EXERCISES (Let Us Answer)

- MULTIPLE-CHOICE QUESTIONS
- MATCH THE COLUMNS
- YES OR NO
- FILL IN THE BLANKS
- TRUE/FALSE
- UNSCRAMBLE THE LETTERS
- GUIDED-ANSWER QUESTIONS
- SHORT-ANSWER QUESTIONS
- LONG-ANSWER QUESTIONS
- HOTS QUESTIONS

ENRICHMENT ACTIVITIES (Let Us Do)

- IN-TEXT QUESTIONS
- MAKING MODELS
- WORD PUZZLES
- SURVEYS
- COLOUR THE PICTURE
- SURFING THE NET
- JOIN THE DOTS
- EXPERIMENTS
- INFORMATION GATHERING
- MAZES
- QUIZZES
- FIELD TOURS
- PROJECTS
- PICTURE STORIES

THERE'S MORE . . .

- **IT'S A FACT** (Books 3, 4, 5) gives snippets of interesting information that broaden and update knowledge.
- **LIFE SKILLS** link science with the day-to-day life of the child and her/his surroundings.
- **SCICTIONARY** (Books 3, 4, 5) is a dictionary of scientific terms.
- **GREEN PAGES** aim at developing a love for the environment.
- **YOGA AND YOU** puts the child on the road to good health.
- **TECHNOLOGY AND YOU** tells the child about the pros and cons of modern technology.
- **SUBJECT LINKS** integrate science with other curriculum areas.
- **TEACHER'S NOTES** have suggestions on a particular topic/concept or a chapter in general.

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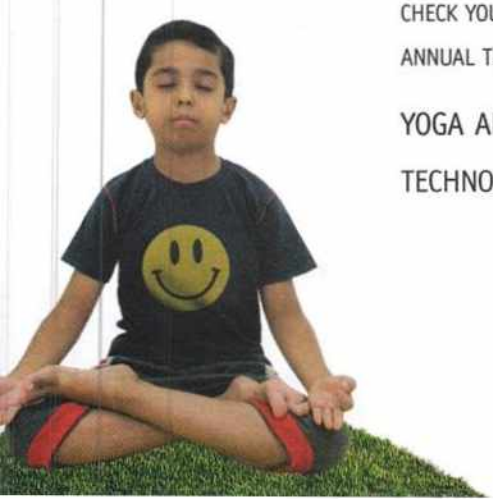
- **TEACHER'S ZONE** provides classwise worksheets for chapters.
- **MORE RESOURCES** includes information about different boards as well as interesting facts.
- **SCIENCE CALENDAR** highlights important events in science.
- **FAMOUS SCIENTISTS** gives a synopsis of famous scientists and their contributions.
- **ASK THE EXPERTS** lets the user ask subject-related queries and get satisfactory answers.

CONTENTS



An Environment Story

This is the story of four friends and how they save water. Read the story carefully and answer the questions given at the end of the story.

Hasan, Harjit, Mary and Deepa are friends. They love nature. They do not like to waste things.

They have formed a Nature Club.

Mary and Harjit are returning from school. Suddenly they hear the sound of falling water from inside a house.

They run up to the front door. "Oh no! The house is locked. There is no one in," says Mary.

The children run to Harjit's house. Harjit's father calls up the Fire Department.

Mary goes off to call Hasan and Deepa.

Within ten minutes the fire brigade arrives. "They have left a window open," says Harjit. The fireman puts up a ladder.

He climbs in through the window. A tap is running. The bathroom is full of water!

Quickly, the fireman turns off the tap. "What a waste!" he sighs.

"Thank you, Fireman Uncle", says Hasan. The four friends are happy. So much water has been saved from being wasted.

1. What message does this story give you?
2. Think of two ways that can help you to save water at home.

TEACHER'S NOTE: This little picture story conveys two very crucial messages. The obvious one is let's conserve water. The underlying message is National Integration. Hasan, Harjit, Mary and Deepa are **friends**. Use the second question as HOTS question.

1

Food and Feeding Habits of Animals

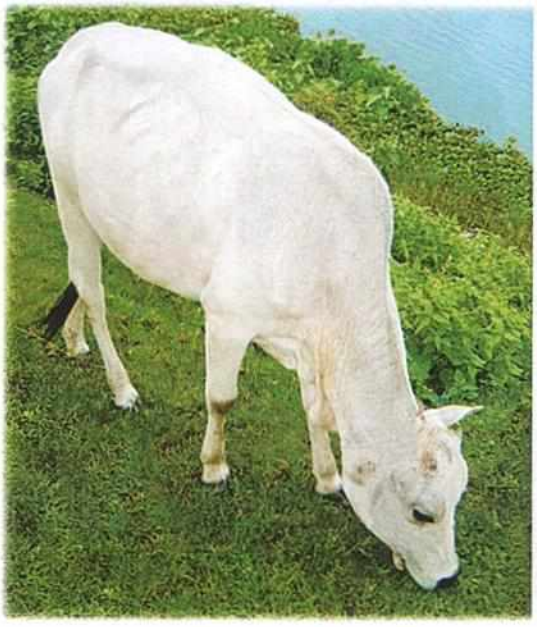
Get Set!

Unscramble the names of the animals.
Match them with the food they would like to have.

QSUIRERL	EELPAHTN	RIBABT	TCA	OMENKY
_____	_____	_____	_____	_____



Let us read about the food and feeding habits of animals.




WHY DO ANIMALS NEED FOOD?

Animals need food to grow

Have you seen a cow grazing in a field? Have you seen a cat chasing a mouse? They do so because they need food. All animals need food. Animals need food to **grow**. You may have seen little kittens. How greedily they suck their mother's milk! Slowly a tiny kitten grows into a big cat. A pet dog is usually healthier than a stray dog. This is because a stray dog does not get enough food. Animals need food to **stay healthy**.

1.1 Animals need food to grow.

A Word to Know
STRAY DOG: a dog which lives in the streets

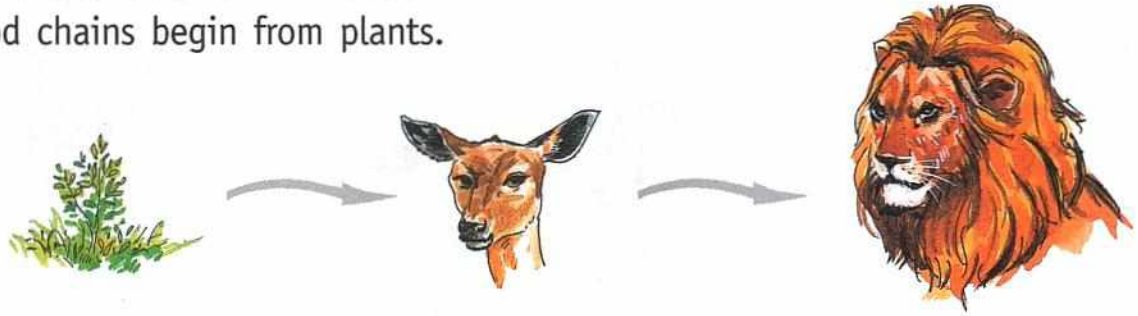
1.2 Animals need food to stay healthy.

Animals need food for energy

Some animals help us with our work. They need **energy** to work. They also need energy to move about. They get this energy from the food they eat. All animals need food to grow, to work and to stay healthy.

All animals depend on plants for food—Food chain

Some animals eat **plants**. Some animals eat **plant-eating animals**. Some animals eat **both plants and animals**. Thus, all animals depend on plants for their food. This is like a chain and is called a **food chain**.
All food chains begin from plants.



1.3 All animals depend directly or indirectly on plants for their food.

1.4 Plant-eating animals

1.5 Flesh-eating animals

1.6 Plant- and flesh-eating animals

Herbivores, carnivores and omnivores

Animals like cows and giraffes eat grass or green plants. They are **plant-eating animals**. Such animals are called **herbivores**.

Animals like lions and tigers eat the flesh of other animals. They are **flesh-eating animals**. Such animals are called **carnivores**.

Animals like crows and bears eat both plants and the flesh of other animals. Such animals are called **omnivores**. They eat different parts of plants. They get food from animals too in the form of milk, eggs, fish and meat. Humans are also omnivores.

Food for domestic animals

Domestic animals do a lot of work for us. We should feed them well to keep them healthy and active. Animals like oxen, horses, camels, mules, elephants and donkeys carry loads or work in the fields. They need **energy-giving food**. So, they should be fed on oat and fodder.

A Word to Know
DOMESTIC ANIMAL: an animal which works for humans

1.7 These animals need energy-giving food.

Animals like cows, buffaloes and goats give us milk. They need **milk-producing food**. So, they should be fed on grass and oilseed-cakes.

HOW ANIMALS FEED

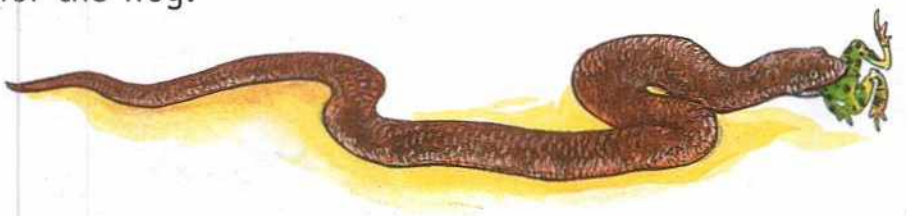
Different animals eat different types of food. The feeding habits of an animal depend on the type of food it eats.

The mouth of an animal is suited to the type of food it eats.

Animals that swallow their food whole

Some flesh-eating animals like snakes and frogs swallow their food whole. They do not bite or chew their food. So they do not have biting or chewing teeth.

A frog eats insects. It has a long and sticky tongue. It shoots out its tongue to catch insects. The insect that gets stuck on the tongue makes a tasty meal for the frog!



1.8 A snake swallows its food whole.

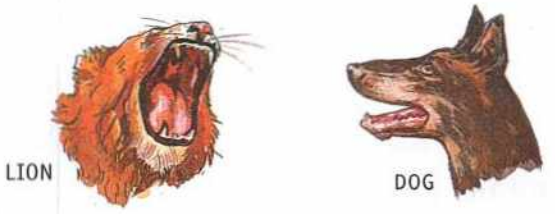
1.9 An insect gets stuck on the long and sticky tongue of a frog.

Animals that tear and chew flesh

Some flesh-eating animals like lions, tigers, foxes and dogs chew flesh and bones. So they have very sharp, pointed and curved front teeth to tear flesh. They also have strong grinding teeth at the back of their mouths.

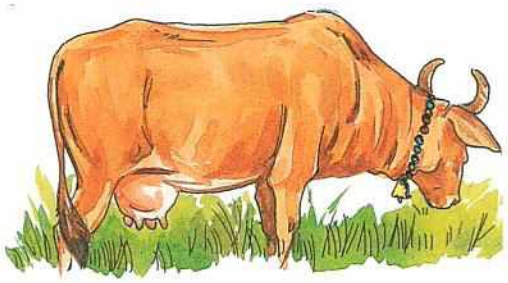
Animals that gnaw

'Gnaw' means to bite something repeatedly or chew it hard. Animals like rabbits, rats and squirrels gnaw their food and have very sharp front teeth. These teeth help them to bite into seeds and fruits.



1.10 Animals that tear and chew

1.11 Animals that gnaw



SWALLOWING GRASS

CHEWING THE CUD

1.12 A cow swallows grass and chews the cud.

Animals that eat grass and chew cud

Some grass-eating animals like cows, buffaloes and sheep first swallow grass without chewing it. After some time they bring it back into their mouths. Then they chew it with their grinding teeth. This is called **chewing cud**. They also have biting front teeth to cut the grass. Watch these animals graze. You can actually hear the sound they make.

A Word to Know

GRAZE: eat grass and plants in a field

CAT

DOG

1.13 Animals that lap milk or water

Animals that lap milk or water

Animals like cats and dogs lap milk or water with their tongue.

Oral Questions

Choose the correct answer.

1. Animals need food to (sleep / grow / bathe).
2. Animals that eat the flesh of other animals are called (carnivores / herbivores / omnivores).
3. A frog has a long and sticky (tail / tongue / body) to catch insects.
4. Animals that chew the cud are mostly (carnivores / herbivores / omnivores).

FEEDING HABITS OF SOME OTHER ANIMALS

The trunk of an **elephant** helps it to eat and drink. It uses its trunk to uproot grass and tear off branches from trees. The elephant also uses its trunk to suck up water and then shoots the water like a fountain into its mouth. It uses its trunk to have shower also.

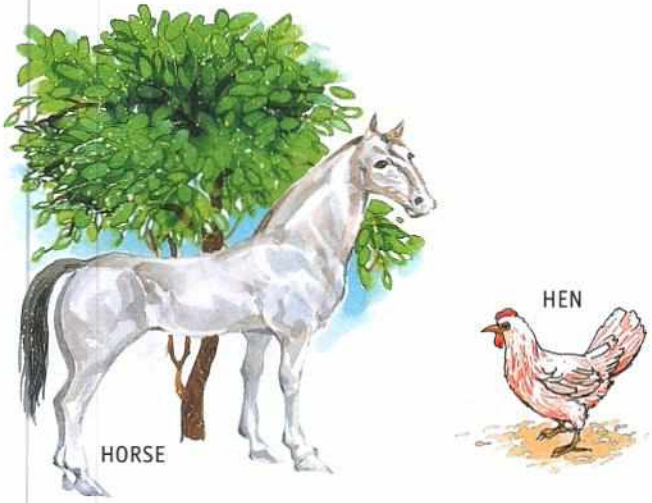
THINK GREEN!

What do you do with leftover food?
Do you throw it away?
The next time food is left over,
give it to birds, stray dogs,
cows and cats.

An **earthworm** swallows soil which has parts of dead plants and animals in it.
A **butterfly** has a long sucking tube.
It uses this to suck nectar from flowers.
Mosquitoes and **leeches** suck blood from the bodies of other animals.

DOMESTIC ANIMALS NEED CARE

All animals need protection and care.
Domestic animals serve us well if we take good care of them. Food and water must be given to them in clean vessels.
Their shelters must be cleaned regularly.
Sick animals must be treated in time.
We must always be kind to animals.



1.18 Domestic animals need care.

1.14 An elephant uses its trunk to have food and a shower.

1.15 An earthworm swallows soil.

1.16 A butterfly sucks nectar from flowers.

1.17 A leech and a mosquito suck blood.

Let us say it again

- Animals need food to grow, to stay healthy and to get energy.
- Some animals eat plants. Some eat flesh. Others eat both plants and flesh.
- Animals have different feeding habits. Some tear and chew their food. Some swallow it. Some bite their food and chew it. Some gnaw. Some grass-eating animals chew cud. Liquid food is lapped or sucked up.
- We must be kind to all animals.

Let us answer

A. Write H for herbivore, C for carnivore and O for omnivore.

1. 
3. 
5. 
7. 
2. 
4. 
6. 
8. 

B. Read the statements 1 to 8 carefully and then look at the pictures. Now write the correct number below each picture.

1. I am a herbivore.
2. I am an omnivore.
3. I can fly.
4. My front teeth are sharp, pointed and curved.
5. I am a carnivore.
6. I chew the cud.
7. I need energy-giving food.
8. I am used for riding.




C. Read the clues and unscramble the letters to get the names of these animals.

1. It has a long sticky tongue. OGRF FROG
2. It swallows soil. AEWRTMORH _____
3. It sucks blood. USOMOTIQ _____
4. It carries load for us. NODYKE _____

D. Fill in the blanks.

1. Animals need _____ to grow.
2. An elephant takes the help of its _____ to eat and drink.
3. Soil contains parts of dead _____ and animals.
4. A butterfly sucks _____ from flowers.

E. Match the animal with the type of teeth it has.

1. tiger	a. very sharp front teeth
2. squirrel	b. sharp, pointed and curved front teeth
3. cow	c. biting front teeth

F. Answer these questions.

1. All animals depend on plants for their food. How?
2. Name different types of food that omnivores get from animals.
3. Why do cows and goats need to be fed on grass and oilseed-cakes?
4. How does an earthworm have its food?
5. Why should we take care of domestic animals?

HOTS questions

G. Think and answer.

1. Does a frog need teeth? Why? Why not?
2. A dog has sharp and pointed front teeth. Why?
3. A pet dog is usually healthier than a stray dog. Give reasons.

Let us do

H. Mark with coloured pencils.

1. two animals who swallow their food whole — purple
2. two carnivores — red
3. two omnivores — blue
4. two herbivores — green

A	J	C	O	W	K
H	O	R	S	E	W
I	L	O	I	K	N
X	I	W	O	L	F
Y	O	B	E	A	R
S	N	A	K	E	O
D	E	E	R	I	G

I. Join the dots and colour.

Join the dots to find this animal mask. Colour the mask.

The tiger is our _____ animal.

J. Help Abhay read the hidden message by following the secret code.

The Secret Code

A = 1	R = 3	S = 5	V = 7	U = 9
E = 2	T = 4	I = 6	G = 8	O = 0

Now find the hidden message.

5	1	7	2

0	9	3

4	6	8	2	3	5

K. Solve the riddle.

My first letter is in Fool but not in Cool.

My second is in Round but not in Found.

My third is in Long but not in Lung.

My fourth is in Bang but not in Band.

I am a ____ ____ ____ ____

L. Visit a 'Home for Sick Animals'.

TO VISIT

Visit a 'Home for Sick Animals' to find out what these animals are fed and how they are kept clean and taken care of. Fix one day every month and bring two old newspapers, a handful of grains like rice and send it to the 'Home for Sick Animals'.

A life skill

M. Share your food.

Clownfish and anemones live in the sea close to each other. Clownfish are safe from the sting of other animals by living among the anemones and anemones get food left over by the fish.

If your friend has not brought her/his tiffin, what will you do?

- Eat your food while she/he watches.
- Share your food with her/him.
- Make fun of her/him for forgetting her/his tiffin.

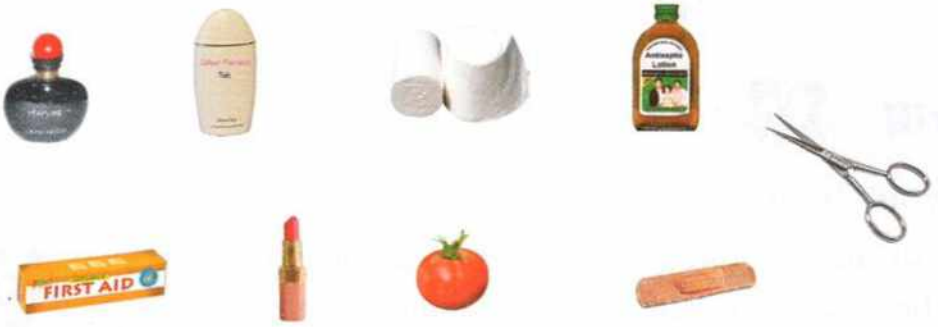
TEACHER'S NOTES: Remember that it is a joyful experience for a class 3 student to watch an animal eating something. Help them to observe animals like rats, cows and butterflies eating. Do they eat in the same way? Every picture in the book is worth looking at. Help and guide them to see it carefully.

2

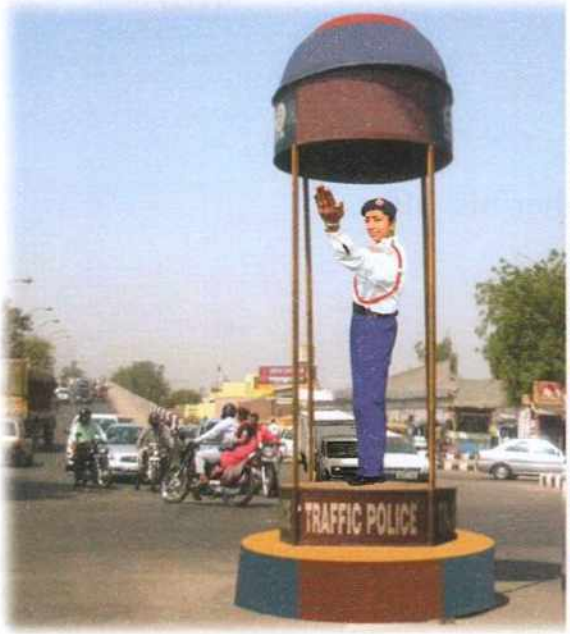
Safety and Home

Get Set!

Circle the things that we could keep in a first-aid box.



Let us read about being safe and about caring for our home.



2.1 Amit slipped while playing and hurt his leg.

2.2 Anne fell down the stairs and broke her arm.

2.3 Gurpreet was trying to peel vegetables when he cut his finger.

BE SAFE

Accidents happen suddenly. People get hurt in accidents. Sometimes accidents can put lives in danger. We can avoid accidents if we are careful and follow safety rules.

Be safe in the classroom

- Do not hit anyone or throw things at them.
- Do not climb on to desks.
- Use a sharpener to sharpen pencils.
- Be careful while using scissors and needles.

Be safe on the playground

- Learn and follow the rules of whichever game you play.
- Do not hit others with a bat, a ball or anything which can cause injury.
- Wait for your turn at the swing, at the seesaw, in fact everywhere.

2.4 Follow the rules of the game.

2.5 Wait for your turn at the seesaw.

2.6 Walk on the footpath.

2.7 Signal before turning.

2.8 Be careful in a moving bus.

Be safe on the road

- Walk on the **footpath** or on the safe side of the road.
- Cross the road at the **zebra crossing**. Before crossing, look to your right, then to your left and then again to your right. Cross the road when it is clear or when the traffic stops. If there is a subway, use it to cross a road.
- When riding a bicycle, keep to your left. Signal before turning.
- Do not get into or get off a moving bus.
- Do not put your head or arms out of a moving bus.

A Word to Know
SUBWAY: an underground passage for crossing a road

Oral Questions

Choose the correct answer.

1. Use a (blade / knife / sharpener) to sharpen pencils.
2. Cross the road at the (giraffe / horse / zebra) crossing.
3. Use a / an (broadway / edgeway / subway) to cross a road.

2.9 Do not play with these.

Be safe at home

- Do not leave your toys, bags and shoes on the floor. You or someone could trip over them.
- Be careful with sharp things like knives, blades and scissors. You may hurt yourself.
- Fire can hurt you very badly. Be careful near stoves. Do not touch hot pans or boiling water.

- While lighting candles and matches, hold them away.
- Do not touch electrical gadgets or switches with wet hands. You may get an electric shock.
- Take medicines only after asking an adult.
- Do not play with plastic bags, bedsheets or pillowcases by pulling them over your head.

First aid

After an accident, the first help that an injured person gets is called **first aid**.

If one of your friends gets hurt, you need to give first aid before an adult can reach you. Here is what you can do.

A Word to Know
WOUND: a cut on the skin

- Keep calm. Do not crowd around the injured person.
- Call a doctor or an adult.
- Do not let the wound bleed. Loss of blood is harmful.
- Clean the wound with an antiseptic lotion.
- Tie a clean hanky or a bandage over the wound.
- Make the injured person sit or lie down. Keep the wounded part of the body raised.
- Comfort your injured friend.

2.10 Learn to give first aid.

THINK GREEN!

- Give first aid to an injured animal or a bird and save it from pain or death.
- Waste is anything left over and not used. We must learn to reduce waste. Choose things that can be reused such as cloth towels instead of paper napkins.
- Reuse things like cardboard boxes, jars, cards, envelopes and bags.

2.11 Home is the best.

HOME IS THE BEST

Our house keeps us safe from the heat of the sun, the cold, the rain and the storm.

A good house

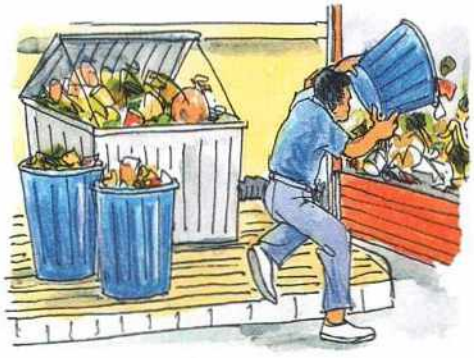
- The rooms in a house should be airy and well-lit.
- A house should have open spaces like a veranda or a courtyard. These give us fresh air, sunlight and a place to play in.
- A house should have a well-planned **drainage system** that carries dirty water away from the house.
- Doors and windows should be fitted with wire-netting to keep flies and mosquitoes away.

A Word to Know
DRAINAGE SYSTEM: pipes for carrying away dirty water

2.12 Door fitted with wire-netting

Care of the house

- Drains from the kitchen and the bathroom must be covered. Mosquitoes breed in uncovered drains or in dirty water that collects near the house. They spread diseases like malaria, dengue (say dayn-gi) and chikungunya.
- Washbasins, toilets and bathrooms must be washed and cleaned daily.
- Dustbins must be covered so that flies do not lay eggs in the rubbish.
- Garbage must be thrown in a proper dumping place and not on the road.
- Curtains must be washed regularly.



2.13 Garbage must be thrown at a proper dumping place.

A house becomes a home when the people living in it love each other. Help to keep your house clean. Make it a pleasant place to live in.

Let us say it again

- We must remember and follow safety rules.
- We must learn to give first aid to the injured.
- Our house keeps us safe from the heat of the sun, the cold, the rain and the storm.
- Our house should be airy and well-lit.
- We must keep our house clean to keep away diseases.

Do not accept eatables from strangers.

Let us answer

A. Tick (✓) the correct answer.

1. While playing a game,
   a. leave when you lose. b. follow its rules. c. fight for your turn.
2. You may get an electric shock if you touch
   a. switch with wet hands. b. hot pans. c. TV remote.
3. First aid should be given to an injured person
   a. immediately. b. after one hour. c. when she/he is fit.
4. Dustbins should be kept covered to keep away
   a. butterflies. b. bees. c. houseflies.

B. Unscramble the letters to get the correct words related to safety.

jinyru _____ dunow _____ anbdgea _____ potafoth _____

C. Answer these questions.

1. Name one safety rule you must remember while walking on the road.
2. Why should things like toys, bags and shoes not be left on the floor?
3. Why do we need a house?
4. Write any two features of a good house.
5. Where do mosquitoes breed?

HOTS questions

D. Think and answer.

1. Residents of which house have less chances of suffering from diseases due to mosquitoes and flies? Why?

HOUSE NO. 1 HOUSE NO. 2

2. Mohit was going somewhere. On the way near a hospital he saw this sign. Why was this sign near a hospital?

Let us do

ENRICHMENT ACTIVITIES

E. Make a first-aid box at home

Every home must have a first-aid box. It must be kept in an easy-to-reach place. It is good to take a first-aid box whenever you go on a vacation. Let us make a first-aid box.

- Take a cardboard box or a plastic container.
- Visit a medical store with an elder and get the following:
  - sticking plaster
  - tweezers, to remove ticks and small splinters
  - a thermometer
  - sterile cotton
  - antiseptic solution
  - antacid (for upset stomach)
  - ORS powder

F. Observe a road safety day.

Have a Road Safety Day in your class. Divide the class into three groups.

GROUP 1: Safety at Home

GROUP 2: Safety in the Classroom

GROUP 3: Safety on the Road

Make charts on safety rules and display them on the noticeboard.

G. Important phone numbers

Tick (✓) the phone numbers you should have with you.

parents ☐	doctor ☐	neighbour ☐	school ☐
gardener ☐	milkman ☐	sweeper ☐	friends ☐

H. Visit a traffic training park.

TO VISIT

Visit a traffic training park in your town. Find out about traffic rules and signs. If you don't have a traffic training park in your town, visit rsgr.in/lsc-3. Click on LINK 1 to find out more about traffic rules.

A life skill

I. How safe is your house?

Tick (✓) the correct choices. Do you . . .

1. have wire mesh doors and windows in your house? ☐
2. have covered drains in your house? ☐
3. throw garbage on the roads? ☐
4. get enough sunlight and air in your house? ☐
5. have a first-aid box in your house? ☐

A subject link

(SOCIAL STUDIES)

J. Some of us help to keep you safe. Some of us make you happy. Who are we? Always be grateful to people who help you.

1. I catch thieves. _____
2. I treat you when you are sick. _____
3. I grow beautiful flowers for you. _____
4. I bring good news and parcels for you. _____
5. I help the traffic move smoothly on the road. _____

TEACHER'S NOTES: One is responsible for one's own safety—this has to be emphasized. Take children to a traffic park or a crossing to teach them to cross the road. Accidents in the newspapers could be discussed in the class. Children's role in keeping the house clean should be discussed. Each child must get a chance to talk during the discussion.

3

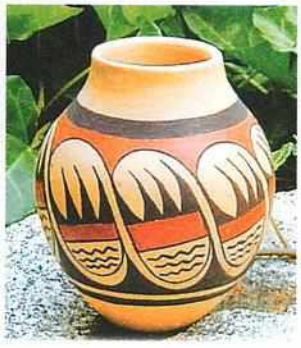
Precious Soil

Get Set!

Who are we? Unscramble our names.

- I am the earth's surface. I am formed by the breaking up of rocks. _____ (LOIS)
- I grow on hill slopes. You like me hot. _____ (ETA)
- Potters use me to make pots and toys. _____ (CALY)

Let us read about soil and why it is important for us.



3.1 The sun, wind and rain break up rocks to form soil.

SOIL FORMATION

The earth is a beautiful place to live on. There are hills and plains, deserts and mountains, dry land and seas on earth. A variety of animals live here. Different types of plants grow on it.

The earth was not always like this. In the beginning there was no life on earth. It was covered with hard rocks. The sun heated up the rocks. The rain cooled them and the wind blew over them. This continued for millions of years. As a result, the rocks broke up into small pieces. These small pieces broke further into smaller pieces. They were carried around by wind and water. The pieces rubbed against each other till they became tiny particles of soil.

IT'S A FACT!

The soil is home to millions of tiny insects, such as beetles and bugs. Snails, slugs and earthworms too live in the soil.

A DUNG BEETLE

A Word to Know
PADDY: rice crop

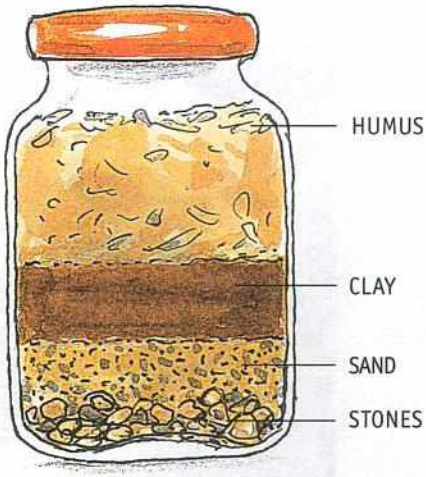
The action of the **sun**, the **rain** and the **wind** broke up the rocks to make soil. It took millions of years for this to happen.

Take samples of soil from the roadside, a playground, a garden or a paddy field. While one sample may be light brown, the other may be dark brown or black. The third may be of yet another colour. Different kinds of soil have different colours.

Now observe each sample with a magnifying glass. You will see that different types of soil have particles of different sizes.

WHAT DOES SOIL CONTAIN?

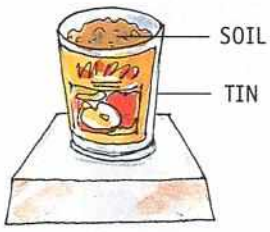
Activity 1 Take some soil from a garden. Put it into an empty jar. Fill the jar with water. Cover it with a lid and shake well. Allow the mixture to stand for fifteen minutes. Now look at the jar carefully. The stones settle down at the bottom. The grains of sand are seen above the stones. The clay settles down above the sand. The water above the top layer is not very clear.

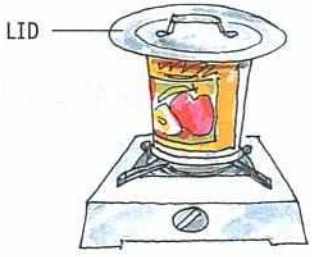


3.2 Soil contains humus, clay, sand and stones.

Parts of dead plants and insects float on top. This is called **humus.**
This activity shows that soil contains _____, _____, _____ and _____

Activity 2 Put some soil in a small tin. Cover it with a lid. With the help of an adult, heat the tin on a low flame. Open the lid. What do you see on the inside of the lid? Drops of water. This proves that soil has moisture in it.





3.3 Soil contains water.

3.4 Soil contains air.

Activity 3 Put some soil in a glass jar. Pour water over it. You will see bubbles float up. This happens because air is trapped in the soil. This air escapes and forms bubbles.

Repeat these activities with different types of soil. Some contain more water, others contain more air.

Oral Questions

Choose the correct answer.

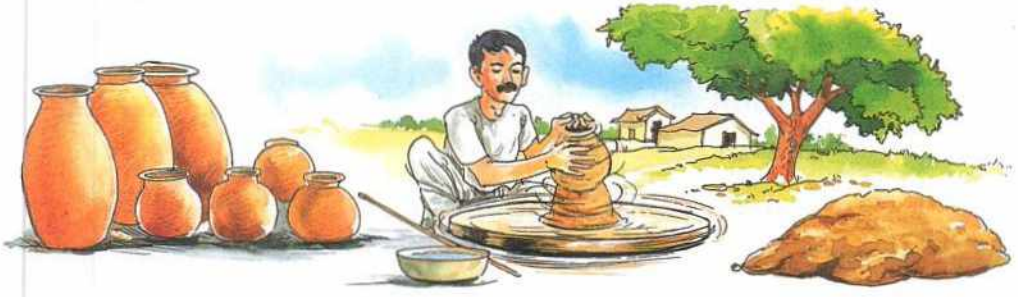
1. The making of soil took (hundreds / thousands / millions) of years.
2. The soil is home to (birds / insects / elephants).
3. (Humus / Sand / Clay) is the parts of dead plants and animals found in the soil.

TYPES OF SOIL

Sandy soil, clayey soil and **loam** are the three types of soil.

Sandy soil is mostly found in the desert and on the seashore. Sand particles are big. There is a lot of air in the space between these particles. Sandy soil does not hold much water.

Clayey soil is sticky and is mostly used for making pots and toys. Clay particles are very fine. There is no space for air between the particles. This soil can hold a lot of water.



3.5 Clay is used to make pots.

3.6 Loam is a mixture of sand and clay.

Loam is a mixture of sand and clay. It can hold both air and water. It has a lot of humus. Loam is the best soil for plants because it contains air, water and humus. **Humus** makes the soil fertile.

A Word to Know
DECAYING LEAVES: dead and rotting leaves

SOIL AND CROPS

Different types of crops grow in different types of soil. Some need sandy soil while some need clayey soil. Others need loam. Yet, all types of crops grow better when manure is added.

Manure contains cow dung and decaying leaves. Manure is added because it is rich in humus and it makes the soil fertile.

3.7 Plants need manure.

THINK GREEN!

- Plant a tree. Trees reduce soil erosion.
- Keep your neighbourhood clean. Organize a litter clean-up day in your neighbourhood once a week.
- Reuse bottles, cans and newspapers. This reduces trash.

Let us say it again

- Soil is formed by the breaking up of rocks.
- Soil particles differ in size and colour.
- Soil contains stones, sand, clay and humus.
- The three kinds of soil are sandy soil, clayey soil and loam.
- The dead parts of plants and animals, called humus, make the soil rich and fertile.
- When farmers add manure to the soil, the amount of humus in the soil increases.

IT'S A FACT!

The remains of living organisms that died millions of years ago and were pressed deep under layers of rocks are known as fossils.

Let us answer

A. Tick (✓) the correct answer.

1. Their action broke up the rocks to make soil.
   a. sun and rain b. rain and wind c. sun, rain and wind
2. This soil is sticky and mostly used for making pots and toys.
   a. sandy b. clayey c. loam
3. This makes the soil rich and fertile.
   a. money b. humus c. heat
4. This soil is best for plants.
   a. sandy b. clayey c. loam

B. Fill in the blanks.

1. Different types of soils are clayey soil, _____ soil and _____ soil.
2. Soil contains _____, _____, _____ and stones.

C. Answer these questions.

1. How do rocks change to soil?
2. Is the size of the particles same in different types of soil? Explain.
3. How will you show that soil contains moisture?
4. What are the different kinds of soil?
5. Why do farmers add manure to the soil?

HOTS questions

D. Think and answer.

1. Bhura is a farmer. He wants to grow wheat. What kind of soil would he need?
2. Hari is a potter. What kind of soil would he use for making pots? Why?

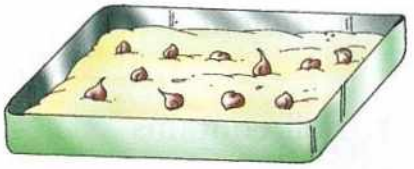
Let us do 

ENRICHMENT ACTIVITIES

E. Can you find out what the pictures say? The first letter of each picture will help you.

1. 
2. 
3. 
4. 
5. 

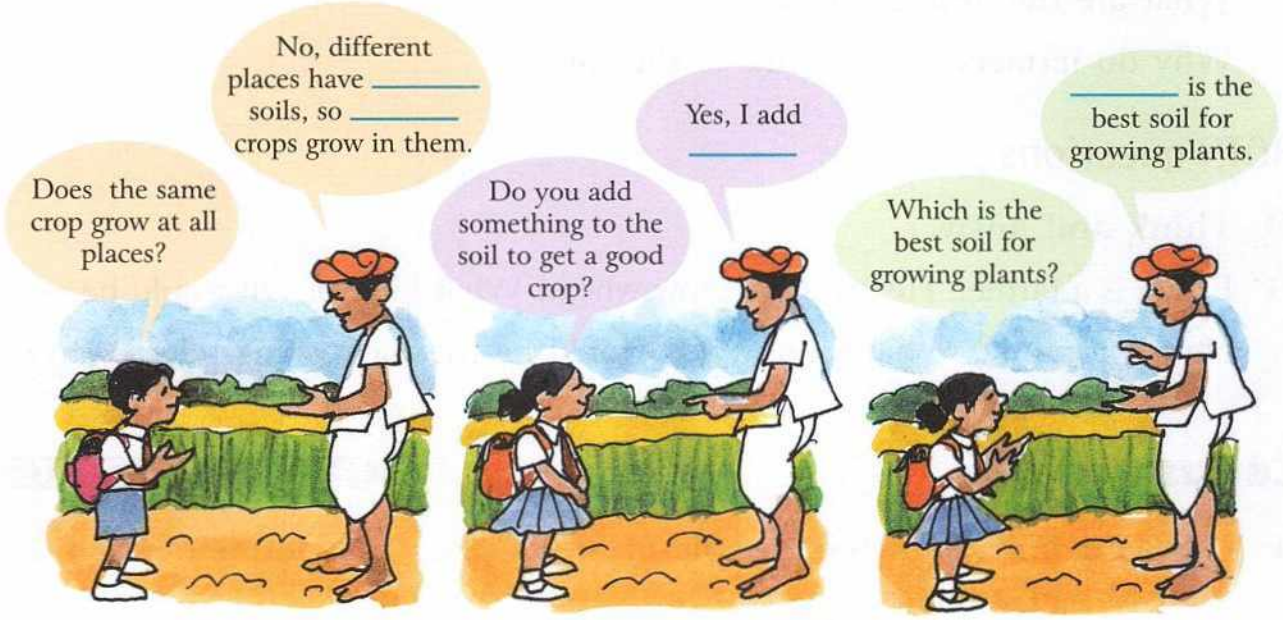
F. Grow gram seeds.



Fill a tray with soil. Water the soil slightly. Plant a few gram seeds (soaked earlier) in the tray. Watch the seeds every day for a week. Remember to keep the soil moist. Observe the changes during the week. You can also grow gram seeds in your garden.

G. Discuss with your partner.

These children went to a nearby village and asked a farmer some questions. Fill in the blanks to complete the answers given by the farmer.



A life skill

H. Let us learn to reuse waste.

Reuse old cardboard cartons to make a dustbin for your room. Paste coloured paper or newspaper around the carton to cover it. Paint pretty designs on it. Keep it under your study table. This dustbin will help you keep your room clean.

TEACHER'S NOTES: Make children repeat activities given in the chapter at home too. Take children to a garden/a playground and help them to observe the different kinds of soil. Encourage the children to collect soil from the places they go. Let them preserve it in neat dry packets.

Check Your Understanding

Enrichment Activities

A. Let us identify animals on the basis of their feeding habits.

- Divide the class into three groups as discussed below.

  Roll number 1 to 15 – GROUP A (Green group)

  Roll number 16 to 30 – GROUP B (Red group)

  Roll number 31 onwards – GROUP C (Blue group)

- CHILDREN OF GROUP A: Paste a green-coloured paper on a drawing sheet. On the paper, paste pictures of any five plant-eating animals.
- CHILDREN OF GROUP B: Paste a red-coloured paper on a drawing sheet. On the paper, paste pictures of any five flesh-eating animals.
- CHILDREN OF GROUP C: Paste a blue-coloured paper on a drawing sheet. On the paper, paste pictures of any five animals that eat both plants and flesh.

B. The soil is home to many small animals. Do this project to find out these tiny friends.

You will need a trowel, a sheet of white paper and a magnifying glass

- Go to a nearby park.
- Carefully dig out some soil from the park.
- Spread it on the sheet of white paper.
- Look at it through the magnifying glass.
- Write your observations in your notebook.
- Did you see some living things in the soil?
- Draw their pictures in your notebook and find out their names.
- Do you think small animals inside the soil help farmers?

C. On festivals like Diwali, we see a lot of toys made of mud. Let us make some toys for ourselves.

You will need some clayey soil, water and water colours.

- Take some clayey soil. Mix it with water to make a semi-solid mixture.
- Shape the mixture into various toy shapes like cat, fish and duck.
- Dry them out in the sun.
- Paint them with bright colours.
- What would have happened if you had taken sand instead of clay? Why?
- What is sand used for?

4

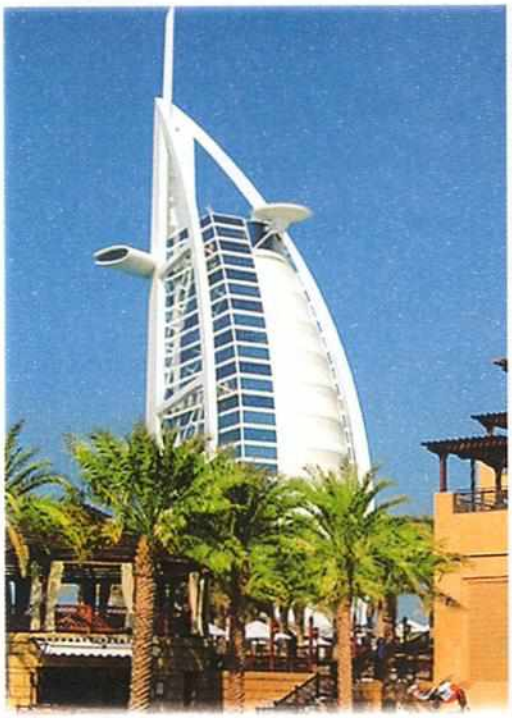
Living and Non-Living

Get Set!

Circle the names of living things and underline the names of non-living things.

- Sachin hit the ball for a six.
- Ruskin Bond has written many books for children.
- We stopped the car to look at the lovely trees.
- From the boat Salim saw a flock of birds flying away.

Let us read about living and non-living things.

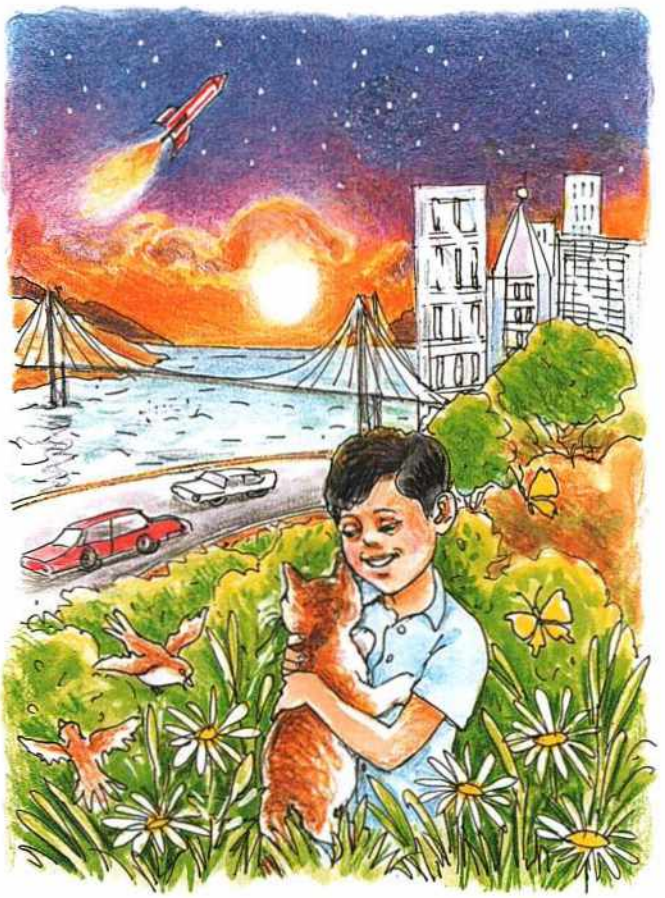


Our Earth is full of wonderful things. There are people and pets, flowers and birds, and rockets and buildings. There are cars and buses, roads and bridges, and of course air and water.

Some of these things, like cars, buildings, roads and bridges, are made by humans. They are called **man-made things.**

Things like animals, plants, rocks, clouds, the sun, the moon and the stars have not been made by humans. Nature gave these things to us. They are **natural things.**

Humans, animals and plants are **living things.** Living things differ from non-living things in many ways.



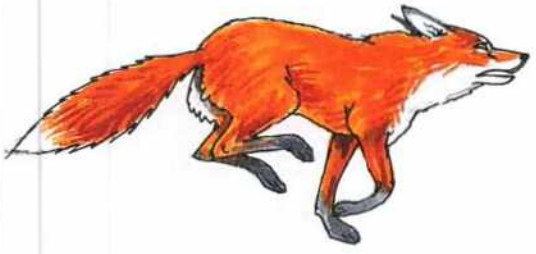
4.1 Our wonderful world

Living things move

The movement of living things shows that they are alive. Birds and insects fly. Dogs and cats walk. Fish swim. These animals move because they have life.

When touched, plants like the 'touch-me-not' (mimosa) show slow movement. The sunflower turns towards the sun.

However, does a table move by itself? No. We have to move it. Therefore, we can say that only **living things move** on their own.



FOX

SWALLOW

MIMOSA PLANT

4.2 Living things move on their own.

4.3 Living things grow.

Living things grow

A human baby grows into an adult. A chick grows into a hen and a baby plant grows into a tree. They grow and change. All **living things grow.**

Can a small computer grow into a big computer? Can a small doll grow into a big doll? No, they cannot. Computers, dolls, rocks, air and water do not grow. They are non-living things.

Living things need food

Sometimes you feel so hungry that you can't wait for lunch or dinner to be served. You need food to **live**. Food helps you to grow. Animals get their food from plants or other animals. Most plants make their own food with the help of air, water and sunlight.

Does your doll ever need food? No. It does not. It is not a living thing. Only **living things need food.**

A Word to Know
STROKE IT: gently move your hand over it

Living things feel

A cat purrs when you stroke it. A dog barks at a stranger. When you are happy you laugh. Do you also cry sometimes? Or get angry? Or feel pain? Yes, we all do so because we can **feel**. Plants grow towards the light. This is because only **living things can feel.**

4.4 Humans need food.

4.5 Animals need food.

4.6 Living things feel.

However, your toys do not cry if you throw them on the floor. They are non-living things.

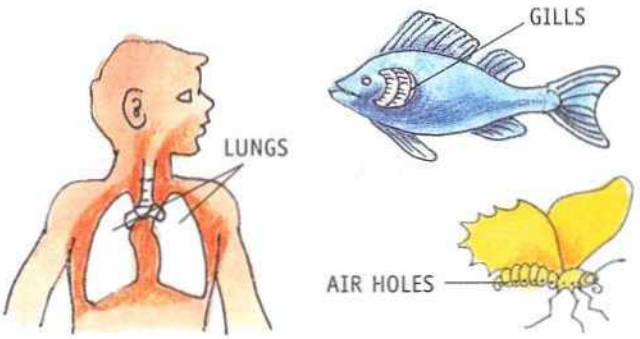
Oral Questions

Choose the correct answer.

1. Things like cars and bridges are (living / man-made / natural) things.
2. A (fish / boys / chairs) cannot move by themselves.
3. When you are (happy / angry / feel pain) you laugh.

Living things breathe

Cover your nose and mouth with your hand for some time. How long can you stay without breathing? Not even for a minute. Human beings cannot live without breathing. They need air to breathe. Animals have lungs, gills or air holes to breathe. Only **living things breathe**.



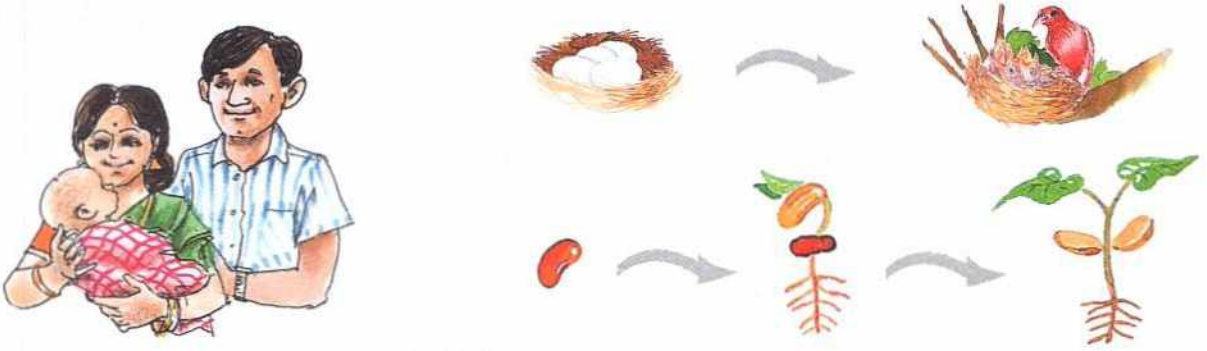
4.7 Living things breathe.

Cover the nose of a teddy bear. Nothing will happen to it. Non-living things do not breathe.

Living things reproduce

A bird lays eggs. Baby birds come out of the eggs. Most new plants grow from seeds. Human beings and animals like cows and cats give birth to babies. Only **living things reproduce**. Non-living things cannot reproduce.

Among living things there is a lot of difference between plants and animals. We will learn about these in the next lesson.



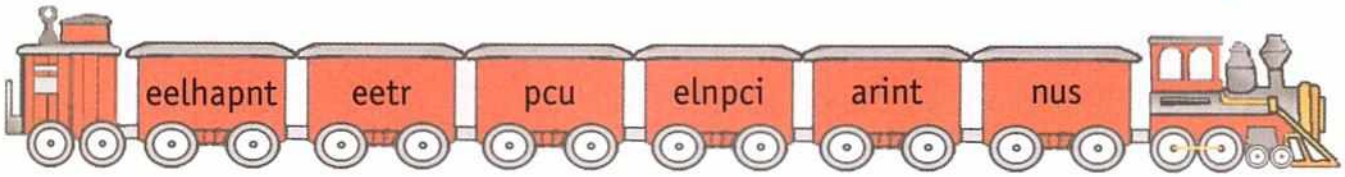
4.8 Living things reproduce.

Let us say it again

- In our world there are living and non-living things.
- Things made by humans are called man-made things.
- Living things include humans, animals and plants.
- Living things can move, grow, eat, feel, breathe and reproduce.

Let us answer

A. Unscramble the words on the train and write them in the correct places.



Natural things _____ _____ _____

Man-made things _____ _____ _____

B. Tick (✓) the correct answer.

1. These are living things.
   a. plants b. tables c. stones
2. These are man-made things.
   a. clouds b. stars c. roads
3. These are natural things.
   a. bridges b. stars c. cars
4. Living things
   a. grow. b. do not breathe. c. do not need food.

C. Answer these questions.

1. What are man-made things? Give three examples.
2. What are natural things? Give three examples.
3. Why do living things need food?
4. Why do you need to breathe? Name two organs that animals use to breathe.

HOTS questions

D. Think and answer.

1. A chair is a man-made thing, made from the natural wood of the tree. What are the three major differences between the chair and the tree (living or non-living)?

Let us do 

ENRICHMENT ACTIVITY

E. Make charts.

Divide the class into two groups. Collect some old magazines. One group will cut out pictures of living things and the other group pictures of non-living things. Both groups will paste their collection of pictures on sheets of chart paper. Display the charts on the school bulletin board.

A life skill 

F. Let us learn to reuse waste.

Go for a walk with your family and on the way collect five non-living things. Can you 'use' them to make something interesting? Which of the following can you make at home?

1. a pencil holder from an old mug.
2. a table mat from a leftover piece of fabric.
3. gift-wrapping paper and carry bags from old newspapers.

A subject link 

(ENGLISH)

G. I am a non-living thing, but one of my parts is named after a body part of a living thing. Choose from the cloud and write.

1. needle _____
2. clock _____
3. comb _____
4. chair _____
5. table _____
6. bottle _____

neck eye
arms hands
teeth legs

TEACHER'S NOTES: The bulletin board must have lots of pictures of living, non-living, natural and man-made things. The children can classify the things on the bulletin board in their notebook. Repeat the features of living things with proper examples.

5

Animals and Plants

Get Set!

Unscramble the letters given below.
Circle those which are related to plants.

LFEA ULNSG SEDE GEG

_____ _____ _____ _____

Let us read how animals are different from plants.

Cats, dogs and tigers are living things. When you call out to a dog it comes running to you. Mangoes, apples and bananas—when they are growing on trees—are also living things. Yet, however much you may call a ripe mango, high up on the tree, it will not come down! Though both **animals** and **plants** are living things, they are different from each other in many ways.

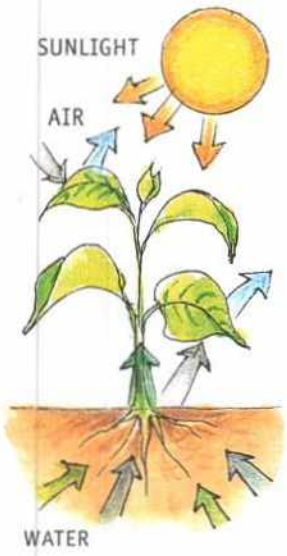
5.1 Animals move in search of food.

5.2 Most plants are fixed to the ground.

Animals move about from place to place

Why do birds fly from one place to another? Why does a lion roam about in a jungle? They move in search of food. On the other hand, most plants are fixed to the ground. They do not have to search for food. They make their own food.

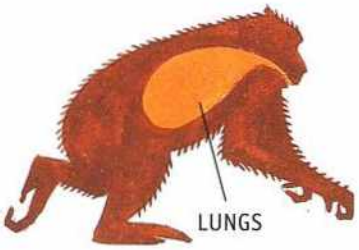
Animals eat plants or other animals

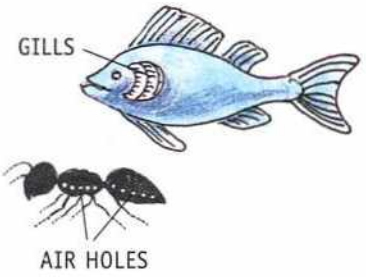


5.3 A plant making its food.

Animals cannot make their own food. Animals like cows and buffaloes eat grass, elephants eat sugarcane and so on. Animals like lions, tigers and cats eat other animals. However, green plants make their own food with the help of air, water and sunlight. Only non-green plants like moulds and mushrooms get their food from dead and rotting matter.

5.4 Animals do not make their food.





5.5 Animals breathe through lungs, gills or air holes.

5.6 Plants breathe through tiny pores.

IT'S A FACT!

Certain plants eat animals! One such plant is the Venus flytrap. As its name suggests, it traps small insects for food.

Animals breathe through lungs, gills or air holes

Animals like horses, tigers and whales breathe through their **lungs**. Fishes have **gills** which help them to breathe in water. Insects like cockroaches, flies and butterflies have **air holes** on their bodies which help them to breathe. Plants breathe through the **tiny pores** on their leaves.

A Word to Know
PORES: very tiny holes

Animals have sense organs

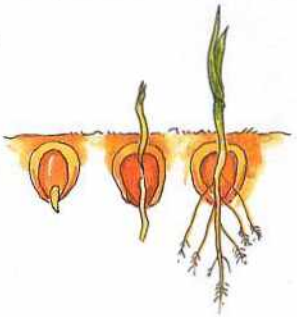
Animals have sense organs—skin, eyes, nose, ears and tongue. These organs help them to know about the world around them. Plants do not have sense organs.

Animals reproduce by laying eggs or by giving birth to young ones

Some animals like birds and snakes lay **eggs**. Some animals like cats and cows give **birth** to their young ones.

Most plants produce **seeds**. These seeds give rise to new plants. Some new plants grow from a part of the plant like stem and roots.

5.7 Animals lay eggs or give birth to young ones.



5.8 A baby plant grows from a seed.

Oral Questions

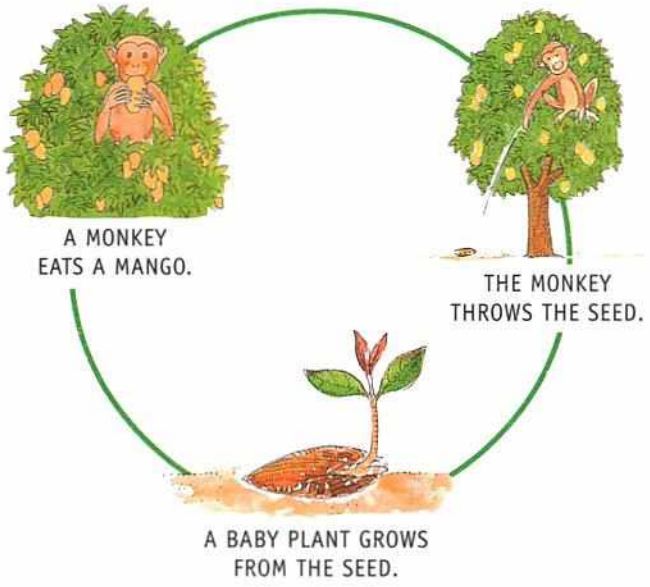
Choose the correct answer.

1. Animals (can / cannot) make their own food but plants (can / cannot) make their own food.
2. Green plants do not need (air / water / wood / sunlight) to make their own food.
3. (Fishes / Whales / Plants) breathe through their lungs.

Animals and plants depend on each other

Though animals and plants are different from each other, they depend on each other to live. Animals and plants share this wonderful world with us.

If there are just enough plants, just enough plant-eating animals, and just enough flesh-eating animals in the world there is a **balance in nature.** When there are too few animals of a kind, like the tiger, this balance gets disturbed. When we cut down too many trees without planting new ones, once again this balance gets disturbed. So we should protect animals like the tiger. We should also grow more trees.



5.9 Plants and animals depend on each other.

Let us say it again

- Animals and plants differ in many ways.
- Animals move from one place to another in search of food. Plants do not.
- Animals have sense organs. Plants do not.
- Animals give birth to young ones or lay eggs. Plants grow from seeds or from other parts of the plant.

IT'S A FACT!

The blue whale is the largest living animal. It is bigger than the largest dinosaur that lived on the earth!

Let us answer

A. Tick (✓) the correct answer.

1. These animals eat other animals.
   a. lions and tigers b. cows and buffaloes c. lions and cows
2. Moulds and mushrooms are
   a. green plants. b. non-green plants. c. green animals.
3. Most plants breathe through tiny pores on their
   a. flowers. b. roots. c. leaves.
4. These animals lay eggs.
   a. horses and tigers b. birds and snakes c. cats and cows
5. We share this beautiful world with
   a. only plants. b. only animals. c. plants and animals.

B. Use coloured pencils to match the picture with the correct statements.

1. Plants cannot make food without this.
2. This animal breathes through its gills.
3. It grows from a seed.
4. Most plants breathe through these.

C. Say, whether it is a plant or an animal.

1. It has sense organs to know about the world around it. _____
2. It can make its own food in the presence of sunlight. _____
3. It breathes through lungs. _____
4. It moves from one place to another. _____

D. Answer these questions.

1. Why do animals move from place to place?
2. From where animals get their food?
3. Mention three different ways by which the living things breathe.

4. Mention the two ways by which the animals reproduce.
5. How is the balance maintained in nature?

HOTS questions

E. Think and answer.

1. Observe an aquarium (where fish are kept). Why do we need to keep water plants inside the aquarium?
2. If forests are removed from the earth, there would be no animals left. Is this statement true? Why? Why not?

Let us do

ENRICHMENT ACTIVITY

F. Plants do not have 'sense organs'. Do they feel the changes around them? Let us find it out.

Keep a small potted plant near a window through which light can come in. What do you notice after a few days? Discuss with your partner.

A life skill

G. Take care of your pet.

Do you have a pet? If you don't, imagine an animal you would like to keep as a pet. How does your pet eat, move and breathe? Discuss in groups of five. How do you know that your pet is happy?
We should love our pets and look after them well.

TEACHER'S NOTES: Recollect the features of living things. Discuss these features in animals and plants and find the differences. At times we feel that plants are superior. When? Ask the children. Encourage children to make albums of animals and plants showing their features.

6

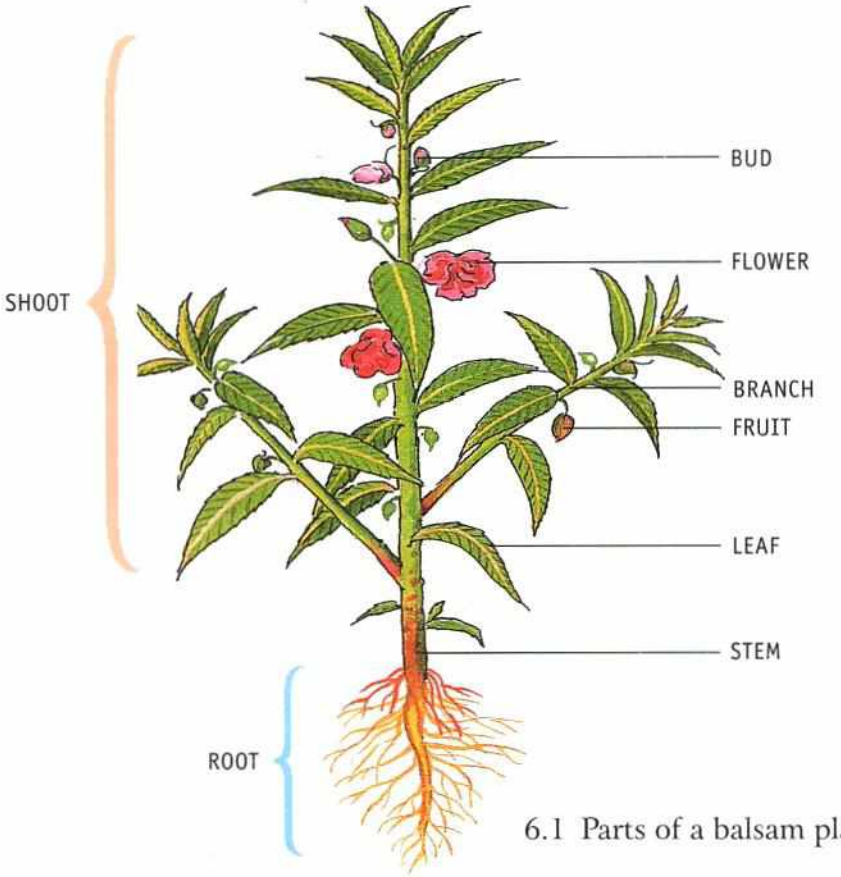
Parts of a Plant

Get Set!

Write the names of two food items which can be made with

- wheat _____ _____
- carrots _____ _____
- potatoes _____ _____

Let us read about the different parts of a plant.

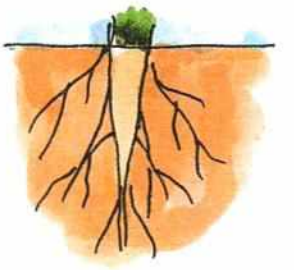


6.1 Parts of a balsam plant

Our body is made up of different parts. A plant's body too has different parts. Read the names of the different parts of a plant in Figure 6.1.

SHOOT AND ROOT

The part of a plant which grows above the ground is called the **shoot.** The part which grows below the ground is called the **root.** The shoot has **stem, branches, leaves, buds, flowers** and **fruits.**



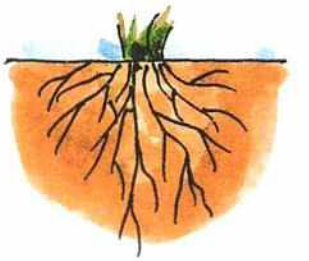
6.2 Tap root

THE ROOT

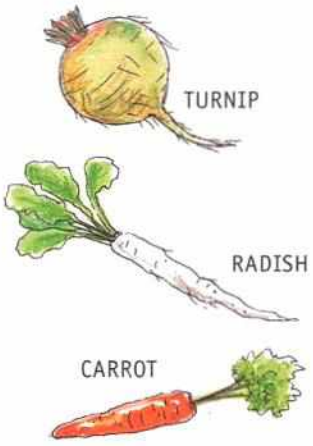
There are two types of roots, **tap root** and **fibrous root.**

Tap root: When a main root grows from the end of the stem and many small roots grow from the main root, it is a **tap root.** Plants like the balsam, bean and mustard have tap roots.

Fibrous root: When a number of roots grow from the end of the stem, it is a **fibrous root.** Plants like grass, wheat, rice and onion have fibrous roots.



6.3 Fibrous root



6.4 Some roots store food.

Functions of the root

A plant cannot remain fixed in the soil without roots. The root fixes the plant in the soil. Without roots, a plant will be able to take in neither water nor salts from the soil. It will die.

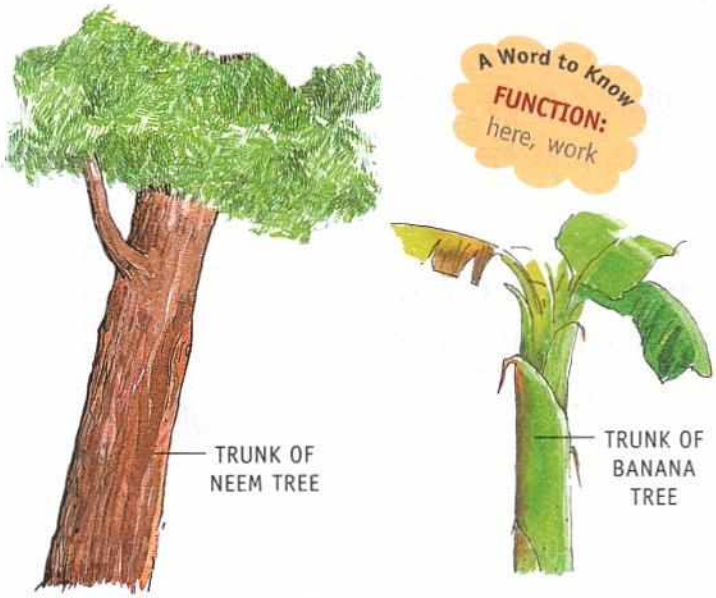
A Word to Know
SALTS: here, minerals which help a plant to grow

Vegetables like carrots, radish and beetroot have thick and swollen roots. Food is stored in them. Thus, some roots store food. This food is used by the plant. We eat the roots of such plants.

Oral Questions

Choose the correct answer.

1. Plants like wheat, rice and onion have (tap / fibrous) roots.
2. The (root / stem / branch) of a plant fixes the plant in the soil.
3. Carrots, radish and beetroot are examples of roots which store (salts / food).



6.5 Stems hold the plant upright.

A Word to Know
FUNCTION: here, work

THE STEM

The **stem** grows above the ground. The main function of the stem is to **hold the plant upright and support its branches.**

Look at Figure 6.5. The stems of the neem and coconut trees are hard, strong and woody. They keep the trees upright. Such a stem is called a trunk. The stem of the money plant is soft, green and weak. It needs support to stay upright. The stem also **carries water to the leaves.** The water taken in by the roots travels through the stem to the leaves. Similarly, the stem **carries the food made by the leaves** to different parts of the plant. In plants like the sugarcane, extra food is stored in the stem. In plants like the potato and the ginger, the stem grows underground and stores extra food. That is why we eat the stem of sugarcane, potato and ginger.

THE LEAF

The most important part of the shoot is the **leaf**. Most living plants have green leaves. The flat and broad part of a leaf is called the **leaf blade** or **lamina**. In the middle of the leaf is the **main vein**. A number of **side veins** branch out from the main vein. The veins carry water to the leaf.

Why is the leaf an important part of the plant? A plant, like all other living things, needs food to grow and live. A green leaf makes food for the plant with the help of air, water and sunlight. This process is called **photosynthesis**. This is why a leaf is called the **kitchen** or the **food factory** of a plant. In some plants, such as cabbage, spinach and lettuce, the leaves store food. That is why we eat the leaves of such plants.

Leaves help a plant to

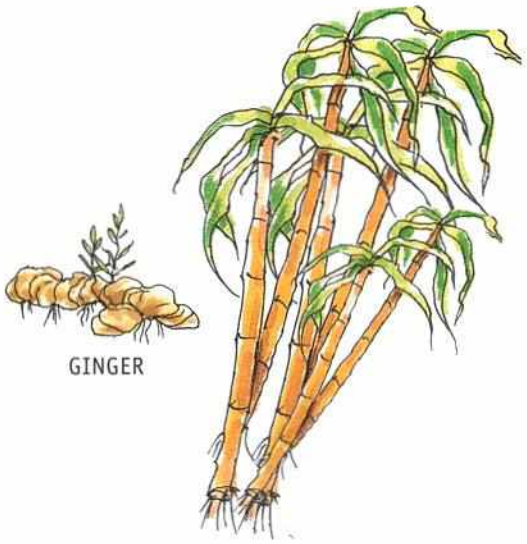
- prepare its own food,
- breathe, and
- give out extra water.

SPINACH

CABBAGE

LETTUCE

6.7 Some leaves store food.



GINGER

SUGARCANE

6.6 Some stems store food.

6.8 Parts of a leaf

6.9 Flowers make plants look beautiful.

THE FLOWER

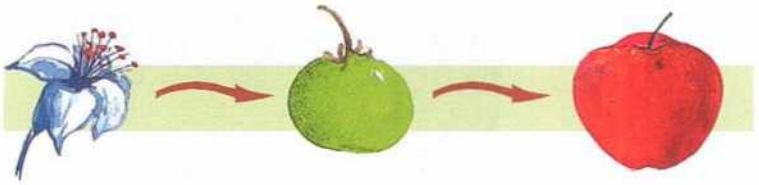
The flower is the most beautiful part of a plant. See the flowers in Figure 6.9. Remember their names and try to look for them in the garden.

Do you know that most flowers grow into fruits? That is why a farmer feels happy when he sees flowers on his mango trees. He knows that these flowers will turn into fruits. In Figure 6.10 you can see how a flower grows into a fruit.

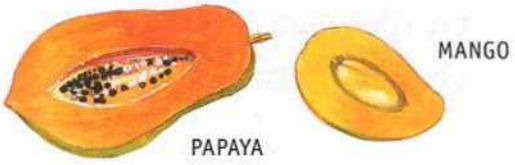
FRUITS AND SEEDS

Fruits have seeds inside them. Some fruits have one seed. Some have a few seeds while others have many.

A mango has one seed, whereas an orange has a few seeds. A papaya has many seeds. There are very few fruits that have no seeds.



6.10 A flower grows into a fruit.



6.11 Fruits have seeds inside them.

Most plants grow from seeds

Most new plants grow from seeds. Seeds are usually protected inside the fruit. Do you know what is protected inside the seed?

A Word to Know
WARMTH: here, light of the sun

There is a baby plant and its food inside the seed of the mother plant. When the seed gets enough air, water and warmth, the baby plant starts growing. It grows till it is a fully grown plant. Banana seeds do not grow into new plants.

Let us say it again

- The different parts of a plant are root, stem, leaves, flowers, fruits and seeds.
- Plants have either tap roots or fibrous roots.
- The root fixes the plant in the soil. They take in water and salts from the soil.
- The stem supports the branches.
- The leaf makes food for the plant.
- The flower grows into the fruit. The fruit has seeds inside it.

Let us answer

A. Tick (✓) the correct answer.

1. In addition to the stem, branches, leaves and buds, the shoot of a plant bears
   a. flowers and roots. b. fruits and roots. c. flowers and fruits.
2. We eat the leaves of this plant.
   a. potato b. tomato c. spinach
3. The stem of this plant is soft, green and weak.
   a. neem b. coconut c. money plant
4. The leaf of a plant is called its
   a. bathroom. b. kitchen. c. bedroom.
5. Most fruits have these inside them.
   a. beads b. seeds c. seats

B. Match the statement with the correct picture.

1. It fixes the plant in the soil.
2. It takes water from the root to the leaf.
3. It makes food for the plant.
4. It changes into a fruit.
5. It grows into a new plant.





C. In which figure, are the parts of the plant correctly labelled?

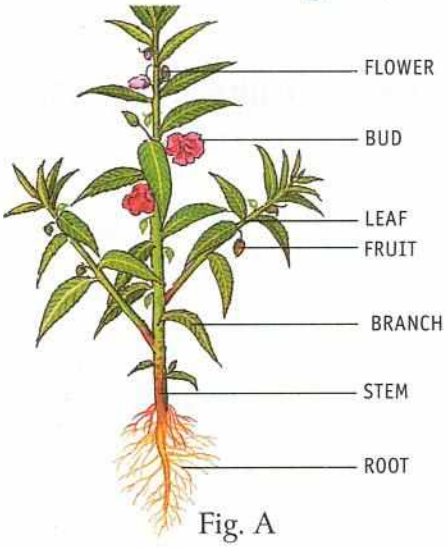


Fig. A

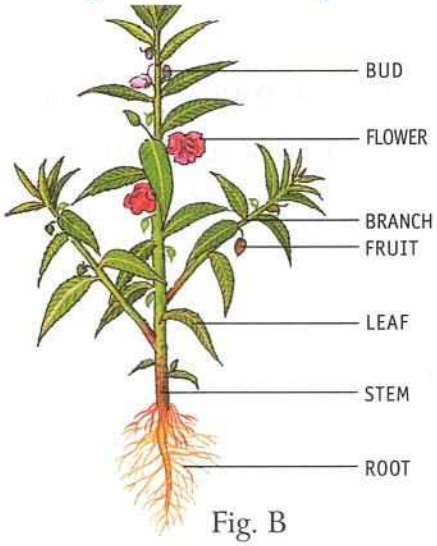


Fig. B

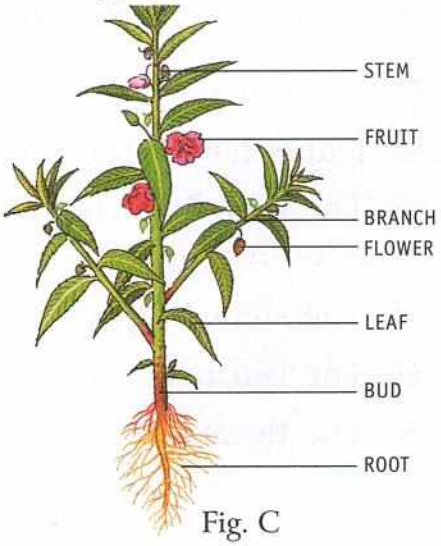
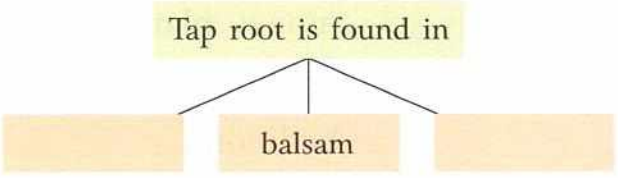


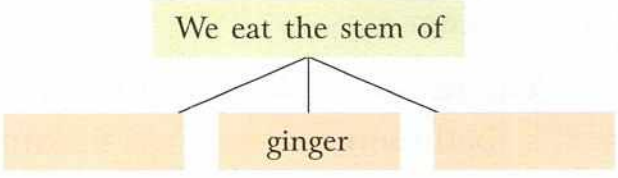
Fig. C

D. Read the clues and unscramble the letters to get the names of the parts of a plant. Write the names on the blanks.

1. It grows above the ground. TEMS _____
2. It makes the food for the plant. FEAL _____
3. Most flowers grow into these. RUITSF _____
4. It grows below the ground. TORO _____

E. Fill in the right words in the empty boxes.





F. Answer these questions.

1. How is the root of a plant different from its shoot?
2. Write two functions of the root.
3. What are the uses of the stem?
4. What does a seed need to grow into a plant?

HOTS question

G. Think and answer.

1. If mangoes are eaten in June, when would you see flowers on the mango tree? In February or July?

Let us do

ENRICHMENT ACTIVITY

H. Let's make a nature album.

Work with your partner. Collect leaves and flowers of different types. Do not pluck from plants or trees. Pick only fallen ones. Press them in the folds of old newspapers. Put something heavy like a book over them. The leaves and flowers will become dry in a few days. Paste them on a sheet of drawing paper. Carefully tie the pages together. Make a pretty cover for your album.

A life skill

I. Do not depend on others.

Different parts of a plant perform different tasks. Which of the following tasks do you think you should do yourself? Tick (✓) them.

- Pack your schoolbag. ☐
- Get ready for school. ☐
- Keep your toys in the cupboard. ☐

- Make your tiffin. ☐
- Wear your shoes. ☐
- Do your homework. ☐

A subject link

(MATHEMATICS)

J. Granny made mixed vegetables for dinner. She used 2 cauliflowers, 16 potatoes, 20 beans, 8 tomatoes and 4 carrots. Write the fractions.

1. Cauliflowers to tomatoes _____
2. Tomatoes to potatoes _____
3. Potatoes to beans _____
4. Tomatoes to beans _____
5. Carrots to potatoes _____
6. Cauliflowers to carrots _____

TEACHER'S NOTES: Parts of a plant can be taught with a weed plant from the garden. Fibrous root and tap root can be taught through grass plant and a small tulsi plant. A field trip is suggested to recognize different kinds of leaves and stems of plants. During lunch time cut out a few fruits to show the kind and number of seeds they have. Making a nature album of pressed leaves and flowers at this age will be wonderful.

Check Your Understanding

Enrichment Activities

A. The stem conducts water upwards. Let us do an experiment to prove this.

You will need a white flower like the chrysanthemum, two glass tumblers, plain water and red ink.

- Take the flower.
- Ask an adult to carefully cut its stem lengthwise to split it into two.
- Fill one tumbler with plain water and the other with water mixed with red ink.
- Place the flower in the two glasses, one part of the stem in each of the glasses.
- Leave it undisturbed for a few hours.
- What do you observe? Write in your notebook.

B. We eat different parts of plants. Identify the parts of plants that you eat.

Request your mother to take you to the nearby vegetable market. In the market, identify and write

- the names of two stems that you eat.
- the names of two roots that you eat.
- the names of two leaves that you eat.
- the names of two fruits that you eat.
- Write the names of two stems that grow underground. (**Hint:** Sometimes you see soil on potatoes.)
- Which stem is used to make sugar? (**Hint:** Elephants like this stem very much.)
- Draw one of each and colour them.

C. Most new plants grow from seeds. Identify some fruits and vegetables from their seeds.

- Shown below are seeds of different kinds. Looking at the seed draw the fruit or the vegetable it belongs to, and then name it.

- Which of the above fruits / vegetables do you get round the year?
- Which of the above fruits / vegetables do you get mostly in summer?
- Which of the above fruits / vegetables do you get mostly in winter?

Half-Yearly Test Paper

(based on Lessons 1 to 6)

A. Tick (✓) the correct answer.

1. All animals depend on these for their food.
   a. other animals b. plants c. water sources
2. These spread diseases like malaria, dengue and chikungunya.
   a. mosquitoes b. spiders c. worms
3. This sticky substance is mostly used for making pots and toys.
   a. sandy soil b. clayey soil c. loam
4. These animals lay eggs.
   a. dogs and cats b. snakes and birds c. tigers and elephant
5. Whales have these to breathe.
   a. gills b. air holes c. lungs

B. Fill in the blanks.

1. _____ makes soil fertile.
2. Plants grow towards the _____
3. Plants breathe through tiny _____ on their leaves.
4. When a number of roots grow from the end of the stem, it is a _____ root.
5. _____ holds the plant upright and support its branches.

C. Match the columns.

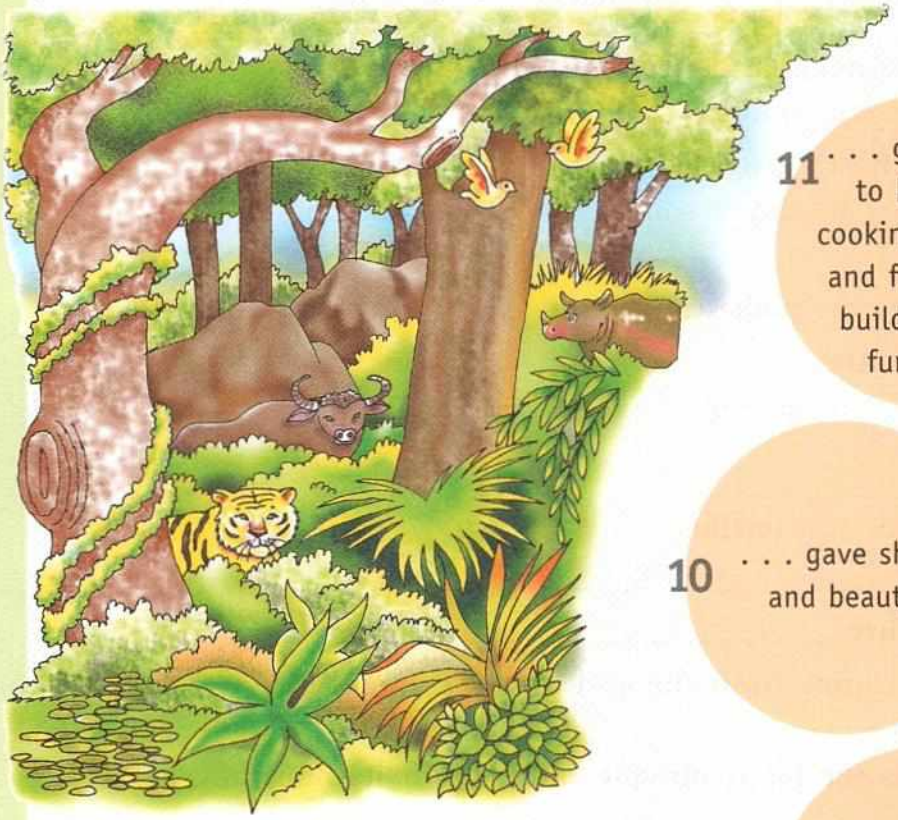
1. Animals like cows and buffaloes need	a. sand and clay.
2. Manure contains	b. seeds inside them.
3. Loam is a mixture of	c. cowdung and decaying leaves.
4. Fruits have	d. sense organs.
5. Plants do not have	e. milk-producing food.

D. Answer these questions.

1. Why do some animals swallow their food whole?
2. Write two features of a good house.
3. Loam is the best soil for plants. Why?
4. How do living things differ from non-living things? Write two points.
5. Write one role of the stem in a plant.

The Green Friends: A Nature Fable

Long ago, a magical forest grew in the Land of Beauty. *The trees could speak and were friends of the people. The forest . . .* (Go to 1.)



12 . . . gave chemicals for medicines, pulp, paper and rubber.

11 . . . gave wood to burn for cooking, heating and for making buildings and furniture.

10 . . . gave shade and beauty.

9 . . . absorbed noise and made the environment peaceful.

8 . . . increased underground water.

. . . v
diffe
anim

. . .
fertile
made

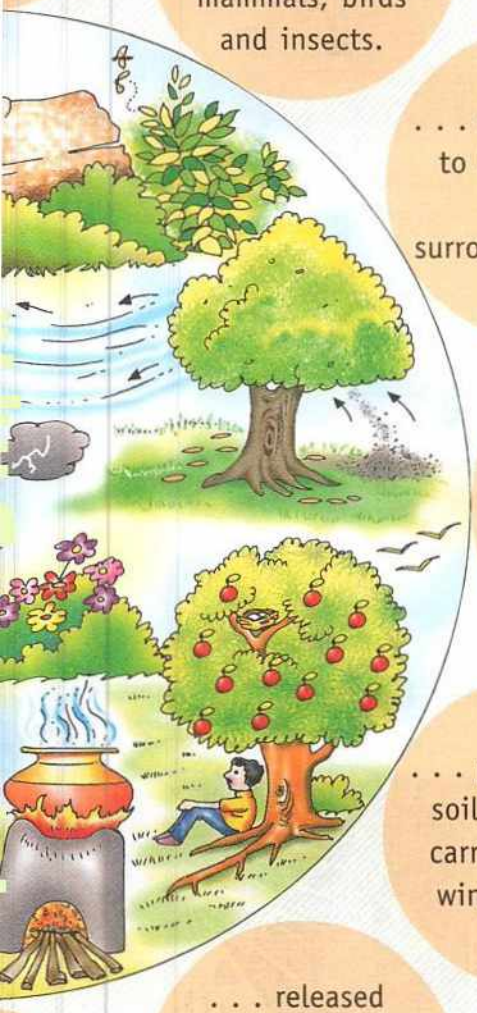
Nature's Friend

In 1973, villagers in the Garhwal Himalaya hugged trees to stop them from being cut down. This is known as the 'Chipko Movement'. Once, when trees were being felled in the Henwal Valley, **Sunderlal Bahuguna** with other villagers protested. Known as the 'Friend of Trees', Bahuguna pledged to devote himself to the protection of the Himalayan environment. He spread the message 'Save Trees to Save Mankind' by walking to many Himalayan villages. He along with others planted trees in the mountains. Sometimes he fasted to protest against the felling of trees.

The earth is our Land of Beauty. Let's
Plant more trees in you

nome to
inds of
rds and
s.

2
. . . gave food and nesting material to mammals, birds and insects.



3
. . . gave fresh air to breathe and kept the surroundings cool.

. . . cleaned the air by taking away dust from it. 4

. . . protected the soil from being carried away by wind or water. 5

. . . released water in the air through leaves which formed rain clouds. 6

e soil
humus
fallen
s.

t green and beautiful.
bourhood.

13

The people in the Land of Beauty *needed wood to build houses, to keep warm and to cook food. So, they cut down the trees. However, for every tree cut down, they planted two trees in its place. They had promised the trees that they would do so.*

After some time, the people forgot their promise. They stopped planting trees. Yet they did not stop cutting them. The trees became sad. They stopped talking. One night when the people were sleeping, the forest quietly walked away.

The people woke up to find the forest gone. The animals that lived in the forest became homeless. They did not get any food to eat. They began to die. The air no longer smelled fresh and clean. There was no rain. People did not have water. Soon no plants grew on the land. People could not grow food. The treeless Land of Beauty *became dry and hot.*

Why did the green friends of the people stop talking and walk away? What should the people do to bring the forest back? Discuss with your teacher and friends in the class.

Nature Cure

- Put some tulsi leaves and a piece of ginger (adrak) in a cupful of water. Request an adult to boil it well. Add a spoon of honey and mix well. Have this special hot tea to treat a sore throat.

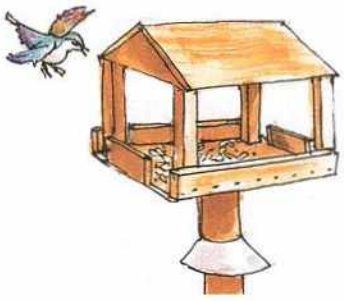
- If you get bitten by an insect, apply lemon juice or pieces of grated lemon to the bitten area.

7

Birds: Food and More

Get Set!

Make a dinner table and a bird bath in your garden or on your balcony. Lots of feathered friends will visit you.



Let us read about birds, their food and their homes.

Birds, like other living things, need food. Some birds eat flesh while some eat grains, seeds and fruits. Birds use their beaks and claws to **catch**, **hold** and **eat** their food. The shape of a bird's beak and its claws are suited to the type of food it eats.

DIFFERENT KINDS OF BEAKS

Strong, sharp and hooked beak

Eagles, vultures and kites are **birds of prey**. They eat small animals like chicks, mice, frogs and snakes. They have **strong**, **sharp** and **hooked** beaks to tear flesh.

A Word to Know
BIRDS OF PREY: birds which hunt and eat other animals


EAGLE


VULTURE


OWL


HAWK

7.1 Strong, sharp and hooked beaks

Short, hard and horny beak

Sparrows, pigeons, peacocks and finches have **short**, **hard** and **horny** beaks to crush grains and seeds.


SPARROW


PIGEON


PEACOCK


FINCH

7.2 Short, hard and horny beaks

Curved beak

The **curved** beak of a parakeet helps it to crack nuts and hard fruits. This curved beak also helps it to climb trees.


PARAKEET

7.3 Curved beak

Strong and chisel-shaped beak

A woodpecker has a **strong** and **chisel-shaped** beak. This helps it to tap the bark of trees and take out insects.

A Word to Know
CHISEL: a carpenter's tool


WOODPECKER

7.4 Strong and chisel-shaped beak

Broad and short beak

The **broad** and **short** beak of a swallow is sticky on the inside. The bird moves round and round in the air with its beak open. Tiny flying insects get stuck inside!

SWALLOW

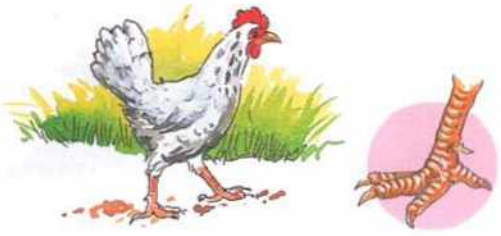
7.5 Broad and short beak

7.6 Long and slender beak of a hoopoe

7.7 Broad and flat beak of a duck

7.8 Strong and sharp claws of an eagle

7.9 Toes of a crow



7.10 Toes of a hen

Long and slender beak

A hoopoe is able to pull out insects from holes in the ground. For this, it has a **long** and **slender** beak.

A Word to Know
SLENDER: thin

Broad and flat beak

The **broad** and **flat** beak of a duck has tiny holes on the sides. The duck takes in muddy water with insects, worms and water plants. The mud and water flow out through the tiny holes leaving the plants and insects inside the beak.

FEET AND CLAWS

Birds use their claws to catch and eat food, to protect themselves from their enemies, and to move about.

Flesh-eating birds

Some flesh-eating birds like hawks and eagles have **strong** and **sharp** claws called **talons**. These help them to catch live prey like toads, rats and small birds.

Perching birds

Perching birds like sparrows, mynahs and crows have **three toes in front** and **one at the back**. These type of feet help the birds to hold on to a branch. They can even sleep while they perch!

Scratching birds

Hens scratch and dig the ground to bring out insects and buried seeds. They have **strong legs with three toes in front** and **one toe at the back**. These toes have **sharp**, **hard** claws to help them dig.

Climbing birds

Birds like woodpeckers and parakeets have **two toes which point upwards** and **two which point downwards.** These toes help them to climb trees and to cling on to them.

7.11 Toes of a woodpecker

Swimming birds

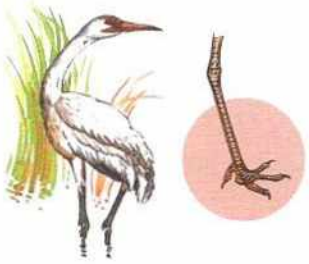
Water birds have **webbed** feet. They have **three toes in front** and **one toe at the back.** The three front toes are joined by skin which is called a web. This skin helps them to push water back while swimming.

7.12 Toes of a duck

Wading birds

Birds like cranes and herons are **long-legged** with **spread-out toes.** They can wade through muddy water without getting wet.

A Word to Know
WADE: walk through water



7.13 Toes of a heron

Oral Questions

Choose the correct answer.

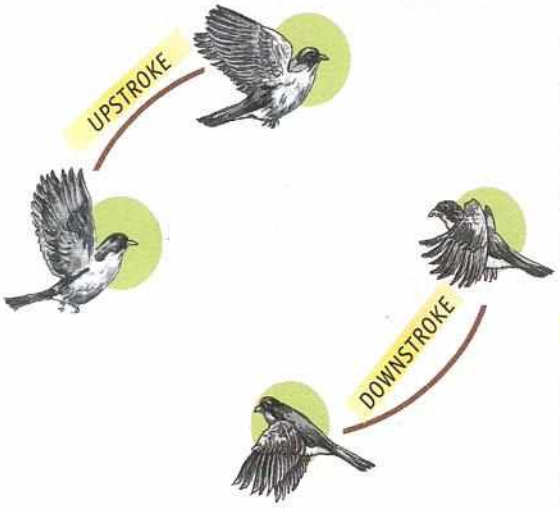
1. Strong and chisel-shaped beaks help birds to (tap the bark of trees / climb trees / crush grains and seeds).
2. The broad and flat beak of a (parakeet / hoopoe / duck) has tiny holes on the sides.

HOW DOES A BIRD FLY?

A bird has a very **light body** made up of hollow bones and thin plates. The body has a strong framework of bones. Most of the bones have a special shape. Also, the body is shaped like a boat. This shape helps it to cut through air.

Just as we have arms, a bird has **wings.** These wings have feathers which help it to fly. The wings are attached to the bird's body with strong muscles. These muscles help it to move the wings up and down or forward and backward.

A bird's **tail** acts like the rudder of a boat. It helps the bird to change its direction while flying.



7.14 A bird in flight

Wing movement

A bird does not fly by simply flapping its wings up and down. The wings have two types of movements.

UPSTROKE: The wings move upward and backward.

DOWNSTROKE: The wings move downward and forward.

Feathers of birds

A bird's body is covered with small and fluffy feathers to keep it warm. These are called **down feathers**. The long, flat feathers attached to the wings and tail help the bird to fly. These are called **flight feathers**.

Would you like to fly like a bird? Well, you will need wings and a tail to fly! Your body will have to be covered with feathers.

WING

DOWN FEATHER FLIGHT FEATHER

7.15 Feathers of birds

Oral Questions

Choose the correct answer.

1. A bird has a very (heavy / light) body made up of (hollow / solid) bones and (thick / thin) plates.
2. In the downstroke movement, the wings move (upward and forward / downward and backward / downward and forward).

IT'S A FACT!

The ostrich is the largest and the heaviest living bird. It cannot fly but it can run at a speed of 70 km per hour!

NESTING HABITS

Birds build nests to lay eggs. They choose places which are safe from enemies and bad weather. Birds use material like twigs, dry leaves, cotton, thread, wool, feather, hair, pieces of cloth, paper and pebbles to build their nests. The eggs are laid in the nests. After some time the eggs hatch and baby birds

come out. When the baby birds are big enough, they fly away. Most parent birds also leave the nests. They build new nests when they have to lay eggs again.

7.16 A tailor bird and its nest

The tailor bird

The tailor bird uses its beak like a needle to sew leaves with material like thread and wool. This is why it is called the tailor bird. The nest is made cosy with cotton, wool, hair or dry grass.

The weaver bird

The weaver bird makes a beautiful and strong nest with twigs and grass. It weaves the grass in and out rapidly. The nest hangs from the branch of a tree. The bird enters its home through a tunnel-like opening at the bottom of the nest.

7.17 A weaver bird and its nest

The eagle

Birds like the eagle and the vulture make nests by gathering a few sticks and simply putting them together in the shape of a shallow cup.

A Word to Know
SHALLOW: not deep

The woodpecker

The woodpecker pecks a tree trunk with its beak to make a hole. To make its nest cosy, it lines the hole with chips of wood.

The penguin

The penguin collects a few pebbles and stones to make a nest on the ground.

7.18 Some eagles and their nest

7.19 A woodpecker and its nest

7.20 Some penguins and their nests

7.21 Caring for the young

CARING FOR THE YOUNG

After the mother bird lays her eggs, she sits on them to keep them warm. The father bird protects them from enemies. When the babies come out, they are weak and featherless. Their eyes are closed. The parents feed them and keep them warm. They protect them from enemies and bad weather. The babies grow very fast. The parents look after the babies till their feathers grow and they learn to fly and look for food on their own.

Now you know a lot about birds. If you see a nest with eggs in it, do not disturb it. Watch it every day. Soon you will see little birds in the nest.

Watch the birds grow. Remember, always watch birds quietly and from a distance so as not to disturb them.

Let us say it again

- Birds have different feeding habits.
- Birds do not have teeth. They use their beaks and claws to catch, hold and eat food.
- Birds also use their claws to protect themselves and to move about.
- The type of beak a bird has tells us about its feeding habits.
- The special body features of birds help them to fly.
- Birds build nests to lay eggs. Baby birds are looked after by their parents.

Let us answer

A. Tick (✓) the correct answer.

1. These birds of prey have strong, sharp and hooked beaks.
   a. Eagles, vultures and sparrows
   b. Vultures, kites and pigeons
   c. Eagles, vultures and kites

2. Feet with two toes upwards and two toes downwards help birds to
   a. hold on to a branch. b. dig the ground. c. climb trees.
3. A bird's body is covered with
   a. down feathers. b. up feathers. c. flight feathers.
4. This bird uses its beak like a needle to sew leaves with materials like thread and wool.
   a. the weaver bird b. the tailor bird c. the woodpecker

B. Match the columns.

1. 
2. 
3. 
4. 

a. help birds to climb trees

b. help birds to dig out ground

c. help birds in swimming

d. help birds to catch small birds

C. Name the bird that

1. weaves grass in and out to make its nest. _____
2. collects a few sticks to make a cup-shaped nest. _____
3. its front toes are joined by a skin. _____
4. collects pebbles and stones to make a nest. _____
5. makes its nest in the hollow of a tree. _____

D. Answer these questions.

1. What kind of beaks do most grain-eating birds have?
2. What are the uses of the curved beak of a parakeet?
3. How is a duck's beak different from that of a sparrow?

4. How do the feet of perching birds help them?
5. How do the legs of wading birds help them?
6. Why do birds make nests?
7. How do birds look after their babies?

E. What is it? Beginning with Y, cross out every other letter to get the name of a bird.

Y P N A O R O A X K N E G E M T

HOTS questions

F. Think and answer.

1. What would happen if there were no side holes on the beak of a duck?
2. What would happen if water birds had toes not joined by a web?

Let us do

ENRICHMENT ACTIVITIES

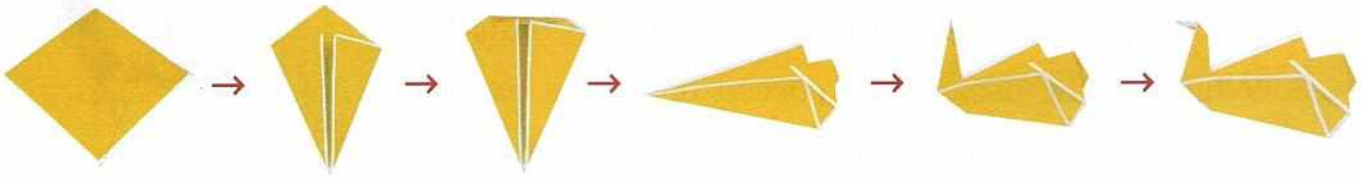
G. Make a collage and a greeting card.

Divide the class in two groups—A and B.

1. **Group A:** Collect pictures of birds from old magazines. Make a collage for the class bulletin board. Use dried twigs and cut-outs of brown paper to show branches. Place your birds on these branches.
2. **Group B:** Collect feathers of different sizes, shapes and colours. Make greeting cards by pasting these feathers on plain chart paper. Send these cards to your teachers and friends.

H. Out for a duck!

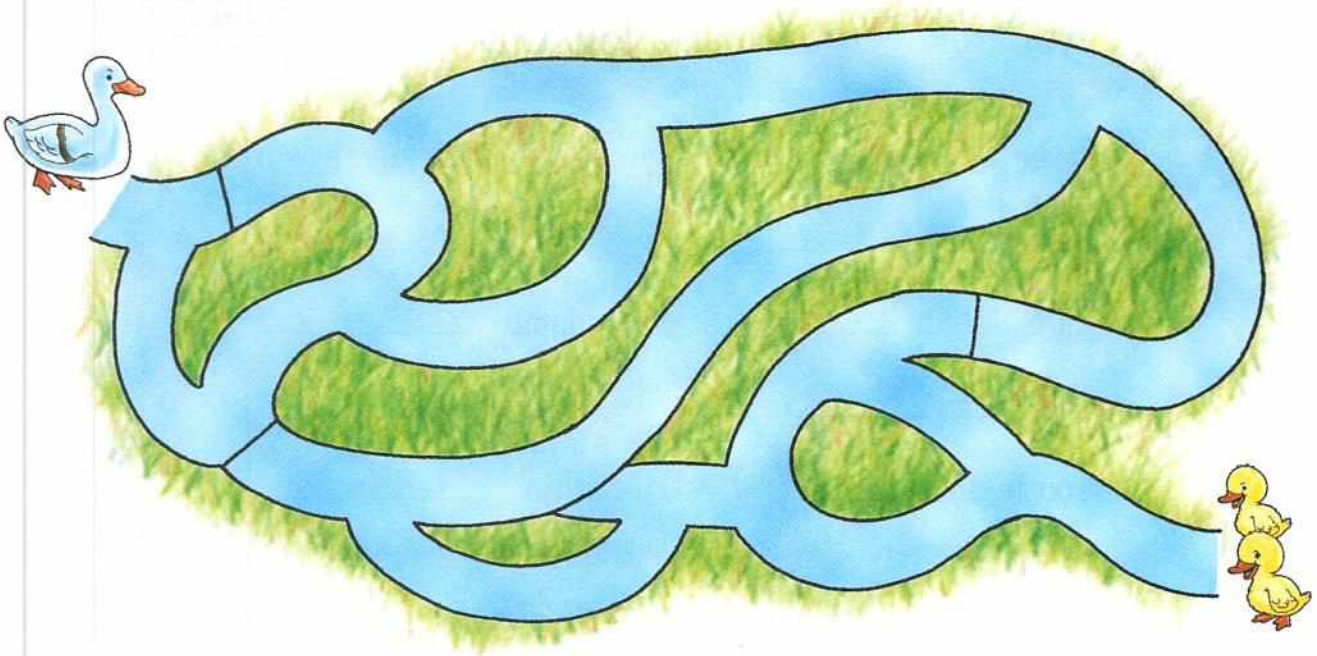
Follow the pictures to make your own paper duck. Use paper from an old notebook.



I. Listen to birds! Take up bird-watching as a hobby. TO VISIT

You need a notebook, a pencil and binoculars. Go to a nearby park or a forest with an adult. Try to spot as many birds as you can. Hear them 'sing'. Try to write the names of the birds you saw. Check out from some book on birds, like *A Handbook of Indian Birds* by Salim Ali. A simpler book is *Bird By Bird* by Mehran Zaidi.

J. Take this duck to its ducklings.

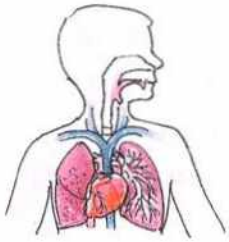


A life skill 

K. Feed the birds.

1. You can keep earthen bowls filled with fresh water and some grains (*bajra*) on the terrace of your house.
2. Do not throw stones at birds to shoo them away.

TEACHER'S NOTES: A visit to the bird section of a zoo or even a sanctuary will be appreciated by the children. They should be able to identify common birds like crow, sparrow, hen, parakeet, mynah and pigeon. The bird world can be explored with the help of television programmes. In the month of February, look for materials birds collect to make nests.



8

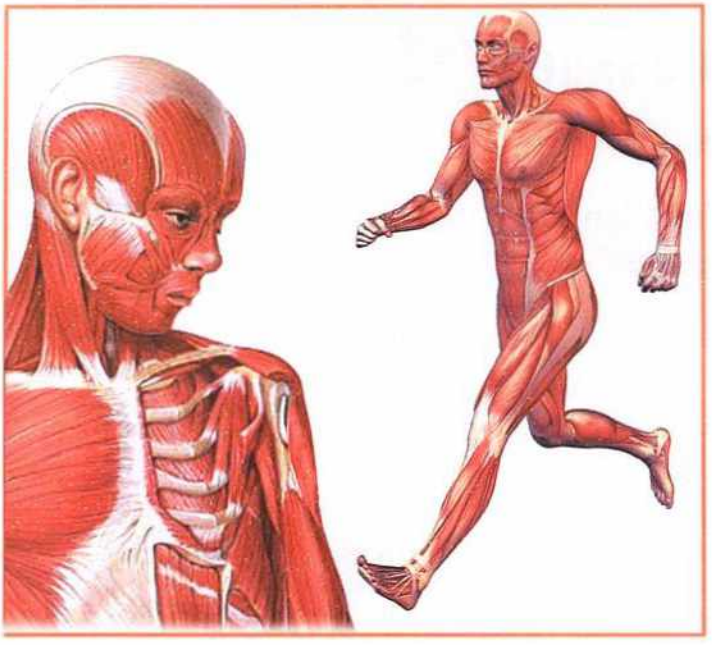
Man: The Living Machine

Get Set!

Name a body part which rhymes with the given words.

- nest chest
- check n
- cart h
- dumb t
- see k
- Sydney k
- south m
- thin c

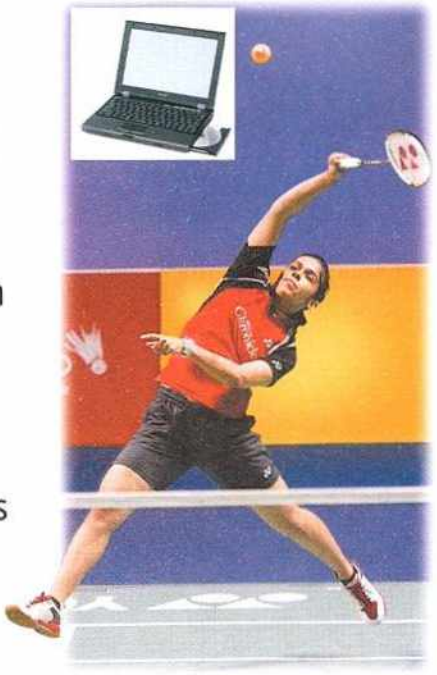
Let us read about the different organs of our body.



A car, a grinder and a computer are all machines. Do you know that the human body too is a machine?

A Word to Know
GRINDER: here, a machine for grinding spices, etc.

It is a living machine. It can see, hear, smell, taste and feel. It can also move, grow, breathe and reproduce. No machine can do all these. The human body is made up of **cells**. Cells are of different kinds. Cells of the same kind join together to make a **tissue**. Tissues join together to make an **organ**. Many organs together form an **organ system**. Different organ systems work together to make it possible for the body to play, learn, grow and do many other things.



8.1 The human body is a better machine than any other machine.

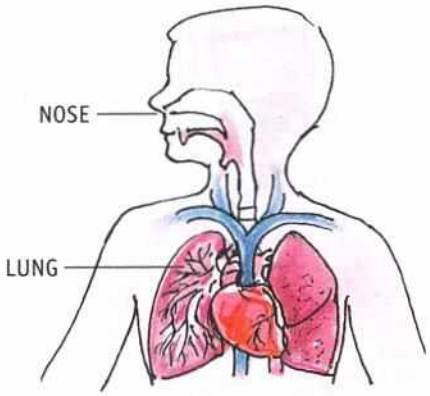
Our sense organs

Everything we know about the world is through our senses. The main **sense organs** are the **eyes**, the **ears**, the **nose**, the **tongue** and the **skin**. Our eyes help us to **see**. Our ears help us to **hear**. Our nose helps us to **smell**. Our tongue helps us to **taste**. Our skin helps us to **feel** temperature, pain, pressure and touch. All these sense organs are connected to the **brain** through the **nerves**. The sense organs send messages to the brain. The brain makes us understand pictures, sounds, smells, tastes and feelings. While our sense organs help us know our surroundings, the organ systems inside our body carry out different functions. These organ systems are like the members of a team. Each one has its own function.

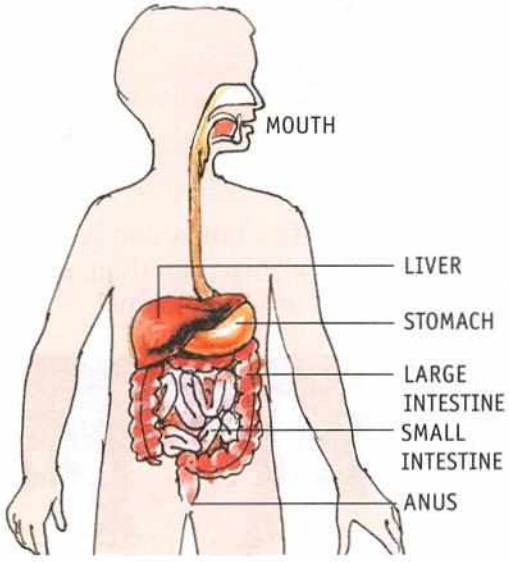
8.2 Our eyes, ears, nose, tongue and skin are our sense organs. They help us to know the world.

The respiratory system

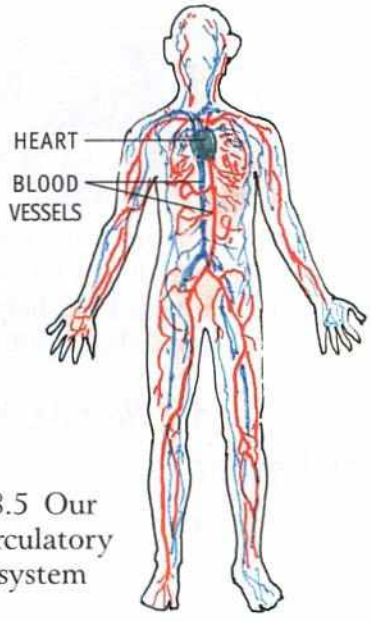
The respiratory system supplies **oxygen** to various parts of our body. We take in air through our nose. The hair in the nose prevent dust and germs from entering our body. The air that we breathe in has a gas called oxygen. It burns up the food we eat and gives us energy.



8.3 Our respiratory system



8.4 Our digestive system



8.5 Our circulatory system

The air we breathe out is impure and has carbon dioxide in it. Breathing purifies our blood.

Breathe correctly

We should

- breathe in fresh air.
- breathe through our nose, not our mouth.
- keep the windows of our rooms open.
- not cover our face while sleeping.

The digestive system

When we smell food, our mouth starts watering. This is the beginning of digestion. **Digestion** is the process of changing of food into a simple form so that it can be used by the body. The food that we chew, mixes with **saliva** and becomes soft. The food then goes to the **stomach**.

In the stomach the food mixes with the digestive juices. After about four hours of eating the food goes into the **small intestine**. Here the digested food is taken in by the blood and carried to the other parts of the body. The undigested food goes to the **large intestine** and from there it is thrown out through the **anus**.

The circulatory system

The **heart**, the **blood** and the **blood vessels** make up the circulatory system. The heart pumps the blood to different parts of the body through small and big blood vessels.

8.6 Our heart

A Word to Know
PUMPS: *here, sends*

Oral Questions

Choose the correct answer.

1. Cells of the same kind join together to make (a tissue / an organ).
2. The sense organs send (letters / messages / cards) to the brain.
3. The undigested food goes to the (small intestine / large intestine).

The nervous system

This system consists of the **brain**, the **spinal cord** and the **nerves**. The nervous system controls all our actions like seeing, hearing, walking and learning.

The skeletal system

Our body is made up of **206 bones**. These bones together make up the skeletal system. The bones give shape and support to the body. We can stand, walk and move because of our bones.

THINK GREEN!

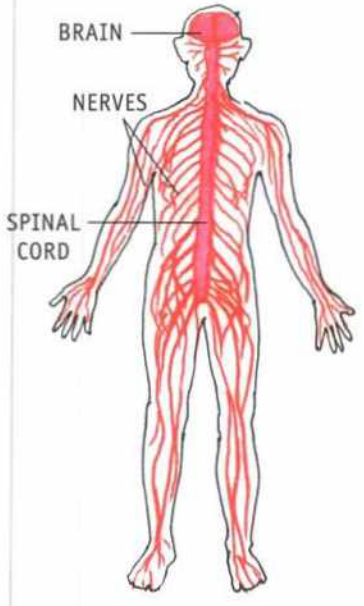
- Drink 8–10 glasses of water daily. It is good for keeping healthy.
- Eat lots of green vegetables and fruits. These not only give you nutrients but also add bulk to your food.

The muscular system

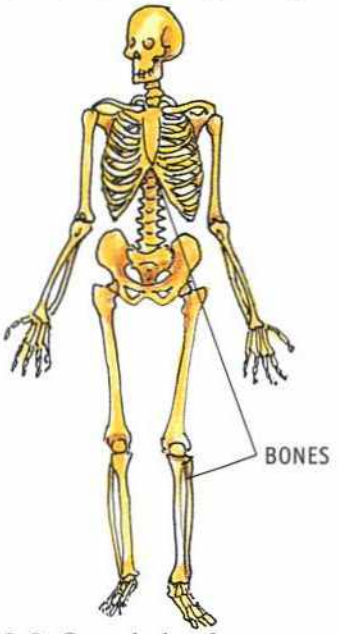
Our muscles along with the bones help the body and its parts to move.

The excretory system

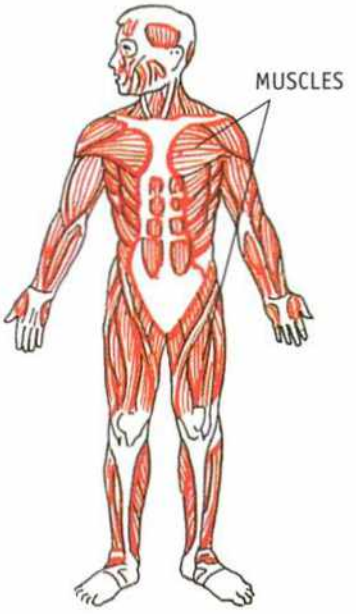
The waste in the body has to be removed regularly for the body to work smoothly.



8.7 Our nervous system



8.8 Our skeletal system



8.9 Our muscular system

This is done by the organs of the excretory system. The **kidneys** remove **urine**. The **skin** removes **sweat**. The **lungs** throw out **carbon dioxide**.

The reproductive system

The organs of this system help to produce babies. Because of this system life on earth goes on.

Let us say it again 

- The human body works like a machine.
- The human body is made up of cells, tissues, organs and organ systems.
- Our sense organs tell us about the world.
- Sense organs work together with the brain.
- The various systems help our body to carry out different functions.

Let us answer 

A. Tick (✓) the correct answer.

1. This organ pumps blood to the different parts of the body.
   a. brain b. heart c. liver
2. These give shape and support to our body.
   a. bones b. cells c. muscles
3. Kidneys remove
   a. carbon dioxide. b. sweat. c. urine.
4. The nervous system consists of brain, spinal cord and
   a. heart. b. nerves. c. 206 bones.

B. Circle the odd one out.

1. ears	nose	heart	skin
2. small intestine	kidneys	stomach	saliva
3. blood	nerves	heart	circulation
4. kidneys	urine	brain	sweat

C. Answer these questions.

1. How are the sense organs connected to the brain?
2. Is it right to keep the windows of our rooms closed all the time? Why?
3. What does oxygen do inside our body?
4. Which two organ systems help the body and its parts to move?
5. What is the function of the reproductive system?

HOTS question

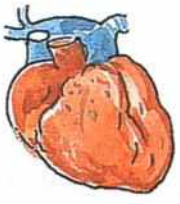
D. Think and answer.

1. Who wears the accessories shown here—a cricketer, a tennis player or an athlete? Why do you think he wears these?

Let us do

ENRICHMENT ACTIVITIES

E. In this wordsearch are hidden the names of some body parts. How many can you find?



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

F. Visit a gymnasium.

TO VISIT

Visit a nearby gymnasium and find out the different ways of exercising. Make a list of different types of tools used for exercising.

G. Make a 'stethoscope'.

Get three plastic or metal funnels, two pieces of plastic tubes of about 20 cm each, another piece of plastic tube of about 1 metre and a Y-shaped tube. Fit these pieces tightly together. With the help of a friend place two of the funnels of the 'stethoscope' on your ears and place the third on your chest. You will hear your heartbeat! Count the number of times your heart beats in a minute.

A life skill

H. Have nutritious food.

Rhea's tiffin has 'noodles and chips' whereas Pia has brought 'idli and a brown bread sandwich'. Which of the two is good for our health? Tick (✓) the foods you should include in your tiffin.

parantha ☐	egg sandwich ☐	fruits ☐
burger ☐	potato wafers ☐	vada ☐

A subject link

(ENGLISH)

I. Read the story of Red Riding Hood and name the sense organs that the underlined words remind you of.

Red Riding Hood was going to see her grandmother. She carried some tasty snacks for her. She also had a soft scarf which her mother had knitted for Granny. As Red Riding Hood walked through the forest she could hear birds singing. She could also smell the lovely flowers.

TEACHER'S NOTES: Let the children feel their bones, their length, their shape and how hard they are. Seeing a skeleton will give them a good idea of their bone structure. This skeleton will also help them to understand about the location of other organ systems. Let the children cover one eye, one ear or one nostril. This will make them understand their functions effectively. Real body parts, models or neat blackboard diagrams are effective teachers' aids.

9 Measurement

Get Set!

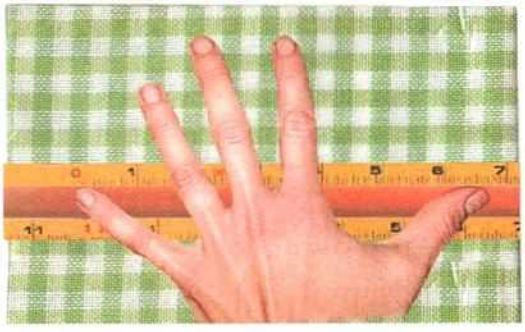
Read the poem to know how a clock works.

The Hands of the Clock

The Big Hand is busy
But the small hand has power.
The large one counts the minutes.
But the little one names the hour.

We need a clock to m____ s_____ time.

Let us read about measuring length, weight and capacity.



Look at the following pictures and fill in the blanks.

1

PENCIL A

PENCIL B

Pencil _____ is **longer** than pencil _____

2

The _____ ball is **heavier** than the _____ ball.

TENNIS BALL

CRICKET BALL

3

Here are two bottles of mineral water.
Bottle _____ has **more** water in it than bottle _____

BOTTLE A

BOTTLE B

We have used the terms 'longer', 'heavier' and 'more'.
Now look at these pictures again.

Let us try to find out

- the length of pencil A.
- the weight of the cricket ball.
- the quantity of water in bottle A.

We will have to 'measure' to find out.

THE CRICKET BALL

PENCIL A

BOTTLE A

MEASUREMENT OF LENGTH

Long ago, people used to measure lengths with their hands and feet. However, the length of these body parts is different for different people.

HANDSPAN

CUBIT

FOOTSPAN

9.1 Earlier, people used their body parts to measure length.

Look at Figure 9.1. The handspan, the cubit and the footspan are called **non-standard units** for measuring length.

Activity 1 Ask your father or mother to measure the length of a table using their handspan. Now you measure the same table using your handspan.

Number of handspans counted by your father/mother _____

Number of handspans counted by you _____

Why did you get different answers?

We need **standard units** for measuring length.

The standard unit of length is the **metre**. Short lengths are measured in centimetres (cm). Longer lengths are measured in metres (m). **Rulers, metre rods** and **measuring tapes** are commonly used for measuring length.

Measure your pencil and write the answer below.

The length of my pencil is _____ cm.

A Word to Know
STANDARD UNIT: a unit which is always exactly the same

Activity 2 Use a ruler or a measuring tape to measure the following.

1. The length of your eraser _____ cm
2. The length of your science book _____ cm
3. The height of your desk _____ cm
4. The width of your drawing copy _____ cm
5. The height of your tiffin box _____ cm

9.2

9.3 A common balance

MEASUREMENT OF WEIGHT

Have you seen a vegetable vendor weighing vegetables? He uses a common balance. Most shopkeepers at sweet shops use electronic balances for weighing sweets. The commonly used units for measuring weights are **grams** and **kilograms**.

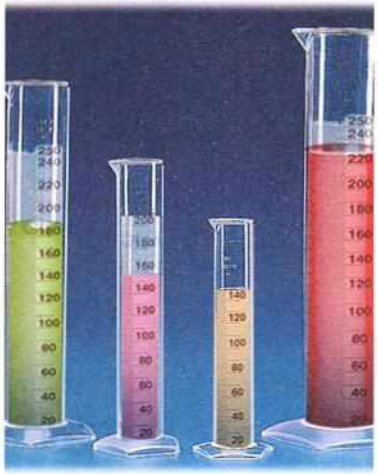
Light objects are measured in grams (g). Heavy objects are measured in kilograms (kg). The **common balance and weights** and the **electronic balance** are the instruments mostly used for weighing.

Look at Figure 9.4. The weight of the cricket ball is _____ g.

9.4 An electronic balance

ACTIVITY 3 Look for these objects and check the weight written on them. Now fill in the blanks.

1. A packet of butter _____
2. An ice-cream brick _____
3. A bottle of jam _____
4. A bottle of ketchup _____



9.5 Measuring cylinders of different capacities

MEASUREMENT OF CAPACITY

Capacity is the quantity of a liquid which a vessel can hold. You must have seen buckets of different sizes. A small bucket holds less water as compared to a large bucket. We say the smaller bucket has less capacity. The commonly used units for measuring capacities are **millilitres** and **litres**. Small amounts of liquids are measured in millilitres (ml) and large amounts in litres (l).

The **measuring cylinders** and **measuring cans** are the instruments mostly used for measuring the capacity. Check the small measuring cans kept at petrol pumps.

Activity 4 Look for these objects and check the capacity written on them. Now fill in the blanks.

1. A pouch of cooking oil _____
2. A packet of milk _____
3. A bottle of shampoo _____

MEASUREMENT OF TIME

We look at a watch or a clock to check the time. These help us to measure time in hours, minutes and seconds.

We know that **60 seconds make 1 minute** and **60 minutes make 1 hour.**

What time do these clocks show? Fill in the blanks.

_____ _____ _____

9.6 Clocks measure time.

10 HOURS 35 MINUTES

Draw the hands on the clock above to show the time.

MEASUREMENT OF TEMPERATURE

What do your parents do when you have fever? They check your temperature with a **thermometer**. A thermometer helps us to measure temperature. Temperature is measured either on the **Centigrade Scale** or on the **Fahrenheit Scale**. In India we use the Centigrade Scale.

9.7 A digital thermometer is used to measure body temperature.

Let us say it again

- Measurement using handspan, footspan or cubit is not accurate.
- Length is measured in centimetres and metres.
- Weight is measured in grams and kilograms.
- Capacity is measured in millilitres and litres.
- Time is measured in hours, minutes and seconds.
- A thermometer is used to measure temperature.

Let us answer

A. Tick (✓) the correct answer.

1. Rulers, metre rods and measuring tapes are commonly used for measuring
   a. capacity. b. weight. c. length.
2. The commonly used units for measuring weight are
   a. gram and kilogram. b. metre and centimetre. c. millilitre and litre.
3. Which one is wrong?
   a. 60 seconds = 1 minute b. 60 minutes = 1 hour
   c. 60 hours = 1 minute
4. A thermometer is used to measure
   a. pressure. b. capacity. c. temperature.

B. Fill in the blanks.

1. The standard unit of length is _____
2. Light weights are measured in _____
3. The symbol for litre is _____
4. An electronic balance is used to measure _____

C. Answer these questions.

1. Name three body parts that were used by people long ago to measure length.
2. Name the two instruments used to measure weight.
3. What is capacity?

4. Which instruments are used for measuring capacity?
5. Name two scales used for measuring temperature.

HOTS questions

D. Think and answer.

1. Pot A contains 5 litres of milk. Pot B is empty. 4 litres of milk have to be transferred from A to B, using two glasses, one with a capacity of 3 litres and the other with a capacity of 2 litres. But the condition is that the glass with 2 litres capacity should be used only once. How would you do it?

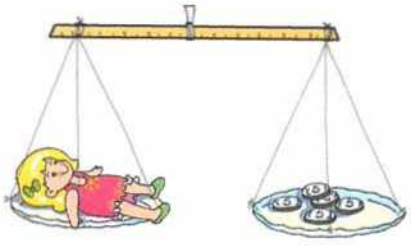
2. The length of a dining table is 150 cm and the width is 100 cm. A table sheet is required to cover the top of this table. What should be the length and width of the cover, if it hangs down about 10 cm from all the four sides?
3. How many times do you need to use a mug (250 m*l*) to fill up a bucket (3 *l*) with water? (**Hint:** 1 *l* = 1000 m*l*)

Let us do

ENRICHMENT ACTIVITIES

E. Make a physical balance.

Use strings, a metre scale and paper plates to make a physical balance as shown.
Use 5-rupee coins to weigh different objects.
How much is the weight of your pencil-box, a doll and your school diary?



F. Visit a shop.

TO VISIT

Visit a shop in your area and note down the measures printed on the following packed items:
a packet of tea-leaves, a packet of dal, a soap bar, a bottle of juice, a bar of chocolate, a packet of biscuits, a tin of cooking oil, a bottle of jam

G. Measuring length.

Divide the class into groups of 6 students each. Each group will bring a pencil, an eraser, a sharpener, a piece of ribbon, a pencil box and a bat. One child from a group will guess the length of these objects. Note them in the table below. A child from another group will use a scale to measure the lengths of the objects. Note these in the table. Add up the lengths of the objects. The group whose guesses are closest to the actual measurements is the winner.

	GUESSED LENGTH	MEASURED LENGTH
	_____ cm	_____ cm
	_____ cm	_____ cm
	_____ cm	_____ cm
	_____ cm	_____ cm
	_____ cm	_____ cm
TOTAL	_____ cm	_____ cm

A life skill 

H. Check when you buy.

When you buy something from the grocer always check if it carries this mark (ISI) or this (FPO). These marks assure you that the measurements marked, are actual on the objects.

I. Stay healthy and manage your time.

Do you drink enough milk daily? Do you devote enough time to study and play? Fill in the following table for a week and find out for yourself.

	MON	TUE	WED	THU	FRI	SAT	SUN
Had milk before leaving for school (1 CUP / 1 GLASS / NO)							—
Time devoted to study at home (1 HOUR / 2 HOURS / MORE THAN 2 HOURS)							
Time devoted for playing (1 HOUR / 2 HOURS / MORE THAN 2 HOURS)							
Had milk before going to bed at night (1 CUP / 1 GLASS / NO)							

Once the table is complete, discuss it with your parents.

TEACHER'S NOTES: This is an activity-based chapter. Activity 2 must be done in the class. A similar activity could be done at home too. Make the children read the labels of soft drink bottles and other bottles to understand the concept of capacity more. They must have the habit of observing the shopkeepers weighing things for them, see how accurate they are. Children must be encouraged to tell the time correctly in the class looking at their watches or a clock on the table.

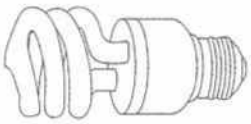
10

Light, Sound and Force

Get Set!

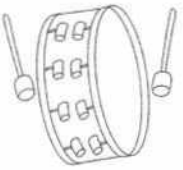
Fill in the blanks and colour the pictures.

When we switch on this bulb, we get



L __ G __ __

When we play this drum, we hear a



S __ __ __ __

Let us read about light, sound and force.

10.1 Some luminous objects

10.2 Some non-luminous objects

LIGHT

A Word to Know
SOURCE: from where something starts

Can you read this book in a darkroom? No. You need light. Light helps us to see objects around us. The sun is the main source of light on the earth.

We also get light from candles, bulbs, torches and lamps. These light-giving objects are called **luminous objects**. Not all objects give us light. Objects which do not give light are called **non-luminous objects**.

SHADOW

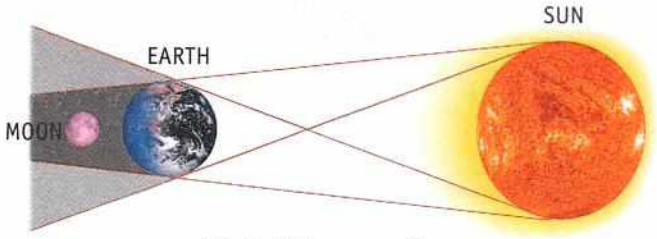
Light travels in a straight line as thin beams of **rays**. When something comes in the way of light, a **shadow** is formed.

10.3 Shadow of a tree

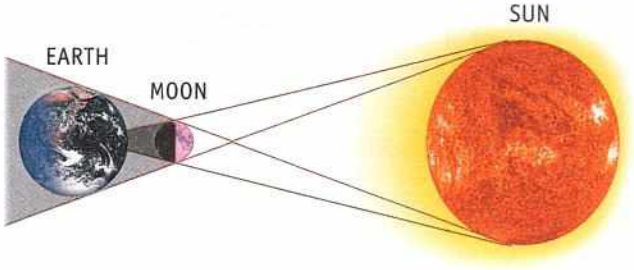
You know that the earth revolves around

Oral Questions

Circle the luminous objects and cross out the non-luminous objects.



10.4 A lunar eclipse



10.5 A solar eclipse

10.6 We hear different kinds of sounds.

Activity 1 Go out in the sun to observe your shadow at different times of the day. At what time of the day is your shadow the longest? At what time is it the shortest?

A Word to Know
REVOLVES: moves around

the sun. The sun's light falls on the earth. The moon revolves around the earth. The moon reflects the light of the sun.

A solar eclipse occurs when the moon blocks the light of the sun. The shadow of the moon falls on the earth and the sun cannot be seen or is partially hidden.

A lunar eclipse occurs when the earth blocks the light of the sun. The shadow of the earth falls on the moon and the moon cannot be seen.

SOUND

We hear various types of sounds every day. The chirping of birds, the ringing of doorbells, the honking of horns and mobile ringtones are some of them. When we speak or laugh, we produce sound.

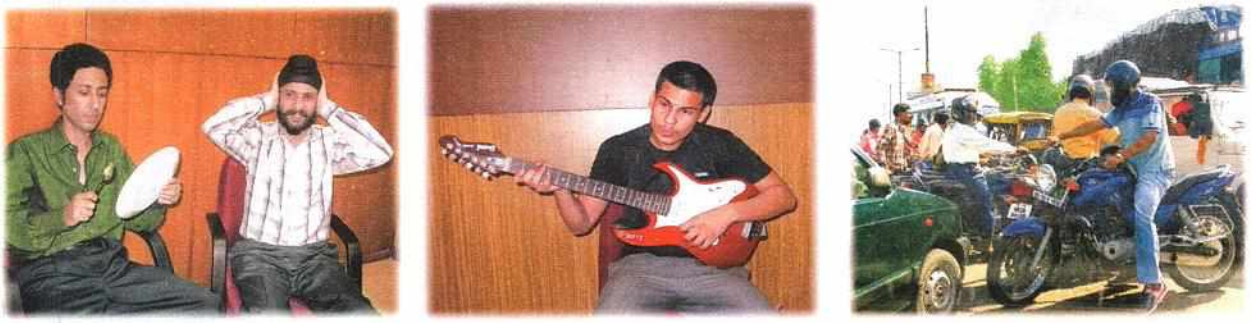
Activity 2 Take a jug, a tumbler and a jar of different materials. Half-fill them with water. Gently strike them with a small wooden rod and hear different kinds of sounds.

10.7 On being struck different vessels produce different sounds.

Types of sounds

Look at Figure 10.8. Different sounds are being produced. Some sounds make you feel happy while others irritate you. The sound in picture B is soft and pleasant while those in A and C are loud and unpleasant. Unpleasant sounds are called **noise.**

Everyone gets disturbed by loud noise. We should avoid the use of horns as far as possible. We should speak softly. We should play music and TV at a low volume.



A B C

10.8 Some sounds are pleasant and some are not.

Oral Questions

Choose the correct answer.

1. The earth revolves around the (sun / moon) and the (sun / moon) revolves around the earth.
2. A (lunar / solar) eclipse occurs when the shadow of the (moon / earth) falls on the moon and it cannot be seen.
3. We should (encourage / avoid) the use of horns.

A

B

C

10.9 When we push or pull something we apply force.

FORCE

All the people in Figure 10.9 are doing some **work**. They are either pushing or pulling something. When we push or pull something we apply **force** and do work.

Force can do many things. Force can move an object. Force can stop a moving object. Force can change the shape of an object.

10.10 Force can move an object.

10.11 Force can stop a moving object.

10.12 Force can change the shape of an object.

Let us say it again

- Light helps us to see the world around us.
- Luminous objects give us light.
- When the path of light is blocked by an object a shadow is formed.
- Some sounds are pleasant, some are not.
- Pushing or pulling something means applying force.

Let us answer

A. Tick (✓) the correct answer.

1. This is the main source of light on earth.
   a. candle b. Sun c. Moon
2. Loud and unpleasant sounds
   a. make us feel happy. b. irritate us. c. have no effect on us.
3. When we push or pull something we apply force and
   a. sleep. b. do work. c. do nothing.
4. Force can do
   a. nothing. b. one thing. c. many things.

B. Name the following.

1. Light travels as thin beams of <u>these</u>. _____
2. <u>This</u> is formed when an object blocks the path of light. _____
3. <u>This</u> is caused by an unpleasant sound. _____

C. Answer these questions.

1. Name three luminous objects other than mentioned in this lesson.
2. Name three non-luminous objects other than mentioned in this lesson.
3. What can we do to reduce noise?
4. Mention three effects of force on an object.

D. Number these sources of sound in the increasing order of sound produced. One has been done for you.

THUNDER

FIREWORKS

FAN 1

JET PLANE

HOTS questions

E. Think and answer.

1. During a thunderstorm, Sara saw lightning first and then heard thunder. Why is it so? (**Hint:** Which travels faster—light or sound?)

2. Atul is cycling to meet his grandmother who lives on a hill. Atul cycles harder while going uphill. He doesn't have to do so while returning. Why?

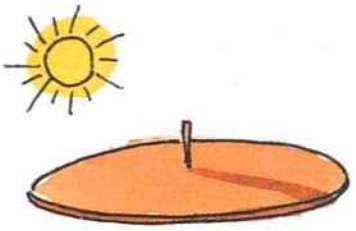
3. Mihir is not able to study for his test. Look at the picture carefully and say why.

Let us do

ENRICHMENT ACTIVITIES

F. Using shadows to find time.

Take a piece of cardboard and cut a circular shape from it. Fix a long iron nail in the centre of this circle. Keep the disc out in the sun. Mark the position of the shadow of the nail on the disc. Repeat this every two hours. Does the position of the shadow change with time? Why?



G. Go to the school ground to observe your shadows.

Make groups of two and go to the school ground on a bright sunny day to observe shadows. Explore your shadows in different positions, for example, standing, crouched down with arms extended. Trace the shadows on the ground with a piece of chalk.

Later in the day go to the school ground again and see if the shadows are in the same place and the same size and shape.

Why do you think shadows (caused in sunlight) change shape and size with time?

H. Playing with a ball

Below are listed some games. Tick (✓) the games in which we use a ball. Then write the name of the ball game in the right column.

CRICKET ○ FOOTBALL ○ SWIMMING ○ HOCKEY ○

TABLE TENNIS ○ BOXING ○ BADMINTON ○ VOLLEYBALL ○

BASKETBALL ○ KABADDI ○ LAWN TENNIS ○

We throw and hit the ball						
We kick the ball						

A life skill 

I. Be a good citizen.

Are you a good citizen. Check yourself and tick (✓) the right option.

1. Do you play loud music in your house?
2. Do you ring the doorbell of your neighbours and run away?
3. Do you slow down your cycle if you see old people crossing the road?
4. Do you burst loud fire crackers during Diwali?

TEACHER'S NOTES: Let the children mimic some pleasant and unpleasant sounds (after practising at home). Guide the children to observe their shadows inside the class and outside, in the morning and at noon.

Check Your Understanding

Enrichment Activities

A. The different organ systems of our body work together. Do a role play to see what happens if they don't work in coordination.

- Any seven students of the class can play the following roles. They can be labelled as A, B, C, D, E, F and G respectively, representing the different systems of the body.

  A: Respiratory system, B: Digestive system, C: Circulatory system, D: Nervous system, E: Skeletal system, F: Muscular system, G: Excretory system
- One of the students from A to G will say that they will not work with the other systems. The other students will say (from the following options) what will happen to the body in such a case (write A, B and so on):
  - The body will not be able to take in oxygen.
  - The body will not be able to get energy from food.
  - Blood will not be pumped to the different parts of the body.
  - The body will not be able to hear, see, etc.
  - The body will lose its shape.
  - The body will not be able to move its parts.
  - Wastes will accumulate inside the body.
- What message do you get from this role play?
- What would happen to us if the following people refused to work?
  - doctors • sanitary workers • farmers • postmen • engineers

B. Does a drop of water really matter? Find out for yourself.

You will need a mug and a watch.

- In your house, open a tap such that water falls from it drop by drop.
- Take the mug and keep it under the tap and note the time.
- Leave the mug under the tap for half an hour.
- Check again. Is the mug full with water?
- If not, then wait for some more time. Keep checking regularly.

- Once the mug is full with water, check the time.
- How much time did it take for the mug to get filled with water?
- If the water keeps on falling drop by drop, how much water will you lose
  - in 24 hours • in 7 days • in 30 days • in 1 year
- Do you now think 'each drop of water is important'?
- Do you have any leaking taps in your house?
- Ask your parents to call the plumber to repair any leaking taps.

11

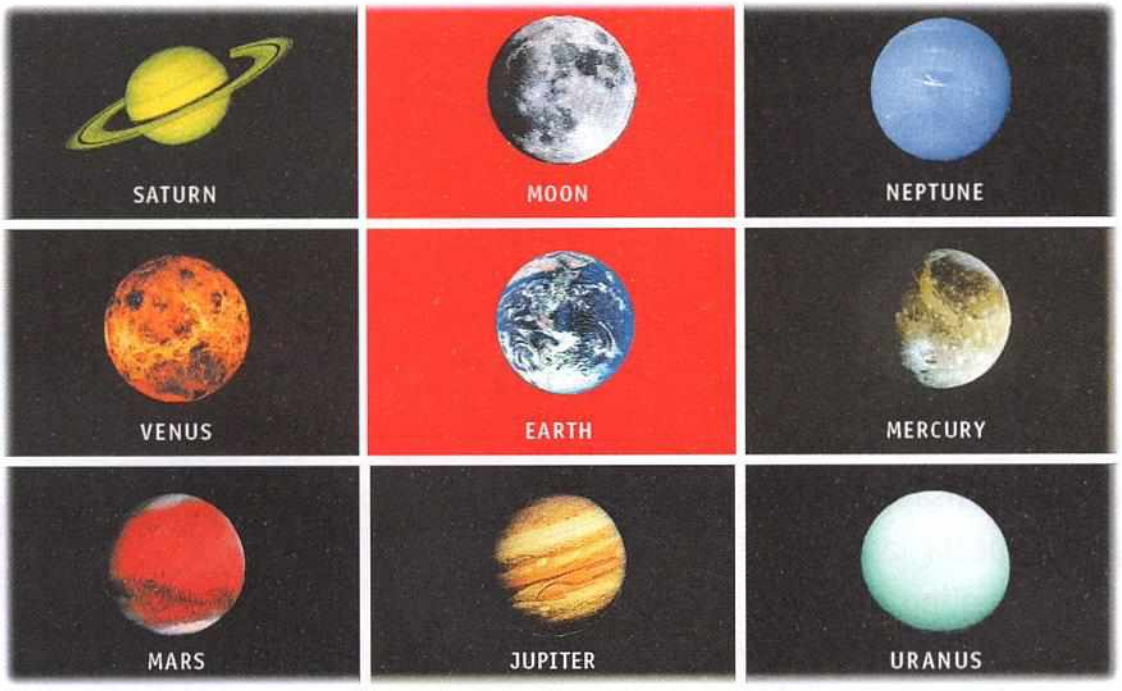
Our Earth and Its Neighbours

Get Set!

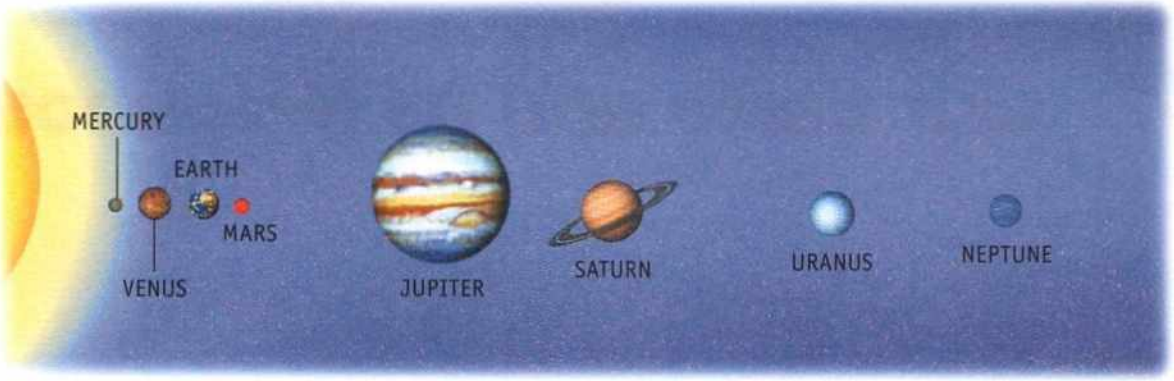
Who are we? Solve the riddles and find out.

- I have two discs in my name. M _ _ N
- The first three letters of my name is a sense organ. _ _ _ T H
- I twinkle in a popular nursery rhyme. S _ _ _

Let us read about the earth and its neighbours.



The earth is made up of **land**, **water** and **air**. About three-fourths of the earth's surface is water and one-fourth is land. The earth is surrounded by a layer of air.



11.1 The solar system

THE PLANETS

The earth is 150 million km away from the sun. It is one of the eight planets that go around the sun. The eight planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. The sun and these eight planets together form our **solar system**. Planets do not have a light of their own. They reflect the sunlight that falls on them. This makes planets glow.

The earth seems very big to us. However, compared with the sun and some other stars, it is very small. More than one million earths could fit inside the sun! Now, can you imagine the size of the universe that has the sun, the stars and the planets in it?

THE SHAPE OF THE EARTH

A Word to Know
CURVED SURFACE: here, surface which is like a semicircle

Long ago, people thought that the earth was flat. Now there is proof to show that the earth is round.

Have you watched in movies or actually seen a ship sailing away? How does it go out of sight? The lower part disappears first and the top disappears last. This is because it is sailing on a curved surface (see Figure 11.2).

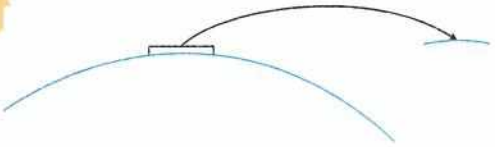
11.2 The earth is round.

Hundreds of years ago, sailors had proved that the earth is round. They started sailing from a certain point, sailed on and on and reached the same point from where they had started. This can happen only if the path is circular. Photographs taken on space trips show that the earth is round.

11.3 The earth appears like a ball when seen from the moon.

A Word to Know
CIRCULAR: round

American astronauts who landed on the moon in 1969 saw that the earth appears round from the moon. However, the earth appears flat to us. This is because what we see is only a tiny part of a very big arc (see Figure 11.4).



11.4 A small part of a big arc appears straight.

MOVEMENTS OF THE EARTH

Activity 1 Take a bangle and spin it on a table. How does the spinning bangle appear? It looks like a ball. In the centre of this ball it seems as if there is a vertical line. This imaginary line is called axis. Now stop the bangle. Can you see the ball or the axis? No.

When the bangle was spinning there was an axis. This was not real. The **axis** is an imaginary line on which the bangle was spinning.

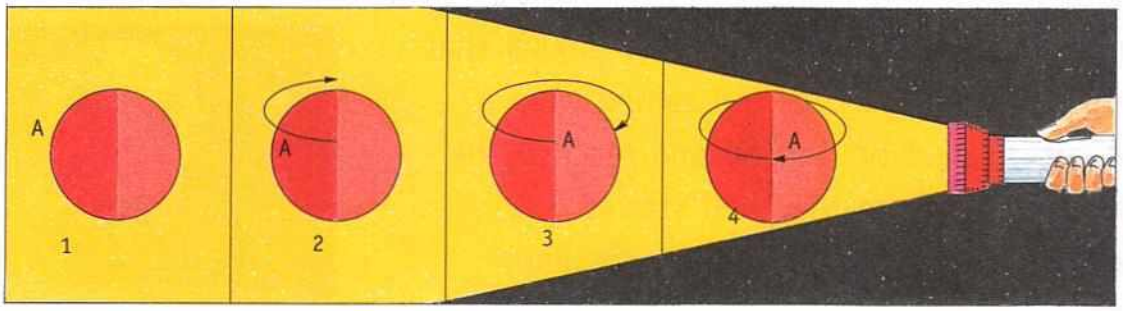
11.5 A bangle appears to spin on an axis.

Similarly, the earth moves on its axis. This movement is called **rotation. The earth spins from west to east.** The earth's axis is slightly tilted. The earth completes one rotation in about 24 hours. That makes a complete day.

Rotation causes day and night

What happens when a rubber ball rotates in the light of a torch? Do this activity to see how days and nights are formed.

11.6 The earth rotates on its fixed imaginary axis.



11.7 The part of the ball that faces the torch gets light.

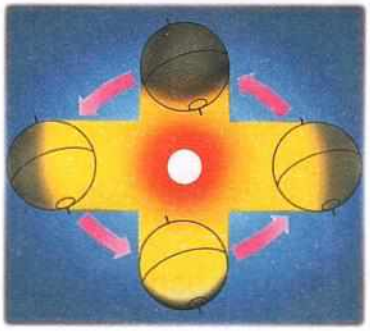
In Positions 1 and 2, part A of the ball does not get any light.

In Positions 3 and 4, A gets light.

This proves that only the half of the ball which faces the torch gets light. Similarly, as the earth rotates from west to east, half of it faces the sun. This half which gets light from the sun has day. The other half which does not get light from the sun has night.

The earth goes on rotating. Day changes into night, and night changes into day. Thus, the **rotation of the earth on its axis causes days and nights.**

11.8 Rotation of earth causes days and nights.



11.9 The earth revolves around the sun.

Revolution

The other movement of the earth is its **revolution**. While the earth spins on its axis it also goes around the sun in a fixed path. This fixed path is called **orbit**. The time taken by the earth to complete one revolution around the sun is 365¼ days.

A Word to Know
FIXED PATH: a path which does not change

11.10 The Sun

THE SUN

The sun is a very big ball of hot gases. It is the star closest to the earth. It has its own light and heat.

The earth and the other planets go round the sun. They get some of the sun's heat and light. The temperature on the sun's surface is about 5,400 °C! On a very hot day, the temperature on the earth can go up to 50 °C!

Oral Questions

Choose the correct answer.

1. The sun and the (eight / nine) planets together form our solar system.
2. The earth spins from (west to east / east to west / north to south).
3. Days and nights are caused due to (rotation / revolution) of the earth.

THE MOON

11.11 The moon

The moon is a natural **satellite** of the earth because it moves around the earth. The moon completes one rotation on its axis in 27⅓ days. It takes the same time to complete one revolution around the earth. The moon is about 3,84,400 km away from the earth. It has no light of its own and shines only because it reflects the light of the sun.

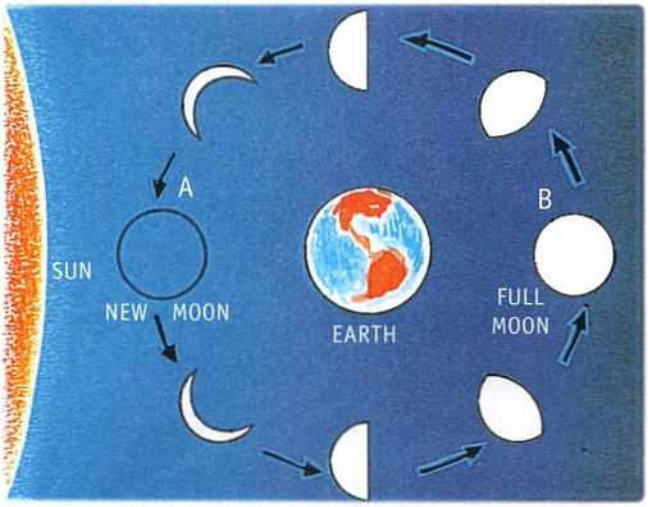
From the earth we see only those parts of the moon that are lit by the sun. Due to changes in the position of the earth, the moon appears to change its shape. In Figure 11.12, the circle around the earth shows the shape of the moon in different positions.

When the moon is between the earth and the sun, we do not see it at all. This is called the **new moon** (Position A in Figure 11.12).

In two or three days' time, the moon looks like ☾. This is the **crescent moon.**

Within a week, we see half of the moon, called the **first quarter**. When we see more than half of the moon, it is called the **gibbous moon.**

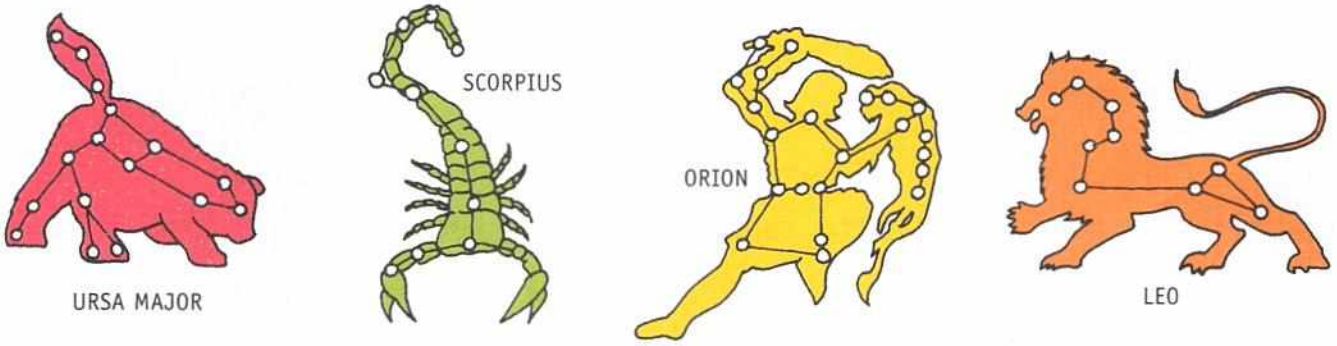
In two weeks' time we see the **full moon** (Position B in Figure 11.12).



11.12 Phases of the moon

THE STARS

Stars are huge heavenly bodies that have a light of their own. For thousands of years, people have enjoyed watching the stars. Some stars form patterns in the sky. One group of stars appears in the shape of a hunter, another as the outline of a lion and so on. These groups of stars are called **constellations**. There are about 88 different constellations. Some of the constellations are Ursa Major (The Great Bear), Scorpius (Scorpion), Orion (Hunter) and Leo (Lion). On a clear, starry night, try to identify the different constellations.



11.13 Some constellations

11.14 Aryabhata

INDIAN ASTRONOMERS

Astronomers are people who study the sun, the moon, the stars and the planets. About 1500 years ago, there lived in our country an astronomer named **Aryabhata**. He studied and taught astronomy and mathematics. He was the first man to tell us that the earth is round and that it rotates on its own axis. He also told us that the moon does not have its own light and it shines when sunlight falls on it.

Varahamihira was another astronomer who lived during the times of Aryabhata. He was a scholar and wrote many books. **Bhaskara** too was an astronomer. He lived about 900 years ago. He discovered a method to work out how planets move.

Have you seen the **Jantar Mantar** in Delhi or Jaipur? **Sawai Jai Singh**, the king of Amber, built it to study stars. Some instruments made of lime and plaster even today can help measure time and the position of the stars.

Let us say it again

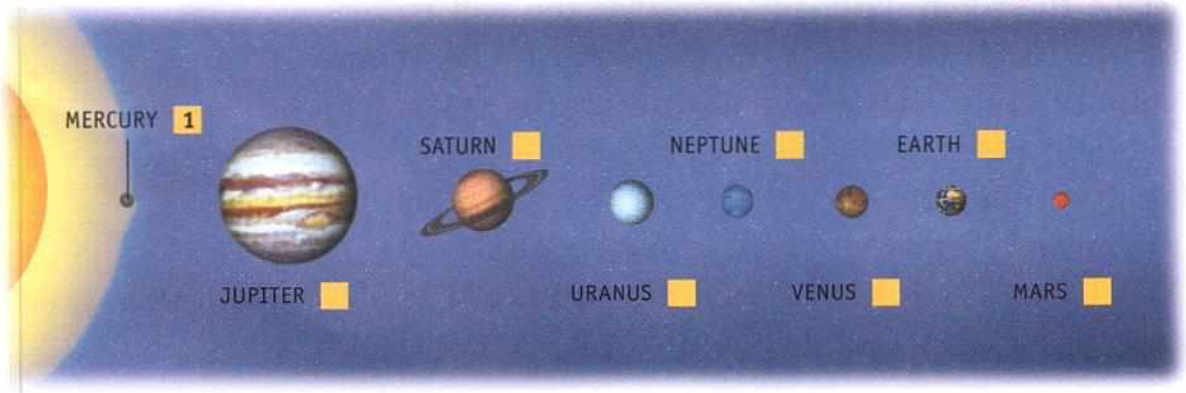
- The earth is one of the eight planets that goes around the sun.
- The earth has two movements—rotation and revolution.
- The sun is a star. It has its own heat and light.
- The moon is a natural satellite of the earth.
- Stars are heavenly bodies that give out their own light.
- Groups of stars appear to form patterns called constellations.
- Indian astronomers have contributed greatly to our knowledge about the stars.

Let us answer

A. Tick (✓) the correct answer.

1. These do not have a light of their own.
   a. stars b. planets c. stars and planets
2. This has a shape similar to the earth.
   a. a football b. a shoebox c. a square table top
3. Constellations are the patterns formed by
   a. planets. b. stars. c. moons.
4. He was the first astronomer to inform the world that the earth is round.
   a. Bhaskara b. Varahamihira c. Aryabhata

B. The planets got mixed up. Number these planets in the increasing order of their distance from the sun. Mercury is numbered 1.



C. Write the time taken for one

1. rotation of the earth on its axis _____
2. revolution of the earth around the sun _____
3. rotation of the moon around the earth _____

D. Answer these questions.

1. Why does the earth appear flat to us?
2. What does the rotation of the earth cause?
3. The moon is visible in the sky because of the sun. How?
4. Name any three constellations.
5. Who are astronomers?

HOTS questions

E. Think and answer.

1. Out of Mercury, Earth and Neptune, which planet is the hottest and which is the coldest? Why?
2. The sun is a star and we get heat and light from it. Why don't we get heat and light from the other stars in the sky?

Let us do 

ENRICHMENT ACTIVITIES

F. Why does the moon appear to change shape? Let's find out.

You will need a lamp (for the sun) and a tennis ball (for the moon).

Make the room dark. Imagine that the ball is the moon. Hold it 25 cm away, between the lamp and yourself. Turn the 'moon' slightly to the side.

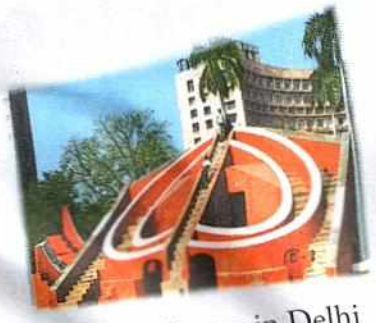
A bright patch will appear as a crescent.

Keep turning the 'moon'. The bright patch will get bigger and bigger.

What happened next? When did you see the full 'moon'? When did you see no 'moon' at all? When did you see the half 'moon'?

TO VISIT

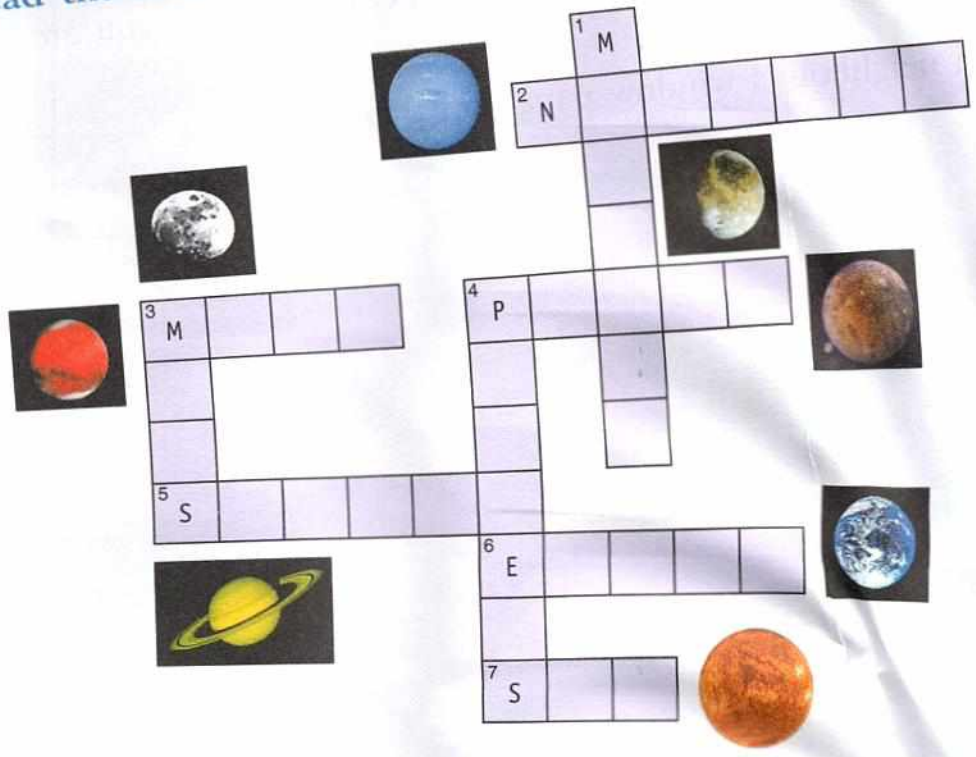
more about the Jantar Mantar.



Jantar Mantar in Delhi

antar Mantar was built to predict the times movements of the sun, moon and planets. The Jantar Mantar located in the modern city of New Delhi is one of the five built by Maharaja Jai Singh II of Jaipur. To know more about the Jantar Mantar, visit rsgr.in/lsc-3 and click on LINK 2.

H. Read the clues and solve the crossword puzzle.



Across

2. the coldest planet
3. the natural satellite of the Earth
4. no longer a regular planet
5. the planet with a ring
6. the planet on which we live
7. the brightest star (nearest to the Earth)

Down

1. the hottest planet
3. the planet closest to the Earth
4. they go around the Sun

A life skill

I. Be a good neighbour.

Earth, the planet on which we live, has many neighbours. So do
Are you a good neighbour? Check for yourself. Tick (✓) what you

- You eat a banana and throw its peel in front of your neighbour's h
- You greet your neighbours whenever you meet them.
- You play music at a low volume.
- You ask your neighbours politely to make less noise when you are studying.
- You break a neighbour's window pane and then hide.

TEACHER'S NOTES: Org a visit to a planetarium to study about planets and constellations. Make a model of the solar system. Let the c n label the planets. Day and night formation could be explained by the experiment given in the chapter.

12

Going into Space

Get Set!

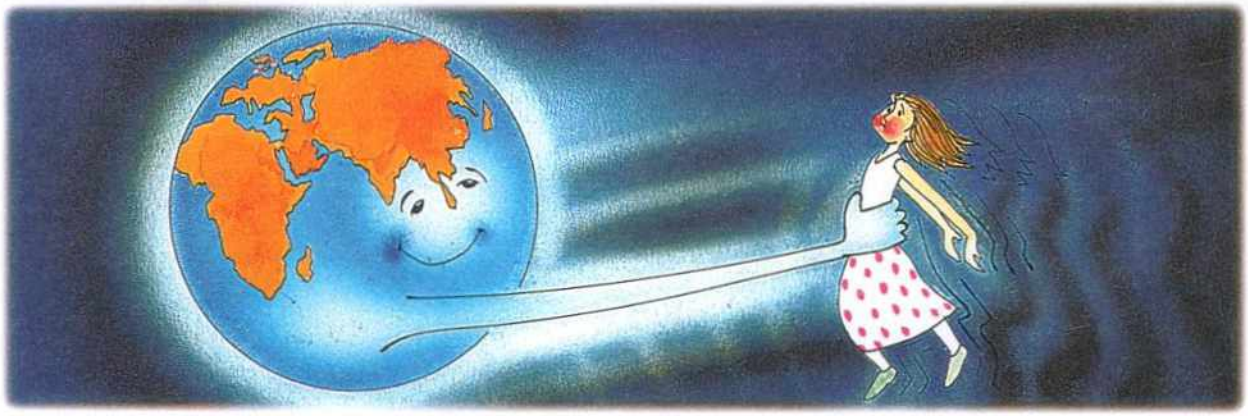
How would you go from

- your house to your neighbour's house? _____
- your house to your school? _____
- your city to a nearby city? _____
- your country to a far-off country? _____
- the earth to the moon? _____

Let us read about space, spacecraft and astronauts.

WHAT IS SPACE?

The earth is surrounded by air. Beyond this layer of air is **space**. If you throw a stone up in the air, it will fall back to the ground. This pull or force of attraction, is called the **force of gravity**. That is why it is not easy to get out of the earth's pull and escape into space. We need special vehicles which have the power and speed to take us away from the earth's gravitational force.
A **space rocket** puts a spacecraft into space.



12.1 It is not easy to get out of the earth's pull.

MAN ON THE MOON

Man went to the moon for the first time in a spacecraft called **Apollo 11**. This was in 1969. The first man who stepped on the surface of the moon was **Neil Armstrong**. The first words he said on landing on the moon were, "That's one small step for man, but a giant leap for mankind."

Edwin Aldrin and **Michael Collins** were the other two who travelled in the spacecraft with Neil Armstrong.

12.2 Apollo 11

LIFE ON THE MOON

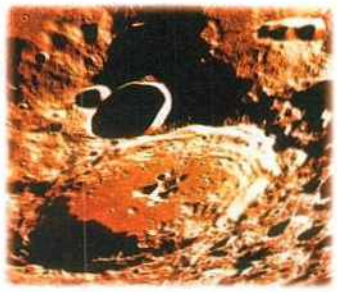
We read about the moon in stories and poems. Let us read more about the moon.

There is no air or water on the moon. So there are no plants or animals or people. There are huge potholes called **craters** on the moon's surface. The craters on the

12.3 Neil Armstrong

surface of the moon are much bigger than the potholes on our roads. Since the gravitational pull of the moon is less than that of the earth, you will weigh much less on the moon. Your weight on the moon will be one-sixth of your weight on earth.

If you weigh 30 kg on earth you will weigh only 5 kg on the moon!



12.4 Craters on the surface of the moon.

Oral Questions

Choose the correct answer.

1. If you throw an object up in the air, it will (disappear / stay in the atmosphere / fall back to the ground).
2. Man first landed on the moon in the year (1699 / 1969 / 1996).

SPACE TRAVEL

We read that astronauts go into space in a spacecraft. They wear special suits that contain a supply of air. These suits also protect them from harmful rays. Inside the spacecraft they conduct experiments. When needed, astronauts even have to repair the spacecraft while in space. Let us read about two spacewomen India is proud of.

A Word to Know
SPACECRAFT: a vehicle designed for travel in space

Kalpana Chawla

Kalpana Chawla was the first Indian woman to go into space. She went in 1997 in the space shuttle, Columbia. She went into space again in January 2003. However, she died on 1 February 2003, when her space shuttle crashed on the return journey.

12.5 Kalpana Chawla

Sunita Williams

Sunita Williams was the second woman of Indian origin to go into space. She stayed in space in her spacecraft for 195 days!

12.6 Sunita Williams

Let us say it again

- Space is beyond the layer of air around the earth.
- The force of attraction of the earth is called gravity.
- Space rockets are used to escape from the earth's pull and enter into space.
- There is no air or water on the moon. Thus, there is no life on the moon.
- Space travellers give us information about space.
- Two Indian women have travelled into space.

Let us answer

A. Tick (✓) the correct answer.

1. Beyond the layer of the earth is
   a. atmosphere. b. space. c. force of gravity.
2. They were the other two astronauts who travelled in the spacecraft with Neil Armstrong.
   a. Edwin Aldrin and Kalpana Chawla
   b. Michael Collins and Sunita Williams
   c. Edwin Aldrin and Michael Collins
3. Astronauts wear special suits that contain a supply of
   a. petrol. b. water. c. air.
4. Kalpana Chawla died when she was
   a. going into space. b. returning from space.
   c. in space.
5. If your weight on the moon is 7 kg, on earth it will be
   a. 41 kg. b. 42 kg. c. 43 kg.

B. Answer these questions.

1. Why is there no life on the moon?
2. What do astronauts do in space?
3. When did Kalpana Chawla die and how?

HOTS question

C. Think and answer.

1. Hasan, Harjit, Mary and Deepa got a chance to go to the moon. How much would they weigh on the moon? Complete the table.

NAME	WEIGHT ON EARTH	WEIGHT ON MOON
Hasan	24 kg	_____ kg
Harjit	21 kg	_____ kg
Mary and Deepa	18 kg each	_____ kg each

Let us do 

ENRICHMENT ACTIVITIES

D. Let's make models.

Visit rsgr.in/lsc-3. Click on LINK 3 to make models of a space rocket and a solar system.

E. Know your space.

Divide the class into four groups. Each group will collect pictures and facts about

GROUP EARTH: the earth.

GROUP PLANET: the other planets.

GROUP MOON: Apollo 11, Neil Armstrong, Edwin Aldrin and Michael Collins.

GROUP SPACE: Kalpana Chawla and outer space.

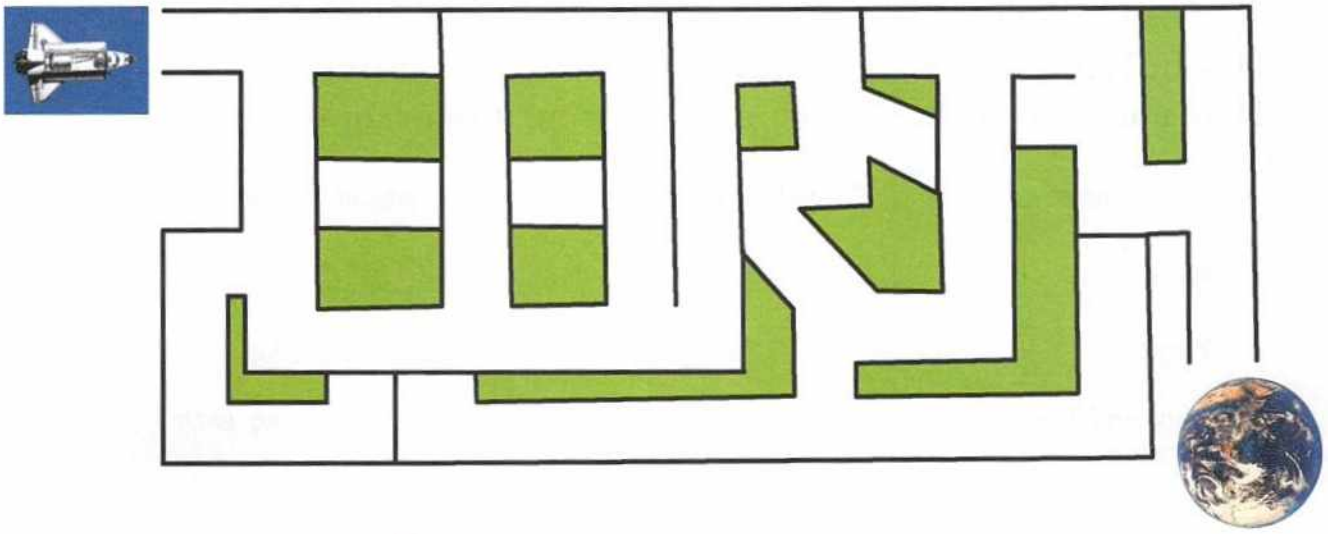
Display your work in the form of charts, booklets and models.

F. Know more about Isaac Newton.

Isaac Newton was a scientist. One day he saw an apple falling from the tree in front of him. He wondered why things come down. He thought a lot and realized that the earth has a force of attraction that pulls everything towards itself. To know more about his life, visit rsgr.in/lsc-3 and click on LINK 4.

ISAAC NEWTON

G. Help the Space Shuttle Pilot find his way back to Earth.



A subject link

(MATHEMATICS)

H. Arpan and his classmates are going on a trip to the planetarium. Sunita Williams is visiting the planetarium and will be talking to the children.

1. The ticket per child is Rs 12. There are 40 children. How much money will be required for their tickets?
2. The ticket per adult is Rs 20. There are 20 teachers. How much money will be required for their tickets?
3. They will hire a bus for the trip. The bus charges Rs 15 per person. How much money do they need for 60 people?

TEACHER'S NOTES: Make the children collect information about the landing on the moon in the year 1969. Tell them about Chandrayaan 1. These activities will help them to develop interest in space and space activities. Ask children to list the names of four spacemen and two spacewomen. What did Sir Isaac Newton teach us? Ask the children.

13

Water and Weather

Get Set!

Have fun with ice!

Take a cube of ice. Blow air on it through a straw.

A hole will be formed on the cube. Why? Because your breath is warm and it melted away the part of the ice it touched!

Let us read about the different forms of water and changing weather.

13.1 Water changes its form.

Activity 1 Put some ice cubes in a tumbler. They will slowly melt and become water. With the help of an adult heat some water. When bubbles form, it means the water is boiling. On boiling, water changes into water vapour or steam. Steam will rise. Hold a cold steel plate against this steam. You will see small drops of water on the plate. Steam has changed back to water on cooling.

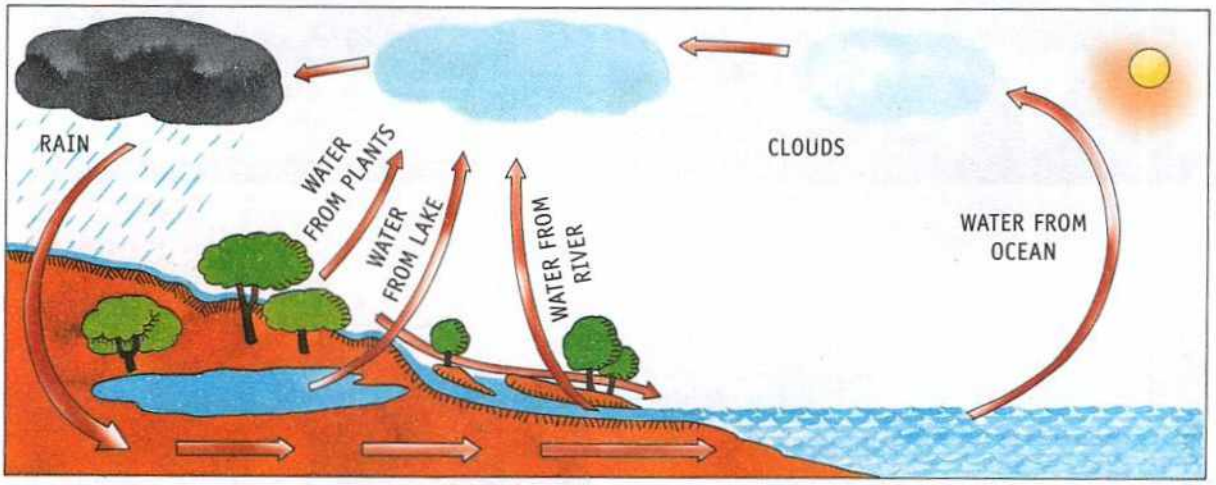
Ice, **water** and **water vapour** are the **three forms of water**. Water changes its form on heating and on cooling.

A Word to Know
FORM: the shape in which something is

THE WATER CYCLE

In nature too water keeps changing its form. It is this change that forms clouds and rain. When the sun shines, water from the rivers, ponds, lakes and oceans heats up and rises in the form of **water vapour**. High up in the sky, this water vapour comes in contact with cold air. It cools down to form tiny drops of water. These tiny drops cling together to form **clouds**.

On cooling further, these tiny drops become heavy and fall as **rain**. The rainwater flows back to the rivers, ponds, lakes and oceans. This cycle of change is called the **water cycle**.



13.2 The water cycle in nature

CHANGING WEATHER

EAGLE: Hello, Hopper! The temperature today is 42 °C.
FROG: Yes, Sharpeye! I wish it'd rain. It's so hot!

These are commonly heard words in summer. When the weather changes, so do the words.

GRASS: Hello, Sunny! You always enjoy the sun on your face.
FLOWER: Yes, I do. But right now I can see you waving in the wind.
FROG: A windy day! That means it may rain.
LIZARD: Is that so? Then I must hurry to my shelter.

Any talk about the **weather** refers to the **sun**, the **wind**, the **clouds** and the **rain**. These decide the weather. In countries like India, **winter**, **summer** and **monsoon** are the three main **seasons**. However, even during one season, the weather changes from day to day and sometimes from hour to hour.

Oral Questions

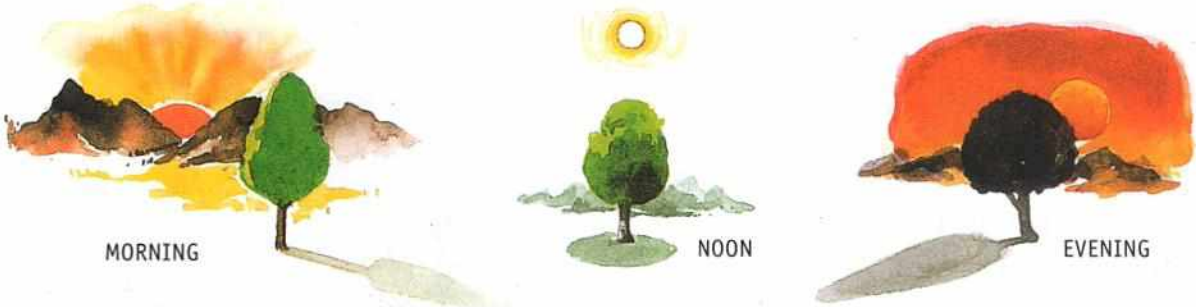
Choose the correct answer.

1. In nature too, water exists in (two / three / four) states.
2. On cooling tiny drops of water become (light / heavy).
3. (Weather / Season) refers to the sun, the wind, the clouds and the rain.

The sun affects the weather

During mornings and evenings, the rays of the sun are slanting. This is because the sun is low in the sky. At noon, the sun is overhead and the rays fall straight. That is why noon is the hottest part of the day. It is not so hot during mornings and evenings. In winter, we like the warmth of the sun. Do you like it in summer?

A Word to Know
SLANTING: not straight



13.3 Different positions of the sun during the day.

The wind affects the weather

When the wind blows gently, it is called a **breeze**. Strong winds cause **storms**. Thunder, lightning, wind and rain make up a storm.

A Word to Know
UPROOT: pull out from the roots

13.4 Storms can uproot trees and blow off the roofs of houses.

The clouds affect the weather

On certain days, clouds block the sun's rays. Since the rays cannot reach us, it is not very hot. Cloudy nights are warmer. This is because clouds do not allow the heat of the earth to escape into the atmosphere. Some clouds bring rain.

13.5 Clouds in the sky

The rain affects the weather

When it rains, the part of the earth on which the rain falls becomes cool. Farmers welcome the rain when it falls at the right time. Rain is good for crops.

Oral Questions

Choose the correct answer.

1. When the wind blows gently, it is called a (breeze / storm).
2. Cloudy nights are (warmer / cooler).
3. The part of the earth on which the rain falls becomes (warm / cool).

However, too much rain can cause floods. Floods damage crops, buildings and roads. Floods harm living things.

Some places in India experience drought due to lack of rain. If droughts last longer, plants, animals and human beings may die due to lack of food and water.

A Word to Know
DROUGHT: drought is caused when it does not rain for long so crops can't grow

Weather affects our lives

What we wear, eat and enjoy depends on the weather. Foggy and stormy weather can cause accidents. Travel, sports and outings become difficult in such weather.

The weather decides the type of house we live in. In very cold places with heavy rain or snowfall, people build houses with sloping roofs. Weather also affects what we eat. In places where it rains a lot, people grow and eat rice because a crop of rice needs a lot of water. Find out what people living in places with different kinds of weather wear.

13.6 Summer 13.7 Monsoon 13.8 Winter

Let us say it again

- The weather depends on the sun, the wind, the clouds and the rain.
- Weather changes from day to day and from hour to hour.
- What we eat and wear depends on the weather.

Let us answer

A. Tick (✓) the correct answer.

1. This is a form of water.
   a. iceboat b. iceberg c. ice cream
2. The changing form of water in nature is called the water
   a. truck. b. cycle. c. bus.
3. In India, winter, summer and monsoon are the three main
   a. weather b. states of water c. seasons.
4. Storms may occur when the wind is not blowing
   a. gently but strongly. b. strongly but gently. c. at all.
5. Foggy and stormy weather are not suitable for
   a. staying in the house. b. playing indoors. c. going out to play.

B. Which seasons do the objects below remind you of? Match them with the seasons.

OBJECTS






SEASONS



C. Fill in the blanks.

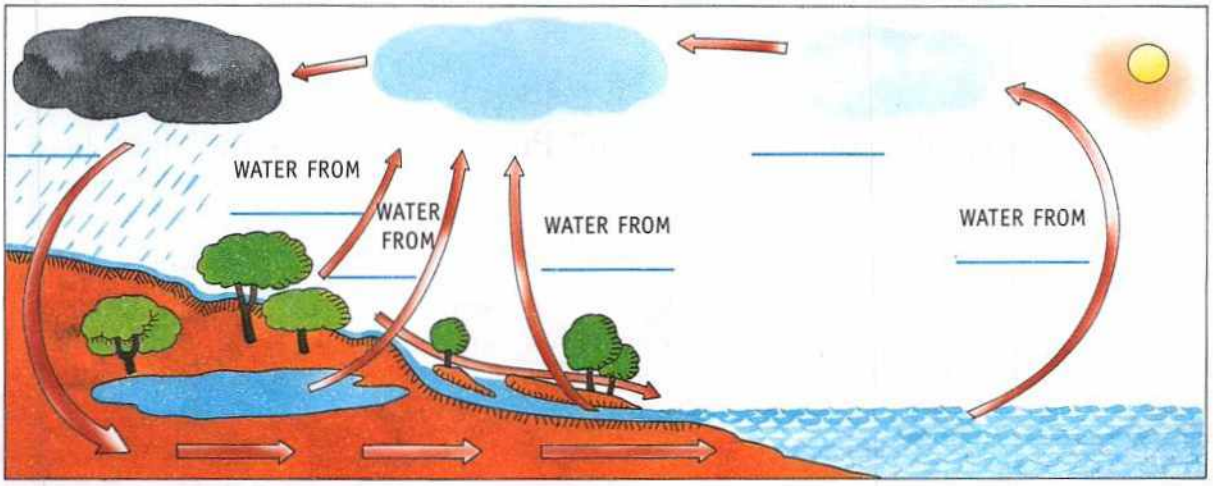
1. _____ time is the hottest part of the day.
2. In winter, we like the heat of the _____
3. Too much rain can cause _____
4. Accidents can occur on _____ days.
5. _____ is experienced due to lack of rain.


Sometimes after it rains a rainbow appears in the sky.

D. Answer these questions.

1. Which are the three forms of water?
2. How do floods affect our life?
3. Does weather affect what we eat? Give an example.

E. In the diagram shown below write the missing words on the blanks.



HOTS questions

F. Think and answer.

1. Why is noon the hottest part of the day?
2. Why is a cloudy night warmer than a night when the sky is clear?

Let us do

ENRICHMENT ACTIVITIES

G. Paint clouds and rain.

Draw an outline of a cloud on chart paper. Cut it out and glue cotton over it. Paste the 'cloud' on blue chart paper. Dip your finger in dark blue paint and press it on the paper to make raindrops under the cloud. Cut out coloured shining paper to make 'lightning' and paste it on the picture.

H. Visit the meteorological office.

TO VISIT

A meteorological office records the weather of a place. Visit the one in your town and find out how they maintain the weather record.

I. Make ice of different shapes and colours.

Take *katoris* of different shapes. Make three drinks of different colours using orange squash, khus *sherbet* and *rooh afza*. Remember to use clean drinking water. Fill in the differently shaped vessels with the coloured drink. Keep them in the freezer for 3 to 4 hours. Enjoy your ice lollies.

A life skill

J. Save water.

Which one would you choose to do? Put a tick (✓) in the right boxes.

A subject link

(SOCIAL STUDIES)

K. Today is New Year's Day. What would the weather be in each city? Colour the correct box. You can colour more than one box.

1. Anu lives in Lucknow. In Lucknow it will be
2. Karim lives in Mumbai. In Mumbai it will be
3. Jasmit lives in Delhi. In Delhi it will be
4. Mary lives in Chennai. In Chennai it will be
5. Hari lives in Srinagar. In Srinagar it will be

SNOWY	WARM	COOL	WINDY

TEACHER'S NOTES: Ask children to relate their experiences of seeing snow, hail, clouds, rain, etc. Open a flask of very hot water in the class. Let the steam touch a cold plate. Discuss about what the children see and why. Guide them to make the water cycle on the bulletin board with cut outs. When the season changes your clothes and food too change. Make the children relate their experiences.

Check Your Understanding

Enrichment Activities

A. Cold drink bottles kept in the freezer sometimes burst. This is a project to find the reason behind it.

You will need a glass, water, coloured tape, a watch and refrigerator.

- Half fill a glass with water.
- Mark the level of water by sticking a thin piece of coloured tape on the glass.
- Place the glass in the freezer of a refrigerator and note the time.
- After around three hours, take the glass out of the refrigerator.
- What did you notice? (**Hint:** Check the level of the ice.)
- Which takes more space—ice or water (same quantity)?
- Can you now say why the bottles burst sometimes?

B. People staying in different climates wear different types of clothes. Their food also varies. This is a project on how climate affects the lives of people.

From the help of magazines and internet, collect the information and tick (✓) the right options in the following table:

NAME OF PLACE	TYPE OF CLIMATE IT HAS	MAIN CLOTHES PEOPLE WEAR	MAIN FOOD ITEMS PEOPLE EAT	TYPE OF HOUSES PEOPLE HAVE	NAMES OF TWO ANIMALS MOSTLY FOUND HERE	A VERY FAMOUS DISH OF THIS PLACE	A VERY FAMOUS DANCE OF THIS PLACE
Kashmir							
Assam							
Mumbai							
Jaipur							
Chennai							
A place of your choice							
The place you stay							

Annual Test Paper

(based on Lessons 7 to 13)

A. Tick (✓) the correct answer.

1. Our body is made up of
   a. 202 bones. b. 206 bones. c. 302 bones.
2. Heavy objects are weighed in
   a. kilograms. b. grams. c. litres.
3. Luminous objects give us
   a. noise. b. shadow. c. light.
4. When we see more than half of the moon, it is called the
   a. gibbous moon. b. crescent moon. c. new moon.
5. Your weight on the moon will be _____ of your weight on earth.
   a. one-fifth b. one-sixth c. one-fourth

B. Fill in the blanks.

1. Tissues join together to make an _____
2. The _____ of the earth on its axis causes days and nights.
3. _____ was the first Indian woman to go into space.
4. Ice, water and _____ are three forms of water.
5. The moon is a natural _____ of the earth.

C. Match the columns.

1. Short lengths are measured in	a. large intestine
2. Light travels in straight lines called	b. centimetres
3. The Sun and eight planets together form	c. gravity
4. The undigested food goes to the	d. rays
5. The force of attraction of the earth is called	e. solar system

D. Answer these questions.

1. Which are the organs of the nervous system?
2. How is our skeletal system useful for us?
3. What is a solar eclipse?
4. Write the names of any four constellations.
5. What is water vapour?