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PARVEEN ARIF ALI

Teaching Guide

Revised Edition

Amazing Science



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Introduction

Children want to know things. Early guidance and varied experiences do much to stimulate the development of their natural intelligence.

A teacher can play a very important role in arousing the interest of students by allowing them to discuss facts and ideas and helping them to draw conclusions from them as to why and how things happen.

The teacher can stimulate the thinking process of students by asking questions and by encouraging them to ask questions.

Experimental work enables students to test for themselves the facts that have been learnt by them, thereby making it easier for them to understand the implications of the background to their activities.

This course has been developed to provide information about the world around on which students can base their opinion, verify information, come to conclusions, and use the knowledge thus gained in their everyday life. It will help in maintaining the curiosity and enthusiasm of students who have just started studying science. Concepts developed at this stage will be of use in their studies at an advanced level later. It will help them to develop a better outlook on life.

About the Pupil's Book:

This science series, now completely revised, has been written especially for children at the primary level. It provides information at a child's level of understanding and has a direct appeal for children who need interesting and easy to read material. Keeping in view the interests, abilities, curiosities, and needs of children, it provides stimulating learning experiences and offers enjoyable educational motivation, thus serving as a building block for further learning.

The keyword in science is curiosity. The material in the series is designed to awaken in a child the same urge that motivates in a scientist the desire to know the answer to a question. There is a wide range of topics that will interest and motivate the child.

Teachers will recognize that this series deals with those broad areas about which most children frequently express curiosity; that it provides answers to many questions they ask, and offers new and exciting information in many fields. It aims to create an awareness, as well as stimulate an interest in science.

The language is simple and easy to read and within the range of the abilities of students of each grade. Together, the text and illustrations motivate children to discuss, question, and explore.

The contents have been selected and presented in such a way as to capture and hold the interest of the students. The objective is to simplify complex ideas and present them in an interesting way. Every effort has been made to keep the language simple.

When it is necessary to use a specialized word, it has been used. When it is not self-explanatory within the context, it has been defined. Clear and well-labelled illustrations have been included, which help to identify and clarify the topics dealt with.

Good pictures and diagrams arouse and develop interest. These make lasting impressions. They help to make the text clear. They also appeal to the child's imagination, while satisfying his curiosity and often provoke a favourable reaction.

Simple practicals—interesting and stimulating presentation of factual materials—offer every chance of successful learning experiences. Knowledge of problem-solving techniques so acquired can be applied in everyday life.

It is intended, through this series, to introduce children to many of the interesting and enjoyable things in science they can learn about and do for themselves. The series also intends to develop in them a quest for knowledge and an understanding of how science is shaping the world in which they live.

The role of the teacher:

It is up to the teacher to devise ways and means of reaching out to the students, so that they have a thorough knowledge of the subject without getting bored.

The teacher must use his/her own discretion in teaching a topic in a way that he/she feels appropriate depending on the intelligence level as well as the academic standard of the class.

To the teacher:

With your assurance and guidance the child can sharpen his/her skills. Encourage the child to share his/her experiences. Try to relate pictures to real things. Do not rush the reading. Allow time to respond to questions and to discuss pictures or particular passages. It will enhance learning opportunities and will enable the child to interpret and explain things in his/her own way.

Method of teaching:

The following method can be employed in order to make the lesson interesting as well as informative.

The basic steps in teaching any science subject are:

- (i) locating the problem
- (ii) finding a solution by observation and experimentation
- (iii) evaluating the results
- (iv) making a hypothesis and trying to explain it

Preparation by the teacher:

Be well-prepared before coming to the class.

- (i) Read the text.
- (ii) Prepare a chart if necessary.
- (iii) Practise diagrams which have to be drawn on the board.
- (iv) Collect all material relevant to the topic.
- (v) Prepare short questions.
- (vi) Prepare homework, tests, and assignments.
- (vii) Prepare a practical demonstration.

The following may also be arranged from time to time.

- (i) Field trips
- (ii) Visits to the laboratory
- (iii) A show of slides or films
- (iv) Plan projects

The usual strategy which is easy as well as effective can be adopted:

- (i) Before starting a lesson, make a quick assessment of the previous knowledge of the students by asking them questions pertaining to the topic. Relate them to everyday observation of their surroundings or from things that they have seen or read about in books, magazines, or newspapers.

- (ii) Explain the lesson.
- (iii) Write difficult words and scientific terms on the board.
- (iv) Ask students to repeat them.
- (v) Help students to read text.
- (vi) Show materials, models, or charts.
- (vii) Make diagrams on the board.
- (viii) Perform an experiment if necessary.
- (ix) Ask students to draw diagrams in their science manuals.
- (x) Students should tackle objective questions independently.
- (xi) Ask questions from the exercises.
- (xii) Answers to questions to be written for homework
- (xiii) The lesson should be concluded with a review of the ideas and concepts that have been developed or with the work that has been accomplished or discussed.

Conclusion:

The teacher can continue the learning process by not only encouraging and advising the students, but also by critically evaluating their work.

It is not necessary that the lesson begins with a reading of the textbook. The lesson can begin with an interesting incident or a piece of information that will hold the interest of the students and they will want to know more about the topic.

The topic should then be explained thoroughly and to check whether the students are following or not, short questions should be asked every now and then.

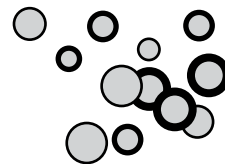
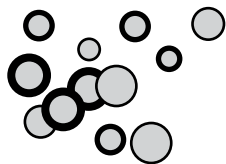
Sketches and diagrams on the board are an important aspect to the teaching of science, but too much time should not be spent on them as the students lose interest. An alternative to board drawing is a ready-made chart or one made by the teacher can be displayed in the class. The use of visual material keeps students interested as well as helps to make mental pictures which are learnt quickly and can be recalled instantly. Pupils should be encouraged to draw and can be helped by the teacher. Diagrams that are not in the text should either be copied from the board or chart, or photocopies can be made and distributed in the class.

Simple experiments can be performed in the class. If possible, children may be taken to the laboratory occasionally and be shown specimens of plants and animals, chemicals and solutions, and science apparatus, etc.

Practical work arouses interest in science. Class activities can be organized in such a way that the whole class participates either in groups or individually, depending on the type of work to be done or the amount of material available.

It is hoped that the above guidelines will enable teachers to teach science more effectively, and develop in their students an interest in the subject which can be maintained throughout their academic years, and possibly in their lives as a whole.

These guidelines can only supplement and support the professional judgement of the teacher but in no way can they serve as a substitute for it.



Living things

Teaching objectives:

- To discuss the many kinds of living things that live on the Earth
- To explain that the Earth is the only planet which has air and water
- To explain that living things need air
- To explain that living things need water
- To explain that living things need food

Teaching strategy:

Show a globe to the class. Show the continents and oceans. Explain that the Earth has water and land. Explain that there is a layer of air around the Earth. Ask: What do we breathe in? Explain the gases found in air. Explain how oxygen is used to make energy for the body. Ask the students to hold their breath. Explain the breathing mechanism and its importance. Ask: Do fish breathe? Have you seen a fish open and close its mouth in the water. Explain how a fish breathes. If possible bring to class a fish in a glass jar. Ask: How do we breathe? Explain that all land animals breathe by lungs. Ask: Do plants breathe? Explain the position and function of stomata. Explain that insects also breathe by small holes on the sides of their bodies.

Ask: Why do we drink water? Why do we water plants? What will happen to a plant if we do not water it for a few days? Explain the importance of water for all living things. Ask: What is food? Why do we eat food? Explain the importance of food for all living things. Explain how green plants make their own food in sunlight. Ask: Can animals make their own food like plants? What do animals eat? Explain the different kinds of food that animals eat. Explain the terms: herbivore, carnivore, and omnivore with examples. Ask: What happens to the food that we eat? Explain the process of digestion.

Ask: Do we use up all the food that we eat? Explain that excess food is stored. Explain that excess food is stored as a layer of fat under the skin in animals. Explain that excess food in plants is stored in seeds, roots, stems, leaves, and fruits.

Answers to Activities in Unit 1

- All living things need water and oxygen to live.
 - Oxygen helps to burn the food that is inside our bodies. This makes energy. Energy helps living things to move and work.
 - Water helps to carry food from one part of the body to another.
 - Food is burnt inside the body to make energy.
 - All living things need food to stay alive.

2. (a) Earth (b) air (c) gills (d) lungs (e) stomata
 (f) water (g) food (h) herbivores (i) carnivores (j) omnivores
3. (a) herbivore (b) carnivore (c) omnivore (d) herbivore (e) carnivore
 (f) omnivore (g) herbivore (h) carnivore (i) omnivore (j) herbivore

Additional Activity

MCQs

- (a) All living things need water, oxygen, and _____.
 food carbon dioxide nitrogen [food]
- (b) Oxygen helps to burn the food inside our bodies to make _____.
 waste substances energy food [energy]
- (c) Plants breathe through tiny holes in their leaves called _____.
 lungs gills stomata [stomata]
- (d) _____ of our bodies are made up of water.
 1/4 1/2 3/4 [3/4]
- (e) _____ can make their own food in sunlight.
 Human beings Green plants Animal [Green plants]
- (f) Animals that eat plants are called _____.
 herbivores carnivores omnivores [herbivores]
- (g) Animals that eat the meat of other animals are called _____.
 herbivores carnivores omnivores [carnivores]
- (h) In animals, food is stored as a layer of fat _____.
 in the stomach under the skin in the kidneys [under the skin]
- (i) Which one of the following animals is an omnivore?
 crow cow lion [crow]
- (j) Which one of the following is a herbivore?
 cat hen sheep [sheep]

Date:

Time: 40 mins

Unit 1 Topic: Living things	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. Living things need air	<ul style="list-style-type: none"> • to explain the importance of air, food, and water for all living things • to describe the means by which living things take in air 	Students should be able to: <ul style="list-style-type: none"> • explain the importance of air for all living things 	Pictures of living and non-living things, of plants and animals, of lungs, gills, and breathing holes of a caterpillar, magnified picture of a section of a leaf showing stomata	Reading: p 2 Fill in the table: How do the following living things breathe: fish _____ plants _____ land animals _____ insects _____ CW: Q1 (a) (b)
<p>Key words: water, oxygen, breathing, gills, lungs</p> <p>Method: Show the students pictures of some living and non-living things. Ask them to discuss the differences between them. Show the students pictures of plants and animals. Ask: Can all animals and plants do the same things? Write a list of the things that living things can do. Ask: What is one thing that all animals do? Explain that all animals breathe. Discuss the ways in which animals breathe using pictures of lungs and gills. Ask: How do insects breathe? Explain that insects and small animals take air directly into their bodies through their outer coverings. Ask: Do plants breathe? Show the students a magnified picture of the stomata on the under surface of a leaf. Explain the position and function of stomata.</p>				

Lesson plan

Date:

Time: 40 mins

Unit 1 Topic: Living things	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. Living things need water	<ul style="list-style-type: none"> to explain that all living things need water to live 	Students should be able to: <ul style="list-style-type: none"> explain the importance of water for all living things 	Chart paper, pictures from magazines showing uses of water	HW: Q1 (c) Make a chart to explain the importance of water for living things.
<p>Key words: thirsty, dry, upright</p> <p>Method: Ask: Why do we drink water? Do plants drink water? How do plants drink water? What would happen to a plant if it was not watered for a few days? Explain the importance of water for all living things.</p> <p>Explain that one of the most common substances, which makes up about two-thirds of the weight of plants and animals, is water. Water makes blood liquid. It forms most of our sweat and it carries away waste products from the body. In both plants and animals, it helps to transport food from one part to another, and it stops the body from becoming dry. A plant wilts or dries up if it is not watered.</p> <p>Ask: What does a plant need in order to make its food? Revise the process of photosynthesis with the help of a chart or drawings on the board. Explain how the roots absorb water through the root hairs. Also explain the evaporation of water from the leaves.</p>				

Date:

Time: 40 mins

Unit 1 Topic: Living things	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
3. Living things need food	<ul style="list-style-type: none"> • to explain that all living things need food • to examine the eating habits of animals • to explain how living things use food 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • describe the importance of food for all living things • explain that plants can make their own food, that animals obtain food in different ways • explain how food is used by the body 	<p>Pictures of different kinds of food, pictures of herbivores, carnivores, and omnivores, diagram of photosynthesis in a green plant, a chart of the human digestive system, samples of seeds, fruits, potatoes, carrots, sugar cane</p>	<p>CW: Q2, Q3</p> <p>Collect pictures of herbivores, carnivores, and omnivores and paste them in your science journals.</p>
<p>Key words: food, energy, herbivore, carnivore, omnivore, fat</p> <p>Method: Ask: What is food? Why do we eat food? Explain the importance of food for all living things.</p> <p>Ask: How do plants eat? Discuss the process of photosynthesis and explain it by the help of a chart or a diagram on the board.</p> <p>Ask: Can animals make their own food in the same way as plants? What do animals eat? Explain the different kinds of food that animals eat. Also discuss what herbivores, carnivores, and omnivores eat.</p> <p>Ask: What kind of food do we eat? What are we? Ask: What happens to the food that we eat? Explain the process of digestion with the help of a chart. Ask: Does our body use up all the food that we eat? What happens to the excess food that we eat? Explain that excess food is stored in the body in different places. In animals most of the food is stored as a layer of fat under the skin. In plants excess food is stored in seeds, roots, stems, leaves, and fruits.</p>				

Name: _____

Date: _____

1. Fill in the blanks:

- (a) Living things need _____, _____, and _____ to live.
- (b) _____ is a gas used by the body to produce energy.
- (c) _____ helps to carry food from one part of the body to the other.
- (d) Plants use air, water, and _____ to make their food.
- (e) Food that is taken into the body is broken into _____ particles.
- (f) Animals store food in their bodies as a layer of _____ under the skin.
- (g) Plants store food in their stems, roots, _____ and _____.

2. Match the living thing to its breathing organ:

Living thing

fish

insect

cat

plant

Breathing organ

lungs

stomata

small holes on the sides of the body

gills



Types of living things: Animals

Teaching objectives:

To explain how living things can be classified

To discuss the different classes of animals

To explain that animals can be classified on the basis of having or not having a backbone

To explain the classes of invertebrates

To explain the characteristics of different classes of animals

Teaching strategy:

Show the students a chart of different kinds of animals. Ask them to name the animals. Ask them to divide them into groups of small and big animals. Ask them to pick out animals with four legs, animals with tails, etc. Explain that animals look different. Explain that plants are also of many different kinds.

Explain that living things can be classified into two large groups, i.e. plant group and animal group. Give a brief explanation of the difference between a plant and an animal. Explain that animals can be put into smaller classes.

Ask: Can you name some animals that look like the common cat? Explain that animals can be put into one class if they look alike. Ask the students to feel their backbone. Ask: Which other animal has a backbone? Does a butterfly or an earthworm have a backbone? Explain that animals which have a backbone are put into one group. Explain the importance of the backbone to an animal.

Ask: Where does a snail live? Where does a starfish live? Explain that most invertebrates live in water. Explain that they have soft bodies, and they do not have a bony skeleton. Explain the characteristics of invertebrate classes with examples. Show the students pictures of invertebrate animals. Draw a butterfly on the board. Label its parts. Count the number of legs and wings. Show the eyes and feelers. Explain the parts of the body. Explain the life cycle of a butterfly and a cockroach with the help of a chart. Ask: Where does a fish live? Draw it on the board and label it. Explain how a fish breathes and swims in water. Explain what a fish eats. Ask: Does a fish have babies? Explain how a fish reproduces. Ask: Where does a frog live? Explain what an amphibian is. Explain the characteristics of an amphibian with the help of a chart. Ask: What does a frog eat? What is a baby frog called? Explain the life cycle of a frog. Ask: Where does a snake live? Where does a crocodile and a tortoise live? Explain the characteristics of reptiles with the help of charts.

Ask: Where do birds live? What is the body of a bird covered with? Does a bird have teeth? Can all birds fly? Explain the characteristics of birds with the help of charts. Ask: What does a parrot eat? What does an owl eat? Explain how birds use their teeth and claws. Ask: What is the skin of a rabbit covered with? What is your skin covered with? How do you breathe? What do you eat? Explain characteristics of

mammals with the help of charts. Does a cat lay eggs? Explain that mammals give birth to babies. Ask: What does a baby drink? Explain that mammals give milk to their babies. Explain that a whale is the biggest mammal, and the elephant is the largest land mammal.

Answers to Activities in Unit 2

1. (a) two (b) classes (c) bones (d) back (e) soft
 (f) spines (g) eight, no (h) six, four (i) ten, no (j) five
2. (a) spines (b) a shell (c) soft (d) thorax
 (e) gills (f) on land and in water (g) dry
4. a. starfish b. spider c. fish d. frog
 e. snake f. bird g. elephant

Additional Activity

MCQs

- (a) All animals can be put into one group called the _____.
 living group animal group plant group [animal group]
- (b) Animals which have a skeleton of bones can be divided into _____ classes.
 1 3 5 [5]
- (c) A starfish moves about in the water with its _____.
 legs tube feet fins [tube feet]
- (d) A snail has a soft body that is protected by _____.
 spines bones a shell [a shell]
- (e) Animals, which have a soft body and no legs, are called _____.
 worms crabs oysters [worms]
- (f) A butterfly has _____ legs and _____ wings.
 2, 4 6, 4 4, 6 [6, 4]
- (g) The middle part of an insect's body is called _____.
 head thorax abdomen [thorax]
- (h) Fish breathe in water by their _____.
 gills lungs skin [gills]
- (i) Birds have no _____.
 beak claws teeth [teeth]
- (j) An _____ is an animal that spends part of its life in water and part of it on land.
 fish amphibian reptile [amphibian]

Date:

Time: 40 mins

Unit 2 Topic: Types of living things: Animals	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. The animal group	<ul style="list-style-type: none"> to explain that living things can be classified into groups to explain how to group or classify animals with similar characteristics 	<p>Students should be able to:</p> <ul style="list-style-type: none"> explain that one way to classify living things is to put them into groups on the basis of their characteristics identify and group animals 	<p>Pictures of a variety of animals in a zoo or in their natural environment; some live animals such as a rabbit, a parrot, a fish in a bowl, a few insects</p>	<p>Collect pictures of different kinds of animals and sort them into groups in different ways: large/small water/land fur/feathers meat eaters/plant eaters, etc.</p>
<p>Key words: group, class</p> <p>Method: Show the students the pictures of animals. Ask them to name the animals.</p> <p>Ask them to divide the animals into groups of small and large animals.</p> <p>Ask them to identify animals with four legs, two legs, many legs, animals with tails, etc. Explain that animals look different.</p> <p>Help them to observe at least two or three live animals. Ask them to compare the animals by asking the following kinds of questions: How are the animals different? How are they alike? What is the largest animal you can think of? What is the smallest animal you can think of?</p> <p>Explain that animals can be divided into smaller groups called <i>classes</i>. Show the students pictures of animals of the cat family. Explain that animals that look alike can be put into the same class. In the same way, ask them to name animals of the dog family.</p>				

Date:

Time: 40 mins

Unit 2 Topic: Types of living things: Animals	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. Animals with backbones	<ul style="list-style-type: none"> to explain that animals can be classified on the basis of having, or not having, a backbone 	Students should be able to: <ul style="list-style-type: none"> identify and classify animals on the basis of the presence or absence of a backbone 	Pictures of animals, live specimens, preserved specimens of animals, mounted animals; wallcharts showing body parts of animals	Reading : p 9, 10 CW: Q1 Collect pictures of different kinds of animals. Divide them into groups: animals with backbones, animals without backbones.
<p>Key words: skeleton, bone, support, backbone</p> <p>Method: Show the students pictures of skeletons of different animals. Explain that there are many kinds of animals. Animals can be grouped into two large groups: those that have a backbone and those that do not.</p> <p>Ask the students what kind of animal they think they are, one with a backbone or without?</p> <p>Show the students a model of a human skeleton and ask: What do our bones do for our body?</p> <p>Explain that bones provide a frame for our body to rest on, and they protect our lungs, heart, brain and other important organs.</p> <p>Ask: Do all animals have backbones? Explain that some animals do not have backbones. They have hard shells or many shell-like pieces to protect their bodies. Show the students pictures of a crab, a lobster, or some other invertebrate. Explain that animals that have shells belong to the group of animals without backbones. The hard covering protects the soft parts of the animal.</p>				

Date:

Time: 40 mins

Unit 2 Topic: Types of living things: Animals	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
3. Animals without backbones	<ul style="list-style-type: none"> to describe the classes of animals without a backbone 	<p>Students should be able to:</p> <ul style="list-style-type: none"> identify invertebrates 	<p>Pictures of invertebrate animals such as insects, starfish, snail, worm, butterfly, spider, crab, fly, etc. A chart showing the life cycles of a cockroach and a butterfly</p>	<p>Collect pictures of invertebrate animals and paste them in your science journal. Draw an insect and label it. Animal Feature _____ starfish _____ snail _____ worm _____ butterfly _____ crab _____</p>

Key words: spiny skin, tube foot, shell, joint, wing, head, thorax, abdomen

Method: Ask the students to feel their backbone. **Ask:** Which animals have a backbone? Does a butterfly or an earthworm have a backbone? Explain that animals that have a backbone are put into one group. Revise the importance of a backbone for an animal.

Ask: Where does a snail live? Where does a starfish live? Explain that many invertebrates live in water, on land, and in the soil. They have soft bodies, and they do not have a bony skeleton.

Explain, with examples, the characteristics of animals without backbones. Show the students pictures of invertebrates.

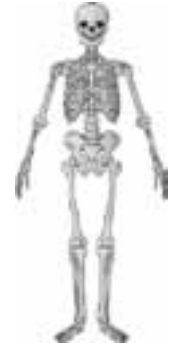
Draw a butterfly on the board. Label its parts. Ask the students to count the number of legs and wings. Indicate the eyes and feelers. Explain the parts of its body.

Discuss the life cycles of a butterfly and a cockroach with the help of a chart.

Name: _____

Date: _____

1. Write the names of the animals to which the skeletons belong:



2. How many legs does each of the following animals have?

Animal	Number of legs
fish	
snake	
frog	
dog	
bird	
worm	
butterfly	
crab	
spider	
kangaroo	



Types of living things: Plants

Teaching objectives:

- To discuss the many kinds of plants on the Earth
- To explain that plants grow in different habitats
- To explain that green plants can make their own food
- To explain that green plants need sunlight, water, air, and chlorophyll to make food
- To explain that plants make food in their leaves
- To explain that some plants do not make seeds
- To discuss that some plants grow from seeds
- To describe the structure of a flower
- To describe the functions of each part of a flower
- To explain how a flower makes seeds and fruits
- To discuss the different kinds of fruits
- To explain that some plants are not green
- To explain how non-green plants get food
- To explain that some plants make cones
- To discuss the kind of cones
- To explain how seeds grow inside the cones

Teaching strategy:

Show the students a chart of different kinds of flowers. Show the students a specimen of a flowering plant. Explain the functions of each part. Ask: Where do plants grow? Can plants grow in water? Can plants grow in a desert? Do plants grow on mountains? Explain the various habitats of plants with examples.

Ask: What is the colour of the leaves of a plant? Why are most leaves green? Explain the presence of chlorophyll. Explain how plants can make their own food. Explain what a plant needs to make food. Ask: What will happen to a plant if you do not water it? What will happen to a plant if you put it in a dark cupboard. Explain how sunlight, water, and air are necessary for photosynthesis.

Ask: Do all plants have flowers? Do all flowers make seeds and fruits? Explain that ferns do not have flowers and fruits. They have sporangia on their leaves which produce spores. Explain that spores grow into new fern plants. Ask the students to name some plants that make seeds. Ask: Where are seeds made in a plant? Are tomato and green chilly, fruits? Explain that a fruit is a part of a plant that has seeds in it.

Show the students some flowers. Take the flower apart, and explain the name and function of each part. Ask: Why do petals have bright colours? Why do flowers have a scent? Explain the importance of

insects for pollination. Explain how fertilization takes place and how seeds and fruits are formed. Ask: What kind of a fruit is a tomato? What kind of a fruit is a bean pod? Explain types of fruits and their importance.

Ask: Are all plants green? Show them a picture of a mushroom, a fungus, and a cuscuta plant. Ask: Can a non-green plant make its own food? How can a non-green plant get its food? Explain how some plants get food from green plants, and how some plants get food from the soil. Draw a mushroom on the board and label it. Explain where it produces spores. Show the students a pine cone. Ask: Have you ever seen this? Where do such trees grow? Explain that pine trees grow in hilly areas. They do not have flowers. They make two kinds of cones. The seed cone makes seeds, and the pollen cone makes pollen. Explain that wind pollination takes place, and seeds fall out and grow into new plants.

Answers to Activities in Unit 3

- Plants grow in different places. Some in wet, shady places and others in hot and dry places.
 - Plants need air, water, and chlorophyll to make their food.
 - Spores grow and make new plants.
 - Seeds are made in flowers in seed-bearing plants.
 - Mushrooms get food from the soil.
 - The two kind of cones are called seed cones and pollen cones.
- bee, pollen, carpel
 - tube, ovule, seed, fruit
- Refer to Pupil's Book page 19.
- Refer to Pupil's Book page 20.
- soft and fleshy (b) soft and fleshy (c) dry
 - (d) dry (e) dry (f) soft and fleshy
 - (g) dry (h) soft and fleshy

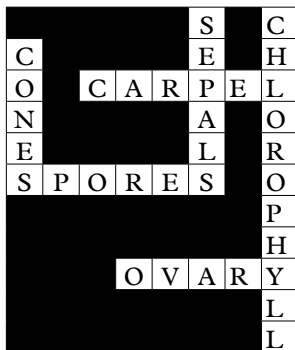
Additional Activity

MCQs

- (a) Plants like the cactus grow in _____.
 wet shady places hot and dry places water [hot and dry places]
- (b) Plants need _____ to make food.
 air and water air, water, and chlorophyll water and chlorophyll
 [air, water, and chlorophyll]
- (c) Plants that do not have flowers cannot make _____.
 stems and roots fruits and seeds leaves and buds [fruits and seeds]

- (d) Ferns and mosses make _____ that can grow into new plants.
 seeds spores pollen [spores]
- (e) The small green leaves that cover the bud are called _____.
 sepals petals carpels [sepals]
- (f) The fruit is made in the lower part of the carpel called the _____.
 stigma style ovary [ovary]
- (g) Plants that are not green cannot make _____.
 flowers food fruits [food]
- (h) Some trees do not have flowers and fruits but they make seeds inside _____.
 carpels cones pods [cones]
- (i) Mushrooms get their food from _____ in the soil.
 water animals humus [humus]
- (j) Plants that grow from seeds are called _____.
 Seedless plants cone-bearing plants seed-bearing plants
[seed-bearing plants]

Answer to crossword puzzle on page 24



Date:

Time: 40 mins

Unit 3 Topic: Types of living things: Plants	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. The plant group	<ul style="list-style-type: none"> • to explain that there are many different kinds of plants on the Earth • to discuss some of the different habitats of plants • to explain that green plants make their own food 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • explain that there are many different kinds of plants and that plants live in different kinds of habitats • explain how green plants make their food 	Wall charts of different kinds of plants in their habitats; a green pot-plant	<p>Paste pictures of different kinds of plants in your science journal. Find out their names and write them.</p> <p>CW: Q1 (a) (b)</p>
<p>Key words: food, air, water, chlorophyll</p> <p>Method: Show the students a chart of different kinds of plants. Ask: Where do plants grow? Can plants grow in water? In a desert? On a mountain? Explain the various habitats where plants grow.</p> <p>Ask: What colour are the leaves of a plant? Why are most leaves green? Explain that the green colour of plants is due to a green substance called chlorophyll. Revise the process of photosynthesis in a green plant with the help of a wallchart and drawings on the board.</p> <p>Ask: What will happen to a plant if you do not water it? What will happen to a plant if you put it in a dark cupboard? Explain the importance of sunlight, water, and air for a plant to make its food.</p>				

Date:

Time: 40 mins

Unit 3 Topic: Types of living things: Plants	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW
2. Kinds of plants	<ul style="list-style-type: none"> • to describe the different kinds of plants • to explain that not all plants produce fruits or seeds • to explain that some plants produce seeds inside the flowers 	<ul style="list-style-type: none"> • explain that some plants do not make seeds; they reproduce by producing spores which grow to make new plants • explain that plants that make seeds inside flowers are called <i>seed-bearing</i> plants 	A fern, moss growing on a brick or damp rock, a shoe flower (hibiscus), magnifying glass	Draw a fern. Draw a flowering plant. CW: Q1 (c) (d)
<p>Key words: seed, spore, seed-bearing plant</p> <p>Method: Ask: Do all plants have flowers? Do all flowers make seeds and fruits? Explain that plants such as ferns do not have flowers and fruits. They have small brown spots on their leaves which are formed by a powder made up of tiny spores. Show the students a fern plant with spores in sporangia on the underside of the leaves. Explain that, like seeds, the spores fall, and if they fall on wet soil, they grow into new plants. Show the students some moss growing on a damp brick. Explain that this green mass growing on the brick is a green plant that also produces spores. Help the students to examine the moss through a magnifying glass.</p> <p>Show the students some flowers. Break open the ovary to show them the ovules inside. Explain that the small ovules that they can see inside the ovary will grow into seeds and the wall of the ovary is going to become the fruit. Draw a longitudinal section of a flower on the board and explain how the ovary turns into the fruit, and the ovules turn into seeds.</p>				

Date:

Time: 40 mins

Unit 3 Topic: Types of living things: Plants	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
3. Plants that are not green	<ul style="list-style-type: none"> • to explain that not all plants are green • to explain why non-green plants cannot make their own food • to describe how non-green plants obtain their food 	Students should be able to: <ul style="list-style-type: none"> • explain that non-green plants cannot make their own food by photosynthesis • describe the structure of a mushroom • explain how non-green plants obtain their food 	Pictures of a mushroom, and a cuscuta plant	Make and paint a clay model of a mushroom. CW: Q3 HW: Q1 (e)
<p>Key words: humus, soil, cap, stipe, spore</p> <p>Method: Ask: Are all plants green? Show the students pictures of a mushroom and a cuscuta (a yellow climber). Ask: Can a non-green plant make its own food by photosynthesis? Briefly revise the process of photosynthesis and the conditions necessary for it to take place. Ask: How can a plant that does not have chlorophyll get its food? Explain the ways by which such plants obtain their food either from green plants or from the soil. Draw a mushroom on the board and label it. Point out the part that produces the spores.</p>				

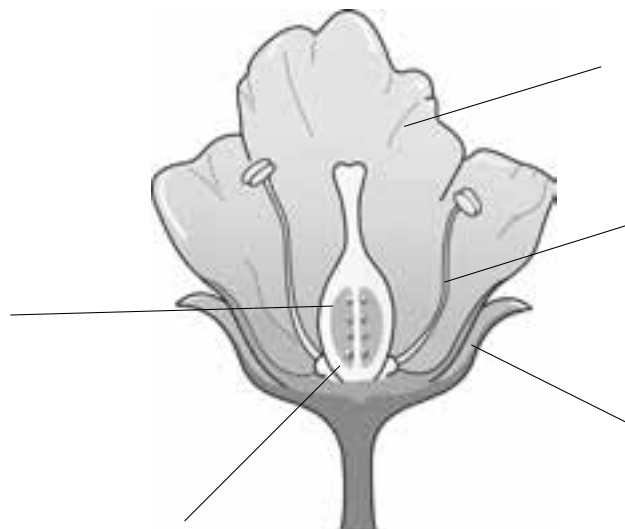
Name: _____

Date: _____

1. Match the kind of plant to its description.

<u>Description</u>	<u>Kind of plant</u>
<p>Has roots, stems, leaves. Does not produce fruits or seeds. Produces spores which grow into new plants.</p>	flowering plant
<p>Is not green. Cannot make its own food. Produces spores which grow into new plants.</p>	pine tree
<p>Tree that does not have flowers or fruits. Produces seeds inside cones.</p>	moss and fern
<p>Plant that has flowers. It produces seeds inside fruits.</p>	mushroom

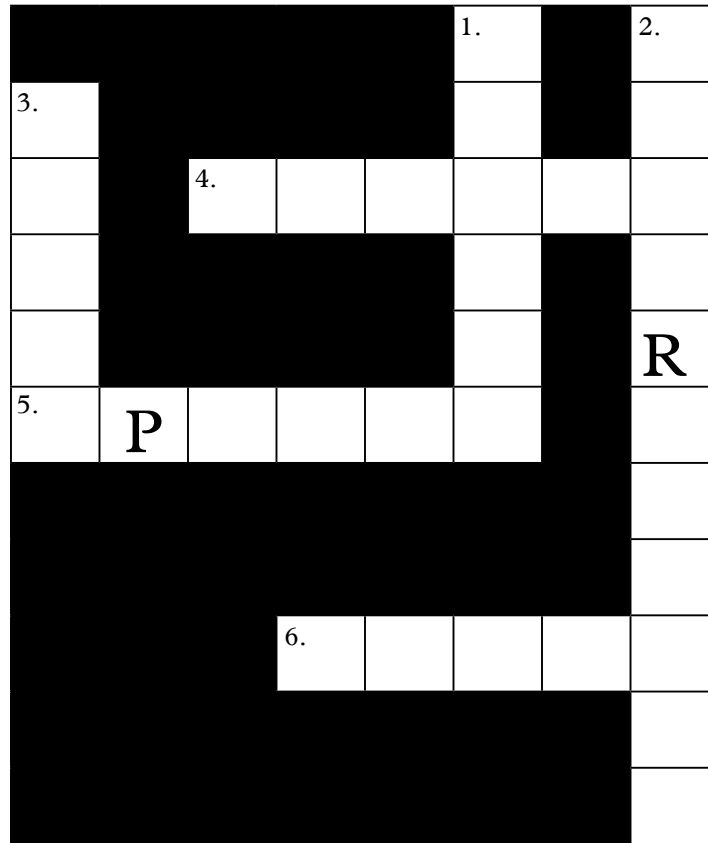
2. Label the following diagram:



Name: _____

Date: _____

Crossword puzzle

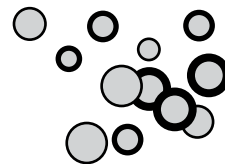
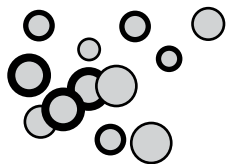


Across

- 4. The part which contains ovules which grow into seeds
- 5. This brown powder falls on wet soil and makes new plants
- 6. The lower part of the carpel

Down

- 1. Small green leaves that cover the bud
- 2. The green substance in plants
- 3. A pine tree has these



Matter

Teaching objectives:

- To explain that everything found on Earth is matter
- To explain that matter takes up space
- To explain that matter exists in three states
- To discuss the properties of solids, liquids, and gases
- To explain that matter is made up of molecules
- To define a molecule
- To discuss that different things are made of different kinds of molecules
- To explain that matter can change its state by heating and cooling
- To explain that the molecules of a gas are far apart
- To explain that the movement of molecules can change the state of matter

Teaching strategy:

Show the students some solids and liquids. Ask: What are these things made of? Explain that everything around us is matter. Put some marbles in a box, some oil in a jug, and fill a balloon with air. Explain that matter takes up space. Show the students a marble, an egg, a wooden block. Explain that every solid has a definite shape.

Knock the marble on the table. Ask: Is it hard or soft? Explain that a solid is hard. Squeeze the marble in your fist. Ask: Does the marble change its shape? Explain the properties of solids. Show the students a glass of water or milk. Shake it. Pour the water into an empty jug. Ask: Is the liquid hard? Can it flow? Does it have a fixed shape? Explain the properties of a liquid.

Ask the students to blow on their hands. Untie the string of an inflated balloon, to let the air escape. Ask: Did you see anything? Did you feel anything? Did you hear anything? Explain that air is a gas. We cannot see it, but we can feel and hear it. Explain that a gas is also matter but it has no shape. It can blow from one place to another.

Put a bottle of milk, orange juice, and a cola on the desk. Blindfold three students and ask them to taste one each, and tell the class what they have tasted. Explain that we can know about matter with our senses. We can see colours, hear sounds, taste, and smell things. We can also feel things.

Crush a piece of chalk in a tissue paper. Explain that matter is made of tiny particles smaller than the particles of chalk. These tiny particles are called molecules. Explain that all matter is made of molecules. Ask: Can you taste salt and sugar mixed in water? Explain that molecules of different things are different. You can tell the smell of a perfume or food, because their molecules mix with the molecules of air.

Put a glass full of ice cubes on a sunny window. Ask: What will happen to the cubes after sometime? Explain that matter can change its form. Ask: Why did the ice melt? Explain that heat can change the state of matter. Light a candle. Explain that wax melts due to heat. Ask: What happens when we put water in an ice tray in the freezer? Explain that a liquid can change into a solid by cooling. Heat some water in a beaker. Show the students steam coming out. Ask: What is happening to the liquid? What is steam? Hold a cold plate on top of the beaker. Show the students the water drops that have formed on it. Ask: What has happened? Explain that steam changes to water on cooling.

Put some beads in a tin and shake it. Ask: What is happening to the beads? What would happen if the tin was bigger? Explain the movements of molecules. Explain how molecules slide over each other. Also explain how molecules bang into each other and push each other apart. Explain how this causes a change of shape and a change of state.

Answers to Activities in Unit 4

- (a) Matter takes up space and has weight.
 (b) Matter has three forms solid, liquid, and gas.
 (c) We learn about matter with our senses.
 (d) Heat can change a solid to a liquid.
 (e) The molecules in a solid are packed very close together.
 (f) The molecules in a gas are very far from each other.
- (a) yes (b) no (c) no (d) yes
 (e) no (f) yes (g) no
- (a) solid (b) gas (c) solid (d) liquid
 (e) solid (f) liquid (g) gas (h) solid
 (i) liquid (j) gas

Additional Activity

MCQs

- (a) All things around us are made of _____.
 wood metal matter [matter]
- (b) There are _____ states of matter.
 1 2 3 [3]
- (c) A _____ has a definite shape and it is hard.
 solid liquid gas [solid]
- (d) A _____ can flow and can change its shape.
 solid liquid gas [liquid]
- (e) A _____ has no shape and it can move from one place to another.
 solid liquid gas [gas]
- (f) The smallest part of matter is called _____.
 an atom a molecule an element [an atom]

- (g) A solid can be changed into a liquid by _____.

cooling	heating	freezing	[heating]
---------	---------	----------	-----------
- (h) Water can be changed into steam by _____.

freezing	heating	cooling	[heating]
----------	---------	---------	-----------
- (i) The molecules in a solid are _____.

very far apart	very close together	not very close to each other	[very close together]
----------------	---------------------	------------------------------	-----------------------
- (j) A gas has no shape because its molecules _____.

can slide over each other	very close together	can move about freely	[can move about freely]
---------------------------	---------------------	-----------------------	-------------------------

Date:

Time: 40 mins

Unit 4 Topic: Matter	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. What is matter?	<ul style="list-style-type: none"> • to explain that everything on Earth is matter • to explain that matter takes up space and has weight • to explain the atomic structure of matter 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • describe matter • explain that matter has weight and occupies space • explain that matter is made up of tiny particles called atoms and that atoms join up to form molecules 	<p>Different samples of solids and liquids; a balloon filled with air, some marbles, a tin can, weighing scale, a piece of chalk, milk, cola, orange juice, plastic cups, drinking straws</p>	<p>Reading : p 25, 26 CW: Q1 (a) Write the names of two solids, two liquids, and two gases. What is matter made up of?</p>
<p>Key words: matter, weight, space, atom, molecule</p> <p>Method: Show the students a variety of solids and liquids. Ask: What are these things made up of?</p> <p>Explain that everything around us is matter. Put some marbles in a tin, some water in a bottle, and fill a balloon with air. Explain that matter takes up space. Place the tin on a weighing scale. Explain that matter has weight. Ask the students to blow on their hands. Ask: What did you feel? Untie the string of an inflated balloon to let the air escape. Ask: Did you see anything? Did you feel or hear anything? Explain that air is also matter. We cannot see it but we can feel and hear it.</p> <p>Put one cup of milk, one of orange juice, and one of cola on the table. Blindfold three students, give them each a straw, and ask them to taste each one and tell the class what they have tasted. Explain that we can learn about matter through our senses. We can see colours, hear sounds, taste, and smell things. We can also feel different things.</p> <p>Ask: What is matter made up of? Crush a piece of chalk in a sheet of tissue paper and show the powder to the students. Explain that matter is made up of very tiny particles, smaller than the particles of chalk. These tiny particles are called atoms. When two or more particles join up with each other, they form a bigger particle called a molecule. Ask: Are the atoms and molecules of different things alike? Explain that different things are made up of different molecules.</p> <p>Ask: Why does tea taste sweet when we add sugar to it? Explain that molecules of substances mix with each other. That is why we can smell smoke in the air when something burns.</p>				

Date:

Time: 40 mins

Unit 4 Topic: Matter	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. States of matter Changes of state	<ul style="list-style-type: none"> • to show that matter exists in three states • to discuss the properties of solids, liquids, and gases • to describe how the state of matter can change by heating or cooling 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • explain that matter can exist in three states and that matter can change its state when it is cooled or heated 	A tumbler, ice cubes, a candle, a match box, a plate, a beaker, a burner, a tripod stand	CW: Q1 (b) (d) HW: Q2
<p>Key words: solid, liquid, gas, state of matter, melt, freeze, water vapour</p> <p>Method: Put a glass full of ice cubes on a sunny window sill. Ask: What do you think will happen to the ice cubes after some time?</p> <p>Explain that matter can change its form or state. Ask: Why did the ice melt? Explain that heat can bring about a change in the state of matter. Light a candle. Let the students observe it for a while. Ask: What is happening to the candle? Explain that wax melts when it is heated.</p> <p>Ask: How do we make ice at home? What happens when we put water in the ice tray and put it in the freezer? Explain that a liquid can change into a solid by cooling. Heat some water in a beaker. Show the students the steam. Ask: What is happening to the water in the beaker? How is steam formed? Hold a cold plate above the beaker. Show the students the water droplets that form on it. Ask: What has happened to the steam? Explain that on cooling, steam changes into liquid water.</p>				

Lesson plan

Date:

Time: 40 mins

Unit 4 Topic: Matter	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
3. Molecules and movement	<ul style="list-style-type: none"> • to explain that molecules are always in motion • to explain that the distances between the molecules of a solid, a liquid, and a gas are different • to explain how the movement of molecules can bring about a change in the state of matter 	Students should be able to: <ul style="list-style-type: none"> • explain that molecules are constantly in motion • explain that the state of matter is determined by the distance between the molecules • explain that the speed at which the molecules of a material move brings about the change of state 	A chart showing molecules in a solid, a liquid, and a gas	Reading: p 29 CW: Q3 Draw the arrangement of molecules in a solid, a liquid, a gas.
<p>Key words: space, slide, arrange, shape</p> <p>Method: Put some beads in a tin can and shake it. Ask: What is happening to the beads? What would happen if the tin can was bigger? Explain the movement of molecules in solids, liquids, and gases. Explain that molecules slide over each other. Also explain how molecules bang into each other and push each other apart. Explain how this causes a change of shape and a change of state in matter.</p>				

Name: _____

Date: _____

1. Place the material named below under the correct heading.

Solid	Liquid	Gas

oil	wood	air	carbon dioxide	rock
water	oxygen	petrol	smoke	

2. Match the description to the correct state of matter:

<u>Description</u>	<u>State of matter</u>
It can flow. It changes shape easily. Its volume can be changed.	Solid
It flows. It changes shape easily. Its volume cannot be changed.	Liquid
It does not flow. Its shape does not change. Its volume cannot be changed.	Gas

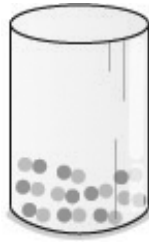
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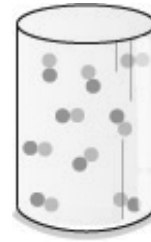
1.



A



B



C

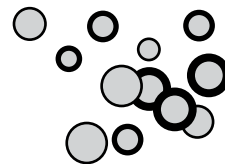
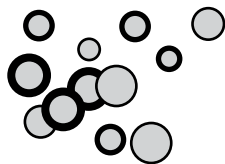
- a. Which diagram represents a solid? _____
- b. Which diagram represents a liquid? _____
- c. Which diagram represents a gas? _____
- d. In which state are the particles closest together? _____
- e. In which state are the particles farthest apart? _____
- f. In which state are the particles moving the fastest? _____
- g. What happens to the particles when a solid is heated? _____
- h. What happens to the particles when a liquid is cooled? _____

2. Word search

Fill in the blanks with suitable words. Then find and circle those words in the grid.

- a. Two or more atoms join up to form this. _____
- b. When water is boiled it changes to this. _____
- c. Everything on Earth is made of this. _____
- d. It takes up the shape of the container it is poured into. _____
- e. It cannot change its shape or size. _____
- f. Its molecules are very far away from each other. _____

M	O	L	E	C	U	L	E
I	H	K	R	E	P	I	M
X	S	O	L	I	D	Q	A
V	T	R	A	Y	M	U	T
O	E	G	A	S	B	I	T
J	A	C	P	W	T	D	E
Q	M	I	N	L	Z	O	R



Air

Teaching objectives:

- To explain that air covers the Earth like a thick blanket
- To explain that the atmosphere has many gases and is 1000 kilometres deep
- To discuss the importance of oxygen and carbon dioxide
- To explain that plants give out oxygen
- To explain that carbon dioxide is produced by breathing and burning
- To discuss the condition of the air in different seasons
- To explain that air has weight
- To explain that air exerts air pressure
- To explain that air pressure keeps changing
- To explain that changes in air pressure affect the weather
- To explain that winds are caused by changes in air pressure
- To discuss the instrument to measure air pressure
- To explain how to find the direction of wind and how to measure the speed of wind

Teaching strategy:

Draw a globe on the board. Outline the atmosphere around it. Explain the layer of the atmosphere around the Earth. Explain its importance for living things. Ask: Can you name some gases in the atmosphere? Which gas do we breathe in? Which gas do we breathe out? Explain gaseous exchange in plants and animals. Also explain how burning things use oxygen and give out carbon dioxide.

Light a candle and cover it with an empty glass. Explain what has happened. Ask: Why did the candle go out? Explain the importance of oxygen in burning and breathing.

Ask: What is the day like today? Is it hot or cold? Why is it hot or cold? Explain the temperature of air according to the season. Ask: Do wet clothes dry faster on a sunny day or a rainy day? Explain the reason for it.

Perform the balloon experiment. Ask: Which was heavier? Explain that air has weight and it presses on all things. Explain that we do not feel the weight of air because we are used to it. Ask: Why do our ears feel closed up when we go uphill in a car? Explain changes in the weight of air as we go uphill. Explain that the air has 'pressure'.

Explain that hot air is lighter and rises, and cold air rushes to take its place. Ask: What causes wind to blow? Explain that moving air causes winds, breezes, storms, and hurricanes. Make a simple barometer as given in the book. Explain that changes in air pressure can be measured by a barometer. Also explain how a wind vane helps us to know the direction of the wind. Help students to make a wind vane out of cardboard. Explain that an anemometer is used to find the speed of wind.

Answers to Activities in Unit 5

1. (a) The atmosphere is a huge layer of air all around the Earth. It is made up of many gases, dust particles, and germs.
 (b) Green plants add oxygen to the atmosphere.
 (c) Carbon dioxide is added to the air by breathing and burning.
 (d) The way air presses down on all things is called air pressure.
 (e) Experiment on page 33.
2. (a) atmosphere (b) 1000
 (c) carbon dioxide (d) warm
 (e) water vapour (f) cold
 (g) wind (h) breeze
 (i) gale (j) hurricane

Additional Activity

MCQs

- a) The layer of air around the Earth is called _____.
 biosphere atmosphere hemisphere [atmosphere]
- b) The atmosphere is _____ km deep.
 1000 2000 3000 [1000]
- c) _____ gas in the atmosphere is used by living things for breathing and burning.
 Oxygen Carbon dioxide Nitrogen [Oxygen]
- d) All living things give out _____ gas when they breathe out.
 oxygen carbon dioxide nitrogen [carbon dioxide]
- e) On a bright sunny day the air is _____.
 cold warm dry [warm]
- f) The atmosphere is made up of the following gases _____.
 oxygen, carbon dioxide, nitrogen
 oxygen and nitrogen
 oxygen and carbon dioxide [oxygen, carbon dioxide, nitrogen]
- g) The way air presses down on all things is called _____.
 water pressure mercury pressure air pressure [air pressure]
- h) Warm air is _____ cold air.
 lighter than heavier than as heavy or as light as [lighter than]
- i) The strongest wind that blows is called a _____.
 breeze gale hurricane [hurricane]
- j) We can measure changes in air pressure by an instrument called a _____.
 thermometer anemometer barometer [barometer]

Date:

Time: 40 mins

Unit 5 Topic: Air	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. The atmosphere	<ul style="list-style-type: none"> • to explain that there is a layer of air that surrounds the Earth • to describe the composition of the atmosphere • to explain the importance of the gases found in the atmosphere 	Students should be able to: <ul style="list-style-type: none"> • explain what the atmosphere is and that it is made up of many gases • describe the properties of the main gases in the atmosphere • explain the importance of the atmosphere for life on Earth 	A pie chart of the gases in the atmosphere, a green pot-plant, a candle, a match box, an empty glass	Reading: p 32 HW: Q1 (b) (c) CW: Q3
<p>Key words: atmosphere, germ, dust particle, oxygen, carbon dioxide, nitrogen, water vapour</p> <p>Method: Draw a globe on the board. Draw an outline of the atmosphere around it. Explain that there is a layer of air around the Earth which is called the atmosphere. It is more than 1000 km deep. Explain the importance of the atmosphere for all living things. Ask: Can you name some gases in the atmosphere? Which gas do we breathe in? Which gas do we breathe out? Which gas do plants use for making their food? Explain how gaseous exchange takes place in plants and animals. Also explain that oxygen is used for burning things and carbon dioxide is produced by burning. Light a candle and cover it with an empty glass. Ask: What has happened? Why do you think the candle went out? Explain the importance of oxygen for breathing and burning. Ask: What is the weather like today? Is it hot or cold? Ask: Do wet clothes dry faster on a sunny day or on a cloudy or rainy day? Explain that when the air is warm, the air is dry so clothes dry faster. On a rainy day there is already a lot of water vapour in the air so clothes do not dry quickly.</p>				

Lesson plan

Date:

Time: 40 mins

Unit 5 Topic: Air	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. Air pressure	<ul style="list-style-type: none"> • to explain that air exerts pressure • to demonstrate that air has weight 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • explain that air has weight and that it exerts pressure 	two balloons—one deflated, the other inflated; a long, straight stick, some thread	<p>Reading: p 32, 33</p> <p>Draw the balloon experiment to prove that air has weight.</p> <p>HW: Q1 (d)</p>
<p>Key words: air pressure, weight</p> <p>Method: Ask: Why do you feel a blast of wind when you bang a door? Why do your clothes flap around in the wind? Explain that the way air presses down on everything is called air pressure. Ask: Why do our ears feel blocked when we go uphill in a car or a bus? Explain that as we climb up, the air pressure starts to lessen and we can feel it. Perform the balloon experiment. Ask: What does this experiment tell you about air? Explain that it tells us that air has weight. We do not feel the weight of the air because we are used to it.</p>				

Date:

Time: 40 mins

Unit 5 Topic: Air	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
<p>3. Air pressure and weather</p>	<ul style="list-style-type: none"> • to explain that air pressure keeps changing, and that changes in pressure cause winds and rain • to describe how speed and direction of wind can be measured • to explain how air pressure can be measured 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • explain that air pressure changes and that these changes affect the weather • identify the instruments by which air pressure and the speed and direction of wind can be measured 	<p>Pictures of a barometer, an anemometer, a wind vane, a chart of land and sea breezes, a bottle, a tub of water, rubber bands, some string, a ruler, a scale drawn on a strip of paper</p>	<p>Reading: p 33, 34 CW: Q2 HW: Q4 Make a simple barometer. (p 34)</p>
<p>Key words: weather, barometer, anemometer, wind vane</p> <p>Method: Ask: Do you know how wind is caused? Explain that hot air is lighter than cold air. When the Sun shines on the Earth, the air close to the surface becomes hot and it rises. When this happens, cold air rushes to take its place. This causes the wind to blow. In the same way, storms and hurricanes are caused. Ask: Can we measure air pressure? Show the students pictures of a barometer and explain how it works. Also help them to make a simple barometer as explained at the end of the unit. Discuss other instruments like the anemometer which helps us to measure the speed of the wind, and the weather vane which tells us the direction of the wind.</p>				

Name: _____

Date: _____

1. Draw a pie chart showing the amount of nitrogen, oxygen, and carbon dioxide in the atmosphere.

2. Fill in the blanks to describe the properties of air:

The layer of air which surrounds the Earth is called the _____.

It is _____ km deep. It is made up of many _____.

It also contains _____ and _____. Oxygen is used for

_____ and _____. Carbon dioxide is used by plants for making _____.

3. Draw lines to match the properties to the gases.

Used by green plants to make their food

Carbon dioxide

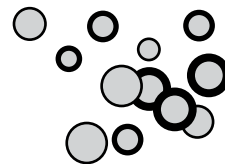
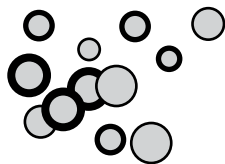
Given out by all living things during breathing

Given out by plants when making their food

Given out when things burn

Oxygen

Taken in when living things breathe



Water

Teaching objectives:

To explain that water is matter

To explain that water exists in three forms

To describe how water can be changed from one form to another by heating or cooling

To explain that there is water vapour in the air

To discuss how clouds, mist, fog, and snow are formed

To explain the water cycle

To describe how groundwater is collected

To describe how springs and wells are formed

To discuss how water is used

Teaching strategy:

Show the students ice cubes, liquid water, and steam. Ask: What form of water is ice? What happens when ice melts? What happens to water when we boil it? Explain the three states of water. Ask: Why did the ice melt? Why did water change into steam? Explain that heat brings about the change, referring to the chapter on 'matter'. Ask: What happens to water when we put it in the freezer. What happens to steam when we hold a cold plate near it? Explain that the change of state is brought about by cooling.

Ask: How do clouds form? What are clouds? What is mist and fog? What is snow? Explain the presence of water vapour in the air, and the formation of clouds, mist, snow, etc. Draw the water cycle on the board. Ask: What happens to rainwater? Explain the formation of rivers and seas.

Ask: What is a spring? What is a well? How do we get water from a well? Explain the collection of groundwater and how springs are formed. Show the water cycle by a diagram or chart. Explain how a well is dug to reach the groundwater. Ask: How do we use water? Explain the uses of water in our daily lives.

Answers to Activities in Unit 6

- (a) Water can be changed from solid to liquid form by heating.
Water can be changed from liquid to solid form by freezing.

(b) High in the sky it is very cold. Water vapour that rises high above the land cools down to form clouds.

(c) Rainwater gathers in the spaces between the rocks. This water is called groundwater.

(d) Water is used for drinking, washing, fire-fighting, boating, bathing, etc.

(e) Sometimes we dig deep holes in the ground to reach groundwater. These deep holes are called wells.
- (a) ice (b) water vapour (c) water (d) rain

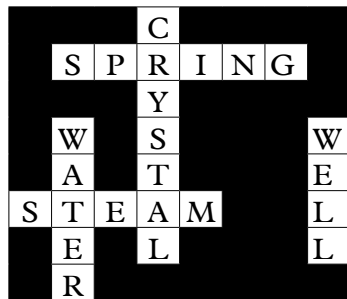
(e) crystal (f) snowflakes (g) rain

Additional Activity

MCQs

- (a) The gaseous form of water is called _____.
 ice water steam [steam]
- (b) High up in the sky it is very _____.
 cold hot wet [cold]
- (c) Water vapour in the air cools down to form _____.
 ice clouds rain [clouds]
- (d) Clouds that are formed near the ground are called _____.
 snow fog clouds [fog]
- (e) When tiny drops of water in the clouds freeze they form small shapes of ice called _____.
 snow flakes crystals water vapour [crystals]
- (f) The way that water goes from the sea to the atmosphere and back again as rain is called _____.
 water cycle bicycle rock cycle [water cycle]
- (g) Water that gathers in the spaces between rocks is called _____.
 river water sea water ground water [ground water]
- (h) Ground water can come out of holes and cracks in the ground to make a _____.
 well spring fountain [spring]
- (i) Deep holes dug in the ground to reach ground water are called _____.
 springs fountains wells [wells]
- (j) Water can be changed from ice into steam by _____.
 heating cooling evaporation [heating]

Answer to crossword puzzle on page 45



Date:

Time: 40 mins

Unit 6 Topic: Water	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW
3. Ground water and uses of water	<ul style="list-style-type: none"> • to explain what ground water is • to explain how ground water collects • to describe how springs are formed • to discuss how we use water 	<ul style="list-style-type: none"> • explain how ground water collects in spaces between rocks • explain how a spring is formed • explain how ground water can be reached by digging wells • list some of the uses of water 	Pictures of ground water, spring, well	Reading: p 39, 40 CW: Q1 (c) (e) HW: Q1 (d) Q4
<p>Key words: groundwater, spring, well, use</p> <p>Method: Draw a diagram of the water cycle on the board. Ask: What happens to rain water? Where does it go? Explain that most of the water flows down to rivers and lakes, and some of it flows along the ground and soaks into it. Where does it collect? Explain that it collects in the spaces between the rocks. Ask: What is a spring? How is a spring formed? Explain that ground water sometimes flows out of a hole or a crack in the ground and this forms a spring. Ask: How can we reach ground water? Explain that in some places we dig deep holes in the ground to reach the ground water. These deep holes are called wells. Ask: How do we use water. Discuss the various ways we use water. Also discuss the importance of water and the ways in which we can avoid wasting it.</p>				

Date:

Time: 40 mins

Unit 6 Topic: Water	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. The water cycle	<ul style="list-style-type: none"> • to explain the water cycle • to explain how clouds are formed • to describe fog, mist, snow, and ice • to explain the formation of ice crystals and snow flakes 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • describe the water cycle • identify the different types of clouds • explain how mist, fog, snow, and ice are formed 	Chart of the water cycle, pictures of clouds, ice crystals	Reading: p 37, 38, 39 CW: Q2, Q3 HW: Q1 (b)

Key words: water cycle, cloud, mist fog, snow, ice, crystal, snowflakes

Method: Ask: What are clouds? How do clouds form? Explain the processes of evaporation, condensation, formation of clouds, and rain. **Ask:** What is mist and fog? How are they formed? Explain that on cold nights clouds may be formed near the ground. This is called mist. Fog is thicker than mist, as it contains a lot of dust particles mixed with water vapour. Show the students pictures of the different kinds of clouds. Discuss the differences between them. **Ask:** What is ice, what is snow? What is the difference between them? Explain that when it is very cold, drops of water in the clouds freeze to form ice. Each tiny piece of ice is called a crystal. Crystals join up to form snowflakes which fall to the ground as snow.

Date:

Time: 40 mins

Unit 6 Topic: Water	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW
3. Ground water and uses of water	<ul style="list-style-type: none"> • to explain how ground water collects • to describe how springs are formed • to explain what ground water is • to discuss how we use water 	<ul style="list-style-type: none"> • explain how ground water collects in spaces between rocks • explain how a spring is formed • explain how ground water can be reached by digging wells • list some of the uses of water 	Pictures of ground water, spring, well	Reading: p 39, 40 CW: Q1 (c) (e) HW: Q1 (d) Q4
<p>Key words: groundwater, spring, well, use</p> <p>Method: Draw a diagram of the water cycle on the board. Ask: What happens to rain water? Where does it go? Explain that most of the water flows down to rivers and lakes, and some of it flows along the ground and soaks into it. Where does it collect? Explain that it collects in the spaces between the rocks. Ask: What is a spring? How is a spring formed? Explain that ground water sometimes flows out of a hole or a crack in the ground and this forms a spring. Ask: How can we reach ground water? Explain that in some places we dig deep holes in the ground to reach the ground water. These deep holes are called wells. Ask: How do we use water? Discuss the various ways we use water. Also discuss the importance of water and the ways in which we can avoid wasting it.</p>				

Name: _____

Date: _____

1. Fill in the blanks to describe the water cycle:

High up in the sky it is very _____. Water vapour that rises high above the land cools and forms _____. Clouds contain millions of tiny drops of _____. When clouds pass over a _____, the tiny drops of water join to form bigger drops. These bigger drops of water are too heavy to float in the air, so they fall to the ground as _____.

Tiny drops of water in the clouds can freeze to form _____ when it is very cold. Each piece is called a _____. These grow bigger and fall to the ground as _____ flakes.

2. Name the type of cloud:

Clouds that form near the ground on a cold, clear night _____

Thin layers of cloud _____

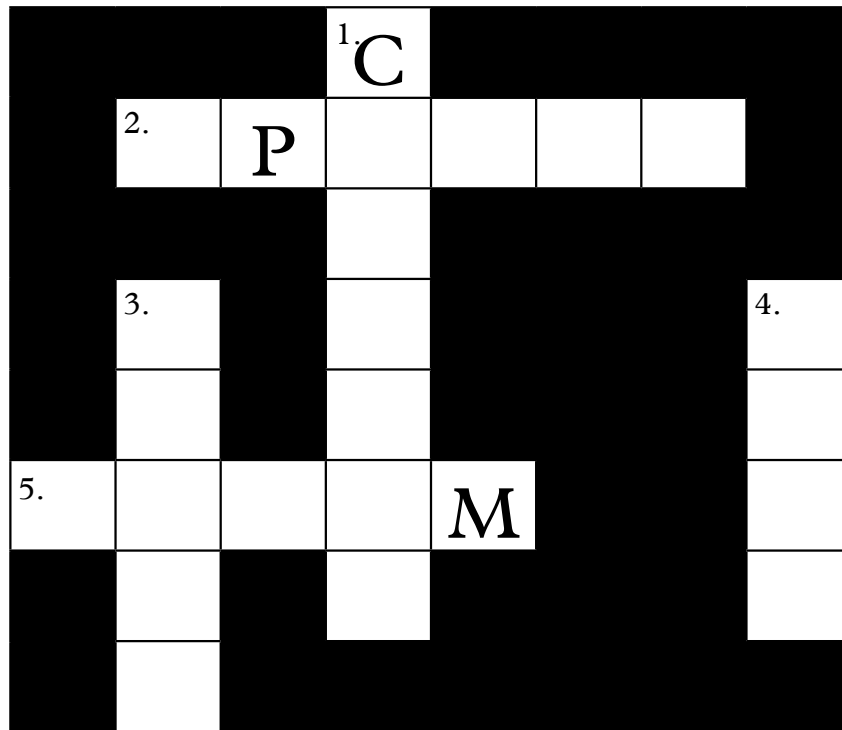
Thick, white clouds _____

Thick, dark clouds _____

Name: _____

Date: _____

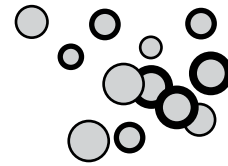
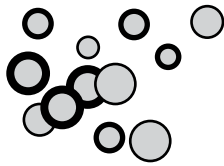
Crossword puzzle

**Across**

2. A place where groundwater flows out through a crack in the ground
5. State of water in the form of a gas

Down

1. Frozen drops of water in the clouds
3. A substance found in all three states of matter
4. A deep hole dug in the ground to reach water



Force

Teaching objectives:

- To describe force
- To explain that force can move things
- To explain that force can change the direction of moving things
- To explain that force can bend things
- To explain that force can stretch things
- To explain that force can break and tear things
- To define work
- To explain that work needs energy
- To discuss the different kinds of energy
- To explain the different sources of energy
- To describe friction
- To discuss the advantages and disadvantages of friction
- To describe ways to reduce friction

Teaching strategy:

Tell a student to lift a chair, to lift a heavy bag, to push a table, to blow up a balloon. Ask: What were you doing? Were you pushing or pulling? Explain that pushes and pulls are called force. Explain the things force can do with examples from the book.

Ask: What is work? Do you get tired when you work? Can you work if you are hungry? Explain that pushes and pulls are work. When we work we need energy. Explain that energy is a force. We get energy from food. A machine needs energy. Plants need the Sun's energy.

Ask: How does a steam engine move? How do fans and motors move? Explain the various sources of energy and how they are used to move things. Tell students to rub their hands together. Tell them to rub their hands on the desk. Strike a matchstick against the matchbox. Ask: What happens when you rub things together? Explain the force of friction. Explain that a moving thing will continue to move on a smooth surface, but if the surface is rough it will slow down and then stop.

Ask: Can you run on a slippery road? Can you walk on ice? Explain the advantages of friction. Ask: What will happen if you rub two pieces of metal together? Explain the disadvantages of friction. Ask: Have you seen a mechanic putting oil in a machine? Why does he do it? Explain that parts of a machine rub against each other. They become hot and they wear away. Oil makes the parts slide over each other easily, and so they do not wear away. Oil reduces the friction between the moving parts.

Answers to Activities in Unit 7

- (a) A force is a push or pull.

(b) If we want to do something, we do it by pushing or pulling. When an object is moved to some distance it is called work.

(c) The force which pulls objects towards the Earth is called gravity.

(d) The different kinds of energy are solar energy, heat energy, electrical energy, and light energy.

(e) Oil makes the parts slide over each other and there is less friction between them. Hence, we put oil to reduce friction. Another way of reducing friction is by using ball-bearing.
- (a) energy (b) energy (c) Sun's (d) Heat (e) Electrical

(f) Solar energy (g) Friction (h) friction (i) hot (j) friction
- (a) electrical energy (b) chemical energy (c) heat energy
- (a) C (b) A (c) C (d) A (e) gravity

Additional Activity

MCQs

- When we are pushing or pulling something we are using _____.
force pressure energy [force]
- When an object is pulled through some distance we call it _____.
force pressure work [work]
- The force that we need to do work is called _____.
force pressure energy [energy]
- The energy from the Sun is called _____.
solar energy electrical energy sound energy [solar energy]
- Heat energy comes from _____.
burning things power stations wind [burning things]
- Steam engines use _____ energy to make them move.
electrical heat light [heat]
- Electrical energy comes from _____.
the Sun burning things power stations [power stations]
- Light energy helps us to _____.
see things hear sounds move things [see things]
- The force, which pulls objects towards the Earth, is called _____.
electricity gravity energy [gravity]
- Washing machines use _____ energy to wash clothes.
solar electrical heat [electrical]

Date:

Time: 40 mins

Unit 7 Topic: Force	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. What is force? Work and energy	<ul style="list-style-type: none"> • to describe force and to explain what it can do • to define work and to explain that work needs energy 	Students should be able to: <ul style="list-style-type: none"> • define force and explain what force can do • explain that when we push or pull something to make it move, we are doing work • identify the force needed to do work as energy 	Sheet of paper, wooden ruler, rubber band, piece of copper wire, toy car, a wooden table	Reading: p 44, 45 CW: Q4 HW: Q1 (a) (b)
<p>Key words: force, push, pull, bend, tear, stretch, work, energy</p> <p>Method: Ask some students to do these activities: lift a chair, lift a heavy bag, push a table, blow a balloon. Ask: What are you doing? Were you pushing or pulling? Explain that pushes and pulls are forces. Explain, with examples from the unit, some of the things that force can do. Ask: What is work? How do you feel when you have been working? Can you work well when you are hungry or tired? Explain that pushing or pulling something is doing work. Ask: What do you need in order to work? Explain that we need energy to work. Ask: From where do we get energy? Discuss the different kinds of food that give us energy to work and play. Ask: What work does a machine do? Does it need energy? Explain that all machines need energy to work. Discuss some forms of energy that machines need such as electricity, heat, etc.</p>				

Date:

Time: 40 mins

Unit 7 Topic: Force	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. Forms of energy	<ul style="list-style-type: none"> to describe the different forms of energy and their sources 	Students should be able to: <ul style="list-style-type: none"> identify the different forms of energy and their sources 	Pictures of the Sun, a steamboat, an electric fan, a table lamp	Reading: p 45, 46 CW: Q1 (d) HW: Q3
<p>Key words: solar energy, heat energy, electrical energy</p> <p>Method: Ask: From where do we get energy to work and play? How do machines get their supply of energy? Explain that we get energy from food. A machine gets energy from fuel such as petrol, gas, or coal. Plants use energy from the Sun to make their food. Ask: How does a steam engine move? How do fans and motors move? Explain the various sources of energy and how they are useful. Solar energy is the energy from the Sun. Explain how plants use it to make their food. We use solar energy trapped by plants when we eat fruit and vegetables. Animals use it the same way. Heat energy comes from burning fuels such as coal, gas, and oil. Electrical energy is produced in power stations. It is used to make most machines work. Electricity makes our work easier. Light energy comes from the Sun as well as from other light sources such as lamps, candles, etc. Ask the students to make a list of machines that use energy to help us in our work.</p>				

Date:

Time: 40 mins

Unit 7 Topic: Force	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
3. Force of gravity Force of friction	<ul style="list-style-type: none"> • to define the force of gravity and describe how it is helpful to us • to explain what the force of friction is and how it is useful for us • to explain the harmful effects of friction • to explain how friction may be reduced 	Students should be able to: <ul style="list-style-type: none"> • explain what gravity is and how gravity is useful for us • explain what the force of friction is • explain the useful and harmful effects of friction • describe the ways by which friction can be reduced 	Rubber ball, a toy swing, a box of matches, ball bearings	Reading: p 46, 47, 48 CW: Q2 HW: Q1 (c) (e)
<p>Key words: gravity, friction</p> <p>Method: Ask the students to rub their hands together. Ask them to rub their hands on their desks. Strike a matchstick against a matchbox. Ask: What happens when you rub things together? Ask: Why do things become hot by rubbing? Explain that rubbing produces heat because of a force called friction. Ask: Can you run on a slippery road? Can you walk on ice? Explain that you cannot walk on smooth surfaces because there is no friction. Friction is a force that slows down/stops things from moving. It helps us to run and ride a bicycle because it helps our shoes and the tyres to grip the road, otherwise we would slip and fall. Ask: Can friction be harmful? Explain that if there is too much friction between the moving parts of a machine they will wear out. Friction is one reason why our shoes and clothes wear out. Ask: Have you seen a mechanic putting oil in a machine? Explain that the reason why the moving parts of a machine need to be oiled is that they become hot by rubbing against each other and then they wear out. Oil or grease helps to reduce friction between the moving parts by making them slide over each other. Show the students a ball bearing. Explain that using these tiny balls between the moving parts of machines helps to reduce friction between the moving parts. Ball bearings are used in the handlebars of bicycles.</p>				

Name: _____

Date: _____

1. Write the things force can do:

a. _____

b. _____

c. _____

d. _____

e. _____

2. Write the source of each form of energy:

Form of energy

Source

Solar energy

Heat energy

Electrical energy

Light energy

Name: _____

Date: _____

1. Match the kind of energy to the work it does.

Kind of energyWork

Light

pulls everything towards the Earth

Sunlight

slows down or stops a moving thing

Heat

made in power stations

Electricity

helps to burn things

Gravity

helps us to see things

Friction

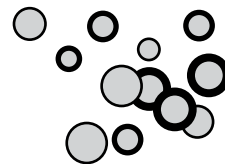
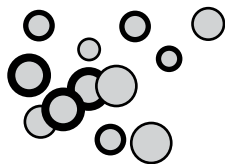
helps plants make their own food

2. Fill in the blanks using the word bank and then circle the words in the grid. Note that one word is extra.

gravity	work	friction	force	machine	energy
---------	------	----------	-------	---------	--------

- A push or pull is called a _____.
- _____ is when an object is moved some distance.
- The force which we need to do work is called _____.
- _____ is the force which pulls objects towards the Earth.
- _____ is the force which slows down or stops a moving thing.

T	G	R	A	V	I	T	Y
L	P	B	V	X	M	U	Z
F	R	I	C	T	I	O	N
O	T	Q	U	G	Z	I	W
R	E	N	E	R	G	Y	O
C	R	A	W	N	L	O	R
E	P	Y	I	H	R	A	K



Heat

Teaching objectives:

- To explain that heat makes us feel warm
- To discuss the sources of heat
- To discuss the uses of heat
- To explain that heat is a kind of energy
- To explain that we get energy from the food that we eat
- To explain that the movement of molecules produces heat
- To describe that fast molecules produce more heat
- To describe that heat brings about a change in state
- To explain that thermometers can be used to measure heat

Teaching strategy:

Ask: What do you feel when you sit in front of a heater? From where do we get heat? Explain the sources of heat. Ask: How do we use heat? Explain that heat is very useful in our daily lives. It is also used to make machines move.

Explain that energy is a kind of force, which helps us to do work. Ask: How do we get energy? Show the students a chart of foods that give energy. Ask: What did you eat for breakfast? Which food has the most energy? Explain the use of food in our body.

Refer to the chapter on Matter. Ask: What is matter made up of? Explain that molecules are always moving. Moving molecules become hot. Explain that hot molecules move faster than cold molecules. Ask: Why does ice melt? Explain that heat makes the molecules move faster, and they bump into each other at a faster rate. They are pushed away from each other and a solid changes into a liquid. In the same way, water changes into steam.

Ask: How does water change into ice? Explain that cooling the molecules has an opposite effect. The molecules slow down, they come closer and the water changes into ice. Ask: How does a doctor check to see if you have fever or not? Show the students a thermometer. Draw a thermometer on the board and label it. Explain that the mercury inside goes up if something is hot, and comes down if the thing is cold. Dip a laboratory thermometer in cold water and in hot water and show the students the level of the liquid inside.

Answers to Activities in Unit 8

- (a) Heat comes from the Sun and burning of things.
(b) Heat keeps our bodies warm, helps us to cook food, and iron clothes.

- (c) The heat energy which keeps our body warm, comes from our food.
- (d) When the molecules of something move faster, they make that thing hot.
- (e) When ice is heated, the heat makes the molecules of ice move faster. As the molecules move, they bump into each other and begin to move away from each other. With more heat, they move faster and move further apart until the solid ice becomes water.

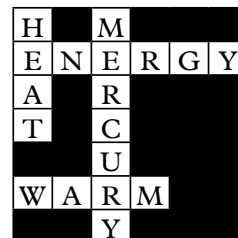
3. (a) heat and light (b) energy (c) less (d) water (e) mercury

Additional Activity

MCQs

- (a) Heat is a kind of _____.
force work energy [energy]
- (b) When molecules of a substance move fast they make it _____.
hot cold freeze [hot]
- (c) When ice is heated it melts because its molecules start moving _____.
slower remain still faster [faster]
- (d) When molecules are cooled their movement _____ and they move closer to each other.
slows down becomes fast remains the same [slows down]
- (e) We use an instrument called a _____ to find out how hot something is.
anemometer barometer thermometer [thermometer]
- (f) The bulb of a thermometer is filled with _____.
water mercury oil [mercury]
- (g) The normal body temperature of the human body in degrees Fahrenheit is _____.
98.6 100.6 102.6 [98.6]
- (h) A steam engine moves due to _____.
cold heat ice [heat]
- (i) When a thermometer is dipped into something warm, the liquid inside _____.
falls rises stays the same [rises]
- (j) The energy that keeps our body warm comes from _____.
fire food fuel [food]

Answer to crossword puzzle on page 58



Date:

Time: 40 mins

Unit 8 Topic: Heat	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. What is heat?	<ul style="list-style-type: none"> • to define heat • to identify the sources of heat • to discuss the uses of heat • to explain that heat is a form of energy 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • explain that heat is a form of energy which helps us to do useful work • list the various sources and uses of heat 	Pictures of the Sun, a fire, burning items, different kinds of food	Reading: p 52 CW: Q1 (a) (c) HW: Q1 (b)
<p>Key words: heat, energy</p> <p>Method: Ask: What do you feel when you sit in front of a heater or fire? From where does the heat come? Explain that heat is a form of energy which comes from burning things. Ask: How do we use heat? Explain that heat is very useful in our daily lives. It also helps to make machines move. Recall the lesson on force and explain that energy is the force that helps us to do work. Ask: How does our body get energy? Show the students a chart of energy-rich foods, such as carbohydrates and fats. Ask: What did you eat for breakfast? Which food has the most energy? Explain how the body uses food.</p>				

Date:

Time: 40 mins

Unit 8 Topic: Heat	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. Heat and molecules	<ul style="list-style-type: none"> • to explain that molecules are always in motion • to explain that molecules move because they have energy • to explain that heat can cause changes in the state of matter 	Students should be able to: <ul style="list-style-type: none"> • explain that the molecules of substances are always moving, and that their movement is due to the energy that they have • explain that a change of state occurs in substances because the molecules either gain or lose energy 	2 glass bowls, cold water, hot water, red ink, dropper	Reading: p 53, 54 Perform the experiment (p 53): Hot molecules move faster than cold molecules. HW: Q1 (d) (e)
<p>Key words: heat, energy</p> <p>Method: Perform the experiment ‘Hot molecules move faster than cold molecules’ on page 53. Discuss the movement of molecules. Heat makes the molecules gain energy and they begin to move faster. When they do this, a change of state occurs. A solid becomes a liquid, and a liquid turns into a gas.</p> <p>Heat some ice cubes in a pan. Ask the students to observe what happens. Discuss the change of state from solid to liquid, and then into water vapour, due to heat. Also discuss how the heat of the atmosphere changes during the day and night. Ask: Why does ice melt? Explain that heat makes the molecules move faster, and they bump into each other at a faster rate. They are pushed away from each other and a solid changes into a liquid. In the same way, water changes into steam. Ask: Can steam be changed into ice? Explain that cooling the molecules has an opposite effect. The molecules slow down. They move closer together and steam changes into water. If the water is cooled further, it changes into ice.</p>				

Date:

Time: 40 mins

Unit 8 Topic: Heat	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
3. Thermometers	<ul style="list-style-type: none"> • to describe the structure and function of a thermometer • to explain how to read the temperature on a thermometer 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • describe the structure and function of a thermometer • read the temperature on a thermometer 	A laboratory thermometer, a clinical thermometer, warm water, cold water	Reading: p 54 CW: Q2 HW: Q3
<p>Key words: thermometer, mercury, measure</p> <p>Method: Ask: How does a doctor check to see if you have fever or not? Show the students a thermometer. Draw a thermometer on the board and label it. Explain that the silvery liquid called mercury inside the tube of the thermometer goes up when the temperature rises. Show the students a laboratory thermometer as it is bigger and easier to read than a clinical thermometer. Dip the laboratory thermometer in cold water and read the temperature. Then dip it in warm water and read the temperature again. Show the students the level of the liquid inside the thermometer at different temperatures. Tell students that nowadays LED thermometers are commonly in use.</p>				

Name: _____

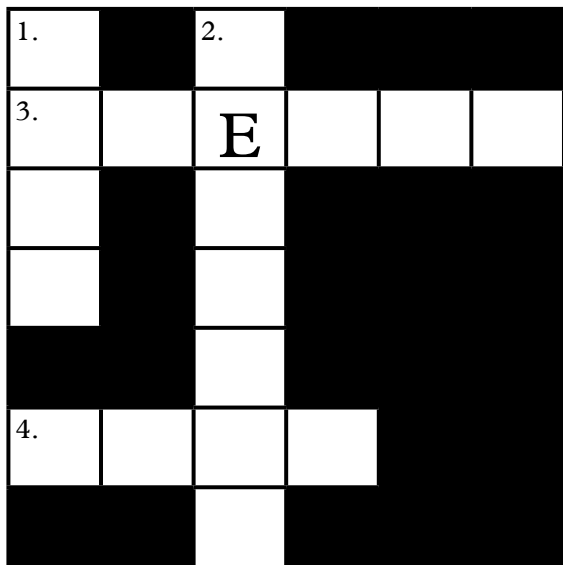
Date: _____

1. Fill in the blanks to explain how steam changes into ice:

When molecules of steam are _____, they slow down and move _____ to each other. They turn into tiny _____ of water. When water is _____ further, its molecules slow down and move _____ to each other and the water _____ into ice.

2. How is a thermometer used to measure how hot something is?

3. Find the words in the crossword puzzle with the help of the hints given below:

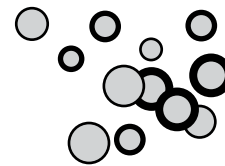
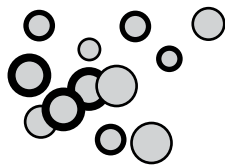


Across

- 3. Anything that can do work has this _____.
- 4. Heat keeps our body _____.

Down

- 1. A steam engine moves due to this _____.
- 2. The bulb of a thermometer is filled with this _____.



Light

Teaching objectives:

- To explain that burning things give off heat and light
- To explain that the Sun gives off heat and light
- To explain that the Moon does not have its own light but reflects sunlight
- To explain reflection of light
- To explain that reflection of light helps us to see things
- To explain that light travels very fast
- To explain that light travels in straight lines
- To explain refraction of light
- To describe how shadows are made
- To discuss the size and position of shadows made by the Sun
- To explain how things appear coloured
- To describe the colours of white light
- To explain how a rainbow is formed

Teaching strategy:

Ask: From where does the Earth get light? How do we get light in our houses? Explain the sources of light. Ask: What do we see in the sky at night? Does the Moon shine as brightly as the Sun? Explain the reflection of sunlight from the Moon. Shine a torch on a mirror. Explain the reflection of light and how it helps us to see things

Ask: What happens when we switch on a light in a room? Explain that light travels very fast. Perform the experiment given in the lesson. Explain that light travels in straight lines called rays.

Dip a ruler in a beaker of water. Ask: Is the ruler straight? Explain refraction of light. Hold a book in the beam of a torch. Explain the formation of a shadow. Tell children to make shadows with their hands. Move the torch backwards and forwards. Explain that the size of shadows changes with distance. Take the students outside. Tell them to see their shadows. Explain the formation of shadows at different times of the day according to the position of the Sun.

Ask the students colours of various things. Ask: What is the colour of white light? Explain the colours of white light. Draw a rainbow on the board. Ask: When do you see a rainbow in the sky? Explain the formation of a rainbow after a rain. Allow a beam of light to pass through a prism. Show the seven colours of white light. Explain how coloured objects reflect and absorb various colours of white light. Explain why white objects appear white and black objects appear black.

Answers to Activities in Unit 9

1. (a) We get light from the Sun.
- (b) The Moon gets light from the Sun.
- (c) The bouncing-off of light from a shiny object is called reflection.
- (d) When rays of light pass through water or glass they bend. This bending of light is called refraction.
- (e) When white light shines on something, some colours are absorbed and some are reflected. We see the colours that are reflected.
- (f) Plants need light to make their food. Animals need light to see in the dark and to keep warm.

Additional Activity

MCQs

- (a) The bouncing-off of light from shiny objects is called _____.
reflection refraction dispersion [reflection]
- (b) When light from a shiny object falls on something, the _____ light tells us its size, shape, and colour.
refracted reflected shining [reflected]
- (c) Light can travel from the Moon to the Earth in less than a _____.
second minute hour [second]
- (d) Light travels in straight lines called _____.
rays tracks lines [rays]
- (e) The bending of light when it passes through water or glass is called _____.
reflection refraction dispersion [refraction]
- (f) We can see the colour of things because they _____ light.
absorb reflect refract [reflect]
- (g) A tomato looks red because it absorbs all the other colours of white light and reflects only _____.
blue yellow red [red]
- (h) A black object looks black because it _____ all the colours of white light.
absorbs reflects mixes [absorbs]
- (i) There are _____ colours in a rainbow.
4 6 7 [7]
- (j) Plants need sunlight to make their _____.
homes food flowers [food]

Date:

Time: 40 mins

Unit 9 Topic: Light	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. Reflection of light Properties of light	<ul style="list-style-type: none"> • to identify the sources of light • to explain what reflection of light means • to prove that light travels in straight lines • to explain that light travels very quickly • to explain how light bends when it passes through water or glass 	<p>Students should be able to:</p> <ul style="list-style-type: none"> • explain that when light falls on a shiny surface it is reflected and that reflected light tells us the size, shape, and colours of the object • prove by experiment that light travels in straight lines • explain that light travels very quickly • describe how light rays bend when they pass through water or glass 	<p>Pictures of the Moon, the Sun, a candle, a bulb, pieces of cardboard, a torch, a white screen, a pencil, a glass of water</p>	<p>Reading: p 57, 58 CW: Perform the experiment (p 57) 'Light travels in straight lines' (Q2). CW: Q1 (a) (b) (c) d HW: Draw diagrams to show reflection of light and refraction of light.</p>
<p>Key words: reflect, bounce, reflection, refraction</p> <p>Method: Ask: From where does the Earth get light? How do we get light in our homes? Identify the sources of light. Ask: What do we see in the sky at night? Does the Moon shine as brightly as the Sun? Explain that the Moon does not have light of its own; it only reflects the light of the Sun which falls on it. Explain reflection of light and how it enables us to see things. Perform the experiment 'To prove that light travels in straight lines'. Explain that light travels in straight lines called rays. Place a ruler in a glass of water and ask the students to observe it. Ask: Does the ruler appear straight? Explain that when light passes from air into water, it slows down and bends. This bending of light is called refraction.</p>				

Date:

Time: 40 mins

Unit 9 Topic: Light	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW																		
2. Light and colour	<ul style="list-style-type: none"> • to explain why things appear coloured • to explain the composition of white light • to explain how a rainbow is formed and to identify the colours of the rainbow • to revise the importance of heat and light for living things 	<ul style="list-style-type: none"> • explain why things appear coloured • name the colours that make up white light • name the colours of the rainbow • describe how a rainbow is formed • explain the importance of heat and light for living things 	Coloured objects, a prism, picture of a rainbow	Readings: p 58, 59 Fill in the table: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Colour of object</th> <th>Reflects</th> <th>Absorbs</th> </tr> </thead> <tbody> <tr> <td>blue</td> <td></td> <td></td> </tr> <tr> <td>red</td> <td></td> <td></td> </tr> <tr> <td>green</td> <td></td> <td></td> </tr> <tr> <td>white</td> <td></td> <td></td> </tr> <tr> <td>black</td> <td></td> <td></td> </tr> </tbody> </table> CW: Q3 HW: Q1 (e) (f)	Colour of object	Reflects	Absorbs	blue			red			green			white			black		
Colour of object	Reflects	Absorbs																				
blue																						
red																						
green																						
white																						
black																						

Key words: reflect, prism, absorb

Method: Ask the students to name the colours of various items in the classroom. **Ask:** What is the colour of light? Allow a beam of light to pass through a prism. Show the students the spectrum of the colours of the rainbow that is formed. Explain that white light is made up of seven colours. Write VIBGYOR on the board and ask the students to name the seven colours of the rainbow represented by the letters of the word. **Ask:** How do we see colours? Explain that when white light falls on a coloured object, the object absorbs all the colours and only reflects its own colour. **Ask:** Why does an object look white? Explain that a white object reflects all the colours. **Ask:** Why does an object appear black? Explain that a black surface absorbs all the colours and so it looks black. **Ask:** What is a rainbow? When do we see a rainbow in the sky? Explain that after rain, sunlight shines through tiny droplets of water still hanging in the air. These drops act like tiny prisms when sunlight passes through them. Together they form a rainbow on the side opposite the Sun. Discuss the importance of light and heat for all living things.

Name: _____

Date: _____

1. Fill in the blanks to explain the properties of light:
 - a. The Sun gives off heat and _____.
 - b. We can see the Moon at night because _____ bounces off the Moon.
 - c. The bouncing off of light from a shiny object is called _____.
 - d. Light travels in straight lines called _____.
 - e. Light travels very _____.
 - f. The bending of rays of light when they pass through water or glass is called _____.
 - g. We see the colours of objects because of the _____ light.

2. In the blank spaces write which colours are absorbed or reflected in order for us to see the given coloured objects.

Coloured objectAbsorbsReflects

tomato

orange

white paper

black shoe

Name: _____

Date: _____

Find the following words in the grid and circle them.

REFLECTION PRISM REFRACTION RAINBOW RAYS

R	T	U	M	J	F	A	R
E	O	P	D	A	N	P	E
F	E	R	C	W	Q	U	F
R	A	I	N	B	O	W	L
A	G	S	K	O	P	R	E
C	W	M	R	F	S	I	C
T	C	T	I	D	L	K	T
I	T	R	A	Y	S	O	I
O	W	Z	V	I	B	M	O
N	E	R	Y	U	F	I	N



Teaching objectives:

- To explain that the Earth is covered with a layer of soil
- To discuss how soil is formed
- To discuss what soil is made of
- To describe the kinds of soil
- To discuss the properties of different kinds of soil
- To describe a fertile soil
- To explain why plant roots are important for soil

Teaching strategy:

Ask: Where do plants grow? Do many plants grow on mountains? Do many plants grow in hot dry places? Where do most plants grow? Explain the layer of soil on the Earth. Explain why many plants do not grow in places where there is less soil. Explain what a fertile soil is and why many plants grow on it.

Ask: What is soil made up of? Perform the experiment in the lesson and show the various particles of soil that have separated out. Ask: What do plants need to grow healthy and strong? Why does a gardener add fertilizer to the garden soil? Explain the importance of humus in the soil. Ask: What will happen to the soil if we pull out all the plants growing in it? Explain the importance of roots in preventing erosion of soil. Explain the structure of the three types of soil on the basis of soil particles. Ask: Which do you think is the best type of a soil for plants to grow in? Explain the composition of loam, and why it is the best type of soil for plants.

Answers to Activities in Unit 10

- Soil is made from rocks, and many tiny particles of different sizes. It has stones, sand, clay, and remains of dead plants and animals.
 - Rocks can crack by the heat of the Sun.
 - Remains of dead plants and animals in the soil are called humus.
 - If we cut down trees, the soil can easily be washed away by water or blown away by wind. It will not remain fertile any more.
 - The different kinds of soil are sandy soil, clay soil, and loam.
 - Loam is the best kind of soil for plants.

2. Sandy soil contains more sand particles. It has a lot of air in it, but it cannot hold any water. Not many plants can grow in sandy soil.
 Clay soil contains tiny particles of clay. It contains very little air, but it can hold a lot of water. Not many plants can grow in clay soil.
 Loam soil contains a mixture of sand and clay particles. It contains a lot of humus and a lot of air and water. It is fertile soil. Plants grow well in fertile soil.
3. (a) clay (b) sand
 (c) sand (d) clay

Additional Activity

MCQs

- (a) Land is covered with a thin layer of _____.
 air soil water [soil]
- (b) _____ plants grow in deserts and rocky places.
 No Few Many [Few]
- (c) Soil is made from _____.
 sand rocks wood [rocks]
- (d) Soil is made up of _____ of different sizes.
 stones particles rocks [particles]
- (e) Remains of dead plants and animals in the soil are called _____.
 humus organisms food [humus]
- (f) The kind of soil which has a lot of air and cannot hold any water is called _____.
 sandy soil clay soil loam [sandy soil]
- (g) Soil that has very little air and can hold a lot of water is called _____.
 sandy soil clay soil loam [clay soil]
- (h) Soil which is a mixture of sand and clay is called _____.
 loam humus fertile soil [loam]
- (i) The best type of soil for plants is _____.
 sandy soil clay soil loam [loam]
- (j) _____ of plants can grow in the cracks of rocks and break them.
 Leaves Stems Roots [Roots]

Date:

Time: 40 mins

Unit 10 Topic: Soil	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
1. Soil	<ul style="list-style-type: none"> • to describe soil • to explain how soil is formed • to examine what soil is made of 	Students should be able to: <ul style="list-style-type: none"> • describe soil • explain how soil is formed • describe the composition of soil 	Charts and diagrams showing how soil is formed Jam jar, garden soil, water, a stick	Reading: p 62, 63 Perform the experiment (p 63) To find out what soil is made up of HW: Q1 (a) (b) (c) (d) Q4
<p>Key words: soil, desert, rock, fertile soil, crack, soil particle</p> <p>Method: Ask: Where do most plants grow? Do many plants grow on mountains? In hot dry places? Discuss what soil is. Explain that there is a layer of soil on the Earth. Discuss why many plants do not grow in places where there is little soil. Plants grow best in good soil. Explain that soils which contain plenty of minerals and water are called fertile soils. Lots of plants grow in fertile soil. Ask: Where does soil come from? How is soil formed? Explain that soil is made from rocks. Rocks break into tiny pieces in different ways. The heat of the Sun can make rocks crack; rainwater enters the cracks and when it freezes, it expands and breaks the rocks. Strong winds, rivers, and sea water also break rocks and grind them into small particles which finally form soil. Ask: What is soil made up of? Perform the experiment on p 63 and show the various particles that separate out. Ask students to draw and label the various layers of soil.</p>				

Date:

Time: 40 mins

Unit 10 Topic: Soil	Teaching objectives	Learning outcomes	Resources/Materials	Activities/CW/HW
2. Fertile soil	<ul style="list-style-type: none"> • to describe the properties of fertile soil • to explain why plant roots are important to soil • to describe the properties of fertile soil 	Students should be able to: <ul style="list-style-type: none"> • explain what is meant by fertile soil • explain the importance of humus in the soil • describe the functions and the importance of plant roots for holding soil particles together 	A sample of garden soil, a diagram of the section of the Earth's crust showing top soil, sub soil; a potted plant, pictures showing erosion due to wind and water	Reading: p 64 HW: Fill in the blanks: The remains of dead plants and animals in the soil is called _____. Humus makes the soil _____. Fertile soil contains a lot of _____ for growing plants. Humus helps the soil to hold _____ and _____. _____ of plants hold the soil particles together.
<p>Key words: fertile, humus</p> <p>Method: Ask: What do plants need to grow strong and healthy? Why does a gardener add fertilizer to the soil? What is humus? Explain the importance of humus in the soil. Ask: What would happen to the soil if we pulled out all the plants growing in it? What would happen to the soil if we cut down all the trees? What would be the effect of rain and wind on the soil if we cut down all the trees and removed all plants from it? Explain the importance of plant roots in preventing soil erosion.</p>				

Date:

Time: 40 mins

Unit 10 Topic: Soil	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW
3. Kinds of soil	<ul style="list-style-type: none"> • to differentiate between the different types of soil • to explain that the texture of soil depends on the size of its particles • to discuss the best type of soil for plants 	<ul style="list-style-type: none"> • identify the different types of soil • differentiate between various types of soil on the basis of particle size • explain why loam is the best type of soil for plant growth 	Samples of sand, clay, garden soil, 3 conical flasks, 3 funnels, cotton wool, water	Reading: p 64 Perform the experiment: ‘To find out which is the best type of soil for plants’ (p 64) HW: Q1 (e) (f) Q2, Q3
<p>Key words: sandy soil, clay, loam, fertile</p> <p>Method: Show the students samples of different kinds of soil. Ask them to rub the soil between their fingers and feel the texture of each kind of soil. Discuss the various kinds of soil on the basis of their texture, particle size, and the water-holding capacity. Ask: Which is the best type of soil for plant growth? Discuss the properties of different kinds of soil. Ask: Which soil do you think is best for plant growth? Discuss the properties of loam and why it is good for plants. Perform the experiment on page 64 and discuss the results. Ask: Which soil holds the least water? Which soil holds the most water? Which soil do you think is best for plant growth? Discuss ways in which the texture of sandy and clay soils can be improved. Discuss the role of humus in improving soil texture and quality.</p>				

Name: _____

Date: _____

1. Fill in the blanks to explain how soil is formed:

Soil is made from _____. The heat of the Sun makes rocks _____. Rainwater _____ the cracks. When water in the cracks _____, it pushes the pieces of rocks apart. Sometimes plant _____ growing in the cracks also break the rocks.

2. Match the description to the kind of soil.

<u>Description</u>	<u>Kind of soil</u>
It has lots of air. It cannot hold any water. Not many plants can grow in it.	loam
It contains very little air. It can hold a lot of water. Not many plants can grow in it.	sandy soil
The best kind of soil. It contains a lot of humus, air, and water. Plants grow well in it.	clay soil

Name: _____

Date: _____

Wordsearch

Q	A	I	R	O	O	T	S	X	Y
W	V	M	O	C	B	A	W	Q	F
E	X	U	C	L	A	Y	F	Z	E
R	E	R	K	O	W	A	T	E	R
T	J	U	S	A	N	D	O	N	T
Y	A	N	I	M	A	L	S	E	I
U	M	V	P	O	I	Y	I	M	L
I	K	H	U	M	U	S	R	L	E

AIR

FERTILE

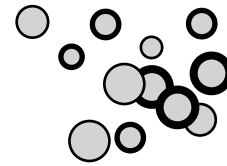
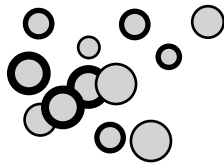
ROCKS

WATER

ANIMALS

HUMUS

ROOTS



The Sun and the planets

Teaching objectives:

- To explain what is meant by the universe
- To explain that the universe has countless heavenly bodies
- To describe a star
- To describe a planet
- To introduce the names of the planets of our Solar System
- To explain how we learn about planets
- To explain space travel
- To explain that planets spin on their axis
- To explain that planets go round the Sun in fixed paths
- To describe the characteristics of the planets

Teaching strategy:

Ask: What do we see in the sky during daytime? What do we see at night? Can you count the stars? Show the students a picture of the universe. Explain its vastness. Explain the types of heavenly bodies in the universe. Ask: Are all the shining bodies stars? Explain the difference between a star, a planet, and the Moon.

Show a chart of the Solar System or make a diagram on the board.

Write the names of the planets. Explain the rotation of planets and their paths around the Sun. Ask: Which is the hottest planet? Which is the coldest? Which is the smallest? Which is the biggest? Which has the most number of moons? Which has rings around it? Explain the characteristics of each planet. Ask: Can you see planets in the sky? Explain that Venus can be seen as the 'evening star'. Mars looks like a red star.

Answers to Activities in Unit 11

- Some of the shiny bodies are stars, comets, meteors, asteroids, and planets.
 - All the shiny bodies are in a vast space called Universe.
 - Stars are big balls of burning gases.
 - Planets are bodies that move around the Sun.
 - The path of a planet around the Sun is called an orbit.
- meteors
 - asteroids
 - comets
 - meteorites
 - large meteorites

3. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune

4. (a) Mercury (b) Venus (c) Earth (d) Mars
 (e) Jupiter (f) Neptune (g) Saturn

Additional Activity

MCQs

- (a) Stars, asteroids, and planets are found in a vast space called _____.
 sky space universe [universe]
- (b) Stars appear to be dim because they are _____.
 very small very far very cold [very far]
- (c) Planets are bodies that move around the _____.
 Sun Moon Earth [Sun]
- (d) The planet closest to the Sun is _____.
 Mercury Venus Earth [Mercury]
- (e) The planet which is covered in thick clouds and is almost as big as the Earth is _____.
 Mercury Venus Mars [Venus]
- (f) Mars is called the _____ planet.
 red blue green [red]
- (g) Jupiter is the _____ planet.
 smallest largest coldest [largest]
- (h) The number of moons around Saturn is _____.
 51 53 57 [53]
- (i) The planet which has many rings and moons is _____.
 Mercury Venus Uranus [Uranus]
- (j) _____ is a planet that has 13 moons and it takes 165 days to go once round the Sun.
 Saturn Uranus Neptune [Neptune]

Date:

Time: 40 mins

Unit 11 Topic: The Sun and the planets	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW
1. The Sun and the planets	<ul style="list-style-type: none"> • to explain what is meant by the universe • to describe the Milky Way • to describe the different celestial bodies 	<ul style="list-style-type: none"> • explain what is meant by the universe • identify the Milky Way and know that our solar system is part of this galaxy • identify the different shining bodies in the night sky 	Pictures of the Milky Way and space, wall chart of the Solar System, pictures of the Moon, diagrams of the rotation and revolution of the Earth	Reading: p 67, 68 HW: Q1
<p>Key words: The Milky Way, galaxy, universe, star, Solar System</p> <p>Method: Ask: What can we see in the sky during the daytime? What do we see at night? Can you count the stars? Are all the shining bodies that you can see in the sky stars? Show students pictures of the universe. Explain with the help of pictures the types of heavenly bodies that can be seen in the sky at night and, if possible, show them a video/dvd/youtube clip about the universe. If possible, take the students to a planetarium. Explain the difference between a star, a planet, and a moon.</p> <p>Ask: Why do we not see stars during the day? When can we see the Moon? Is our Earth a shining body like the stars? What is the Sun? What is the difference between a star and a planet? Discuss the difference between a star and a planet. Explain the difference between the Moon, the Earth, and the Sun. Explain that the Moon is a heavenly body that goes round the Earth. It is called a satellite. Other planets also have moons. The Earth is a satellite of the Sun. Like the Earth, other planets are also satellites of the Sun. The Sun with all its satellites forms a system called the Solar System. Show the students a chart of the Solar System, or draw it on the board. Label the different planets. Explain the rotation of the planets and their paths around the Sun. Explain that each planet spins on its own axis like a top. It also goes round the Sun on a fixed path called an orbit, at its own speed.</p>				

Date:

Time: 40 mins

Unit 11 Topic: The Sun and the planets	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW
2. Asteroids, comets, meteors, and meteorites	<ul style="list-style-type: none"> to describe the characteristics of heavenly bodies 	<ul style="list-style-type: none"> identify and describe asteroids, comets, meteors, and meteorites 	Pictures of asteroids, comets, meteors, meteorites	Reading: p 68 Collect pictures of comets, meteors, and meteorites and use them to make a chart. HW: Q2
<p>Key words: asteroid, comet, meteor, meteorite</p> <p>Method: Show the students pictures of different heavenly bodies. Write their names on the board. Ask the students to identify them by their characteristics. Ask: Have you ever seen a shooting star on a starry night? Discuss the characteristics of asteroids, comets, meteors, and meteorites, and ask the students to differentiate between them.</p>				

Date:

Time: 40 mins

Unit 11 Topic: The Sun and the planets	Teaching objectives	Learning outcomes Students should be able to:	Resources/Materials	Activities/CW/HW
3. Planets of the Solar System Space travel	<ul style="list-style-type: none"> • to describe and name the planets of the Solar System • to explain that the planets go around the Sun on fixed paths • to explain the characteristics of the planets 	<ul style="list-style-type: none"> • name and describe the planets of the Solar System • describe the characteristics of the planets • demonstrate some knowledge of space travel 	A chart of the Solar System; pictures of astronauts and spacecrafts	Reading: p 69, 70 Collect pictures of spacecrafts, astronauts, and rockets and paste them in your science journals. HW: Q3, Q4
<p>Key words: planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune</p> <p>Method: Show the students a chart of the Solar System, or draw a diagram on the board. Write the names of the planets. Explain the rotation of the planets on their axis. Also explain the paths of the planets around the Sun. Ask: Which is the hottest planet? Which is the coldest? Which is the smallest? Which has the most moons? Which has rings around it? Describe the characteristics of each planet. Ask: Can you see the planets in the sky? Explain that Venus can be seen as the evening star. Mars can be identified as the red star.</p>				

Name: _____

Date: _____

1. Fill in the blanks to identify the features of the universe:

(a) A fuzzy band of light across the sky _____

(b) Islands of stars spinning through space _____

(c) A vast space containing millions of shining bodies in the sky

(d) Big balls of burning gases _____

(e) Bodies that move around the Sun _____

(f) The Sun and its family of planets _____

(g) The path of a planet around the Sun

(h) Machines that travel in space _____

(i) People who travel in space _____

Name: _____

Date: _____

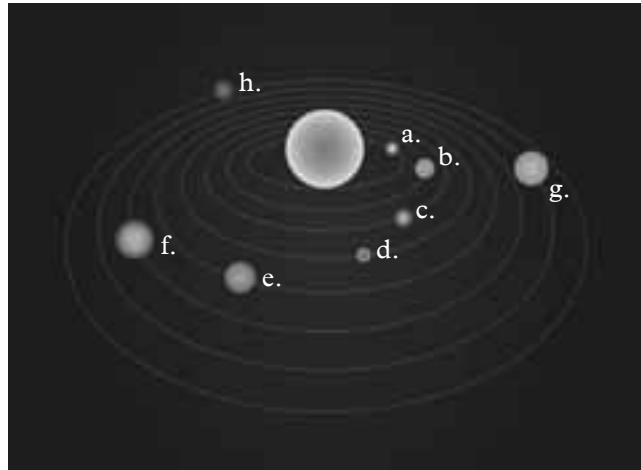
1. Name the planets of the Solar System.

a. _____

b. _____

c. _____

d. _____



e. _____

f. _____

g. _____

h. _____

2. Write the name of:

a. The biggest planet _____

b. The smallest planet _____

c. The planet nearest to the Sun

d. The planet furthest from the Sun

e. The hottest planet _____

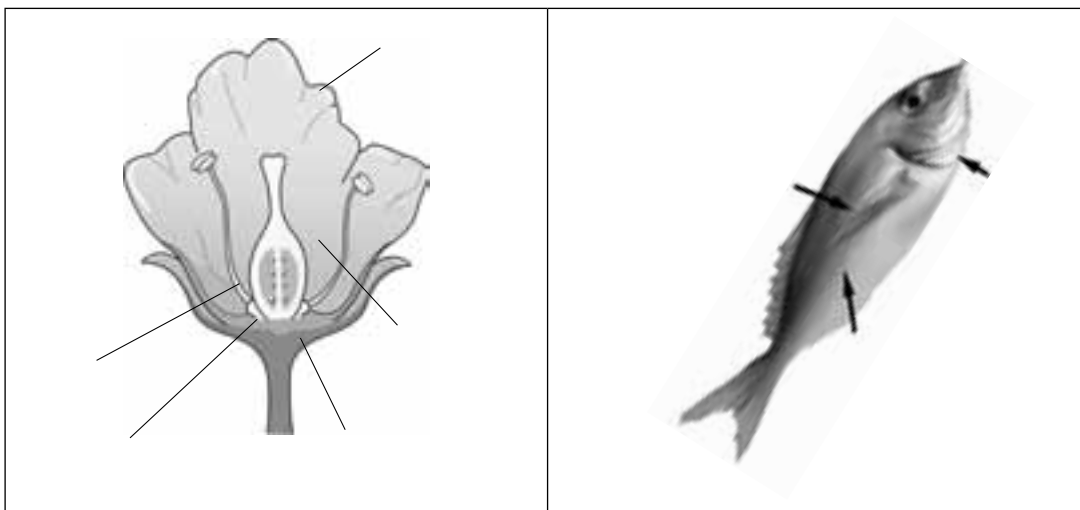
f. The coldest planet _____

g. The planet that has the longest orbit

h. The planet that has the shortest orbit

Assessment

1. Why is food important for the body?
2. Fill in the blanks to complete the statements.
 - a) Three-quarters of our bodies are made of _____.
 - b) _____ gives us energy to grow and stay healthy.
 - c) Animals that eat plants are called _____.
 - d) Animals that eat the meat of other animals are called _____.
 - e) Animals that eat both plants and animals are called _____.
3. Choose the best answer.
 - a) The body of a bird is covered with fur/feathers.
 - b) A bird has teeth/a beak.
 - c) Mammals lay eggs/have babies.
4. Label the parts of the flower.
5. Label the parts of the fish.



6. Name two hard and dry fruits.
 - a) _____
 - b) _____
7. What is matter made of?
8. Write **true** or **false**.
 - a) Molecules are always moving.
 - b) A solid can easily change its shape.
 - c) Molecules of a gas are very far away from each other.
9. How can we measure changes in air pressure?

10. Draw a simple barometer.



11. Fill in the blanks to complete the statements.

- a) Rainwater which soaks into the ground and gathers between the rocks is called _____.
- b) Groundwater comes out of holes or cracks to make a _____.
- c) Deep holes dug in the ground to reach the groundwater are called _____.

12. Draw the water cycle.

13. Why do we put oil in the moving parts of a machine?

14. Things that force can do:

- a) Force can _____ things.
- b) Force can _____ things.
- c) Force can _____ things.
- d) Force can _____ things.
- e) Force can change the _____ of things.

15. What happens when we heat things?

16. With which instrument can we measure temperature?

17. Why does a tomato look red?

18. Why do black objects look black?

19. Name the colours of the rainbow.

20. Name three types of soil.

- a) _____
- b) _____
- c) _____

