Identify materials which are good insulators. 5.5.3.4 Explain the uses of good and bad conductors of heat.	and outside the classroom • Good conductors: metals; Bad conductors: wood rubber, wool, plastic • Good insulators: wood, plastic, rubber • Good conductors: for cooking utensils such as a pan, pot, pressing iron, Bad conductors: warmth, making handles for pots/pans/utensils.	conductors of heat • Inferring materials that are good conductors of heat and those that are bad conductors of heat	• Asking questions for more understanding • Cooperating in group activities
	5.5.3 Measuring Matter	5.5.4.1 Identify instruments used to compare how heavy objects are 5.5.4.2 Demonstrate the effect of gravity on objects 5.5.4.3 Distinguish between mass and weight	• Instruments for measuring mass and weight: beam balance, , Electronic balances, spring balance, force metres • Effect of gravity: pulling objects down/towards the centre of earth. • Difference between mass (meaning: amount of matter, unit: grams and kilograms) and weight (meaning: pull of gravity, unit: the Newton) **Note**: In everyday life we use kilograms/grams when we measure weight, but this is not the case in	• Measuring mass and weight using beam and spring balances • Communicating the difference between mass and weight • Inferring the mass of objects on the moon	• Applying measurements in everyday life • Participating actively in group activities • Asking questions for more understanding

			science.		
	5.5.4 Volume	5.5.3.1 Identify various instruments and apparatus used to measure volume 5.5.3.2Measure the volume of liquids. 5.5.3.3 Measure the volume of various regular and irregular solid objects.	• Instruments for measuring volume; Beaker, measuring cylinder, • Measuring Volume of given liquids. • Measuring Volume of regular (l x b x h) and irregular (displacement method) solid objects.	• Identifying various instruments used to measure volume • Measuring volume of liquids, regular and objects • Designing an experiment to measure the volume of an irregular object	• Appreciating the skill of measuring • Asking questions for more understanding • Cooperating in group activities
	5.5.5 Simple Machines	5.5.5.1 Explain what simple machine is.	• What simple machine is ; making work easier for us by allowing us to push or pull over increased	• Identifying simple machines at school and at home • Manipulating simple machines	• Appreciating the role played by simple machines • Cooperating in

		5.5.5.2 Identify six kinds of simple machines used in the home and school. 5.5.5.3 Demonstrate the use of simple machines in doing work .	distances • 6 Kinds of simple machines; Lever, Wheel & Axle, Inclined Plane, Wedge, Screw • Application of simple machines: Pulling, cutting, transportation, watering, digging		group activities • Asking questions for more questions

Grade 6

General Outcomes:	**Key competences**
• Demonstrate an understanding of the basic facts about the human body • Develop investigative skills • Recognise the importance of personal health • Develop investigative skills on personal health Develop knowledge, values and positive attitudes for the immediate environment • Develop investigative skills about the immediate environment • Demonstrate an understanding of the basic facts about plants and animals • Develop investigative skills about plants and animals • Develop knowledge, values and positive attitudes about materials and energy	• Show knowledge and skills of maintaining a healthy human body • Demonstrate basic skills of making a magnet • Demonstrate knowledge and skills of conserving plants and animals in the environment

• Demonstrate investigative skills about materials and energy	

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
6.1.0 The human body	6.1.1 The Blood	5.1.1.2 Describe the composition of blood. 6.1.1.3 Describe the functions of blood in the body. 6.1.1.2 Describe how blood circulates in the body.	• Composition of blood: Red and white blood cells, blood platelet and blood plasma • Functions of blood: Transportation of; food , gases and water; defence of body • Double circulation of blood in the body: Artery and Veins	• Comparing the difference between artery and veins • Communicating the functions of blood	• Cooperating in group work • Asking questions for more understanding
	6.1.2 Features of pregnancy	6.1.2.1 Describe features of pregnancy. 6.1.2.2 Identify signs and	• Features of pregnancy: Protrusion of the tummy, enlargement of breasts. • Signs and symptoms: Morning	• Communicating features of pregnancy • Communicating	• Awareness of pregnancy features • Cooperating in group work

		symptoms of pregnancy.	sickness, vomiting.	signs and symptoms of pregnancy	
	6.1.3 Health risks	6.1.3.1 Identify health and social consequences of teenage pregnancy 6.1.3.2 Identify health risks associated with early sexual debut.	• Health and social risks for teenage pregnancy: Trauma, Disability, Complications to the mother and the baby, Premature death • Health risks associated with early sexual debut: contraction of STIs and HIV, unwanted/teenage pregnancy, cervical cancer.	• Communicating risks associated with teenage pregnancy and early sexual debut	• Awareness of health risks associated with teenage pregnancy and early sexual debut

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
6.2.0 Health	6.2.1 Food Nutrients	6.2.1.1 List foods which are good sources of vitamins and minerals. 6.2.1.2 Explain the importance of vitamins and minerals in a diet. 6.2.1.3 Explain the importance of eating a variety of foods. 6.2.1.4 Explain the importance of food labelling and packaging. 6.2.1.5 Identify common deficiency diseases in the communities. 6.2.1.6 Interpret children's clinic cards in relation to dietary intake.	• Sources of vitamins and minerals: Vegetables, fruits, milk, liver, oils, fish, dairy products. • Importance of vitamins and minerals: Protection against diseases, better body functioning • Importance of eating a variety of food: Good healthy • Importance of food labelling: Expiry date, and nutrients, information of packaged foods. • Common dietary diseases: Scurvy, rickets, night blindness, marasmus, kwashiorkor, goitre • Interpreting the children's clinic cards: weight, age growth curve,	• Classifying foods according to their nutrients • Communicating information on deficiency diseases • Observing expiry dates, information on nutrients and packaging • Analysing clinic cards for dietary intake	• Applying acquired knowledge on diet in everyday life • Asking questions for more understandings • Cooperating in group work
	6.2.2 Effects of harmful Substance	6.2.2.1Explain how substance abuse can ruin the lives of people. 6.2.2.2 Explain how substance addicts can be helped.	• How substance abuse can ruin lives: Addiction, diseases, crime, accidents • Helping substance addicts: Recreation, rehabilitation	• Communicating the dangers of substance abuse	• Awareness on how to help substance addicts

	6.2.3 Living with HIV and AIDS	• 6.2.3.1 Describe the challenges of living with HIV and AIDS .	• Challenges of living with HIV and AIDS: Emotional, economic, social, moral.	• Communicating challenges of living with HIV and AIDS	• Awareness of challenges of living with HIV and AIDS

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
6.3.0 The Environment	6.3.1 The water cycle	6.3.1.1 Describe the water cycle system. 6.3.1.2 Describe the process of evaporation and condensation 6.3.1.3 State the effects of the water cycle in everyday life.	• The water cycle (sun heats water, water evaporates, water vapour condenses, , clouds form, clouds drop as rain or precipitation) • Evaporation (change from liquid to gas state, Condensation (change from gas to solid) of water. • Effects of water cycle: draughts, floods, changes in weather.	• Experimenting the process of evaporation, condensation and precipitation • Communicating the effects of the water cycle	• Appreciating the water cycle • Participating actively in class activities

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**

6. 4.0 Plants and Animals	6.4.1 Photosynthesis	6.4.1.1 Investigate how water and mineral salts reach the leaves 6.4.1.2 Describe the process by which plants make food. 6.4.1.3 Test for the presence of starch in a leaf	• How water/mineral salts reach the leaves: Transpiration(Root→ stem→ leaves) • Process by which plants make food: Carbon dioxide combines with water to make starch in presence of light and chlorophyll. • Testing for starch in a leaf: Use of iodine solution to obtain a blue/black colour	• Investigating the movement of mineral salts and water to leaves in plants • Communicating information on how plants make food • Observing the presence of starch in a leaf	• Appreciating how plants make food • Asking questions for more understanding • Cooperating in group work
	6.4.2 Care for Domestic Animals	6.4.2.1 Explain the basic needs of livestock. 6.4.2.2 Explain the importance of cleanliness in the care of livestock. 6.4.2.3 Find out the advantages of keeping livestock together. 6.4.2.4 Find out the disadvantages of crowding livestock.	• Basic needs of livestock: Food, shelter, water. • Importance of cleanliness in the care of livestock: avoid outbreak of diseases. • Advantages of keeping livestock together: protection, reproduction, interaction • Disadvantages of crowding livestock: Outbreak of diseases, fights, overgrazing,	• Communicating information on cleanliness and care of livestock • Investigating the management of livestock	• Appreciating needs for livestock • Cooperating in group activities • Showing care when attending to livestock.
	6.4.3 Vertebrate animals	6.4.3.1 Identify the different types of vertebrate animals 6.4.3.2 Describe adaptations shown by vertebrate animals	• Vertebrate animals: - **Mammals**: man, cow **-Birds**: duck, eagle, - **Reptile**: lizard, crocodile, tortoise. - **Fish**: Tilapia, - **Amphibians**: frog etc. • Adaptation of vertebrates: Breathing-nose/gills, feeding-long neck & special mouth protection-changing of the colour & strong legs and	• Classifying vertebrates according to where they live, body covering , how they move, how they breathe and reproduction. • Investigating adaptations of vertebrate animals • Comparing life	• Participating in group discussion actively • Cooperating in class activities

		6.4.3.3 Describe the life cycle of vertebrate animals 6.4.3.4 State ways of conserving vertebrate animals	movement-fins/legs • Life cycle of vertebrate animals (birds, fish, frog e.g. Eggs, young adult. Mammals e.g. mother, young, adult. • Conserving vertebrates: avoiding unnecessary killing, maintaining habitats.	cycles of vertebrate animals	

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
6.5.0 Materials and Energy	6.5.1 Nature of Air	6.5.1.1 Describe the composition of air. 6.5.1.2 State the physical properties of air. 6.5.1.3 Demonstrate that air has weight and occupies space.	• Composition of air: Oxygen, carbon dioxide, nitrogen, water vapour. • Physical properties of air: Invisible, no smell, colourless. • Characteristics of air: Weight, mass and occupies space.	• Predicting the composition of air • Investigating that air has weight and volume	• Ask questions for more understanding • Actively participating in group work
	6.5.2 Sound	6.5.2.1 Explain what sound is. 6.5.2.2 Demonstrate how sound is produced 6.5.2.3 Describe how sound travels from one place to another. 6.5.2.4 Demonstrate how the	• Sound as a form energy • Vibrating materials (vibrating air is called “sound wave”) when shaking, hitting, plucking and blowing. • Transmission of sound: sound	• Demonstrating sound production • Comparing high volume to lower volume • Predicting how	• Cooperating in group activities • Appreciating different sources of sound

		volume of sound can be increased.	travels through air, water and solids • Making sound louder: Increasing the sound waves, e.g. plucking harder.	sound travels	
	6.5.3 Pressure	6.5.3.1 Show the effect of pressure on objects. 6.5.3.2 Explain why tools and implements should be sharp. 6.5.3.3 Explain why water tanks are placed on a higher level. 6.5.3.4 Demonstrate that air exerts pressure. 6.5.3.4 Explain why pumping a bicycle tube becomes more difficult as the tube gets inflated.	• **Effects** of pressure: Increases the force applied • Why tools/implements are sharp: Less force is applied/required • Why tanks are placed on high level: Increasing water pressure. • Air pressure in balloons, tubes • Building up of pressure inside the tube.	• Demonstrating the effect of pressure • Observing the sharpness of tools in relation to pressure • Investigating that air exerts pressure	• Appreciating the application of pressure • Cooperating in group work
	6.5.4 Communication	6.5.4.1 State methods of communication. 6.5.4.2 Explain the importance of communication 6.5.4.3 Describe how sound waves are used in communication.	• Methods of communication: conversation, mail, Phones, drums, radio, television. • Importance of communication: Passing of messages from place to place or person to person. • Use of sound waves: Carrying sound through vibration of particles in the medium.	• Communicating with others using the most effective method • Investigating how sound waves are used in communication	• Appreciating methods of communication • Cooperating in group work

Grade 7

General Outcomes:	**Key competences**

• Demonstrate an understanding of the basic facts about the human body • Develop investigative skills • Recognise the importance of personal health • Develop investigative skills on personal health Develop knowledge, values and positive attitudes for the immediate environment • Develop investigative skills about the immediate environment • Demonstrate an understanding of the basic facts about plants and animals • Develop investigative skills about plants and animals • Develop knowledge, values and positive attitudes about materials and energy • Demonstrate investigative skills about materials and energy	• Show knowledge and skills of plant propagation in the local area • Demonstrate basic skills of wiring a three pin plug • Show basic understanding of the use of conductors and insulators of electricity

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT

			KNOWLEDGE	SKILLS	VALUES
7.1.0 The human body	7.1.1 The Digestive System	7.1.1.1 Describe digestion 7.1.1.2 Identify the organs of the digestive system. 7.1.1.3 Identify parts of the alimentary canal where digested food is absorbed. 7.1.1.4 Explain what happens to undigested food.	• Digestion is the breaking down of food into nutrients that body cells can use. • Organs of digestive system: Liver, pancreas, mouth(teeth & tongue), stomach, intestine (large and small) • Small intestine-nutrients are absorbed, Large intestine-water and minerals are absorbed • Undigested food: expelled as faecal material	• Communicating main organs of the digestive system • Predicting what happens to undigested foods	• Appreciating the role of digestive system • Asking questions for more understanding • Cooperating in group activities

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	SKILLS	VALUES
7.2.0 Health	7.2.1 Diseases	7.2.1.1 Distinguish between a virus and a bacterium. 7.2.1.2 Explain how viruses and	• Differences between a virus and bacteria: Size, survival, reproduction, control. • Effect of viruses and bacteria:	• Comparing viruses and bacteria • Communicating	• Appreciating differences between viruses and bacteria • Cooperating in group

		bacteria can affect health . 7.2.1.3 Identify common diseases of the skin 7.2.1.4 Explain the prevalence of diseases in relation to the provision of health services.	Causes of diseases • Ringworms, measles, scabies, Scurvy, warts, chicken pox, skin cancer. • Effect of disease prevalence on health services: Pressure on health services	common skin diseases	activities
	7.2.2 Fruits	7.2.2.1 Identify fruits used as food. 7.2.2.2 Identify seeds used as food. 7.2.2.3 State the importance of fruits in improving health	• Fruits used as food: Mangoes, avocados, paw paws, oranges, and passion fruits. • Seeds used as food: Legumes and cereals. • Importance of fruits and seeds: contains vital vitamins and minerals.	• Classifying fruits and seeds used as food • Communicating the importance of eating a variety of fruits	• Appreciating a variety of fruits • Participating actively in class discussion

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
7.3.0 The Environment	7.3.1 Separating substances	7.3.1.1 Demonstrate the separation of an insoluble solid from water 7.3.1.2 Demonstrate the separation of a soluble substance from water. 7.3.1.3 Demonstrate the separation of iron fillings from sand	• Separating of a soluble and an insoluble solid from water e.g. salt from water, sand from water(evaporation and filtration) • Separation of iron fillings from sand: magnetic method	• Experimenting the separation of substances • Planning an investigation to separate a mixture of materials	• Appreciating the separation methods • Cooperating in group discussion

	7.3.2 Water supply system	7.3.2.1 Identify sources of water in the village and towns. 7.3.2.2 Identify different types of water treatment systems. 7.3.2.3 State the importance of water treatment 7.3.2.4 Describe ways of conserving water	• Sources of water: Wells, rivers, dams, bore holes, taps • Water treatment in urban and rural areas: boiling, filtration, decantation, chlorination. • Importance of water treatment: Makes water clean and safe. • Water conservation: turning taps off if not in use, washing clothes at once, etc.	• communicating various sources of water • Communicating how to conserve water • Demonstrating the treatment of water	• Applying the conservation of water methods. • Cooperating in group activities • Questioning new ideas for more understanding

TOPIC	**SUBTOPIC**	**SPECIFIC OUTCOMES**	**CONTENT**		
			KNOWLEDGE	**SKILLS**	**VALUES**
7.4.0 Plants and Animals	7.4.1 The flower	7.4.1.1 Identify the parts of a flower. 7.4.1.2 Explain the functions of the parts of the flower	• Parts of a flower: Anthers, filament, petals, Ovary, stigma, style, sepal, stalk • Functions of anthers, filament, petals, Ovary, stigma, style, sepal, stalk.	• Observing parts of flowers • Recording information on observations	• Appreciate the organisation of floral parts • Cooperating in group activities • Respecting other people's opinion
	7.4.2 Pollination and fertilization in flowering plants	7.4.2.1 Describe pollination. 7.4.2.2 Identify the agents of pollination.	• Pollination: Transfer of pollen grains from anthers to stigma. • Agents of pollination: Wind, water, animals (birds, insects and mammals)	• Communicating agents of pollination • Comparing pollination and fertilisation in plants	• Appreciate the role of insects and wind in pollination. • Cooperating in group activities

		7.4.2.3 Describe fertilization in flowering plants.	• Fertilisation in plants: Joining of ovule and pollen grains.		
	7.4.3 Fruits and seeds	7.4.3.1 Explain why plants produce seeds. 7.4.3.2 Explain the importance of improving seed varieties	• Why plants produce seeds: for plant propagation. • Importance of improving seed varieties: more yields and resistance to diseases and draught	• Comparing varieties of fruits and seeds	• Actively participating in class discussions • Questioning new ideas for more understanding
	7.4.4 Seed dispersal	7.4.4.1 Describe what seed dispersal is. 7.4.4.2 Describe ways in which seeds are dispersed. 7.4.4.3 Explain the importance of seed dispersal.	• Seed dispersal as a method of spreading seeds in the environment. • Ways of seed dispersal: Wind, animals, water, and explosive method. • Importance of seed dispersal: for survival of plant species.	• Communicating agents of seed dispersal.	• Awareness of the importance of seed dispersal
	7.4.5 Propagation	7.4.5.1 Explain what plant propagation is. 7.4.5.2 State methods of plant propagation. 7.4.5.2 Demonstrate how some plants are propagated in the local area.	• Plant propagation: means by which plants continue their existence. • Methods of plant propagation: Seed and vegetative propagation. • Plant propagation: Row planting e.g. maize, beans; Planting by broadcasting e.g. millet, sorghum.	• Communicating methods of plant propagation	• Applying knowledge of plant propagation in everyday life.

TOPIC	SUBTOPIC	SPECIFIC OUTCOMES	CONTENT		
			KNOWLEDGE	**SKILLS**	**VALUES**
7.5.0 Materials and energy	7.5.1 Energy	7.5.1.1 Explain what energy is. 7.5.1.2 Identify different types of energy 7.5.1.3 Explain how energy is converted from one form into another.	• Energy as the ability to do work: carrying books, digging, lifting a box • Types of energy: mechanical(potential, kinetic), electric, sound, chemical, thermal energy, heat, light • Energy conversion E.g., Bulb (Electrical energy to light to heat), a ball rolling from the top(Potential –kinetic energy), battery (chemical-electrical), radio(electrical-sound), touch(chemical-light)	• Communicating information about different forms of energy • Investigating the conversion of energy from one form to another	• Awareness of the need for conductors and insulators • Cooperate in group activities • Show ability to solve problems
	7.5.2 Electric current and Circuits	7.5.2.1 Explain what an electric current does 7.5.2.2 Demonstrate how to construct a simple electric circuit. 7.5.2.3 Distinguish between a series and parallel circuit 7.5.2.3 Describe the action of a switch in a circuit.	• Electric current is the flow of charges (from positive to negative terminal) and helps to power up appliances. • Making a simple circuit: Wire, switch, dry cell, bulb, flow of electricity from the cell to the bulb and back. • Series (bulbs in same line) and parallel(bulbs in two	• Planning the construction of a simple electric circuit. • Comparing a series and parallel circuit	• Cooperating in group activities • Applying knowledge on circuits in everyday life • Questioning questions for more understanding

			different lines) circuits • Action of a switch: open or close the circuit.		
	7.5.4 Lightning	7.5.4.1 Identify the causes of lightning. 7.5.4.2 Explain the effects of lightning on plants, animals and buildings. 7.5.4.3 Demonstrate how to prevent damage from lightning. 7.5.4.4 State the importance of lightning in farming	• Causes of lightning: static electricity (presence of charges). • Effects of lightning: Damage, fire, death. • Preventing damage from lightning: Lightning arresters, avoid standing under trees when it is raining or walking in rain, stay away from electrical appliances during thunder storms. • Importance of lightning: Fixes nitrogen back in the soil	• Experimenting with static electricity • Observing lightning **Note:** This is possible when done in the rainy season	• Appreciating the power of lightening in nitrogen fixing • Applying knowledge to avoid damage by lightning • Cooperating in group activities
	7.5.5 The solar system	7.5.5.1 Describe the solar system. 7.5.5.2 Explain the differences between the sun and its planets 7.5.5.3 State the source of light in the solar system. 7.5.5.4 State the reasons for seasons and day and night 7.5.5.5 Compare the movement of the earth and the moon	• Solar system: The sun and the 8 planets • Difference between sun and the planets: size, luminous/non luminous • Source of light in the solar system: Sun • Seasons: revolution of the earth and its tilted axis; Day and night: earth's rotation • Earth orbits the sun, Moon orbits the earth and produces phases of the moon. • Formation of solar and lunar eclipse: Moon	• Communicating information on solar system • Observing the phases of the moon • Experimenting with the position of the sun in June(winter in Zambia) and in October (summer in Zambia)	• Appreciate the existence of a solar system • Questioning new ideas for more understanding • Listening with respect • Cooperating in group activities

		7.5.5.6 Describe the formation of solar and lunar eclipses. 7.5.5.7 State uses of solar energy	between sun and earth, earth between sun and moon • Uses of solar energy: Generation of heat and electricity, used by plants to make food		
	7.5.6 Metals and Non-metals	7.5.6.1 Identify types of metals and non-metals	• Types of metals (aluminium, copper, iron, zinc);Non-metals (carbon, hydrogen, oxygen and carbon dioxide) • Conduction and non-conduction of electricity	• Comparing metals and non-metals • Experimenting with types of materials using an electric current.	• Awareness of non-metals and metals • Participating actively in group discussion
	7.5.6 Mining	7.5.6.1 Identify minerals mined in Zambia 7.5.6.2 List the properties of copper. 7.5.6.3 Explain how copper is extracted and refined. 7.5.6.4 Identify items made from copper within Zambia. 7.5.6.5 Explain the importance of making copper items within Zambia. 7.5.6.6 Describe the impact of mining on the environment.	• Minerals mined in Zambia: Copper, gold, cobalt, lead, iron, zinc Silver, tin, coal, aluminium. • Properties of copper.(electrical conductivity, resistance to rust) • Extraction of copper: Drilling/ blasting-crushing-floatation- electrolysis • Items made from copper: Ornaments, jewellery, copper coins, cables, utensils.; Foreign exchange, taxes, trade, employment. • Impact of mining: Pollution of air, land, water.	• Communicating metals mined in Zambia • Investigating how much copper is exported annually and from where • Communicating the need to make copper products within Zambia	• Appreciation the importance of copper • Cooperating in group activities • Applying entrepreneurial skills