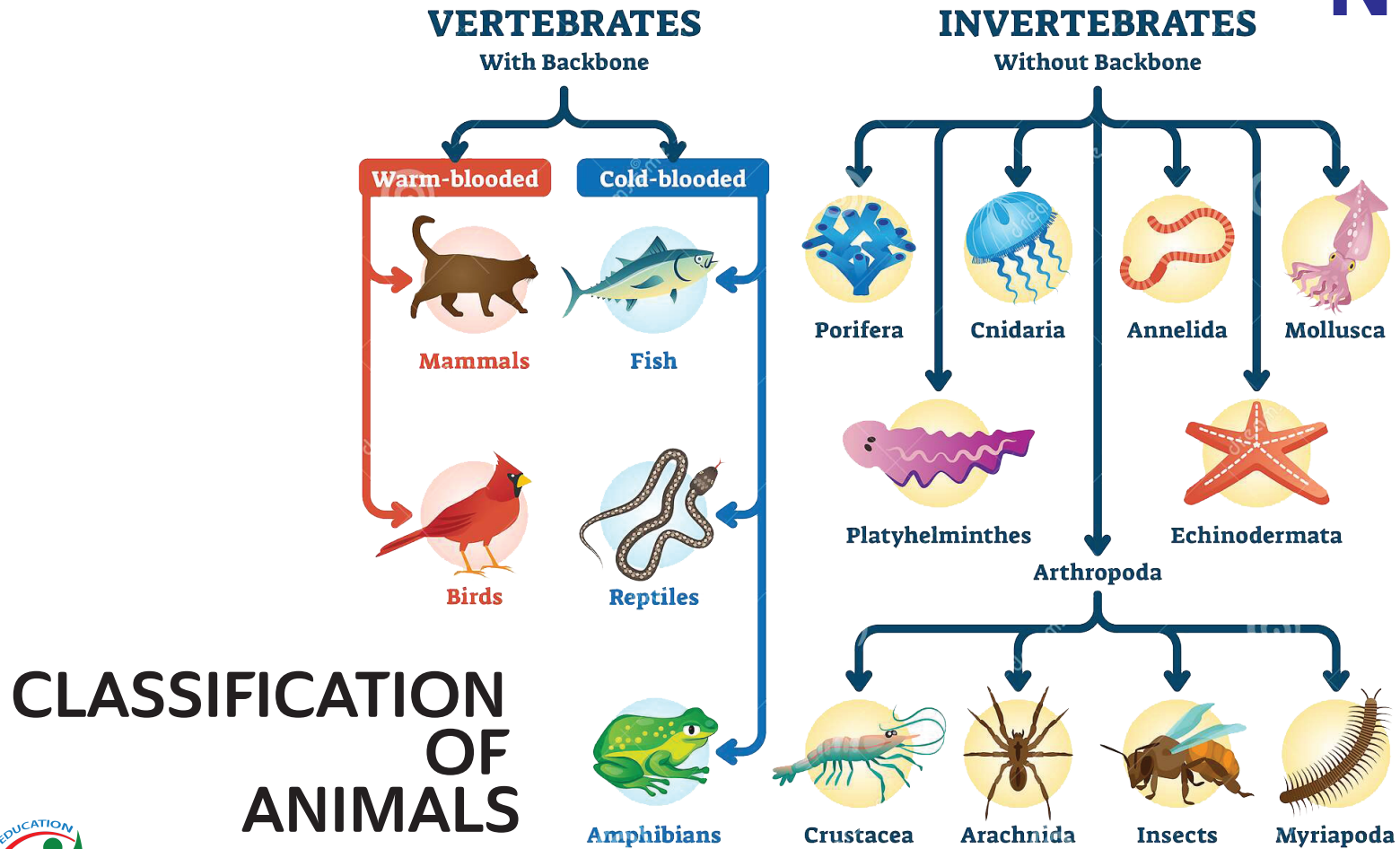


# GUYANA NATIONAL CURRICULUM

## SCIENCE

### NGSA

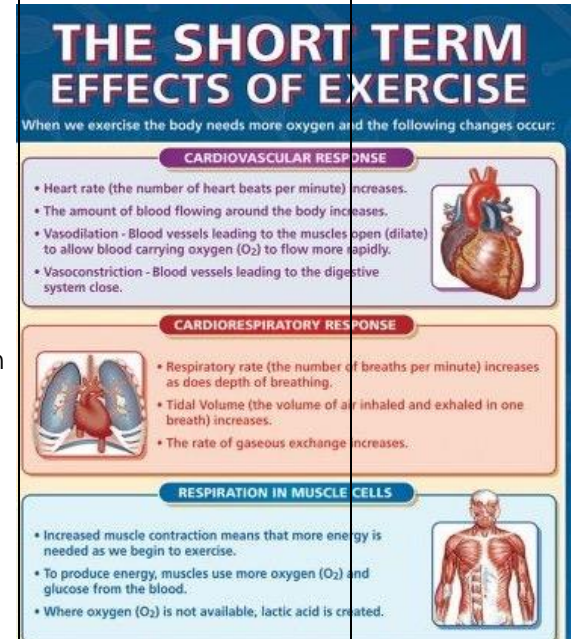
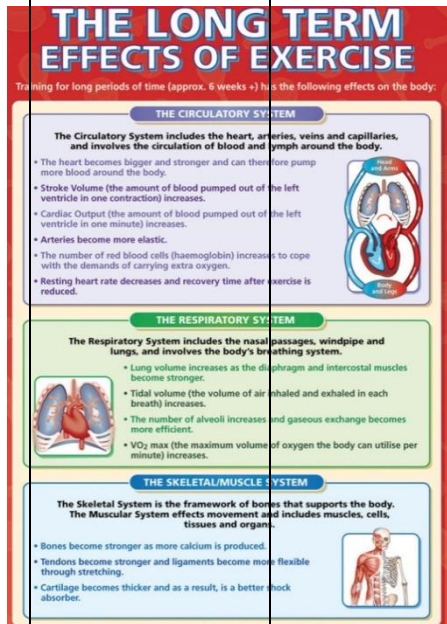


## CLASSIFICATION OF ANIMALS



**MINISTRY OF EDUCATION  
CURRICULUM  
Grade 5**

WK	TOPIC/ SUBTOPIC	GENERAL OBJECTIVES	CONTENT	ACTIVITY	RESOURCES	EVALUATION STRATEGY
1.	<b>Human Body</b>  <b>Effects of exercise on heart beat rate and breathing.</b>	<b>For pupils to understand what is exercise.</b>  <b>For pupils to be aware of the importance of exercise.</b>	<p>Exercise is a specifically planned and organized session of physical activity that you do to improve and maintain your physical fitness. Exercise should be done in three stages. They are: - warm up, workout and cool down.</p> <p>Warm up is for a period of ten minutes. During this period your heart beat rate gradually increase and your body temperature starts to rise. As the flow of blood to your muscles increases, they become more flexible.</p> <p>Exercise helps us to have healthy body and mind. It helps you to look good by having a well sculptured body.</p> <p>There are two kinds of exercises. They are aerobic and anaerobic. Aerobic exercise targets the whole</p>	<p>Defining the term exercise.</p> <p>Explaining how the process of exercise should be followed.</p> <p>Performing simple exercises.</p> <p>Identifying body parts involved in exercising.</p> <p>Viewing DVDS.</p> <p>Differentiating between the types of exercises.</p> <p>Reading pamphlets and brochures on exercises.</p>	<p>Let's Learn Science Standard 3</p> <p>Body chart</p> <p>Clock</p> <p>Videos</p>	<p>Demonstration</p> <p>Quiz</p> <p>Paper and Pencil Test</p>

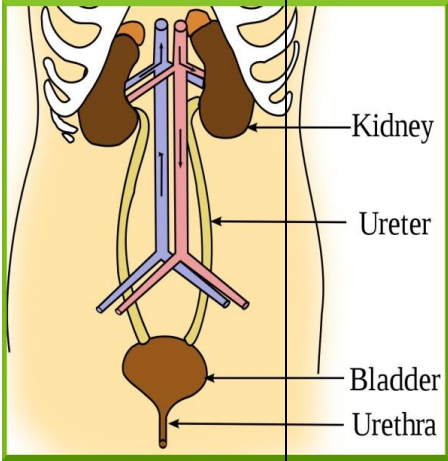
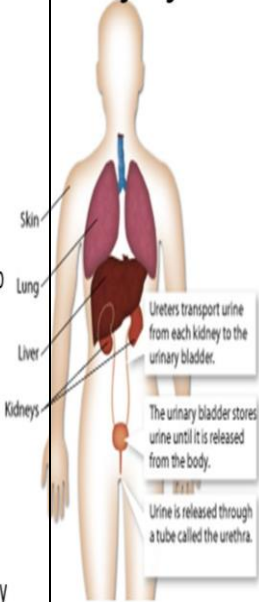


			<p>body, e.g. Walking, running, swimming. This type of exercise increases the heart rate. As a result, more oxygen is taken in and distributed throughout the body. Aerobic exercise strengthens the heart, lungs and bones. It burns calories, helps your body conserve some nutrients and aid digestion.</p>			
2	<p><b>Human Body</b></p> <p><b>Effects of a High Fat Diet</b></p>	<p><b>For pupils to be aware of healthy diets.</b></p> <p><b>For pupils to recognize the effects of a high fat diet.</b></p>	<p>Fats are compounds that can be solid or liquid at room temperature. Fats usually contain only three elements namely carbon, hydrogen and oxygen. Fats supply energy to our body. They are richer in energy than in carbohydrates. Fats can be sourced from both plants and animals. Animal fats contain cholesterol. Doctors believe that cholesterol is involved in forming deposits inside blood vessels. This results in poor blood circulation and sometimes heart attack or stroke. For this reason</p>	<p>Listing foods high in fat.</p> <p>Observing and sorting pictures.</p> <p>Researching the effects of fats on the body.</p> <p>Discussing the effects of fats on the body.</p> <p>Creating a scrap book on healthy and unhealthy fats and foods.</p>	<p>Pictures</p> <p>Video</p>	<p>Written work</p> <p>Scrapbook</p>

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			<p>many doctors prescribe diets low in cholesterol.</p> <p>When a person eats more fat than the body can use, the excess is stored as body fat. Body fat occurs mainly under the skin and also around many internal organs. If too much fat is stored around the heart, it puts pressure on it causing it to slow down the process of heart beat. This can result to periods of heart attack.</p> <p>Fats help the body</p> <ul style="list-style-type: none"><li>- to dissolve so-called "fat-soluble" vitamins—A, D, E and K—are stored in the liver and in fatty tissues.</li><li>- store energy,</li><li>- insulate us and protect our vital organs.</li><li>- They act as messengers, helping proteins do their jobs.</li></ul> <p>Too much fats in the body can have negative effects such as Weight gain, Constipation, Heart disease, Slow metabolism, Obesity,</p>			
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			high blood pressure, uncontrolled diabetes <b>Review activity Scrapbook</b>			
<b>3</b>	<b>Human Body</b>  <b>Body Waste</b>  <b>The Excretory System</b>	<b>For pupils to understand how our body gets rid of waste.</b>	Our body produces wastes in the form of solid, liquids and gas. Solid waste is composed of the parts of foods that could not be digested. Liquid and gaseous wastes are by-products of activities of the body cells. The skin excretes some wastes through its pores when you perspire. Your lungs expel carbon dioxide, a gaseous waste, when you exhale.	Observing learning video on body wastes and excretion process.  Defining the term waste and excretion.  Identifying organs that are responsible for wastes in the body.	Learning Video  Science Around Us Bk 5  Modern Science Book 5  Pictures  Pamphlets.  Resource Personnel	Group work  Paper and Pencil Test  Quiz  Compile a Portfolio

		<p><b>For pupils to become knowledgeable on the organs responsible for getting rid of waste.</b></p>	<p><u>Body wastes</u></p> <p>Some body wastes are faeces, carbon dioxide, perspiration, urine, tears, dead cells (inflammation). When we breathe out, we exhale carbon dioxide and water vapour. Undigested foods are stored in the large intestine and passed out of our body through the anus as faeces.</p> <p>When we do heavy work or exercise, we pass out water in the form of perspiration through our skin. This water has salt and other waste dissolved in it. Urine is made up of water and dissolved wastes that come from the blood. This is filtered by the kidney and passes out as urine. Tears come from the eyes and contain pathogens which do not get into our eyes.</p> <p><b>Review Activity</b></p> <p>Pupils will create informative pamphlet/newsletter on the following topics:</p>	<p>Explaining the sources of body waste.</p> <p>Identifying forms of body waste.</p> <p>Naming ways how our body gets rid of waste.</p> <p>Relating the side effects of having body waste stored in our body.</p> <p>Listening to a medical person talk on topic.</p> <p>Listing wastes of the excretory system and the skin.</p> <p>Identifying parts of the excretory system (exclude the skin)</p> <p>Explaining the role of each part of the excretory system.(excluding the</p>	 <p><b>Structures of the Excretory System</b></p> <ul style="list-style-type: none"> <li>- Kidneys <ul style="list-style-type: none"> <li>- Filter excess water, urea and metabolic waste from blood</li> </ul> </li> <li>- Ureters <ul style="list-style-type: none"> <li>- Transport urine from kidneys to bladder</li> </ul> </li> <li>- Urinary bladder <ul style="list-style-type: none"> <li>- Stores urine</li> </ul> </li> <li>- Urethra <ul style="list-style-type: none"> <li>- Releases urine outside the body</li> </ul> </li> </ul> 
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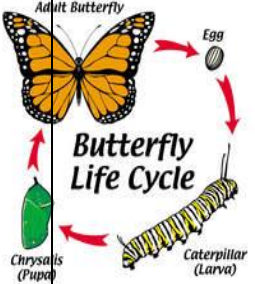
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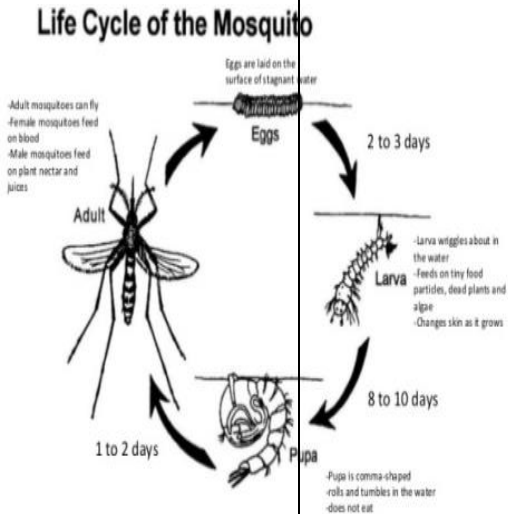
			➤ Overview of Excretory System	skin)  Creating a model of the excretory system		
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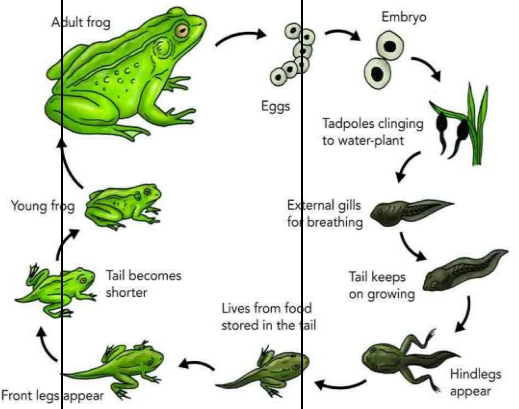
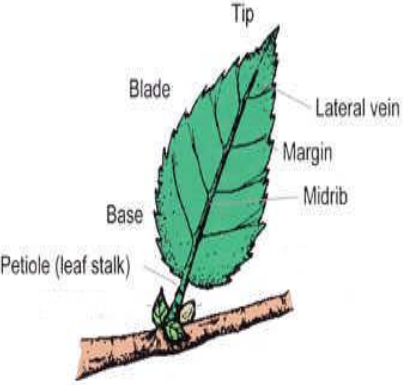
<p><b>4.</b></p>	<p><b>Animal Kingdom</b></p> <p><b>External Features of Invertebrates.</b></p>	<p><b>For pupils to understand the features of invertebrates.</b></p> <p><b>For pupils to know the types of invertebrates.</b></p>	<p>Invertebrates are animals that do not have back bone and internal skeleton. These invertebrates have external skeleton or exo-skeleton.</p> <p>Invertebrates are cold blooded. They are found everywhere and they have different body structure. Some have long bodies, others soft bodies. Some have jointed legs and bodies divided into parts. Some have soft bodies protected by hard shell. Some can fly while others cannot.</p> <p>Invertebrates are grouped according to common structures. The main groups of invertebrates are arthropods, molluscs and worms. Some invertebrates have many legs while others have none.</p> <p>There are four groups of arthropods – insects, arachnid, crustaceans and myriapods.</p>	<p>Defining terms.</p> <p>Identifying invertebrates by certain features.</p> <p>Naming the body parts of invertebrates.</p> <p>Grouping invertebrates according to special structure.</p> <p>Listing different types of invertebrates.</p> <p>Identifying the characteristics of the groups of invertebrates.</p> <p>Naming examples of invertebrates from each group.</p> <p>Comparing and contrasting</p>	<p>Let's Learn Science Standard 3</p> <p>Science Around us bk 5</p> <p>Samples of invertebrates</p> <p>DVD player</p> <p>DVD</p> <p>Table comparing and contrasting characteristics of the groups of invertebrates</p>	<p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p>
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				characteristics of various groups of invertebrates  Viewing DVD on topic.		
4.	<b>Animal Kingdom</b>  <b>Grouping Invertebrates</b>	<b>For pupils to:</b>  <b>cultivate the habit of grouping invertebrates based on external features.</b>  <b>know that there is a wide variety of invertebrates.</b>	The observable external features of invertebrates can be used to put them into different groups. While most have an external skeleton, a major difference is in their body appendages, of wings and legs. Worms have no wings or legs. Insects have six legs, one or two pairs or no wings. Arachnids e.g. spiders have eight legs. Crustaceans, e.g. crab, shrimp and lobster, have ten to twenty legs and no wings. They have a hard shell. Myriapods e.g. millipedes and centipedes have more than twenty legs. Molluscs e.g. snails protect their bodies by a hard shell.	Reporting findings during class discussion on groups of invertebrates.  Summarizing external features in small groups.  Using organisms from previous lessons and the features observed, pupils arrange the organisms (invertebrates) into groups with respect to number of legs (no legs, 6, 8, 10 or more than 10 legs), wings and type of exoskeleton.	Wide variety of invertebrates as used in previous lesson  Pictures of invertebrates  cardboard  paste  Video  Activity Sheet	Compile Scrapbook  Research  Oral and Written Work

				<p>Summarizing information as follows: Group Main features Examples ----- -----</p> <p>Collecting and pasting on cardboard pictures of at least one invertebrate from each group.</p>	<h2 style="text-align: center;">Invertebrates</h2> <p style="text-align: center; color: red;">Animals without backbones</p> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center; margin: 5px;">  <p>Protozoa</p> </div> <div style="text-align: center; margin: 5px;">  <p>Annelids</p> </div> <div style="text-align: center; margin: 5px;">  <p>Mollusks</p> </div> <div style="text-align: center; margin: 5px;">  <p>Echinoderms</p> </div> <div style="text-align: center; margin: 5px;">  <p>Crustaceans</p> </div> <div style="text-align: center; margin: 5px;">  <p>Arachnids</p> </div> <div style="text-align: center; margin: 5px;">  <p>Insects</p> </div> </div>
5.	<p><b>Grouping Invertebrates-</b></p> <p><b>Life Cycles- Insects</b></p>	<p><b>For pupils to understand that insects develop in stages.</b></p> <p><b>For pupils to observe stages in the life cycle of an insect showing complete or gradual metamorphosis and another showing</b></p>	<p>Many young insects do not look like the adult. Insects develop in stages. The sequence of stages is called metamorphosis of Life Cycle (many changes of form). For example, the butterfly passes through four stages of egg, larva (caterpillar) egg, larva, (caterpillar), pupa and imago (adult). This is called complete or gradual metamorphosis.</p> <p>The cockroach passes through three stages of egg, nymph and</p>	<p>Observing flower or kitchen garden for eggs laid by butterfly or moth on leaves, usually the lower surface.</p> <p>Collecting samples of eggs of caterpillars, grasshopper, and cockroach for observation.</p> <p>Writing observations</p>	<p>Egg, larva (caterpillar) pupa, adult butterfly or moth. Egg, nymph and adult cockroach or grasshopper Honey bee or wasp (marabunta) nest</p> <p>Pictures of stages in life cycle of insects</p> <p>Science Around Us Bk.5</p> <div style="text-align: center;">  <p><b>Butterfly Life Cycle</b></p> </div> <p>Draw life cycles and label stages.</p> <p>Group life Cycles according to stages.</p>

		<p><b>incomplete or direct metamorphosis.</b></p>	<p>imago (adult). This is called incomplete or direct metamorphosis. Other insects that show complete (gradual) metamorphosis are the housefly, mosquito, honey</p> <p>Egg or larva is place in a box or bottle. After, which it is covered with a net or gauze-like material to allow gases to enter and leave. The caterpillar is fed with leaves from the tree on which it was found</p>	<p>daily.</p> <p>Presenting observations.</p> <p>Study pictures of life cycles of insects.</p>	 <p><b>Life Cycle of the Mosquito</b></p> <p>Eggs are laid on the surface of stagnant water</p> <p>2 to 3 days</p> <p>Larva</p> <p>8 to 10 days</p> <p>Pupa</p> <p>1 to 2 days</p> <p>Adult</p> <p>Adult mosquitoes can fly -Female mosquitoes feed on blood -Male mosquitoes feed on plant nectar and juices</p> <p>Larva wiggles about in the water -Feeds on tiny food particles, dead plants and algae -Changes skin as it grows</p> <p>Pupa is comma-shaped rolls and tumbles in the water -does not eat</p>	
5	<p><b>Animal Kingdom</b></p> <p><b>Life Cycle of a Frog.</b></p>	<p><b>For pupils to relate the stages of metamorphosis to the life cycle of a frog.</b></p>	<p>The life cycle of a toad or frog has four stages similar to complete or gradual metamorphosis. The cycle begins with the egg and then followed by a tadpole which has a body and a tail. The third stage has a larger tadpole with hind legs followed by the final stage which looks like the adult. This life cycle is similar to that of an insect in that the young does not resemble the</p>	<p>Discussing the stages of the life cycle of a frog.</p> <p>Drawing the stages of the development of a frog.</p> <p>Relating the life cycle of a frog to</p>	<p>Let's Learn Science Standard 3.</p> <p>Samples of frog's eggs, tadpoles</p> <p>Pictures</p> <p>Chart</p>	<p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p>

	<p>adult. It is the final stage that reveals the type of adult.</p> <p><b><u>Diagram of the life cycle of a frog</u></b></p>	<p>metamorphosis.</p> <p>Viewing DVD.</p> <p>Compiling scrap book</p> <p>Collecting frog's eggs and tadpoles</p> <p>Observing the stages of change.</p>	<p>DVD player</p> <p>DVD</p> <p>Compile a Portfolio</p>			
<p>6.</p>	<p><b>Plant Kingdom</b></p> <p><b>The Leaf and its Functions</b></p>	<p><b>For pupils to be aware of the parts of a leaf.</b></p> <p><b>For pupils to appreciate the importance of the leaf.</b></p> <p><b>For pupils to develop an understanding of the processes the leaf goes through.</b></p>	<p><b><u>THE PARTS OF A LEAF</u></b></p>  <p>The tip of the leaf is called apex.</p>	<p>Supervising pupils on field trip and Exams a leaf.</p> <p>Naming parts of a leaf.</p> <p>Identifying the parts of a leaf.</p> <p>Discussing the process of Respiration and products involved.</p>	<p>Science Around Us Book 5.</p> <p>Samples of a leaf</p> <p>Pictures</p> <p>Chart</p>	<p>Group work</p> <p>Practical Exercise</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p>



The flat surface of the leaf is called lamina or blade. The edge of the leaf is called the margin. The midrib is found at the back of the leaf. The leaf also have vein. The stomata are the tiny holes found on the leaf to allow water to get in and out of the leaf.

**FUNCTIONS THE LEAF.**

**Respiration**

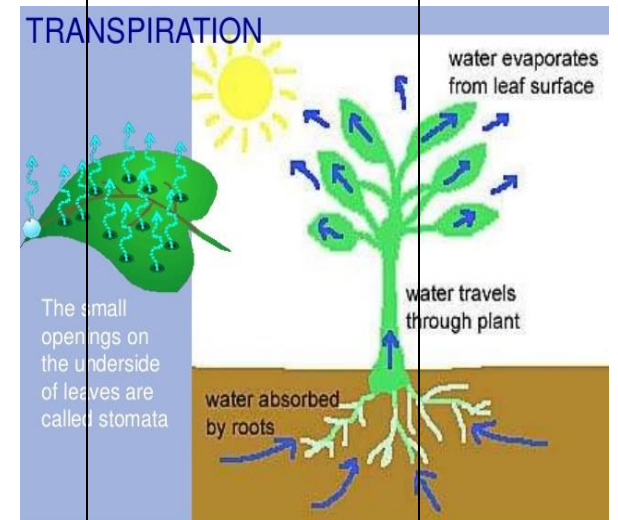
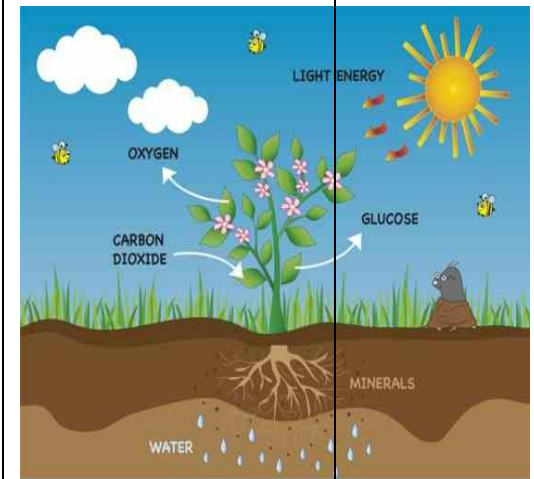
The leaves of a plant take in oxygen during the night through the stomata. The oxygen is taken to the cell in the leaf where the stored food is burned up. Energy is released so that the plant can grow. Carbon dioxide is given off as waste.

**Transpiration**

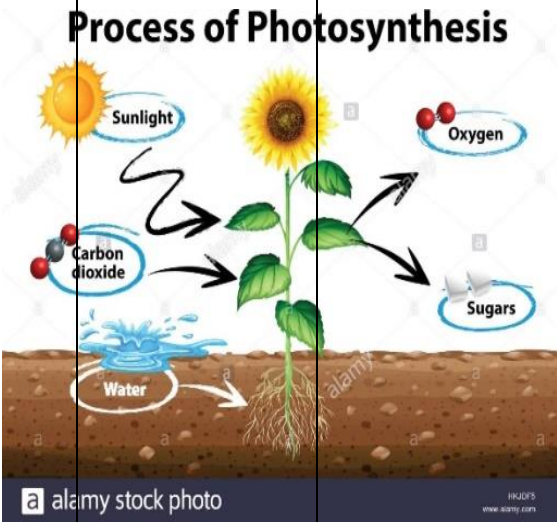
Transpiration is the process where plants loose water in liquid form. This water is a form of waste and passes out through the stomata.

Some leaves store food. Many of

Discussing the process of transpiration and the products.



			<p>these leaves are thick and fleshy. Some leaves that store food are aloe, onion, cabbage.</p>			
<p>6.</p>	<p><b>Plant Kingdom</b> <b>-The Leaf and its Functions</b></p>	<p>For pupils to appreciate the importance of the leaf.</p>	<p><b>FUNCTIONS THE LEAF</b></p> <p><b>Photosynthesis</b> is the process whereby the plant makes food. The word 'photo' means light. This process is done during the day. The plants need water, mineral salts, sunlight and carbon dioxide to make food. The process of photosynthesis is done in the leaf. The plant gets water and mineral salts from the soil. It gets carbon dioxide and sunlight from the atmosphere. The food the plant makes is called carbohydrates. Oxygen is given off as a waste.</p>	<p>Explaining the process of photosynthesis.</p> <p>Listing the products needed for photosynthesis.</p>	<p>Science Around Us Book 5.</p> <p>Samples of a leaf</p> <p>Pictures</p> <p>Chart</p>	<p>Group work</p> <p>Practical Exercise</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p>



<p>6.</p>	<p><b>Plant Kingdom</b></p> <p><b>Function of Seed parts.</b></p>	<p><b>For pupils to appreciate seeds and their functions.</b></p>	<p>Many plants are reproduced from seeds. Seeds have many size and shape. Some are hard and some are soft.</p> <div data-bbox="772 444 1129 1068" data-label="Diagram"> <p><b>Parts of a Seed</b></p> <p>plumule becomes the first shoot of the plant</p> <p>testa or seed coat protects the seed from injury and drying out</p> <p>radicle becomes the first root of the plant</p> <p>cotyledon contains the stored food for initial growth</p> <p>The radicle and plumule together make up the embryo of the plant</p> </div> <p><b>Function of the parts.</b></p> <p>Seed coat protects the seed from disease and insects. It will swell for the process of germination.</p> <p>Plumule will grow into the young</p>	<p>Defining terms.</p> <p>Identifying different types of seeds.</p> <p>Examining a seed to identify parts.</p> <p>Naming parts of a seed.</p> <p>Explaining the function of each part of the seed.</p> <div data-bbox="1226 870 1934 1149" data-label="Diagram"> <p><b>Parts of a Lima Bean Seed</b></p> <p>cotyledon</p> <p>hilum</p> <p>micropyle</p> <p>testa, or seed coat</p> <p>hypocotyl</p> <p>epicotyl</p> <p>testa</p> <p>cotyledon</p> </div>	<p>Science Around Us</p> <p>Book 5.</p> <p>Pictures</p> <p>Seeds</p> <p>Water</p> <p>Chart</p>	<p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p>
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shoot.  
 Radicle will grow into the root.  
 Micropyle will allow water to enter the seed.  
 Cotyledon provides food for the young plant.  
 Embryo will grow into the new plant.

7. **Plant Kingdom**  
  
**Monocotyledonous Plants**

**For pupils to know the difference between monocotyledons and dicotyledons**

Plants can be separated into two distinct categories: monocotyledons and dicotyledons.

Monocots differ from dicots in four distinct structural features: leaves, stems, roots and flowers.

The differences start from the very beginning of the plant's life cycle:

**The Seed:**  
 Within the seed lies the plant's embryo. Plants with one cotyledon are called monocotyledonous plants.

Identifying seeds that are monocotyledons.

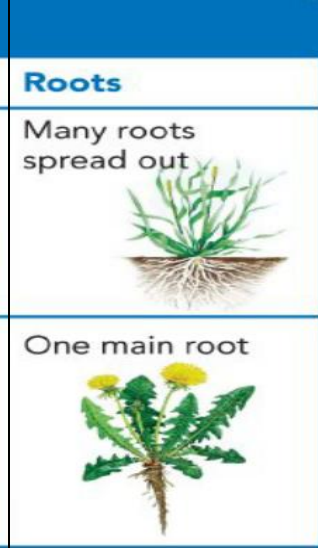
Identifying features of monocotyledonous plants.

Drawing diagrams of leaves and roots of monocotyledonous plants.

Participating in classifying game.

Science Around Us Book 5

Samples or specimen of leaves, roots, seeds and flowers


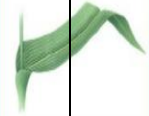






Group work (research)

Paper and Pencil Test

Quiz

Compile a Portfolio

Characteristics of Monocots and Dicots			
	Seeds	Leaves	Flowers
<b>Monocots</b>	Single cotyledon 	Parallel veins 	Floral parts often in multiples of 3 
<b>Dicots</b>	Two cotyledons 	Branched veins 	Floral parts often in multiples of 4 or 5 



			<p><b>Roots:</b></p> <p>Once the embryo begins to grow its roots, another structural difference occurs.</p> <p>Monocots tend to have “fibrous roots” that web off in many directions.</p> <p><b>Leaves:</b></p> <p>Both monocots and dicots form different leaves. Their parallel veins characterize monocot leaves.</p> <p><b>Flowers:</b></p> <p>The last distinct difference between monocots and dicots are their flowers (if present).</p> <p>Monocot flowers usually form in threes.</p> <p>Monocotyledonous plants -rice, palm, and awara.</p>			
7.	<p><b>Plant Kingdom</b></p> <p><b>Dicotyledonous Plants</b></p>	<p><b>For pupils to know the difference between monocotyledons and dicotyledons.</b></p>	<p>The differences between monocots and dicots start from the very beginning of the plant's life cycle:</p> <p><b>The Seed:</b></p> <p>Within the seed lies the plant's</p>	<p>Identifying seeds that are dicotyledons.</p> <p>Identifying features of dicotyledonous plants.</p>	<p>Science Around Us Book 5</p> <p>Samples or specimen of leaves, roots, seeds and flowers</p>	<p>Group work (research)</p> <p>Paper and Pencil Test</p>

		<p>embryo. Plants with two cotyledons are called dicotyledonous plants.</p> <p><b>Roots:</b> Once the embryo begins to grow its roots, another structural difference occurs. Dicot roots also contain one main root called the taproot, where other, smaller roots branch off. The fibrous roots occupy the upper level of the soil in comparison to dicot root structures that dig deeper into the soil.</p> <p><b>Leaves:</b> Both monocots and dicots form different leaves. Dicots form net "branching" veins.</p> <p><b>Flowers:</b> The last distinct difference between monocots and dicots are their flowers (if present). Dicot flowers occur in groups of four or five.</p> <p>Dicotyledonous plants –</p>	<p>Drawing diagrams of leaves and roots of dicotyledonous plants.</p> <p>Participating in classifying game.</p>	<p>Quiz</p> <p>Compile a Portfolio</p>
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			tomato, bora, and pigeon peas.			
<b>8.</b>	<b>Environment</b>  <b>The decay of plant and animal materials.</b>	<b>For pupils to be aware of materials which are biodegradable and which are non-biodegradable</b>  <b>For pupils to investigate how organic (plant and animal) materials decay</b>	Materials from plants and animals are called organic. These materials include leaves, flowers, fruits, stems and roots of plants. Animal materials include their flesh, faeces, skin, hair, fur. Most of these organic materials rot or decay over a period of time. Similarly, when plants and animals die their bodies rot or decay over a longer period of time. The process of decay or decomposition causes substances that make up plants and animals to go back into the earth and the world. Materials such as fruits, paper, cardboard and cotton that decay within a short period of time are said to be biodegradable. Materials such as plastic, glass and metals which will not decay are said to be non-biodegradable.	Defining the terms biodegradable and non-biodegradable.  Differentiating between biodegradable and non-biodegradable.  Explaining how to set up demonstrations.  Predicting which materials will rot or decay first, which will decay later and which will never decay.  Performing experiments.  Making observations.  Viewing DVDS.	Small transparent plastic containers  Clear cellophane bags  Bread, fruits, vegetables, leaves, grass, plastic objects, glass, metals, water, soil	Group work  Paper and Pencil Test  Quiz  Compile a Portfolio  Demonstration

				<p>Reading pamphlets and brochures on biodegradable and non-biodegradable materials.</p> <p>Discussing the benefits of using biodegradable materials.</p>		
8.	<p><b>Environment</b></p> <p><b>Wastes and their disposal.</b></p>	<p><b>For pupils to state some common wastes.</b></p> <p><b>For pupils to be aware of the different types of wastes and their method of disposal.</b></p>	<p>Man's activities produce many wastes. Garbage and litter from home make up domestic wastes. The wastes given off by factories include smoke, fumes, heat and poisonous chemicals. These are called industrial wastes.</p> <p>Agricultural wastes include manure, trash and plastic. Urine and feces are called biological wastes. Proper and safe methods of waste disposal are necessary to prevent pollution of the soil, water and air. These methods include: Proper collection and storage of wastes.</p>	<p>Defining the terms waste and disposal.</p> <p>Field trip to observe litter, garbage and rubbish heap.</p> <p>Listing and classifying wastes produced in home, farm, factory</p> <p>Discussing ways in which each set of wastes can be best disposed of.</p>	<p>Pictures of different types of wastes and their methods of disposals.</p>	<p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p>

			<p>Recycling wastes that are reused in manufacture of new materials and goods. Biodegradable wastes eg., grass and faeces can be recycled to produce compost and biogas. Non-biodegradable wastes eg., glass and plastic can be recycled.</p> <p>Burning combustible material.</p> <p>Proper disposal of faeces and urine.</p> <p>Filling up land and useless ponds and trenches with wastes.</p> <p>Proper management of sites with dumped wastes.</p>	<p>Viewing DVDS.</p> <p>Reading pamphlets and brochures on disposal of wastes materials.</p> <p>Discussing the benefits of good disposal of wastes materials.</p>		
9	<p><b>Environment</b></p> <p><b>Conservation of materials.</b></p>	<p><b>For pupils to be aware of the ways by which materials including resources can be conserved.</b></p>	<p>Materials that we use in the home, school and at workplace must be used properly and wisely so as to preserve them and prevent wastage. These materials include foodstuff, clothing, stationery, furniture, medicines and agricultural inputs.</p> <p>Other materials such as the soil, water and minerals are called resources.</p>	<p>Defining the terms such as materials, resources and conservation.</p> <p>Discussing ways by which materials including resources can be conserved.</p> <p>viewing posters and pictures about</p>	<p>Books</p> <p>Magazines</p> <p>Posters</p> <p>Pictures</p> <p>Newspaper clippings</p>	<p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p>

			<p>The wise use of materials and their preservation is called conservation. Some methods of conservation include:</p> <p>Using only the amount of materials needed.</p> <p>Storing properly all unused materials.</p> <p>Recycling materials e.g., paper, glass, plastic, aluminium cans, as discussed in previous lesson.</p> <p>Avoiding the pollution of land, water and other resources in the environment.</p> <p>Making alternative uses of some materials, containers etc.</p>	<p>conservation of materials and resources.</p> <p>Compiling folio on conservation of materials and resources.</p> <p>Discussing the benefits of conserving materials and resources.</p>		
<b>10</b>	<b>Environment</b>  <b>The causes, effects and prevention of</b>	<b>For pupils to be aware of the causes, effects and prevention of pollution of land,</b>	<p>he improper use of materials which results in harm to the environment leads to pollution.</p> <p>Pollution is often caused by man and affects land, water and air.</p>	<p>Reviewing methods of waste disposal.</p> <p>Field trip to observe any signs of pollution.</p>	<p>Books</p> <p>Magazines</p> <p>Posters</p>	<p>Group work</p> <p>Paper and Pencil Test</p>

	<p><b>the pollution of land, water and air.</b></p>	<p><b>water and air.</b></p>	<p>Land pollution often results from improper disposal of wastes from human activities and from animals. This includes dumping of litter and use of agricultural chemicals. Water is also polluted by litter, garbage and chemicals from factories and by oil spills. Smoke from fires and vehicles and also toxic fumes from the burning of plastic and rubber pollute the air. Pollution of land results in foul smell, spread of diseases and reduction in soil fertility. Contaminated water spreads diseases such as gastro-enteritis, typhoid, diarrhea and cholera. Polluted air results in smogs and affects breathing by both plants and animals. Damage to the protective filtering layer of the atmosphere, that is the ozone layer, results in skin and other diseases. Pollution can be prevented by proper disposal of wastes; restricting use of</p>	<p>Discussing the causes, effects and prevention of pollution of land water and air.</p> <p>Reading to obtain more information on pollution and prevention.</p>	<p>Pictures</p> <p>Cardboard</p> <p>Markers</p> <p>Paste</p>	<p>Quiz</p> <p>Compile a Portfolio</p>
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			agricultural chemicals; keeping water ways clear of grass and weeds; reduce or stop the burning of plastics and rubber; use treated petrol; reduce the use of aerosol sprays.			
11.	<b>Weather</b>  <b>Effects of the weather</b>	<b>For pupils to be aware of the effects on humans and the environment.</b>	The weather which includes the sun, rain and wind affects humans, other animals, plants and the environment. The sun which provides heat and light helps plants and animals make food to grow and develop. Rain provides water for drinking and other domestic purposes, It also helps plants and animals to grow. Too much rain can result in floods which can ruin homes and crops. Very high tides have a similar effect.  Too little water results in drought which reduces the growth of crops and animals. The wind keeps us cool. It helps birds and some animals fly.	Identifying instruments used to measure weather which help humans to predict and take appropriate actions  Field trip in the school yard and immediate environment to observe effects of the weather.  Discussing the effects of weather.  Reading to obtain more information about the effects of	Books  Magazines  Posters  Pictures  Weather reports from newspaper clippings	Group work  Paper and Pencil Test  Quiz  Compile a Portfolio

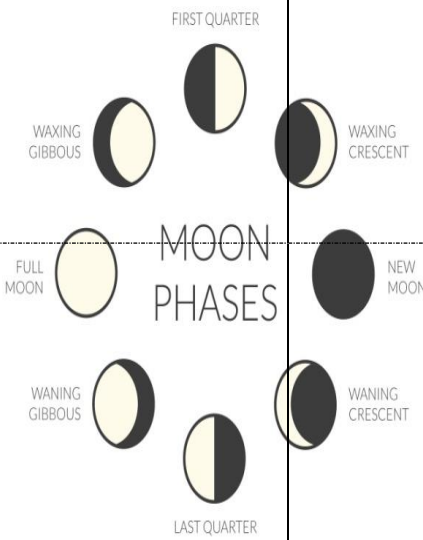


			Strong winds can cause damage to life and property. Very strong winds like hurricanes result in damage to buildings, crops, animals and humans.	weather.  Viewing posters and pictures about the effects of weather.  Compiling folio about the effects of weather.		
11.	<b>Weather</b>  <b>Effects of the sun, water and wind on rocks.</b>	<b>For pupils to be aware of the effects of the sun, water and wind on rocks.</b>	The sun, water and wind cause rocks to break up into smaller pieces. This process is called weathering. Heat from the sun causes rocks to expand during the day. At nights the rocks cool down and get smaller. When this expansion and contraction occur over a period of time the rocks crack and break up. Rain and water falling on rocks over a long period of time cause some parts to wear away slowly. This can lead to the formation of cracks. The wind can break off small pieces of rocks from larger ones. It can also pick up small stones and sand and	Field trip in the school yard and immediate environment to observe any signs of weathering.  Demonstrating the effects of water falling on ice.  Discussing the effects of weathering.  Reading to obtain more information about the effects of weathering.	Books  Magazines  Posters  Pictures  Ice  water	Group work  Paper and Pencil Test  Quiz  Compile a Portfolio  Demonstration

			hit them against larger pieces of rocks thereby breaking them into smaller pieces.	Viewing posters and pictures about the effects of weathering.  Compiling folio about the effects of weathering.		
12.	<b>Materials</b>  <b>Solutes, solvents and solution.</b>	<b>For pupils to know what are solute, solvent and solution.</b>	Sugar added to water seems to disappear. However, sugar added to oil does not change. The sugar is said to dissolve in the water but not in the oil. Materials that dissolve in another are said to be soluble. For example, sugar and salt are soluble in water. Materials that do not dissolve in water insoluble. For example, sand is insoluble in water.  When a substance dissolves in another, a solution is formed. The substance that dissolves is called the solute while that which does the dissolving is called the solvent.	Defining terms such as solute, solvent and solution.  Making predictions about which materials will dissolve in some common liquids.  Setting up experiments to test the solubility of some materials such as salt, sugar and flour.  Making observations and recording results.	Water/drink bottle caps  Sugar, salt, flour  fruit juice  sand  plastic  milk  powder  soap powder	Group work  Paper and Pencil Test  Quiz  Compile a Portfolio  Demonstration

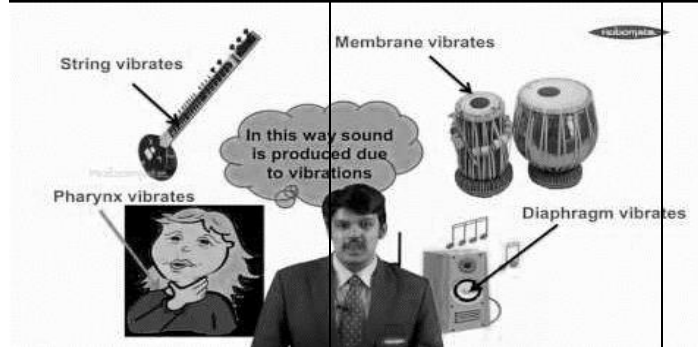
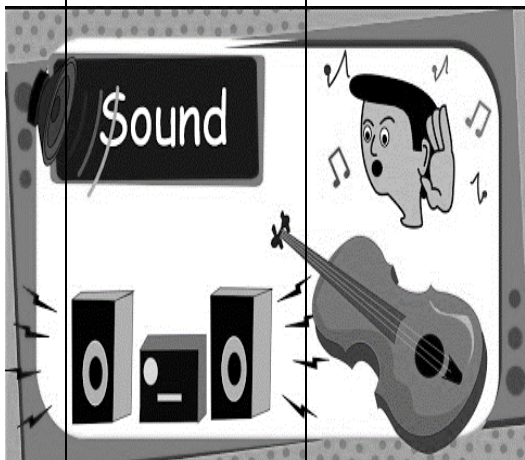
			Solutes are usually solids while solvents are usually liquids. Oil paint and tar are soluble in kerosene but not in water. While milk and fruit juices are soluble in water but not oil.	Interpreting results of investigations.  Completing home assignments.	water  oil  oil paint  tar  kerosene	
13.	<b>Materials</b>  <b>The rate at which materials dissolve</b>	<b>For pupils to understand what speeds up the dissolving of materials</b>	The rate at which some materials (solutes) dissolve in other materials (solvents) can be increased by stirring and raising the temperature of these solvents. These processes are common in the making of beverages, tea, coffee and in some other cooking procedures.	Discussing in groups what speeds up the process of dissolving.  Setting up experiments to investigate the speed at which materials such as sugar and salt dissolve.  Making observations and recording results.  Interpreting results of investigation and discussing findings.	Sugar water (cold, warm and normal)  Sanitary cups  Plastic spoon	Group work  Paper and Pencil Test Quiz  Compile a Portfolio  Demonstration
14.	<b>Materials</b>	<b>For pupils to understand how</b>	Mixtures can be separated by different methods.	Discussing in groups how materials can be	Peas , rice, Sand, salt,	Group work Paper and Pencil

	<b>Separating mixtures</b>	<b>substances in mixtures can be separated</b>		<p>separated.</p> <p>Setting up experiments to separate simple materials.</p> <p>Making observations and recording results.</p> <p>Interpreting results of investigation and discussing findings.</p>	<p>Water, sanitary cups, funnel, table tissue/paper towel</p> <p>Filter paper</p>	<p>Test Quiz</p> <p>Compile a Portfolio</p> <p>Demonstration</p>
<b>14.</b>	<b>Separating mixtures</b>	<p><b>For pupils to explain how substances in mixtures can be separated</b></p> <p><b>Demonstrate the processes of separating techniques</b></p>	<p>Separating mixtures</p> <p>Mixtures can be separated by different methods</p> <p>-sieving</p> <p>-filtering</p> <p>-evaporation, Magnetism.</p>	<p>Discussing techniques</p> <p>Demonstrating processes</p> <p>Recording information</p> <p>Discussing demonstrations</p> <p>drawing</p>	Science around us bk 5	<p>Oral and written questions</p> <p>Experiment</p>
<b>15.</b>	<b>Phases of the moon</b>	<p><b>For pupils to recognize the main phases of the moon.</b></p> <p><b>For pupils to explain how the</b></p>	<p>The largest and brightest object in the night sky is usually the moon.</p> <p>The moon travels around the Earth in an anticlockwise direction. It makes a complete orbit in about 28 days (a lunar month).</p>	<p>Experimenting to show how the moon gets its light and the phases are reflected.</p> <p>Setting up experiments to demonstrate how</p>	<p>Let's Learn Science Standard 3.</p> <p>Modern Science Book 5.</p>	<p>Oral Work</p> <p>Group Work</p> <p>Making a model.</p>

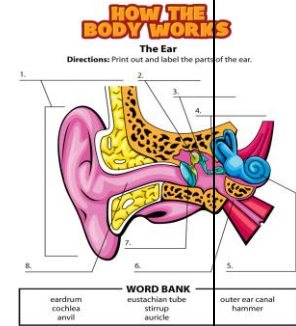
		<p><b>main phases of the moon come about</b></p> <p><b>For pupils to observe the shapes of the moon as it travels around the earth.</b></p>	<p>The moon does not produce light of its own. We see it because it reflects light from the sun. At different times of the month different parts of the moon are lit up by the sun.</p> <p>As such, the moon appears to have different shapes during the month and these are called the <b>phases</b> of the moon.</p> <p>The moon phases begin with the <b>new moon</b> which we cannot see in the night sky.</p> <p>Understand the term "Gibbous"</p>	<p>the phases of the moon come about.</p> <p>Observing and recording the shape of the moon or its phases.</p> <p>Drawing the phases of the moon.</p> <p>Observing the moon every evening about the same time for thirty days and draw its shape for each day in a rectangle.</p>	<p>Science Around Us Book 5.</p> <p>A ball to represent the moon.</p> <p>Torch light</p> <p>Globe</p>	<p>Written Work</p>
<p>15.</p>			<p>The next phase is the <b>crescent</b> when only a small part of the moon is visible. The half- moon appears next. As the moon is getting fuller, the phase is called <b>gibbous</b>. When the whole moon is seen it is called <b>full moon</b>.</p> <p>The phases that follow show the</p>	<p>Write the date at the bottom of the drawing.</p> <p>Drawing the different phases of the moon.</p> <p>Identifying the main phases of the moon.</p> <p>Examining the</p>	 <p>The diagram shows the moon phases arranged in a circle around the text "MOON PHASES". Starting from the top and moving clockwise: Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Last Quarter, and Waning Crescent. A yellow crescent moon is shown on the right side of the circle.</p>	

			<p>moon beginning to get smaller and so goes through the gibbous, half-moon and crescent stages again until the new moon phase is entered once more.</p> <p>The other main phases are the first quarter and last quarter (third quarter).</p> <p>Other Terms that are essential :</p> <ul style="list-style-type: none"> <li>- Waxing'</li> <li>- Waning</li> <li>- Crescent</li> </ul>	<p>calendar.</p> <p>Comparing the phases of the moon with those on the calendars.</p>		
16.	<b>Relationship between tides and moon phrase</b>	<b>For pupils to research and analyze the relationship between tides and moon phrases</b>	<p>A tide is the rise and fall of the water along the ocean shore. Tides are mainly caused by the gravitational pull of the moon on the earth. The moon has a stronger pull on the part of the earth it is closest to. This pulling causes water to move to the part of the earth being pulled. The moon also pulls the earth away from the opposite side of the earth. The water level rises along</p>	<p>Researching tides and moon phrases using texts and internet</p> <p>Discussing data from research</p> <p>Interpreting diagrams of tide and moon phrase relationship</p> <p>Modeling the diagrams using materials in the</p>	<p>Internet</p> <p>Cell phones</p> <p>Science text</p>	Presentation

			the coast. This rise is called high tide while the fall is called low tide.	environment Labeling diagram		
17.	<p><b>Energy</b></p> <p><b>How Sounds are made.</b></p> <p><b>How sounds travel</b></p>	<p><b>For pupils to understand and appreciate the production of sounds.</b></p> <p><b>To become aware of how sounds travel.</b></p>	<p><b>What is sound?</b></p> <p>Sound is a form of energy caused by something vibrating.</p> <p><b>How sounds are perceived?</b></p> <p>Sound is a form of energy that you can hear caused by something vibrating.</p> <p>Sound vibrations, remember, are also called sound waves.</p> <p><b>How sounds travel?</b></p> <p>Sound vibrations travel in a wave pattern, and we call these vibrations sound waves. Sound waves move by vibrating objects and these objects vibrate other surrounding objects, carrying the sound along.</p> <p><b>What can sounds pass/ move through?</b></p>	<p>Identifying things in the environment that produces sounds.</p> <p>Make sounds and differentiate among them.</p> <p>Classify sounds as loud or soft.</p> <p>Discussing how sounds travel.</p> <p>Making instruments to transmit sounds</p>	<p>Objects in the environment</p> <p>Science Around Us Bk 5</p> <p>Sanitary cups</p> <p>string</p>	<p>Practical work</p> <p>Group presentation</p> <p>Making models</p> <p>Portfolio</p>



			Sound can move through the air, water, or solids, as long as there are particles to bounce off.			
18.	<b>Energy - How we hear.</b>	<p><b>Pupils will become knowledgeable about the organ that is used for hearing.</b></p> <p><b>Pupils will be able to explain how the ear works for us to hear.</b></p> <p><b>Pupils will be able to observe and list the main parts that make up the ear.</b></p> <p><b>Pupils will be able to demonstrate how the ear</b></p>	<p>We hear sounds with our ears. Sound vibrations are collected by our earflaps and pass along the ear canal. These vibrations make the thin skin-like ear drum vibrate.</p> <p>The vibrations pass through the rest of the ear, that is, the middle ear to the inner ear, and messages are sent by nerves to the brain.</p> <p>The brain interprets the vibrations as sounds. All this happens very, very quickly.</p>	<p>Discussing topic.</p> <p>Displaying and observing models and charts of the ear.</p> <p>Explaining how the ear works.</p> <p>Observing learning video on how the ears work.</p> <p>Answering short questions about the ear.</p> <p>Participating in puzzle activity to identify parts</p>	<p>Model of the ear.</p> <p>Chart with a diagram of the ear.</p> <p>Science Around Us Bk. 5</p> <p>Video on how we hear.</p> <p>Puzzle</p>	<p>Group Work</p> <p>Paper and Pencil Test</p> <p>Game</p> <p>Written Work</p>

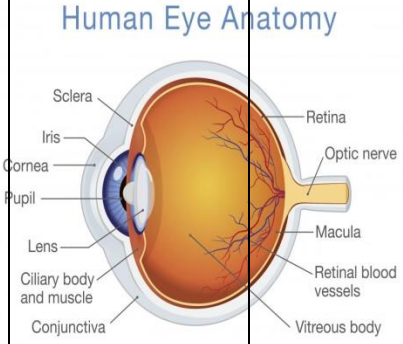


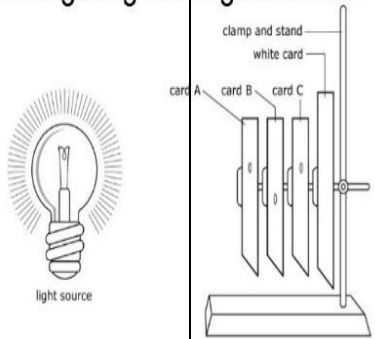


		<b>works.</b>		of the ear.		
18.	<b>Energy</b>  <b>Care of the ear</b>	<p><b>For pupils to explain reasons why we should care our ears.</b></p> <p><b>For pupils to become aware of ways in which we can care for our ears.</b></p> <p><b>For pupils to be able to demonstrate ways in which we care for the ears.</b></p>	<p>The ear and its parts are important. They can be cared for as follows:</p> <ul style="list-style-type: none"> <li>- Never push things in our ears as this can damage the ear drum and lead to deafness.</li> <li>- Hairs in the ear keep out dirt.</li> </ul> <p>The outer end of the ear canal can be cleaned by an oiled cotton swab or ‘q-tip’ . - Wax is produced in the ear canal to clean and moisten it. Excess wax can cause partial deafness or ‘ buzzing’ in the ear and should be removed by a doctor or nurse.</p> <p>Avoid too loud sound as they can damage the ear drum and lead to deafness.</p> <p><b><u>Fishing Game Activity</u></b></p> <p>Pupils will be placed in groups where they will be required to fish</p>	<p>Viewing a learning video on how we care for the ear.</p> <p>Discussing various ways of how we can care for the ear.</p> <p>Identifying some ways in which we can care the ear.</p> <p>Listing some ways to care the ear.</p> <p>Dramatizing ways in which we can care for the ear.</p>	<p>Model of the ears.</p> <p>Pictures showing ways to care for the ears.</p> <p>Learning video on how to care for the ear.</p> <p>Treasure Hunt Game / Fishing Game</p> <p><b>Proper Care for the ears</b></p> <p>Do not blow your nose too hard. This can cause germs from your throat to go up the Eustachian tube to your ears.</p> <p>When swimming or diving , protect the eardrums by wearing a cap or using earplugs.</p> <p>Any ear problem should be consulted to a doctor</p>	<p>Group work</p> <p>Compiling a folio</p> <p>Paper and pencil quiz.</p> <p>Game</p> <p>Written Work</p>



			<p>for pictures in a box (fishing pond).</p> <p>Pupils will catch the fish then display it to the class.</p> <p>After displaying pupils will describe the pictures they would have caught as a fish.</p> <p>Each picture will describe either a good way or bad way of caring for the ear.</p> <p>After describing the picture, pupils will then state whether the way shown is a safe or bad way of caring for the ear.</p>	<p>Making posters to emphasize the care of the ear.</p> <p>Participating in Treasure hunt / Fishing Game.</p>		
19.	<b>Energy</b> <b>Light travels faster than sound.</b>	<b>For pupils to understand that light travels faster than sound.</b>	<p>Light travels faster than sound. For example, we would see the light of an approaching vehicle before we hear the sound of its engine. Also, we would see lightning before we hear the thunder.</p>	<p>Discussing topic.</p> <p>Talking about situations where one would see the light before hearing sound.</p> <p>Carry out experiment to show that light travels faster than sound. Activity should be done in the school</p>	<p>Whistle</p> <p>Pocket kerchief.</p>	<p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p>

	 <p><b>Human Eye Anatomy</b></p> <p>The diagram shows a cross-section of the human eye with the following parts labeled: Sclera, Iris, Cornea, Pupil, Lens, Ciliary body and muscle, Conjunctiva, Retina, Optic nerve, Macula, Retinal blood vessels, and Vitreous body.</p>			<p>yard.</p> <p>For example, one pupil blows a whistle and the other waves a pocket kerchief at the same time.</p> <p>Making observations.</p> <p>Stating which was observed first, the waving of the kerchief or sound of the whistle.</p>		
<p><b>19.</b></p>	<p><b>Energy</b></p> <p><b>How we see.</b></p> <p><b>Care of the eye.</b></p>	<p><b>For pupils to explain how the eye works for us to see.</b></p> <p><b>For pupils to understand why we should care our eyes.</b></p>	<p>The eye is shaped like a ball. Light comes into the eye from an object. Without light we cannot see. The light passes through the part of the eye called the pupil. The light is focused by the lens unto the back of the eye to form an image. This image is sent along a nerve to the brain where it is interpreted and we see the object we are looking at.</p> <p>Our eyes are very important. In caring them we should do the</p>	<p>Discussing topic</p> <p>Displaying and observing models or charts of the eye.</p> <p>Explaining how the eye works.</p> <p>Answering short questions about the eye.</p> <p>Discussing topic.</p> <p>Identifying some ways</p>	<p>Model of eye.</p> <p>Charts or diagram of the eye.</p> <p>Pictures</p> <p>Science Around Us Book 5</p> <p>Model of eye.</p> <p>Charts or diagram of the eye.</p> <p>Pictures</p>	<p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p> <p>Compile a Portfolio</p> <p>Group work</p> <p>Paper and Pencil Test</p> <p>Quiz</p>

	<p>Investigating how light travels?</p>  <ul style="list-style-type: none"> <li>How did you get the light to shine on the white card? What does this tell you about the way light travels?</li> </ul>		<p>following:</p> <ul style="list-style-type: none"> <li>-Never rub the eyes with hands.</li> <li>-In bright light, protect eyes with sunglasses.</li> <li>-Wash eyes with clean water.</li> <li>-If you cannot see things clearly, have your eyes tested.</li> <li>-If you need to wear spectacles, then wear them.</li> </ul>	<p>in which we can care the eye.</p> <p>Listing some ways to care the eye.</p> <p>Making posters to emphasize the care of the eye.</p>	<p>Science Around Us Book 5</p>	<p>Compile a Portfolio</p>
<p>20.</p>	<p><b>Annual Examination</b></p> <p><b>Review of Annual Examination</b></p>	<p><b>Know to answer questions based on topics done during the term.</b></p> <p><b>For pupils to discuss ideas on topic done for Assessment</b></p>	<p>Topics taught during the term.</p> <p>Answering questions on exams papers completed</p>	<p>Reading and answering questions</p> <p>Discussing questions</p>	<p>Question Bank</p> <p>Resource Sample of pupils' work</p>	<p>Annual Examination</p> <p>Oral Work</p>

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