

Dawood Public School
Course Outline 2017-18
General Science
Class VII

Month	Syllabus Break down	Reference Book
August	From Cell to Organism	International Lower Secondary Science Book 2 Chapter 01
September	Diffusion and Osmosis	Science Matters Vol. B Chapter
	Mixtures	International Lower Secondary Science Book 2 Chapter 04
October	Food and Digestion	International Lower Secondary Science Book 3 Chapter 02
	Forces and their Effects	International Lower Secondary Science Book 2 Chapter 04
November	Revision for Mid Term Exams	Worksheets
December	Mid Term Exams	
January	Atom, Molecule and Ion	International Lower Secondary Science Book 2 Chapter 07
	The Particle Model of Matter	International Lower Secondary Science Book 2 Chapter 06
February	Classifying Plants and Animals	International Lower Secondary Science Book 2 Chapter 02
	Solution	International Lower Secondary Science Book 2 Chapter 05
March	Energy Resources	International Lower Secondary Science Book 2 Chapter 09
	Electrical Circuits	International Lower Secondary Science Book 1 Chapter 10
April	Revision For Final Exams	Worksheets
May	Final Exams	

Contents	Learning Outcomes
<p>1.1 Cells-the building blocks of life Unicellular organism Multi-cellular organism Microscope</p>	<ul style="list-style-type: none"> • Define cell. • Define unicellular organism. • Define multicellular organism. • List the name of different parts of microscope. • Write the functions of different parts of microscope.
<p>1.2 Plant and animal cells Cell Organelles (Structure &function)</p> <ul style="list-style-type: none"> • Mitochondria • Endoplasmic reticulum • Golgi body • Ribosomes • Centrosome • Chloroplast 	<ul style="list-style-type: none"> • Identify the structures present in plant cells as seen with a simple light microscope. • Identify the structures present in animal cells as seen with a simple light microscope. • Describe the differences in structure between typical animal and plant cells. • Identify the organelles of a typical cell • Describe the functions of cell organelle.
<p>1.3 Cell Division</p>	<ul style="list-style-type: none"> • Define cell division. • Describe the importance of cell division in living organisms.
<p>1.4 Different cells for different functions</p>	<ul style="list-style-type: none"> • Explain the adaptation, and function related to each adaptation for: <ul style="list-style-type: none"> ➤ Nerve cell ➤ Red blood cell ➤ Sperm cell ➤ Muscle cell ➤ Palisade cell ➤ Guard cell ➤ Root hair cell ➤ Xylem vessels
<p>1.5 From cells to Organisms Definition of tissue Type of Animal tissues Type of Plant tissues Definition of organ and organ system Functions of Organ system</p>	<ul style="list-style-type: none"> • Define tissue. • Describe four types of animal tissues. • Describe three types of plant tissues. • Define organ. • Explain the relationship between organ, system and organism. • List the different organ systems of the human body. • State the functions of following organ system. <ul style="list-style-type: none"> ➤ nerve system ➤ blood circulatory system ➤ digestive system ➤ skeletal system ➤ muscular system ➤ respiratory system

Key words

uni-cellular ,multi-cellular ,eyepiece ,objective lens , focus knobs ,vacuole ,chromosomes, genes, mitosis, parent cell, daughter cell, stomata, protrusion.

Types of Questions:

- Multiple choice questions.
- Identification and labelling of diagrams
- Structured questions.
- Short answer reasoning.
- Descriptive questions.

Work book Activities:

- Activity 1.1 & 1.4

Activities/ Experiment:

- Students will observe prepared slides of cells under microscope.
- Students will construct models of a plant cell and / or an animal cell to understand cell structure.
- Students will be shown flash cards depicting cell organelles of a typical cell.

Surf IT:

http://www.biology.arizona.edu/cell_bio/activities/cell_cycle/cell_cycle.html

www.biology-resources.com/biology-CD.html

www.bbc.co.uk/learningzone/clips/parts-of-plant-and-animal-cells/10602.html

September

Chapter: Diffusion and Osmosis (Science Matters Vol. B)

Page no: 135

Contents	Learning Outcomes
<p>25.1 Diffusion Diffusion in non-living organisms Diffusion in living organisms</p>	<ul style="list-style-type: none"> • Define diffusion. • Describe the process of diffusion in non living system. • Discuss how the concentration of solutes across a membrane affects their diffusion. • Describe the importance of diffusion to living things for transporting substances. • Explain how diffusion is involved in the transport system of living organisms.
<p>25.2 Osmosis Type of solutions :</p> <ul style="list-style-type: none"> • Hypertonic • Hypotonic • Isotonic 	<ul style="list-style-type: none"> • Define osmosis. • Define water potential. • Define partially permeable membrane. • Describe the importance of osmosis in the uptake of water by plants and its effect on plants. • Explain how osmosis is involved in the transport system of animals. • Define: <ul style="list-style-type: none"> ➤ hypertonic solution. ➤ hypotonic solution. ➤ isotonic solution. • Explain how different types of solutions move through partially permeable membrane.

	<ul style="list-style-type: none"> • Predict what would happen to a red blood cell that was placed in hypertonic, hypotonic or isotonic solution.
25.4 Absorption of water and mineral salts by roots of plants.	<ul style="list-style-type: none"> • Define active transport. • Define concentration gradient. • Explain the movement of ions into or out of a cell through the cell membrane, from a region of their lower concentration to a region of their higher concentration against a concentration gradient, using energy released during respiration. • Distinguish how diffusion differs from active transport.
<p>Key words: permeable membrane, partially permeable membrane, gaseous exchange, air sacs (alveoli), blood vessel, water potential, turgor pressure, turgid, concentrated solution-dilute solution, distilled water, cell sap.</p> <p>Types of Questions:</p> <ul style="list-style-type: none"> ➤ Multiple choice questions. ➤ Identification and labelling of diagrams ➤ Structured questions. ➤ Short answer reasoning. ➤ Descriptive questions. <p>Activities/ Experiment:</p> <ul style="list-style-type: none"> ➤ Students will use a simple demonstration of diffusion, for example a potassium manganate VII crystal in a gas jar of water or a perfume bottle opened in one corner of the room. ➤ Students will investigate the appearance of plant cell (raisin, chick pea, potato chip) when placed in <ul style="list-style-type: none"> (a)distilled water (b)concentrated salt solution (c) dilute salt solution <p>Surf IT: www.biologyresources.com/biology-CD.html http://en.wikibooks.org/wiki/School_Science/Apparatus_for_demonstrating_osmosis</p>	

Contents	Learning Outcomes
4.1 What is a mixture Definition of element and compound Definition of Mixture Example of mixtures <ul style="list-style-type: none"> • Air • Mineral water • Alloys General properties of mixtures.	<ul style="list-style-type: none"> • Define element • Define compound • Define mixture. • Explain the characteristics of mixtures. • Describe the differences between compounds and mixtures. • Define alloy with examples. • Name the constituents which make up air.

<p>4.2 Distinguishing Among Elements, Compounds and Mixtures.</p> <p>Definition of melting and boiling point</p>	<ul style="list-style-type: none"> • Define melting point. • Define boiling point. • Distinguish among elements, compounds & mixtures on the basis of their boiling & melting point. • Identify the state of matter on the basis of their melting and boiling points.
<p>4.3 Separating Mixtures</p> <ul style="list-style-type: none"> • Filtration & its uses • Evaporation & its uses • Distillation • Fractional distillation • Paper chromatography 	<ul style="list-style-type: none"> • Name the separation techniques to separate the components of mixtures. • Describe the method of filtration. • Describe the method of evaporation. • Explain how a distillation apparatus is used to separate a solution. • Describe where boiling, evaporation and condensation occur in distillation apparatus. • Describe petroleum as a mixture and its separation into useful fractions by fractional distillation. • State uses of nitrogen. • State uses of oxygen. • Explain paper chromatography and its application in daily life.
<p>Key words: alloy, solution, constituent ,boiling point, melting point, density, electrical conductivity-,residue, filtrate, distillate ,crude oil, miscible, immiscible ,condensation, forensic science, desalinate.</p> <p>Types of Questions:</p> <ul style="list-style-type: none"> ➤ Multiple choice questions. ➤ Identification and labelling of diagrams ➤ Structured questions. ➤ Short answer reasoning. ➤ Descriptive questions. <p>Work book Activities:</p> <ul style="list-style-type: none"> ➤ Activity 4.1, 4.2, & 4.3 <p>Activities/ Experiment:</p> <ul style="list-style-type: none"> ➤ Students will distinguish elements, compounds and mixtures from samples of substances with associated information e.g. name of substance, formula, can it be separated, can it be broken down into elements. ➤ Students will separate sand and water through filter paper in the lab. ➤ Students will separate salt from salt and water solution in the lab. ➤ Students will separate a mixture of colour dyes using paper chromatography in the lab. <p>Surf IT:</p> <p>http://science.howstuffworks.com/environmental/energy/oil-refining2.htm www.rsc.org/learn-chemistry/ www.practicalchemistry.org/experiments/chromatography-of-sweets%2C194%2CEX.html</p>	

Contents	Learning Objectives
<p>1.1 Nutrients in food</p> <ul style="list-style-type: none"> • Carbohydrates • Proteins • Fats (lipids) • Vitamins • Minerals • Fibre • Water <p>1.2 Energy value of Food.</p>	<ul style="list-style-type: none"> • List the name of nutrients present in food. • Describe the importance of food. • Describe tests for: <ul style="list-style-type: none"> ➤ starch (iodine in potassium iodide solution) ➤ reducing sugars (Benedict’s solution) ➤ protein (Biuret test) ➤ fats (ethanol emulsion test). • List the principal sources of: <ul style="list-style-type: none"> ➤ carbohydrates ➤ fats ➤ proteins ➤ vitamins (C and D only) ➤ mineral salts (calcium and iron only) ➤ fibre (roughage) ➤ water • Describe the dietary importance of: <ul style="list-style-type: none"> ➤ carbohydrates ➤ fats ➤ proteins ➤ vitamins (C and D only) ➤ mineral salts (calcium and iron only) ➤ fibre (roughage) ➤ water • Name the diseases and the symptoms resulting from deficiencies of <ul style="list-style-type: none"> ➤ vitamin C (scurvy), ➤ vitamin D (rickets), calcium (rickets) ➤ iron (anaemia).
<p>1.3 A Balanced diet</p>	<ul style="list-style-type: none"> • Define balanced diet. • Identify the constituents of a balanced diet. • Define anorexia. • Define malnutrition. • State the effects of malnutrition in relation to: <ul style="list-style-type: none"> ➤ starvation ➤ heart disease ➤ constipation ➤ obesity
<p>1.4 Digestion Definition of digestion Physical digestion Chemical digestion Definition of enzymes</p>	<ul style="list-style-type: none"> • Define digestion. • Explain what is meant by digestion and why food must be digested; • Define enzymes.

1.5 The human digestive system.

Peristalsis movement

Definition of

- Ingestion
- Absorption
- Assimilation
- Egestion

- List the organs of the alimentary canal.
- Define peristalsis.
- Describe the peristalsis movement.
- Identify the epiglottis and state its function during swallowing.
- Define ingestion.
- Define absorption.
- Define assimilation.
- Define egestion.
- Identify and label the main regions of the alimentary canal and associated organs including:
 - mouth
 - salivary glands
 - oesophagus(gullet)
 - stomach
 - small intestine: duodenum and ileum
 - pancreas
 - liver
 - gall bladder
 - large intestine: colon and rectum
 - anus
- Define emulsification.
- State the function of hydrochloric acid in the stomach.
- Describe the role of pancreas in the digestion.
- Describe the functions of the regions of the alimentary in relation to:
 - Ingestion
 - digestion
 - absorption
 - assimilation
 - egestion
- Describe the function of a typical amylase, protease and lipase by listing the substrates and end products.
- Describe the process of absorption that occurs in the small intestine.
- State the significance of villi in increasing the internal surface area.

Key words:

sucrose, cellulose, starch, fructose, amino acids, glycerol, fatty acids, Benedict 's solution, Biuret's solution, ethanol, roughage, cartilage, tendon, anorexia, fatigue, churning, salivary amylase, gastric juice, proteases, hydrochloric acid, chyme, bile, emulsification, pancreatic juice, lipase, carbohydrates, epiglottis, villi, defecation

Types of Questions:

- Multiple choice questions.
- Identification and labelling of diagrams
- Structured questions.
- Short answer reasoning.
- Descriptive questions.

Activities/ Experiment:

- Students will perform the test for starch in food using iodine solution
- Students will investigate for foods which contain reducing sugars using Benedict's reagent.
- Students will investigate for foods which contain protein using the Biuret test on a few samples.
- Students will perform the test of fats by using ethanol.

Surf IT:

http://www.hpb.gov.sg/hpb/default.asp?pg_id=1016
www.bbc.co.uk/learningzone/clips/a-balanced-diet/10609.html

Video clip – Digestion:

www.bbc.co.uk/learningzone/clips/the-digestive-system/4180.html

Contents	Learning Outcomes
<p>11.1 What is a force? Definition of force Effects of force Identification of the type of forces</p>	<ul style="list-style-type: none"> • Define force. • State the S.I unit of force. • Describe the effect of force on: <ul style="list-style-type: none"> ➤ size of an object ➤ shape of an object ➤ motion of an object • Identify the following forces in the diagrams/scenarios: <ul style="list-style-type: none"> ➤ gravity ➤ up thrust ➤ friction
<p>11.2 Measuring forces Use of force meter Representation of force</p>	<ul style="list-style-type: none"> • State the use of a force meter. • Represent force by an arrow.
<p>11.3 Gravitational force and weight Definition of gravitational force Effects of gravity</p>	<ul style="list-style-type: none"> • Define gravitational force. • Explain the effect of gravity on objects. • Define weight. • State the S.I unit of weight. • Define mass. • State the S.I unit of mass. • Differentiate between mass and weight.
<p>11.4 Up thrust and Density Definition of up thrust Effect of up thrust on floating objects Definition of density Calculation of density by using formula</p>	<ul style="list-style-type: none"> • Define up thrust. • Explain the effect of up thrust on floating objects. • Define density. • State the formula of density. • State the S.I unit of density • Calculate density by using the formula.

<p>11.5 Frictional force</p> <p>Definition of frictional force Factors affecting friction Advantages and disadvantages of friction Ways to reduce friction</p>	<ul style="list-style-type: none"> • Define frictional force. • Explain the factors affecting friction. • State the advantages of friction. • State the disadvantages of friction. • List down ways to reduce friction. • Define stopping distance. • Discuss the factors that affect the stopping distance of a vehicle. • Interpret the stopping distance of the vehicle by the information given in the chart.
<p>Keywords: Newton, force meter, spring balance, stretched, compressed, stationary, mass, weight, magnetic force, up thrust, density, cubic meter, floating, sinking, stopping distance, breaking distance, reaction distance, ball bearing, wear and tear</p> <p>Type of questions:</p> <ul style="list-style-type: none"> ➤ Multiple choice questions. ➤ Identification and labelling of diagrams ➤ Structured questions. ➤ Short answer reasoning. ➤ Descriptive questions. <p>Workbook activities:</p> <ul style="list-style-type: none"> ➤ Workbook activity 11.1& 11.2 from International Lower Secondary Science Work Book 2 <p>Activities/experiments</p> <ul style="list-style-type: none"> ➤ Students will investigate the motion of different parachutes by changing the surface area, weight and gravity. ➤ Students will be shown a model of the solar system and will be explained how the planets are held in place by the gravitational pull of the Sun. <p>Surf I.T: https://www.youtube.com/watch?v=z5zsC6O0yBE https://www.youtube.com/watch?v=cipDtvN6ClQ</p>	

November: Revision for Mid Term Examinations

December: Mid Term Examinations

January

Chapter: Atom, Molecule and Ion (International Lower Secondary Science Book 2) Page No 139 to 157

Contents	Learning Outcomes
<p>7.1 What is an atom? Definition of atom Structure of an atom Sub-atomic particles Atom as a neutral entity</p>	<ul style="list-style-type: none"> • Define atom. • Describe the structure of an atom. • Draw the structure of an atom. • State the position and charges of sub-atomic particle in an atom. • Discuss atom a neutral entity.

<p>Atomic number and mass number Definition of atomic number Definition of mass number Electronic configuration of first 20 elements Periodic Table</p>	<ul style="list-style-type: none"> • Define atomic number. • Define mass number (nucleon number). • List atomic number and mass number of first 20 elements. • Define electronic configuration. • Calculate electron, proton and neutron number of an atom. • Define Periodic Table. • Define periods. • Define groups. • Identify periods and groups from atomic Structure of respective atoms.
<p>7.2 What is a molecule? Definition of molecule Molecule of an element and Molecule of a compound.</p>	<ul style="list-style-type: none"> • Define molecule. • Describe the formation of molecule. • Differentiate between molecule of an element and molecule of a compound. • Differentiate between atom and molecule.
<p>7.3 Chemical formulae of molecular elements and compounds Definition of chemical formulae.. Differentiate between ionic and covalent bond</p>	<ul style="list-style-type: none"> • Define chemical formulae. • Identify the number and type of elements present in chemical formula of compound. • Define ionic bond. • Describe the formation of ionic. • Define covalent bond. • Differentiate between ionic and covalent bond.
<p>7.4 What is an Ion? Definition of an ion Formation of ions Definition of anion and cation Difference between anion and cation</p>	<ul style="list-style-type: none"> • Define ion. • Describe the formation of ions. • Define anion. • Define cation. • Differentiate between anion and cation. • Predict the structure of an ion from the given data.
<p>Keywords: atom, proton, neutron, electron, periodic table, Dalton’s model, Thomson’s model, Rutherford’s model, Bohr’s model, Quantum model, atomic number, sub script, mass number, super script, protons, neutrons, electrons, ion, cation, anion, ionic bond, covalent bond, chemical formulae, chemical bond, molecule.</p> <p>Type of questions</p> <ul style="list-style-type: none"> ➤ Multiple choice questions. ➤ Identification and labelling of diagrams ➤ Structured questions. ➤ Short answer reasoning. ➤ Descriptive questions. 	

Workbook Activities

- Workbook activity 7.1 & 7.2

Activities/experiments

- Students will perform experiment on pg # 145 of textbook
- Students will draw ionic structure of first twenty elements.
- Students will make a poster of the structure of a chosen element and place them accordingly on blank periodic tables.

Surf I.T:

- <https://www.youtube.com/watch?v=EMDrb2LqL7E>
- <https://www.youtube.com/watch?v=cV4jJZCIMPo>

Chapter: The Particle Model of Matter (International Lower Secondary Science Book 2) Pages 122 to 137

Contents	Learning Outcomes
6.1 The Particle model of Matter Brownian Motion and Diffusion	<ul style="list-style-type: none"> • State particle model of matter. • Define diffusion with example. • Define Brownian motion with example.
6.2 Particle models for solids, liquids and gases Properties of solid, liquid and gas	<ul style="list-style-type: none"> • Describe the properties of solids. • Describe the properties of liquids. • Describe the properties of gases. • Distinguish similarities and differences in the three states of matter. • State the kinetic particle theory. • Use the KPT to explain why solids are denser than gases.
6.3 Changes in physical States of Matter <ul style="list-style-type: none"> • Melting • Freezing • Condensation • Boiling • Evaporation • Sublimation 	<ul style="list-style-type: none"> • State the changes in arrangement of particles during inter conversion of three states. • State the energy changes in the particles during inter conversion of three states of matter. • Predict the changes in arrangement of molecules during melting and freezing. • Predict the changes in arrangement of molecules during boiling and condensing. • Define evaporation. • State the differences between boiling and evaporation. • Define sublimation with example.
Key words: discrete, atom, haphazard, forces of attraction, vibrate, compressibility, fluidity, sublimation, evaporation	

Types of Questions:

- Multiple choice questions.
- Identification and labelling of diagrams
- Structured questions.
- Short answer reasoning.
- Descriptive questions.

Work book Activities:

Activity 6.1, 6.2. 6.3 & 6.4

Activities/ Experiment:

- Students will observe the diffusion of potassium permanganate in water.
- Students will observe changes of state such as: melting of ice, butter, wax, freezing water boiling water (kettle), salt solution.

Surf IT:

www.schoolscience.co.uk

February

Chapter: Classifying Plants and Animals (International Lower Secondary Science Book 2) **Pages 27 to 51**

Contents	Learning Outcomes
<p>2.1 The Need to Classify living Organisms Definition of classification Definition of binomial classification Importance of binomial system</p>	<ul style="list-style-type: none"> • Define classification. • Define binomial classification. • State the importance of binomial classification (scientific naming).
<p>Why is classification of living things important? Taxonomic groups of living organisms Importance of classification</p>	<ul style="list-style-type: none"> • Sequence eight major taxonomic groups of living organisms. • List the importance of classification of living organisms.
<p>2.2 Classifying plants Taxonomic classification of plants Characteristics of vascular and non-vascular plants with examples Difference between gymnosperms and angiosperms Difference between monocot and dicot plants.</p>	<ul style="list-style-type: none"> • Explain the taxonomic classification of plants. • Define non-vascular plants (bryophytes). • State the characteristics of non-vascular plants. • Define vascular plants (tracheophytes). • State the characteristics of vascular plants. • Differentiate between gymnosperms and angiosperms. • Differentiate between monocot and dicot plants. • Draw a flow chart to show classification of plants.
<p>2.3 Classifying Animals Definition of vertebrates & invertebrates Classification of invertebrates Difference between warm blooded and cold blooded animals Classification of vertebrates</p>	<ul style="list-style-type: none"> • Define vertebrates. • Define invertebrates. • Draw a flow diagram to show classification of invertebrates. • List the characteristics of following groups of invertebrates with jointed legs:

	<ul style="list-style-type: none"> ➤ Crustaceans ➤ Insects ➤ Arachnids ➤ Centipedes ➤ Millipedes • List the characteristics of following groups of invertebrates without jointed legs: <ul style="list-style-type: none"> ➤ Molluscs ➤ Sponges ➤ Annelids ➤ Cnidarians ➤ Echinoderms ➤ Roundworms(Nematodes) ➤ Flatworms • Define warm blooded animals. • Define cold blooded animals. • Differentiate between warm blooded and cold blooded animals. • List the characteristics of following groups of vertebrates: <ul style="list-style-type: none"> ➤ Fish ➤ Amphibians ➤ Reptiles ➤ Birds ➤ Mammals
<p>2.4 Using Keys to identify and Classify Living things Dichotomous key and its importance Classification of living organisms using dichotomous key.</p>	<ul style="list-style-type: none"> • Define dichotomous key. • State the importance of dichotomous key. • Demonstrate application of the steps required for formation of dichotomous key. • Classify given group of animals using dichotomous key.
<p>Keywords: classification, binomial classification, genus, specie, taxonomy, kingdom, phylum, class, order, family, bryophytes, tracheophytes, gymnosperms, angiosperms, monocots, dicots, vertebrates, invertebrates, arthropods, crustaceans, insects, arachnids, myriapoda, mollusca, cnidarian, echinodermata, platyhelminthes, nematode, dichotomous key</p> <p>Type of questions:</p> <ul style="list-style-type: none"> ➤ Multiple choice questions. ➤ Identification and labelling of diagrams ➤ Structured questions. ➤ Short answer reasoning. ➤ Descriptive questions. <p>Workbook Activities</p> <ul style="list-style-type: none"> ➤ Workbook Activity 2.1,& 2.3 <p>Activities/Experiments:</p> <ul style="list-style-type: none"> ➤ Students will collect poster/photos/living specimens of about 10 different animals e.g. earthworm, snail, different types of fish etc and will discuss their scientific names. ➤ Students will be given a list of different organisms and will be asked to classify them into vertebrates and invertebrates and discuss why animals are sorted in this way. 	

Surf I.T:

- <https://www.youtube.com/watch?v=UfhI2p0-TYk>
- <https://www.youtube.com/watch?v=mRidGna-V4E>

Chapter: Solutions (International Lower Secondary Science Book 2)

Pages: 94 to 104

Contents	Learning Outcomes
5.1 Solutes, solvents and solutions Definition of solute and solvent Formation of solution Characteristics of solution Examples of the types of solution	<ul style="list-style-type: none"> • Define solute. • Give examples of solute. • Define solvent. • Give examples of solvent. • Explain the formation of solution. • State the characteristics of a solution. • List examples for types of solution.
Characteristics of suspension Definition of suspension Characteristics of suspension Difference between solution and suspension	<ul style="list-style-type: none"> • Define suspension. • Give examples of suspension. • State the characteristics of suspension. • Differentiate between a solution and a suspension.
Uses of solvents and solutions	<ul style="list-style-type: none"> • State the uses of solute and solvents in: <ul style="list-style-type: none"> ➤ Household ➤ Agriculture ➤ Medicines ➤ Industries
<p>Keywords: solute, solvent, homogenous, solution, suspension, heterogeneous, hydroponics, medicinal drugs, solubility, concentrated solution, dilute solution, saturated, unsaturated, solubility curve.</p> <p>Type of questions:</p> <ul style="list-style-type: none"> ➤ Multiple choice questions. ➤ Identification and labelling of diagrams ➤ Structured questions. ➤ Short answer reasoning. ➤ Descriptive questions. <p>Workbook Activities</p> <ul style="list-style-type: none"> ➤ Workbook activity(Revision worksheet 5) ➤ Workbook activity, solubility curve from International Lower Secondary Science Work Book 2. <p>Activities/Experiments:</p> <ul style="list-style-type: none"> ➤ Students will demonstrate why some medicinal syrups and juices are termed as suspensions. ➤ Students will be divided in groups where each group will present few uses of a given solvent or solutions. ➤ Students will be taken to the laboratory where they will demonstrated different factors which affect the rate of dissolving. 	

Surf I.T:➤ <https://www.youtube.com/watch?v=IOsAbV9ESCc>➤ https://www.youtube.com/watch?v=hut2Qujue_c**March****Chapter: Energy Resources** (International Lower Secondary Science Book 2)**Pages: 174 to 199**

Contents	Learning Outcomes
9.1 Fuels and Energy Definition of energy Forms and uses of energy Fossil fuels and their uses Luminous flame and non-luminous flame	<ul style="list-style-type: none"> • Define energy. • List different forms of energy. • Explain the uses of different forms of energy in our daily life. • Define fossil fuel. • State the uses of fossil fuels. • Differentiate between luminous and non luminous flame.
9.2 Fossil fuel Formation of fossil fuels	<ul style="list-style-type: none"> • Explain the formation of coal. • Explain the formation of oil. • Explain the formation of natural gas.
Generation of Electricity Steps of generation of electricity Energy transformation	<ul style="list-style-type: none"> • List down the steps of generation of electricity from fossil fuels. • Explain the steps of generation of electricity. • Discuss energy transformation at each step of generation of electricity.
Conserving energy Definition of energy conservation Non-renewable resources and examples	<ul style="list-style-type: none"> • Define energy conservation. • Define non-renewable energy resources. • Give examples of non-renewable energy resources. • List different ways of energy conservation.
9.3 Renewable Energy Resources Renewable energy resources Uses of renewable energy resources	<ul style="list-style-type: none"> • Define renewable energy resources. • List different examples of renewable energy resources. • State the uses of: <ul style="list-style-type: none"> ➤ wind energy ➤ wave energy ➤ solar energy. ➤ running water. ➤ biomass. ➤ geothermal energy. • Differentiate between renewable and non-renewable energy resources.

<p>9.4 How do living things use energy? Sun as the vital source of energy</p>	<ul style="list-style-type: none"> • State that all living things depend directly or indirectly on sun for energy. • Explain the importance of sun as a vital source of almost all of Earth's.
<p>Keywords: energy, fossil fuels, Bunsen burner, luminous flame, non-luminous flame, coal, crude oil, natural gas, combustion gases, steam turbine, kinetic energy, electrical energy, energy conservation, pollutants, reduce, reuse, recycle, non-renewable, renewable energy sources, biomass, geothermal resources, Joules, calories</p> <p>Type of questions:</p> <ul style="list-style-type: none"> ➤ Multiple choice questions. ➤ Identification and labelling of diagrams ➤ Structured questions. ➤ Short answer reasoning. ➤ Descriptive questions. <p>Workbook Activities</p> <ul style="list-style-type: none"> ➤ Workbook activity 9.1 and 9.4 <p>Activities/Experiments</p> <ul style="list-style-type: none"> ➤ Students will perform experiment to assess energy content of food <p>Surf I.T:</p> <ul style="list-style-type: none"> ➤ https://www.youtube.com/watch?v=bEeUla9EeBw ➤ https://www.youtube.com/watch?v=zaXBVYr9lj0 	

Contents	Learning Outcomes
<p>What is electricity? Definition of electrical energy Conductors (allow electricity to pass through them.) Insulators (restrict the flow of current.)</p>	<ul style="list-style-type: none"> • Define electrical energy. • Define conductors. • Define insulators. • Differentiate between conductors and insulators and provide examples of each.
<p>10.1- Electrical Circuit Definition of electric circuit Series circuit Parallel circuit Components of an electrical circuit</p>	<ul style="list-style-type: none"> • Define electrical circuit. • List the components of an electrical circuit. • State the function of ammeter in a circuit. • State the role of voltmeter in an electrical circuit. • Label and arrange the components in series and parallel circuit.
<p>10.2- Electric Current Definition of electric current S.I unit of electric current Role of ammeter</p>	<ul style="list-style-type: none"> • Define electric current. • State the S.I unit of electric current. • Explain the flow of current across the electrical circuit. • Illustrate the position of ammeter in a circuit. • State the function of an ammeter.

<p>10.3- A Cell or battery as a Source of Electrical Energy Role of battery in an electrical circuit</p>	<ul style="list-style-type: none"> • Interpret the function of battery in a circuit.
<p>Potential Difference(V) Definition of potential difference S.I unit of voltage Voltmeter as an instrument to measure potential difference</p>	<ul style="list-style-type: none"> • Define potential difference. • State the S.I unit of potential difference. • State the role of voltmeter.
<p>Ohm's Law Ohm's law states that the current through a conductor between two points is directly proportional to the voltage across the two points.</p>	<ul style="list-style-type: none"> • State Ohm's law • Interpret the relationship between voltage (V), current (I) and resistance (R) in an electrical circuit. • Predict the current, voltage, or resistance in a circuit branch.
<p>10.4- Electrical Resistance Definition of resistance Fixed resistor Variable resistor Application of resistors</p>	<ul style="list-style-type: none"> • Define resistance. • State the S.I unit of resistance. • Discuss the relationship between resistance and current. • Apply formula to predict the total resistance in a series circuit. • Apply formula to predict total resistance in a parallel circuit. • State the function of fixed resistor. • Discuss the role of variable resistor. • Suggest appropriate applications of variable resistor in daily life.
<p>Fuse and its function Definition of fuse Role of fuse in safety of an electrical appliance</p>	<ul style="list-style-type: none"> • Define fuse. • Predict the consequences of not having a fuse in an electrical appliance.
<p>Three main wires in an Electric Plug (*extension) Role of different types of wires in an electric plug: ➤ Live ➤ Neutral ➤ Earth wire</p>	<ul style="list-style-type: none"> • State and explain the role of each wire <ul style="list-style-type: none"> ➤ Live ➤ Neutral ➤ Earth • Identify and label the wires present in an electric plug.
<p>10.5- Using Electricity Safely Precautionary measures taken to use electricity safely</p>	<ul style="list-style-type: none"> • List the important precautionary measures taken in case of any electrical hazard. • Discuss the importance of using electricity safely.

Keywords:

electrical energy, conductors, insulators, electrical circuit, series circuit, parallel circuit, ammeter, voltmeter, electric current, ammeter, ampere, battery, cell, voltage(potential difference), resistance, resistors, variable resistor, fixed resistor, Ohm, fuse, live wire, neutral wire, earth wire.

Type of questions:

- Multiple choice questions.
- Identification and labelling of diagrams
- Structured questions.
- Short answer reasoning.
- Descriptive questions.

Workbook Activities

- Workbook activity 10.2 and 10.4

Activities/Experiments:

- Students will observe and list the common insulators used in daily life which protect from an electric shock.
- Students will make a simple series electric circuit with switch, bulb and battery.
- Students will make a simple parallel circuit by including a second bulb.
- Students will identify from a variety of circuit diagrams to categorize parallel or series circuits.
- Practice Ohm's law numerical.
- Students will test the role of variable resistor to dim / brighten a bulb.
- Students will study the effect of rheostat across the current in a circuit.
- Students will be given a situation to suggest precautionary measures to be taken in such electrical shock.

Surf I.T:

<https://www.youtube.com/watch?v=O8GgRIIB1Yc>

<https://www.youtube.com/watch?v=aLSnHRJ3JoA>

April: Revision for Final Exams

May: Final Exams