



**Government of Tamilnadu**

# **SCIENCE**

**IV - Standard**

**Untouchability  
Inhuman - Crime**

**Department of School Education**

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**(NOT FOR SALE)**

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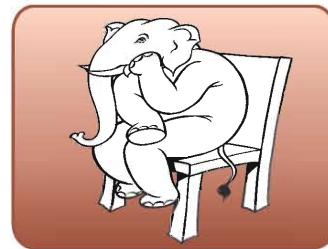
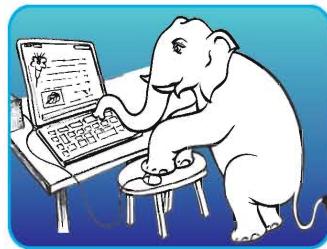
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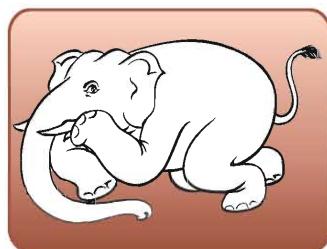
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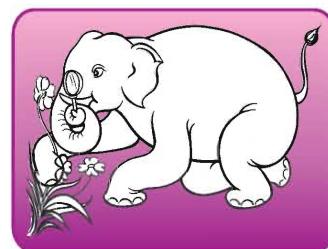
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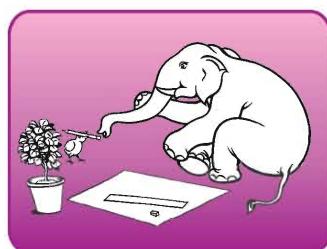
Do You Know ?



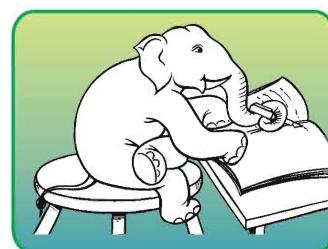
Think and write



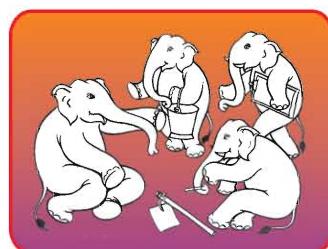
Think it over !



Activity



Project :

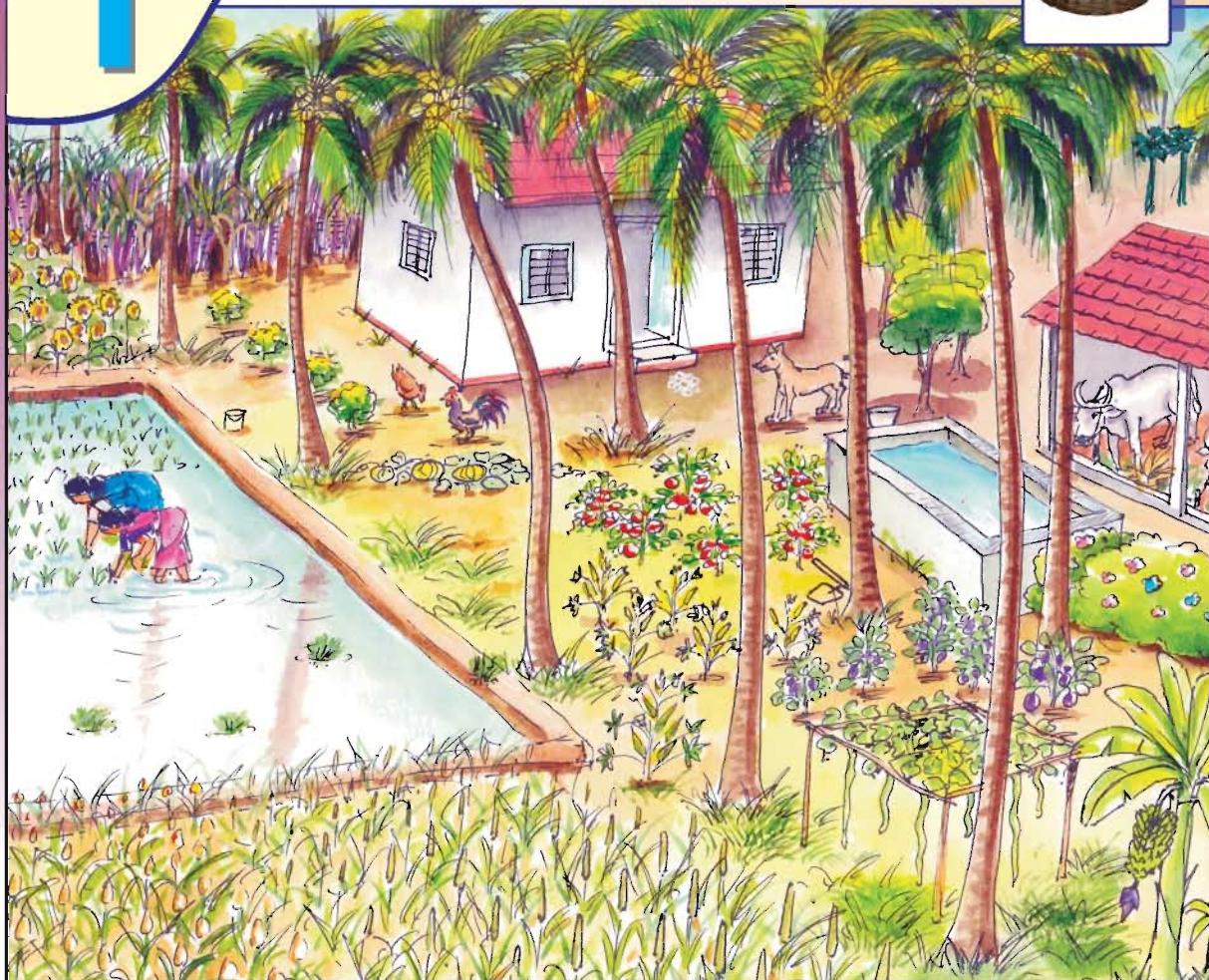


Evaluation

For Teachers...

# 1

# FOOD FROM PLANTS



Observe the **vegetable garden keenly** and answer the following.

Name the various **plants** in the garden.

Name the **vegetables** that have grown above the ground.

Name the vegetables that you like to eat.

One morning Mani and his grandfather were in the garden...



Mani asked his grandfather, "While tomato and brinjal grow above the soil, why does the groundnut grow under the ground?" Grandfather answered that the groundnut plant stores its food in the root as groundnuts.

They walked towards their home talking all the way. Mean while...

Mani's father left home to buy all provisions. Mani went along with him.



In the vegetable shop, Mani saw a variety of vegetables. He took one potato and asked "Why is there mud on the potato?"



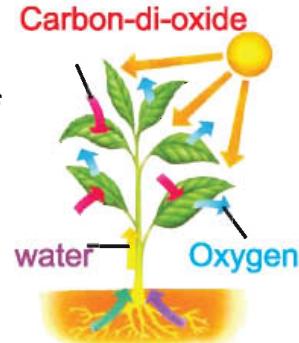
"Potato grows under the ground; that's why you see mud on the potato", father replied. "Does the potato plant also store its food in the root?."

Father answered, "Not in the root, but in the underground stem. Plants store their food in different parts, like root, stem, leaf, flower, fruits and seed.",

#### Do you know?



Plants prepare their own food with the help of sunlight, water and carbon-di-oxide using chlorophyll present in the leaves. This process is called **photosynthesis**.



## Edible parts of a plant.

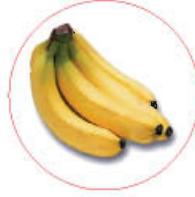
From root to fruit....



For example



Food	Parts
Cabbage, <u>Greens,</u> <sup>keerai</sup>	Leaves
Mint leaves.	
Sugarcane, Onion, Potato, Ginger, <u>Turmeric.</u>	Stem
Banana flower, Cauliflower.	Flowers
Lady's finger, Bitter gourd, Drumstick.	<u>Unripe fruits</u>
Guava fruit, Banana, Grapes.	Ripe fruits
Beetroot, Carrot, Radish, Tapioca.	Roots



Plants prepare and store their own food.

Food stored by the plants is useful for man  
and animals.

## Seeds as food

avarai

Cereals like rice, wheat, millet, maize, ragi, corn, Pulses like red gram, green gram, black gram and oil seeds like coconut, sesame, groundnut are used as food. All these are obtained from the seeds of the plants.

### Activity



Put  for the edible parts of a plant. Put  for the others.

Plants	Edible parts				
	Root	Stem	Leaf	Flower	Fruit
Banana Tree				<input checked="" type="checkbox"/>	
Sugarcane		<input checked="" type="checkbox"/>			
Greens			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Carrot	<input checked="" type="checkbox"/>				
Orange					<input checked="" type="checkbox"/>

“Garbage dump” turned into a tomato garden...

As Mani and his father were returning home, they continued to talk about the parts of the plants. Mani gave all the vegetables to his mother.

Mani's mother started to cook the meals. For preparing rasam, she squeezed the tomatoes and threw away the waste into the garbage dump.

One or two days later, seeds were covered by soil. It rained. What a surprise! Seedlings emerged from the seeds. With the help of water, air, waste manure and sunlight, they grew into beautiful plants.

After some days, they bloomed into yellow flowers. The flowers slowly changed into green fruits and then into red ripe tomato fruits. Mani eagerly plucked some fruits from the plants and ate them. Some tomato seeds fall on the ground. Seeds were scattered and once again, they grew into plants. Thus the garbage dump turned into a tomato garden.

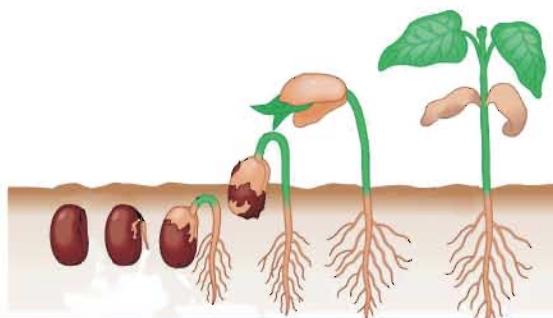
**Mani sang in excitement.**

Complete the song and sing.



### Seed germination

- **Germination** is a process by which a plant emerges from the seed.
- **Soil, air, water and sunlight are essential for seed germination.**



### Activity



Collect different types of dry seeds  
in small polythene packets, stick them in a chart  
paper and write their names.

## Project:



Take four glass tumblers of the same size. Put equal number of bean seeds into them. Keep them in different places as given.



①

Place it in the sunlight. Allow air to enter into it. Don't pour water.



③

Place the seeds in a wad of cotton. Pour required amount of water. Place it in the sunlight and allow the air to enter into it.



②

Place it in the sunlight. Fill the tumbler with water in such a way that air does not come in contact with the seeds.



④

Pour required amount of water. Cover the tumbler with a black cloth so that sunlight cannot enter into it.

**What are the factors available to the seeds for germination in the four tumblers?**

In the given table put  for the available factors and  for the factors that are not available.

Tumbler	Water	Air	Sunlight
1.			
2.			
3.			
4.			

- a) Do the seeds in all the tumblers germinate?
- b) Seeds kept in which tumbler will germinate?
- c) What are the factors needed for the germination of seeds?

## Activity



Take three types of seeds, like paddy, mustard, pea in three different glass jars. Fill half of the jars with soil till the seeds get covered. Find out for yourself which of the seeds will germinate first with the help of the air, water and sunlight.

### Do you know?



Coffee seeds  
were from  
Africa.



Pea and  
cabbage  
were from  
Europe.

Green chilli, potato and  
tomato were from  
South America.



Tea Plant



Tea Leaves

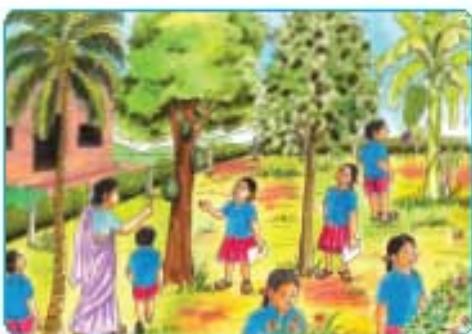


Tea



## On a field trip...

After knowing a little about plants, Mani was eager to know more. He hurried to school the next day. In order to make the students learn about the lesson "Plants In society", the teacher took them for a field trip during the first period. Students listed out the names of all the plants around the school.



Write the plants seen in your area...

1. Medicinal plants \_\_\_\_\_
2. Plants used for construction purpose \_\_\_\_\_
3. Plants used for festivals \_\_\_\_\_

### World Environment Day.

Vanamahotsav (Planting saplings) was celebrated in the school on June 5<sup>th</sup>. The students planted the own saplings, they had brought. Mani, on his part, planted a neem sapling in the school campus and watered it everyday.



June 5<sup>th</sup> is celebrated  
as World Environment Day all over  
the world.



The more trees we plant, the more rain we get !

The more rain we get, the wealthier we are !!

## Evaluation



(a) True  False

1.	Ginger is the root part of the plant.	<input type="checkbox"/>
2.	Groundnut is the stem part of a plant.	<input type="checkbox"/>
3.	Sunlight is essential for seed germination	<input type="checkbox"/>
4.	Banana leaf is used as food.	<input type="checkbox"/>
5.	Tulsi is a medicinal plant.	<input type="checkbox"/>

(b) Fill in the blanks.

1. In sugarcane \_\_\_\_\_ part is used as food.
2. Plants prepare their own \_\_\_\_\_.
3. In cauliflower \_\_\_\_\_ part is used as food.
4. Grains are the \_\_\_\_\_ part of a plant.
5. In cabbage \_\_\_\_\_ part is used as food.

(c) Match the following.

1. Root	Mint leaves	<input type="checkbox"/>
2. Seed	Beetroot	<input type="checkbox"/>
3. Stem	Cauliflower	<input type="checkbox"/>
4. Flower	Sugarcane	<input type="checkbox"/>
5. Leaf	Wheat	<input type="checkbox"/>

(d) Draw the picture of a banana tree, colour it and write the names of the edible parts.

**(e) Answer the following.**

1. What are the factors needed for seed germination?
2. Write down the names of medicinal plants.
3. Name a few flowers that are used as food.
4. Which plant's roots are used as food?
5. What are the uses of tulsi plants?
6. Name some vegetables that are mostly used for cooking at home?
7. Plants ask, "How will you conserve us as we provide food for all living beings?" What will be your answer to this question?

**(f) Project:**



Divide into groups. Each group must plant a bean seed in a pot filled with garden soil. Place it in the sunlight and pour water daily. The seed will germinate. Measure the height of the seedling after every 5 days and enter the data in the tabular column.

Day	Height	Changes in the plant
5th Day		
10th Day		
15th Day		
20th Day		

**For Teachers...**



Ask the students to observe the changes of seed germination and to draw them in the notebook. Make them to discuss about it in the class.

(g) Write about the food items needed to prepare the following food, the plants from which they are obtained and also which parts of the plant they are, in the table given below.

Food	Food Items	Plants	Part of a plant
Idly	Rice Black gram	Paddy plant Black gram plant	Seed Seed
Sambar			
Poori			
Sweet pongal			



### Do you know?



There is a 500 year old Neemarudhu tree at Eeshanthimangalam near Nagercoil. It is about 150 feet high and has a circumference of 85 feet. Its leaves and barks are used as medicine.

Collect some of the latest information about plants from newspapers and write.

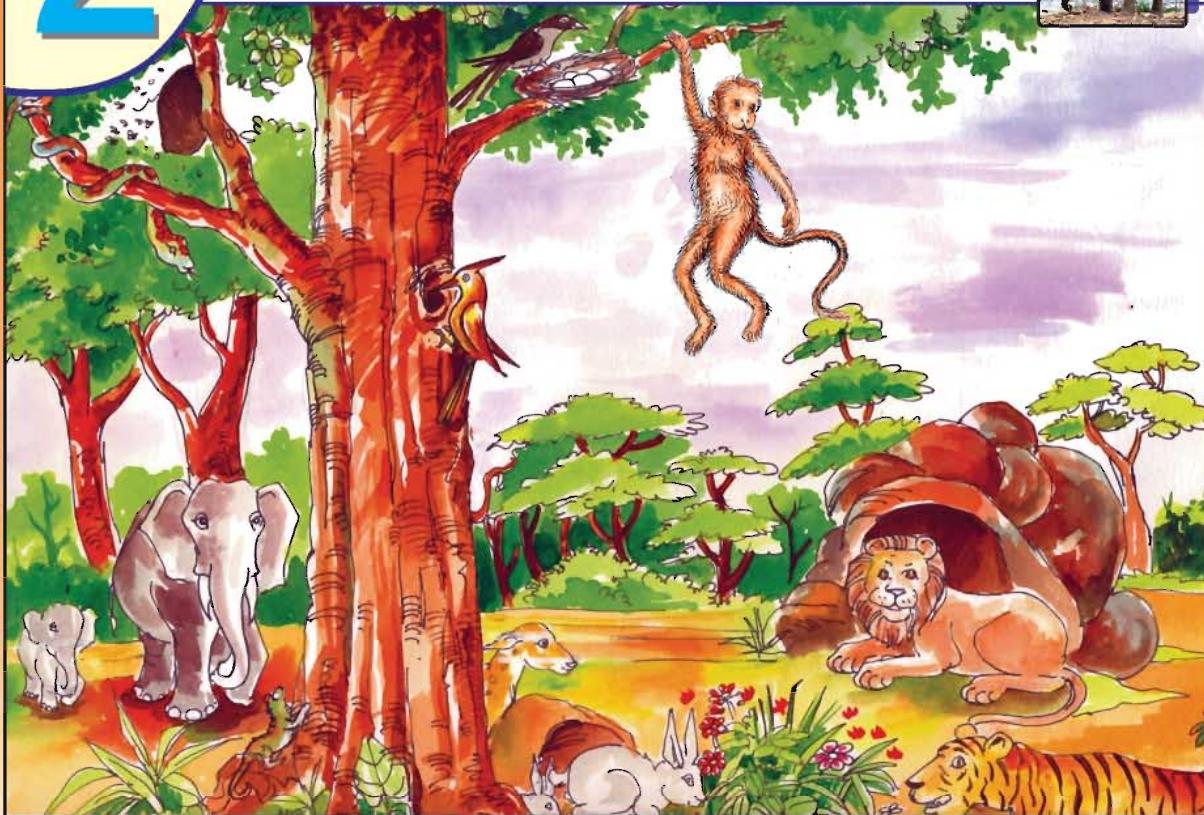
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# 2

## SPECIAL SENSES OF ANIMALS



Observe the picture keenly and answer.

Write the names of animals seen in the picture.

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Compare the external appearance of an elephant and the monkey.

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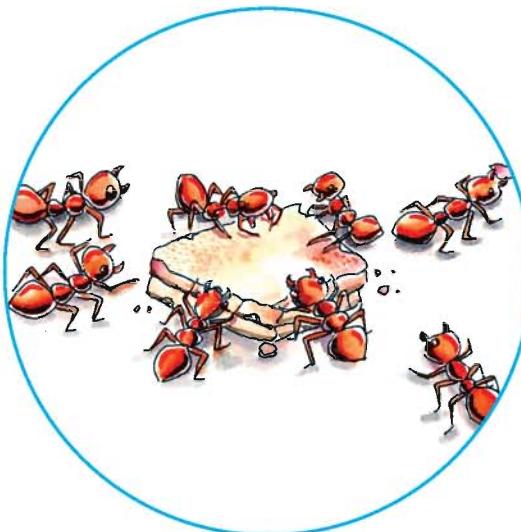
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Write something that you know about the lion.

---

---

Have you seen this sort of activities?



Ants gather around a piece of bread that fell down. **How?**

Even if you walk quietly nearby a dog that sleeps, it quickly raises its ears.  
**Why?**



When we have food under a tree, what are the animals that come around us?

---

---

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## Animals and their senses

Like us, animals too have **senses** - such as sight, hearing, smell, touch and taste. All animals identify their surroundings and habitat through their **sense organs**. Some animals have highly developed sensory organs which help them to search for food and for self protection.

### Eye Sight of animals!



There are a lot of differences between the way we see an object and the way animals see the same object. Animals' vision differs in colour, distance and clarity of the object that they see.

Birds, like eagle and vulture, can see objects **four times** the distance seen by man.

A chameleon can see two objects simultaneously , one through its left eye and other through its right eye.



Rabbit can see all the objects around it without turning its head.



Which bird has eyes on the face like the human beings?

---

Write the names of the birds which have eyes on the side of their heads.

---

### Do you know?



During night time the eye sight of a tiger is six times greater than that of the man.

The roaring sound of a tiger could be heard upto three kilometers away.

The tiger can turn its ears in all possible directions. It is talented in hearing the sound of the swaying of leaves and the sound of animals walking on the grass and can also differentiate them.



It can feel the vibration in the air through its whiskers. By this, it finds its prey and walks about at night.

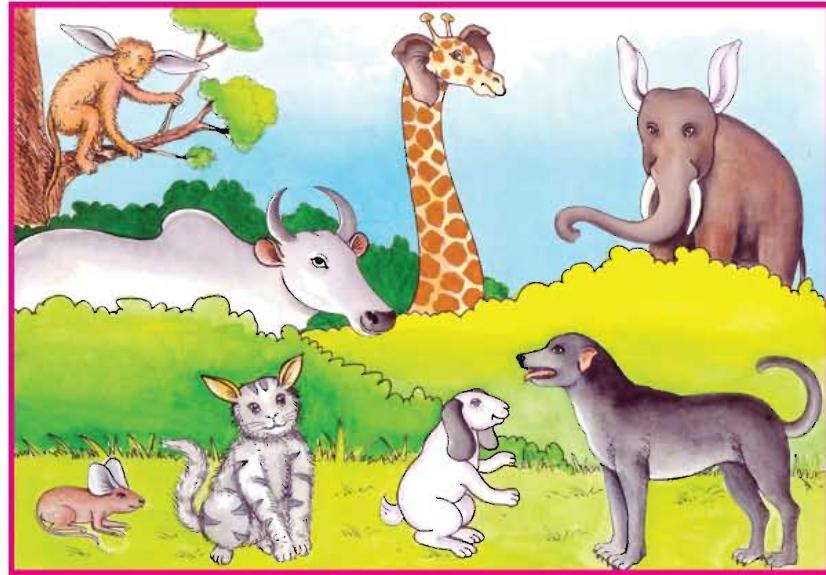
### Can animals see colours?

Animals cannot see most of the colours as we see them.

Oxen can see all the colour objects in black and white only. It is the same for crocodiles also.

Honeybees cannot see red colour.

## Activity



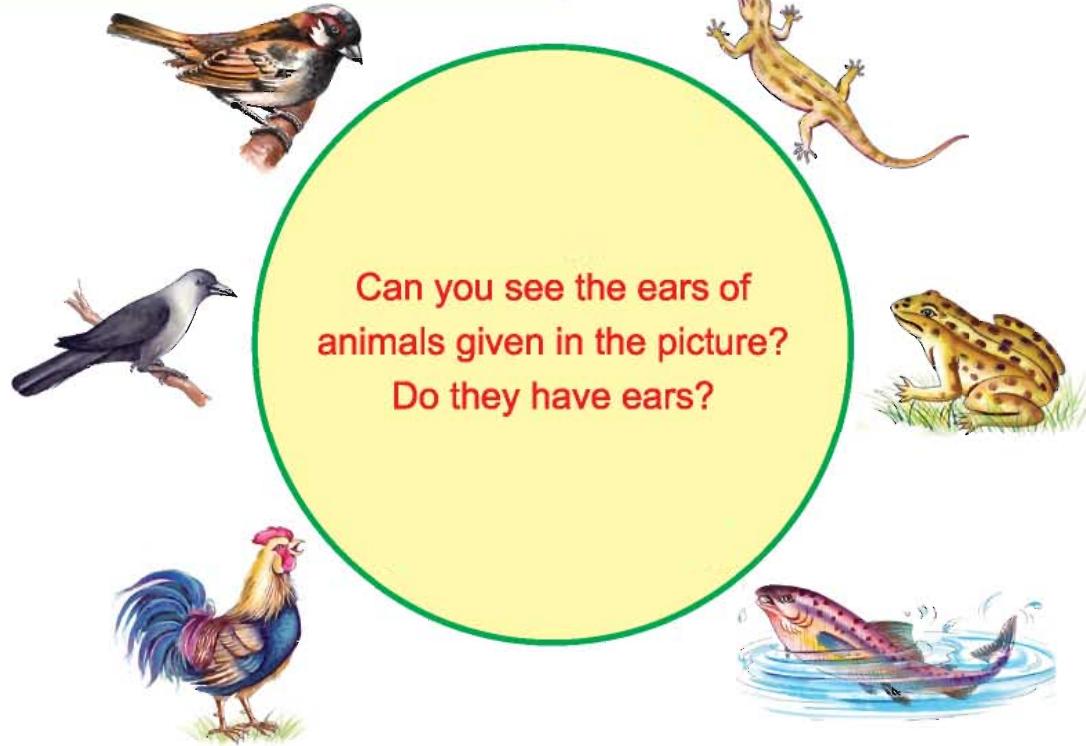
Don't the animals in the picture look funny?

- An artist has drawn the ears differently!
- Identify the ears with their animals.

## Do you know?



Can you see the ears of  
animals given in the picture?  
Do they have ears?



## What noise is that ?

Animals can hear through ears. For some of the animals, the ear lobe is present externally like it is for us. But for birds and reptiles, ears cannot be seen. They do not have ear lobes; instead, they have small holes.

### Activity



Among the animals you have seen, write down the name of any three animals with external ear and three with internal ear.

Animals with **external** ear.

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Animals with **internal** ear.

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## Hearing sensation

- Hearing capacity of a dog is **40 times** greater than ours. It is **90 times** greater for rats.
- The bat can know an object which is at a distance of **18 feet through** its ears.
- The elephant can feel the **vibration through its trunk**.



- Hearing sensation is more for animals like elephant, deer, monkey, rabbit, dog and bat.

### Activity



Write the name of any six animals that have ears bigger than yours.

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### Think it over!



Tsunami occurred on December 26, 2004. Many people lost their lives in this disaster. How did some animals manage to escape from that place without any harm?

#### Do you know?



- Animals like monkey, ant and dog are capable of knowing about the occurrence of earthquake before the event.

### Smelling sense of animals.

Do you know the animals which have greater sniffing capacity?

Butterfly, mosquito, ant, dog and honeybee.



### Smelling sense of a dog

- Smelling sense of a dog is one lakh times greater than that of the man.
- Dog knows its territory with its sense of smell.
- Dog can sense explosives through its smelling sensation.



German Shepherd

How is the sensation of dogs useful to us?

Mosquitoes can locate human beings by odour and temperature of the body by using their sense of smell.

Which are the objects we can identify by using smelling sensation only?

\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

Smells which I like	Smells which I do not like
_____	_____
_____	_____

#### Do you know?



- \* The snake smells through its tongue.  
It does not have ears.



#### Sense of taste

We sense taste such as sweet, bitter, etc., with the tongue. Which are the organs used by animals to sense taste?

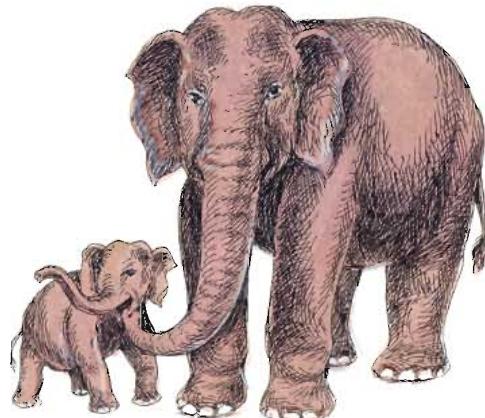
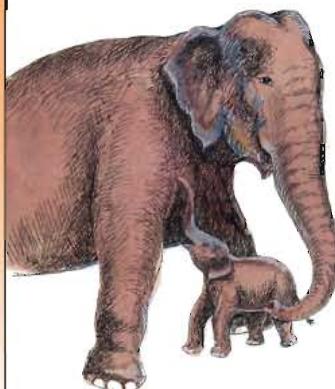
- \* Butterflies sense taste with the help of their legs.
- \* Honeybees sense taste with the help of their jaws, forelimbs and antenna.
- \* An earthworms sense taste through their whole body.

## Sense of touch

- \* We feel the sense of touch through skin. But the cat can feel it through whiskers.

## Care of young ones.

New born baby elephant cannot see anything for some time. Elephant family leads that young one by means of the sense of touch.



Hence animals not only protect themselves but also take care of their young ones using their special sensory powers.

### How long do animals take care of their young ones?

- \* Goat - one year.
- \* Lion - three years.
- \* Gorilla - 4 to 5 years.
- \* Birds - some weeks.



## Birds protection



Birds train their young ones to fly and to search for food. Parental care in birds is shared equally by the male and female birds.

Female birds protect their young ones by keeping them in nests.  
Male birds get food for them.

Reptiles do not show much care in nursing their young ones. But crocodiles keep their young ones in their jaws and nurse them.

In the **rabbit** family young ones are taken care of only by the mother rabbit.

Mother rabbit is very cautious. When its young ones are under attack, the mother rabbits bravely defends them without bothering about its own life.



### Young one in the pouch...



Newly born kangaroo is rose in colour. They are very small in size, around 3 cm. Immediately after its birth, it climbs slowly and reaches its mother's pouch. It grows there for the next six months.

#### Do you know?



Kangaroo grows up to six feet.

Jumps upto 15 feet.

It hops and run very fast.



## Animal Communities

Animals, by nature, live in communities as we do. Animals like elephants, deer, bisons and monkeys live in communities. They will share the food and water in the place where they live. Moreover in order to select their home, to protect their race, they live together.



### Activities of animals in communities.

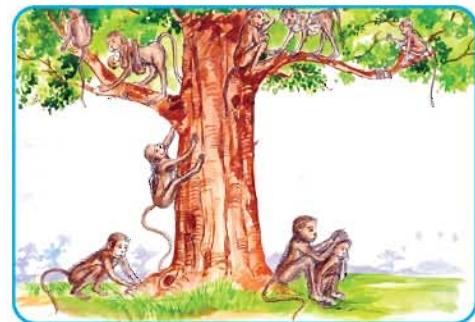
- Selection or making of shelter.
- Search for food
- Caring and protecting their race.



## Tree to tree.

In general the monkey lives on trees. Every night it changes its place in trees. Mother monkeys take care of their young ones.

The young ones stay with their mother upto six years and learn all the skills from the mother.



### Do you know?



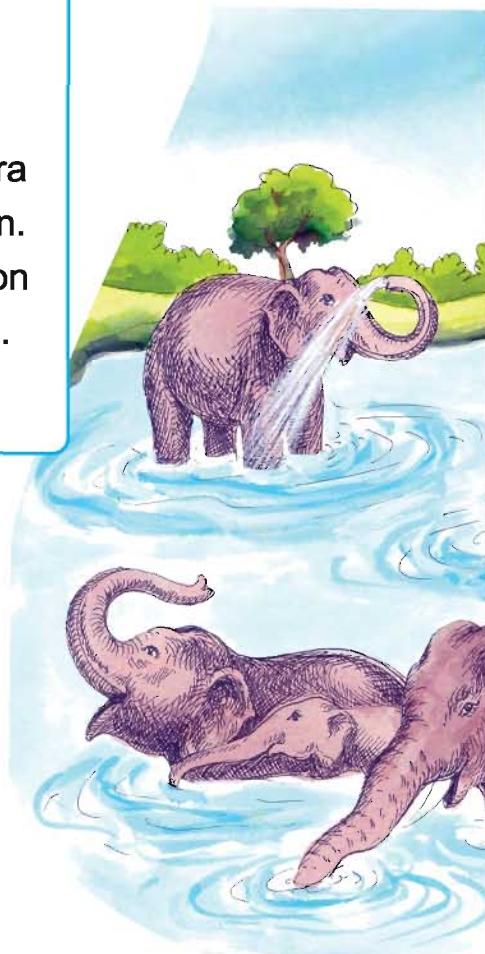
- \* Elephants can hear and sense the ultra sounds which cannot be heard by man. It can find out the animals that come on the way with the help of these sounds.
- \* Elephants sleep by standing.

Weight of a three month old elephant is 200 kilogram.

What is your weight?



How many of your friends like you must join together to get the weight of a three month old elephant's weight?



Write the names of animals which live in communities.

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Do you like to live in a joint family?

---

What are the benefits you get when you live in joint family?

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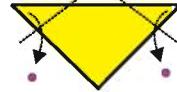
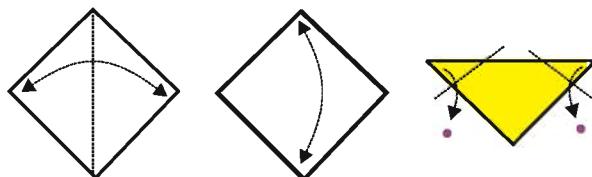
What qualities can be developed when we involve in group activities?

---

**Activity**



Take a one sided colour paper. Fold the paper as shown in the picture and get the shape of a dog. Draw eyes, nose and tongue in that. Pull the dog's ears sideways and play.



## Evaluation



### (a) Fill in the blanks.

1. \_\_\_\_\_ bird can see the objects four times the distance seen by man.
2. Oxen can see all the objects in \_\_\_\_\_ colour.
3. Garden lizard has \_\_\_\_\_ ears.
4. Crocodiles keep their young ones in their \_\_\_\_\_ and nurse them.
5. Goats take care of their young ones for \_\_\_\_\_ years.

### (b) Write about the parental care of the following animals.

- a) Cat      b) Hen

### (c) Answer in one or two sentences.

1. What are senses?
2. Write the name of animals which have sense of smell in a significant way.
3. How do elephants take care of their young ones?

### (d) Identify the animals hidden in the given picture and colour them differently.



# 3

## INSECTS



Identify the insects in the picture and write down their names.

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Write down the places where you can find more insects.

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Write down the names of insects that are common in your area.

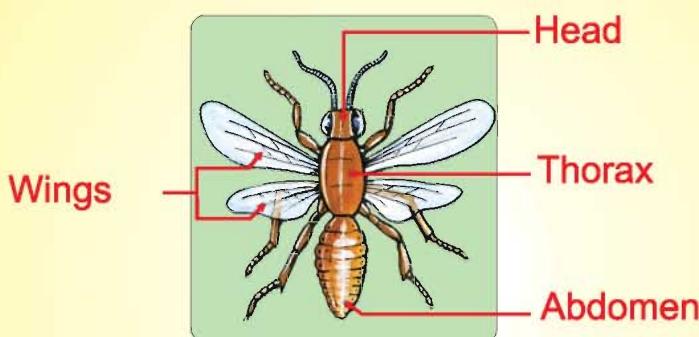
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We can see insects in the places like house, garden, river, and pond. There are about 10,00,000 insects in the world.

## Structure of an insect

Insects are of different types. All insects have similar body structure. In general, the body of an insect is divided into three parts namely head, thorax and abdomen. All insects have six legs. Antennae are seen on the head. Insects have two pairs of wings to fly.



Are you eager to know about the insects around us, their food and habitat? Ananthi was looking at her neighbour Anisha's album about "Different types of insects". Shall we also take a look?



## Different types of insects



### Dragon Fly

**Structure** : Dragon flies have four wings and they can fly forward and backward.



**Food** : Small insects

**Other Facts** : It depends on mosquitoes for food. They fly without moving away from one place. There are about 30,000 lenses in the eye of Dragon fly.



### Flea

**Structure** : It has no wings. Small in size - up to four millimeters.



**Food** : It sucks blood from animals.

**Other Facts** : It lays nearly 25 eggs per day on animal body. It lives for two to three months. It lives on the body of cat and dogs.

## Different types of insects



### Bedbug

**Structure** : It has no wings. It has a flat body and is oval in shape.

**Food** : It sucks blood from man and animals.

**Other Facts** : When it bites human beings, its saliva enters into the body which swells.



It lives for four to six months. It may be seen in pillows, beds and wooden chairs.



### Silver Fish

**Structure** : It is a white coloured, fish shaped insect  
It has no wings.

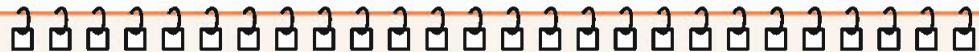
It has a long antennae.

**Food** : It feeds on starch in starched clothes and paste used in book bindings and paper.

**Other Facts** : It has 11 segments in the abdomen.  
It lives for about 9 months. It lives in old books, behind the mirror and in clothes.



## Different types of insects

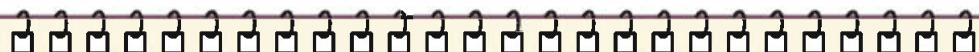


### Drosophila (Fruit Fly)

**Structure :** One pair of fore wings with a few veins. It has sucking type of mouth parts.

**Food :** Fruits.

**Other Facts :** It is proved to be an ideal tool for genetic research.  
It lives inside the fruits.



### Moth

**Structure :** Moth has four wings.

Usually comes out at night towards light.



**Food :** Green leaves, small insects and nectar from flowers.

**Other Facts :** They fly at night. They usually do not have bright coloured wings like butterflies. It is seen in forests, gardens, meadows.

## Activity



Anisha did not write the details about the insects given below. You write



### Ladybug Beetle

Structure :



Food :

Other Facts :



### Wasp

Structure :



Food :

Other Facts :

## Nocturnal insects



### Firefly

Firefly has the capacity to produce light. It is amazing to see such insects. When two type of chemicals substances from their body mixes with the air, it produces light. Female Fireflies give the maximum light. They feed upon the larva of snail by making them inactive. The light produced by 40 fireflies is equivalent to the light given by one candle.



### May fly

We can see these insects at night during the rainy season. Its life span is one day.



### Cockroach



This is an insect which moves for the sake of food at night. They are found in places like Kitchen, toilet, etc., it can survive without food for nearly one month. It can sense smell through its antennae and mouth. It runs very fast.

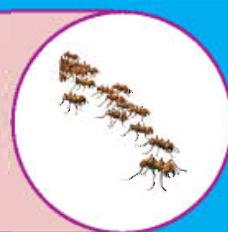
We cannot see all the insects at all times. Have you seen bat, owl flying during night time? Likewise, insects such as Firefly, May fly, Cockroach are seen at night. They are called nocturnal insects. They come out only during night in search of prey.

## Life of Ants

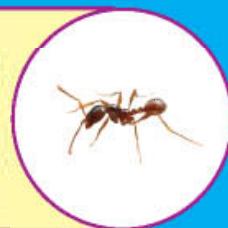
Geetha kept the peanut candy which her father had given her in a plate, and went out to play. When returned she saw the peanut candy surrounded by ants. She observed that keenly. How come so many ants came so fast! It came to her mind that ants have more sense of smell. Geetha was eager to know more about the ants, and she watched a compact disc in the computer about ants.



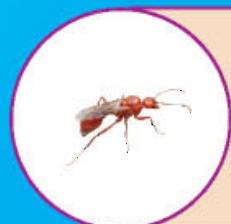
Ants live together in colonies. In their family they have queen ants, worker ants and male ants.



Queen ant is large in size. It flies with the help of the wings. It lays eggs.



Worker ant performs duties like collecting food, defending the colony and enlarging the nest.

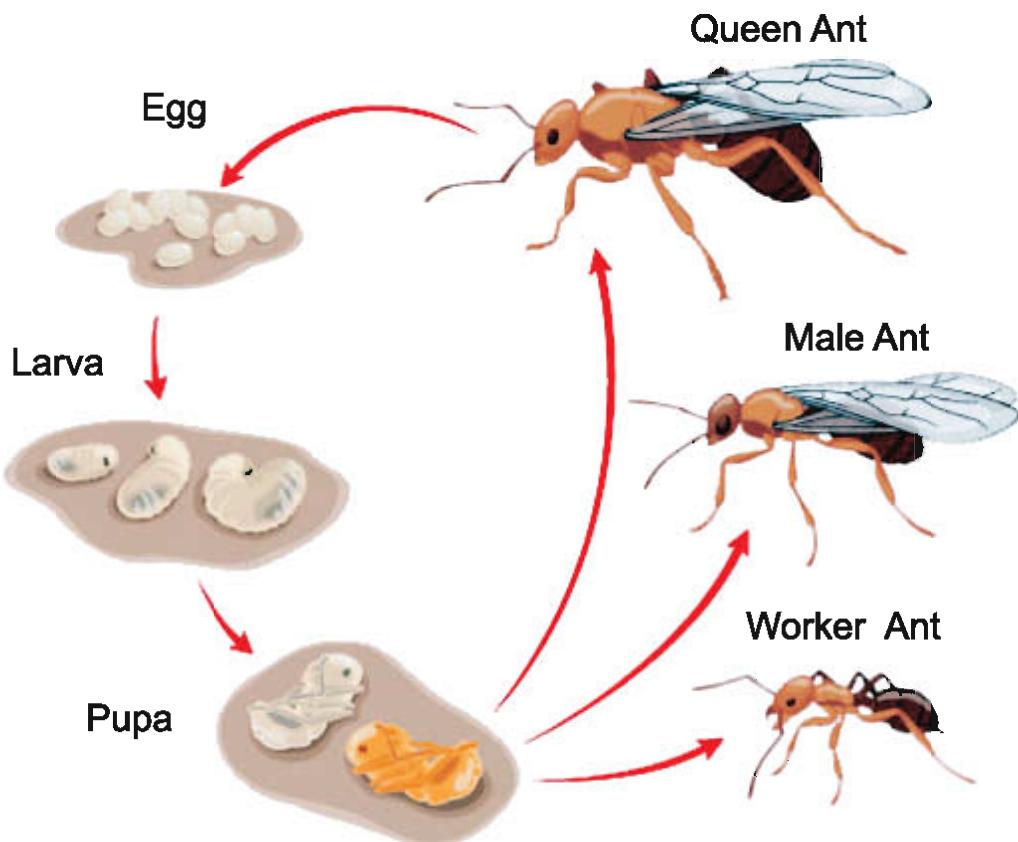


Male ant has small wings. It lives for a short time.



## Life cycle of an ant

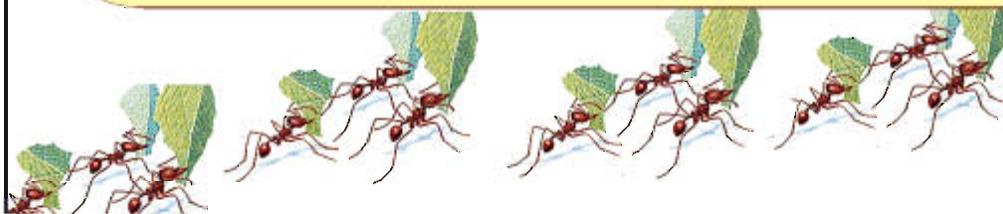
Life cycle of an ant consists of four stages. They are egg, larva, pupa and adult.



Think it over!



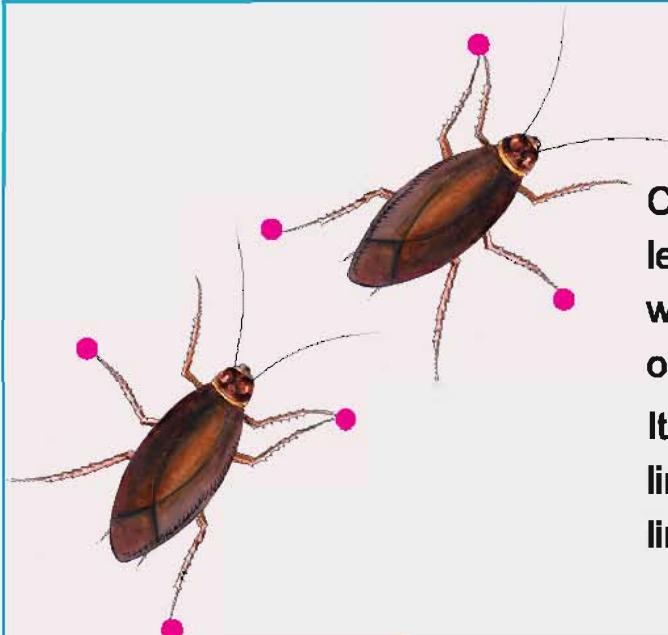
Let us also work together actively like ants  
and live in united with love.



## Activity



Observe the leg movement of a Cockroach as it moves. Likewise find out the movement of the other insects.



Cockroach moves three of its legs at a time for movement while the other three legs are on the ground.

It moves its fore limb and hind limb on one side and middle limb on the other side.

## Evaluation



(a) Find out and write whether the given ant is queen, male or worker ant.



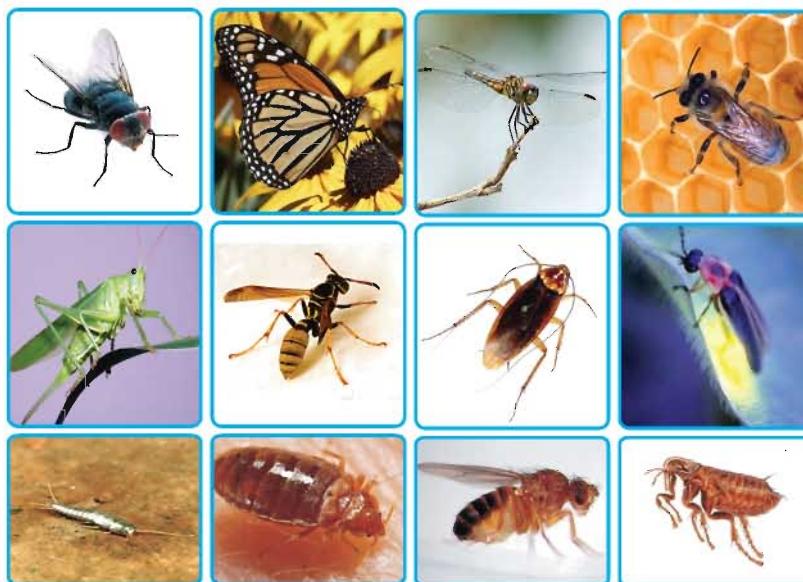
(b) Write a few lines about the ants given below:

Queen ant : \_\_\_\_\_

Worker ant : \_\_\_\_\_

Male ant : \_\_\_\_\_

(c) Answer the following questions by seeing the given pictures.



1. Name the insects that are useful to us.  

---
2. Name the insects that are harmful to us.  

---
3. What are nocturnal insects?  

---
4. Name an insect which cannot fly much distance though it has wings.  

---
5. Which insect can jump faster than others?  

---

Project:



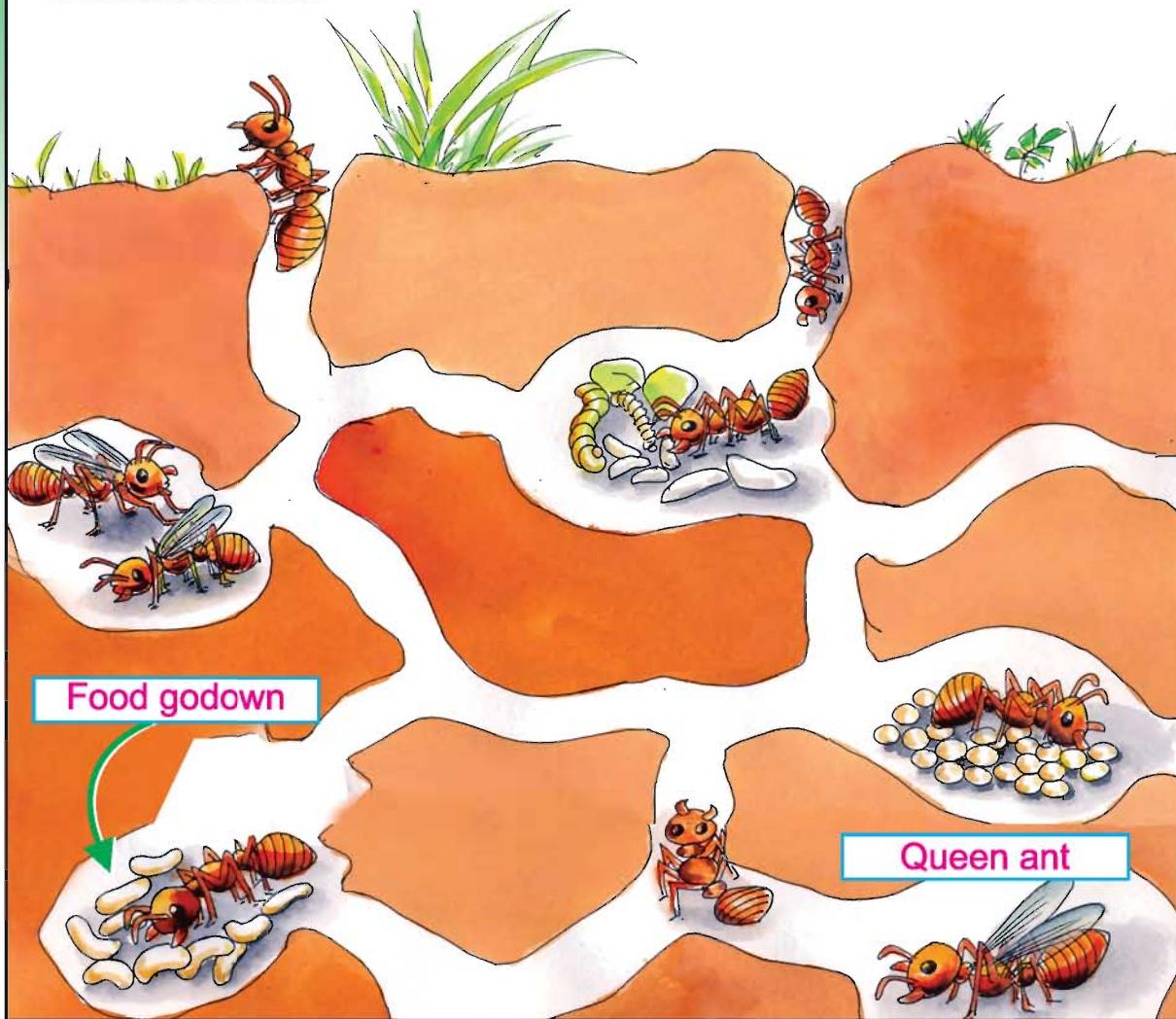
Make an album by collecting the pictures and details of the insects.

## Do you know?



1. Ants can lift weight 20 times greater than its own weight.
2. Ants sense smell through antennae.
3. The length of ants will be from 2 mm to 7 mm.
4. Some ants sleep for 7 hours a day.
5. When worker ant comes to know about the place of food, it produces a particular smell, thereby other ants will come to know about that place easily.

## Habitat of ants



# 4

## SOLAR FAMILY



It is Science festival in Mohan's school.

One astronaut took part in that gathering.

Mohan shared all the information given by the astronaut through a letter to his friend.



Chennai,

Dear friend....!

How are you? Here I am fine. How is your studies going on? One astronaut came as the chief guest for our school science festival. I felt proud, for he is an Indian. He started sharing his experiences. He said that his space journey was a memorable one.

For all the questions that we asked about the solar system, he gave us clear answers through a slide show. Moreover, he looked at us and said, "You are the leaders of the future. So study well, and become great persons in the future." A thought rose in my mind that I too must work hard and become a great astronaut like him.

I am sending all the information along with this letter. Kindly share this with your friends.

With regards,

Yours lovingly,

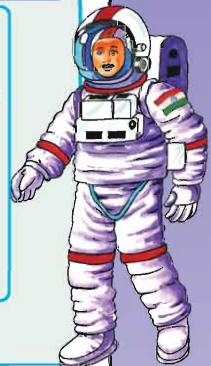
K. Mohan

B. Ragul,  
20, Ganapathy Nagar,  
Velankanni-2.

We can see numerous stars in a clear sky at night. The sun we see every day is also a star. It is also the nearest star to the earth. Planets revolve around the sun at different distances in different orbits. This is called **solar system**.



There are eight planets and more dwarf planets in the solar system. Pluto is one among the dwarf planets.



**Mercury** is the smallest and the nearest planet to the sun. It revolves very fast around the sun.

**Venus** is the second planet. It is very hot. It is the brightest planet. This is visible to our naked eyes from the earth. It moves from east to west. Hence in this planet sun rises in the west and sets in the east.



Third planet is the **Earth** where we live. It has air and water. It supports life. It is our responsibility to protect our earth from pollution.



**Mars** is the fourth planet. It is red in colour. Its mass is half of the earth's mass.

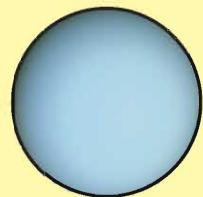


**Jupiter** is the fifth planet. It is the largest planet in the solar system. It has great red spots in it. It is a large gaseous planet.

**Saturn** is the sixth planet. There are big rings around it. It will be very fascinating to see such rings which are yellow in colour.



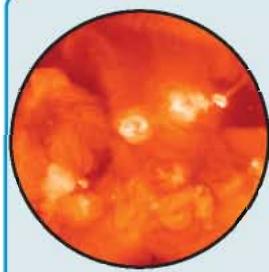
**Uranus** is the seventh planet. It is made up of gases. It also contains rings. It is the coldest planet.



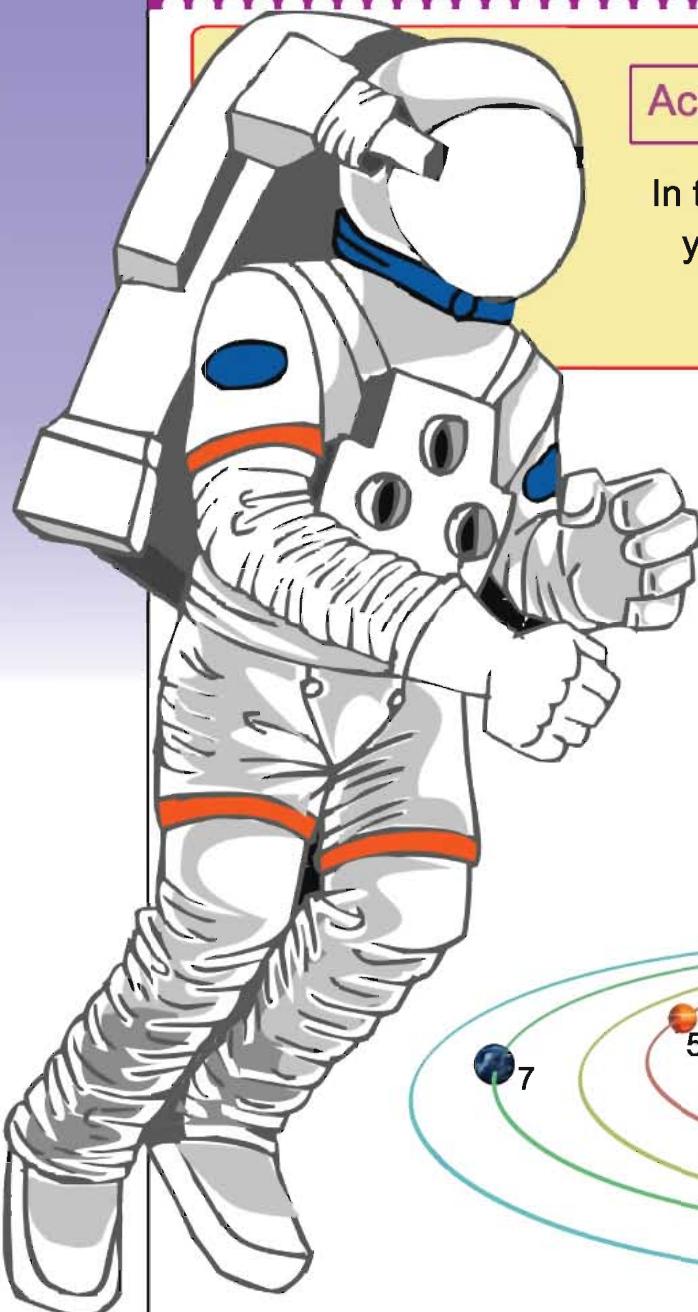
**Neptune** is the eighth planet. It is bluish green in colour surrounded by clouds.



Upto 2006, **Pluto** was considered as the ninth planet. Since it does not have the properties of a planet, now it is regarded as a dwarf planet.



Sun is a ball of fire. It is very hot. Living organisms cannot exist on the earth without Sun.



### Activity



In the given astronaut's picture, stick your photographic face and enjoy seeing you as an astronaut.

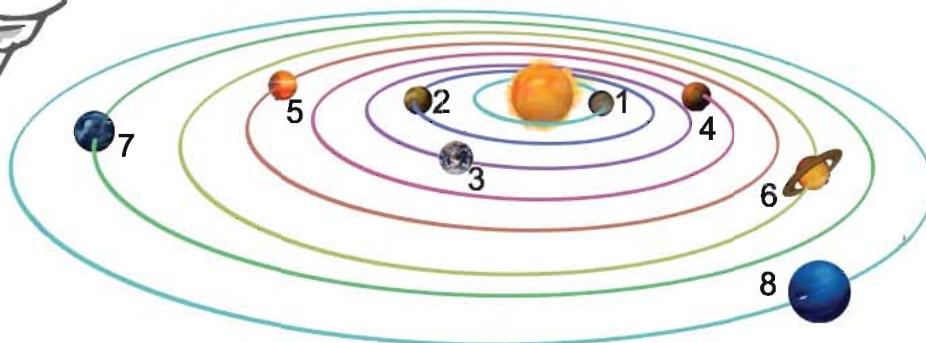
### Do you know?



The planet Pluto which was removed from the solar system was named by a girl called Venachia in 1930. At that time she was 11 years old.

Venachia is of \_\_\_\_\_ age now.

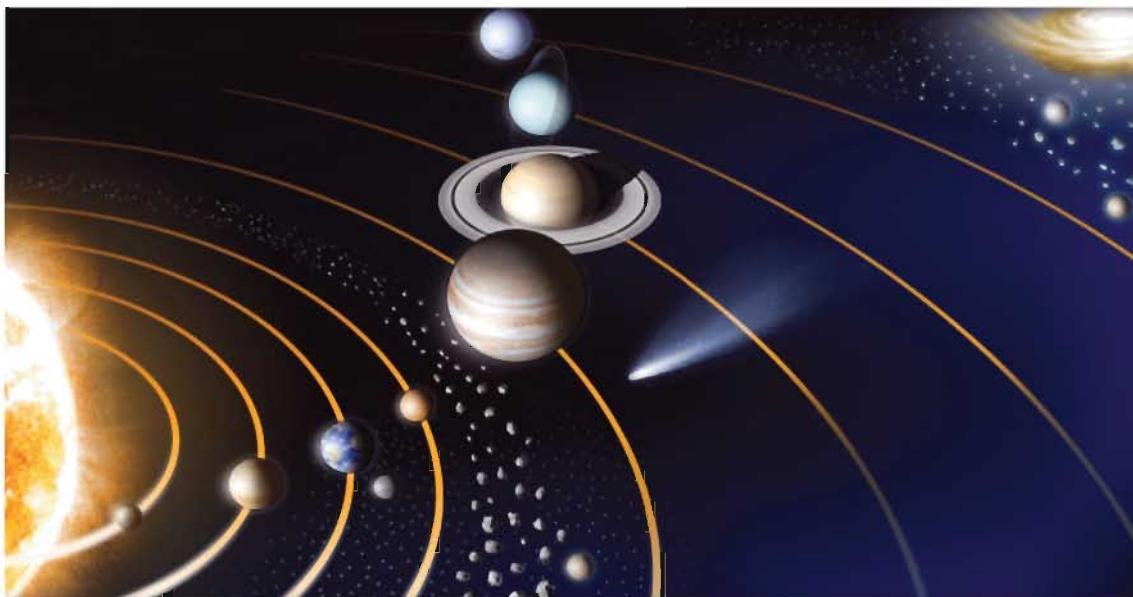
### Solar System



1. Mercury 2. Venus 3. Earth 4. Mars
5. Jupiter 6. Saturn 7. Uranus 8. Neptune

**Activity**

Look at the picture and find out the position of the planets and write



**Mercury is the nearest planet to the Sun.**

4th Planet \_\_\_\_\_ 5th Planet \_\_\_\_\_

7th Planet \_\_\_\_\_ 2nd Planet \_\_\_\_\_

3rd Planet \_\_\_\_\_ 8th Planet \_\_\_\_\_

6th Planet \_\_\_\_\_

**Do you know?**

We can see planets such as Venus, Mars, Mercury, Jupiter and Saturn through our naked eye. Whenever such planet could be seen in the sky, it will be published in the news papers. With the help of the elders try to see the planets.

## Nightsky

Normally what all can be seen in the night sky?

- \* Name the instrument used by the child to observe sky.
  
- \* What all can be seen in the night sky?



Moon, Stars, Planets and meteors can be seen.

From ancient time man was fascinated by the night sky. It is a fabulous scene which would impress the poet to compose poems about stars and moon. Sailors, by following the position of moon, stars, planets and sun found the directions properly. Farmers have understood the phenomenon of seasons. As a result, they raise crops suitable to the season.

One can see some substances that give light and appears to fall towards the earth . What are they?



There are a number of asteroids in space. Sometimes they come towards the earth. As they come downward, it catches fire due to friction with the atmosphere. Such **asteroids** are called meteors.

**Do you know?**



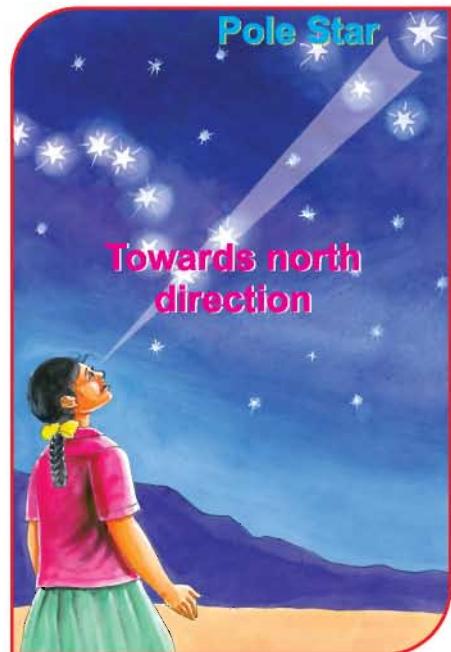
Halley comet appears once in 75 to 76 years . Last time it appeared in 1986 and again it will appear in 2061 .It was discovered by Edmund Halley. It can be seen revolving round the Sun by our naked eyes.

## Pole star

The brightest star that can be seen through our naked eye is the **pole star**. It can be seen in the northern direction.

The speciality of this pole star is that it remains in one particular position while other stars appear to change their position every day. Due to this property, it is used as a guide by the sailors.

## Do stars have tail?



Comets also exist in the solar system. They are made up of gases. When it comes closer to the Sun the gases expand and appear like a tail. It will always be in the **opposite to the direction** to the Sun.



## Evaluation

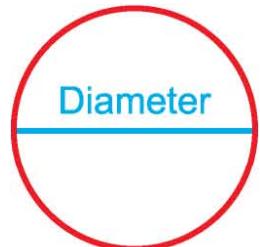
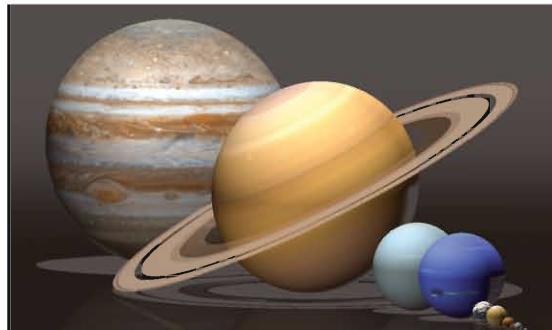


(a) Keenly observe the picture and answer the following.



1. Write the names of the planets in the solar system.
2. Which is the nearest planet to the sun?
3. Name the largest planet in the solar system.
4. Name the smallest planet in the solar system.

(b) Look at the table given below and answer the following.



Name of the planets	Diametre of the planets (Km.)
Mercury	4828
Venus	12104
Earth	12756
Mars	6787
Jupiter	142796
Saturn	120660
Uranus	51118
Neptune	48600

1. Which planet has the largest diameter ?
2. Which planet has the shortest diameter?
3. What is the diameter of the earth?

**(c) Fill in the blanks with appropriate words.**

1. There are \_\_\_\_\_ (8/9) planets in the solar system
2. Sun is a ball of \_\_\_\_\_ ( Fire / Ice )
3. Living organisms exist in the \_\_\_\_\_ ( Uranus / earth )
4. The eighth planet in the solar system is \_\_\_\_\_ ( Neptune / Mercury)

**(d) Match the following.**

- |            |                |
|------------|----------------|
| 1. Jupiter | Fifth planet   |
| 2. Pluto   | Nearest planet |
| 3. Saturn  | Largest planet |
| 4. Mercury | Life exists    |
| 5. Earth   | Dwarf planet   |

<input type="checkbox"/>

**(e) Write in brief.**

1. What is the solar system?
2. What is a comet?
3. Write short note on meteors
4. Write about venus
5. Write about polestar

**Do you know?**

Asia's largest telescope is in Tamilnadu. It is situated at Kavalur in Jayathu Mountain in Thiruvannamalai District. It is named as Vainubabu. Its diameter is 2.3 meter. It was designed and made in India in 1986 and a small planet was observed through this telescope in 1988. This planet is named 4130 Ramanujar.

## Do you know?



Manmade satellites are sent to revolve around the earth. India's satellite is Indian National Satellite (INSAT). Since 1983, many satellites have been sent for communication and for environmental research purposes. In the year 2000, INSAT 3-B satellite was sent for the use of mobile phone. In 2004, satellite EDUSAT was sent for the students education. In 2007, INSAT 4CR was sent for DTH telecommunication and it is still in operation.



(INSAT) 3B



INSAT 4-CR



# 5

## WATER



SUN	MON	TUE	WED	THU	FRI	SAT
				2	3	
5	6				10	11
12					17	18
					24	25
26		28		30		

- How many days did it not rain as per this calendar?
- How many days did it rain as per this calendar?
- How many days did it rain heavily?
- From 13<sup>th</sup> for \_\_\_\_\_ days , it rained continuously.

5. What are the effects of continuous rain?

- Flood
- Falling of trees
- Land slides

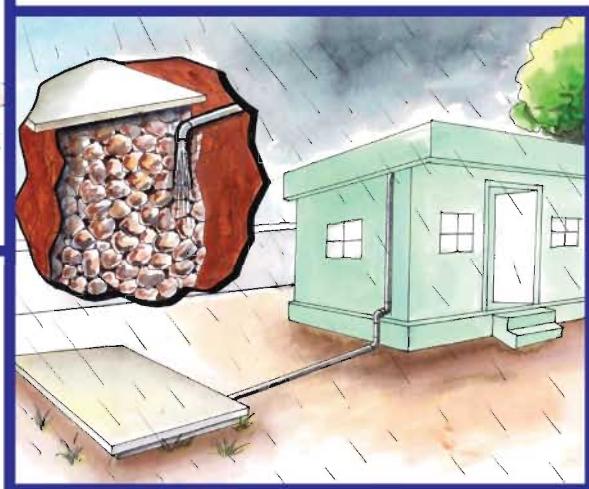
Where will the rain water flow when it rains continuously?

## Water! Water!

The excess rain water during rainy season is stored in natural ponds, lakes and canals. It is also stored in dams that are built across rivers. This kind of stored water can be utilized to check water shortage during the time of drought. Rain water can be stored for drinking purpose by constructing rain water harvesting pits. By this method, ground water level is conserved.

We can collect and conserve rain water from the roofs of all types of houses through proper rain water harvesting tanks.

Thus we can bring down the level of water shortage.



### Do you know?



A few centuries ago Karikal Chozhan constructed Kallanai across the river Cauvery to conserve water.

**Activity**

### Rain Gauge

**Requirements :** Cylindrical glass vessel, funnel, scale and thread.

**Procedure :** Place the funnel in the glass vessel. Keep the scale outside the vessel and tie it in such a way that '0' cm of the scale is at the bottom. Keep this set up in the open ground. Measure the amount of rain that fell for the whole day using the scale. The amount of rain for the whole day is \_\_\_\_\_ cm.

Use this rain gauge and measure the amount of rain for a week and tabulate them.

Days	Amount of rain in cm
1	
2	
3	
4	
5	
6	
7	

### Rain Gauge

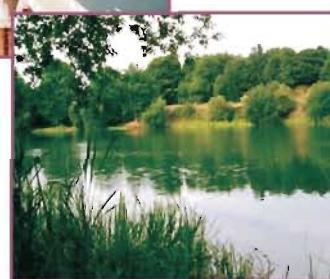
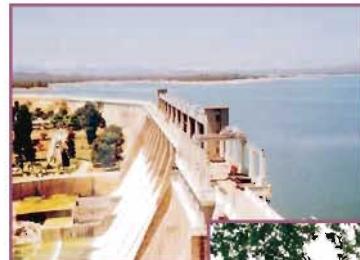


Find out from the newspaper and write what was the average rainfall last year in your district.

## Activity



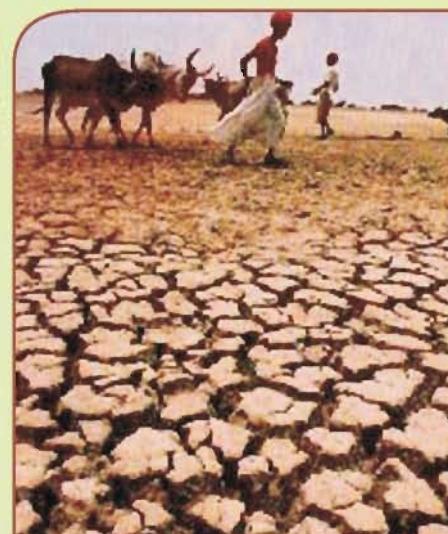
- What are the methods followed to conserve water in your area?
- How do you conserve rain water in your house?



## Water Scarcity

We do not get rain in all the months of a year. Whenever there is no rain it will be rather sunny. Which months of the year will there be high temperature and warmth at your place?

Climatic conditions will not be the same throughout the year. During summer, as the temperature increases, the level of water from water resources such as river, pond, well and ground water table decreases. People of various parts of the country suffer from scarcity of water.



## What will happen during the time of drought?

- Drying up of cultivable lands.
- Drying up of water resources.
- Scarcity of water.

## Water scarcity in our day-to-day life.

Due to the drying up of drinking water resources, we see people

- Buying drinking water.
- Waiting in long queue to get the drinking water.
- Bringing drinking water from far away places.
- Forest animals enter the residential areas in search of water.

## To use water economically

- Letting used water into the garden.
- We can water the plants using drip irrigation method.
- We can water the garden plants using watering can.



Drip irrigation method

### Project:



Enter the quantity of water used in day-to-day life in the given table.

Usage	For one day ( in litre )
Drinking	
Cooking	
To take bath, wash face, hands, legs.	
Washing vessels, clothes.	
<b>Total amount of water</b>	

Discuss in group whether water usage in your house is less in quantity, right quantity or more quantity.

## Project:



Look at the picture and write in ascending order the amount of water required to do the above activities.

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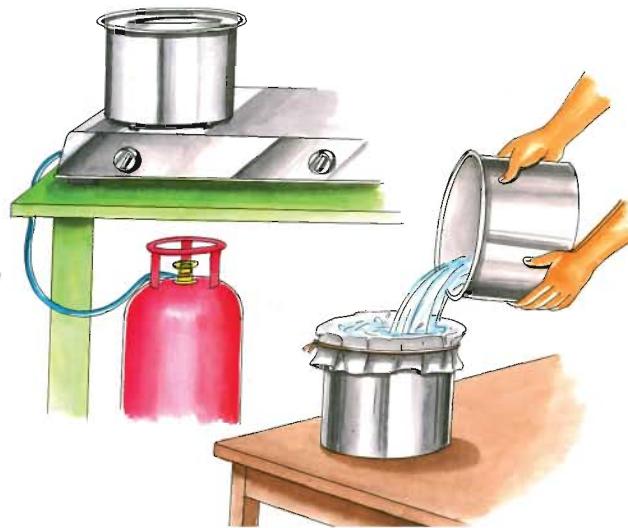
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## CONSERVATION OF WATER

The need for water increases day by day. At the same time, the level of water in water resources are decreasing. In this situation, we must use water wisely.

Drinking contaminated water causes diseases like Cholera, Jaundice, Typhoid, etc. By drinking purified water, we can avoid diseases.

We must preserve drinking water from getting polluted.



### How can we get purified / protected water?

1. We must drink water which is purified using certain amount of chlorine.
2. It is essential to drink water which is boiled and filtered.
3. Germs get destroyed by boiling the water. Drinking water vessels must be cleaned often.
4. Drinking water must always be closed with a lid.

### Find out and write.

1. How many drinking water taps are there in your school?
2. Where does the stagnant water under the tap go?

Water is not seen in planets other than the Earth. So there is no life in other planets. So we should not waste water which is a very precious resource.

**SAVE WATER !**

**SAVE EARTH !**

## Evaluation



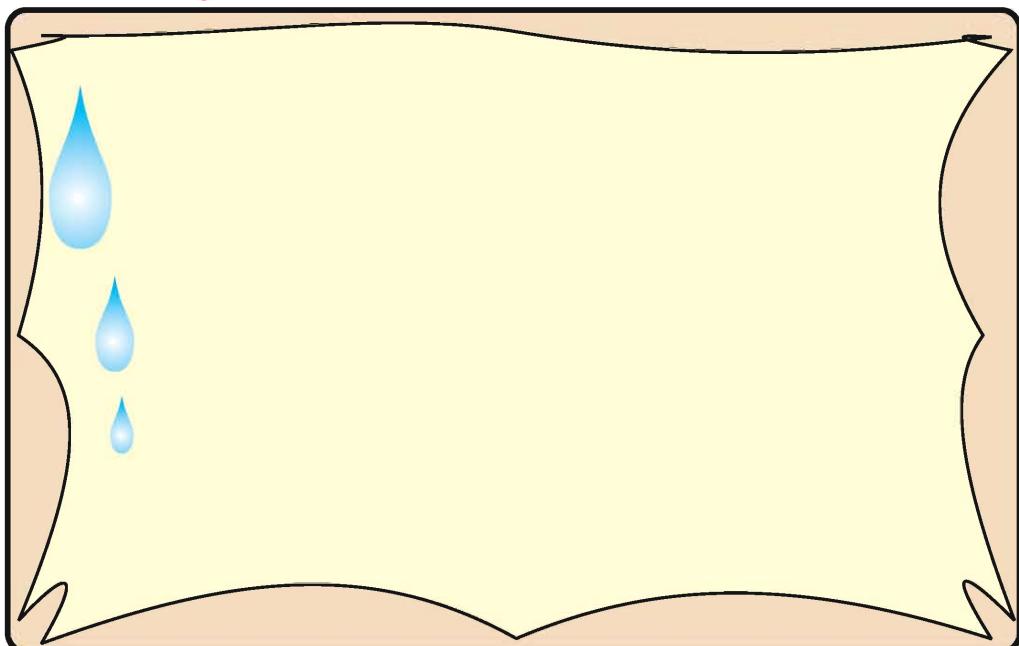
### (a) True or False.

1. There will be drought if it rains heavily.
2. Water resources are decreasing day by day.
3. Chlorine is used for purifying the drinking water.
4. We should not wash very often the vessels in which we store drinking water.
5. Deforestation increases the rain.

### (b) Answer the following.

1. Name the diseases caused by drinking contaminated water.
2. What are the hazards of flood?
3. From where do you get drinking water?
4. What are the methods you follow to purify the drinking water?
5. What are the advantages of saving rain water?

### (c) Write the methods to be followed in order to use water economically at home and in school.



Water