ENVIRONMENTAL STUDIES

(Part One)

STANDARD FIVE

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The Constitution of India

Preamble

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.

NATIONAL ANTHEM

Jana-gana-mana-adhināyaka jaya hē
Bhārata-bhāgya-vidhātā,

Panjāba-Sindhu-Gujarāta-Marāthā
Drāvida-Utkala-Banga

Vindhya-Himāchala-Yamunā-Gangā
uchchala-jaladhi-taranga

Tava subha nāmē jāgē, tava subha āsisa māgē,
gāhē tava jaya-gāthā,

Jana-gana-mangala-dāyaka jaya hē
Bhārata-bhāgya-vidhātā,

Jaya hē, Jaya hē, Jaya hē,
Jaya jaya jaya, jaya hē.

PLEDGE

India is my country. All Indians are my brothers and sisters.

I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it.

I shall give my parents, teachers and all elders respect, and treat everyone with courtesy.

To my country and my people, I pledge my devotion. In their well-being and prosperity alone lies my happiness.

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The following foot notes are applicable :-

1.
2. The responsibility for the correctness of internal details rests with the publisher.
3. The territorial waters of India extend into sea to a distance of twelve nautical miles measured from the appropriate base line.
4. The administrative headquarters of Chandigarh, Haryana and Punjab are at Chandigarh.
5. The interstate boundaries amongst Arunachal Pradesh, Assam and Meghalaya shown on this map are as interpreted from the ‘‘North-Eastern Areas (Reorganisation) Act.1971,’’ but have yet to be verified.
6. The external boundaries and coastlines of India agree wih the Record/Master Copy certified by Survey of India.
7. The state boundaries between Uttarakhand and Uttar Pradesh, Bihar and Jharkhand and Chhattisgarh and Madhya Pradesh have not been verified by the Governments concerned.
8. The spellings of names in this map, have been taken from various sources.

For Teachers / Parents

Consider the following points while teaching this textbook of Standard Five :

- The boxes ‘Do you know ?’ and ‘Use your brain power !’ have been included to awaken the students’ curiosity, and to encourage them to think beyond the textbook.
- Students are expected to learn through their own experiences, the information sought under ‘Can you tell ?’, ‘Try this’, and ‘Use your brain power !’ Teachers / Parents should provide the guidance necessary for that.
- At the end of every lesson, there is a box with the title ‘What we have learnt –’. It sums up the information that the children obtain from the lesson.
- Children should form the habit of thinking independently and expressing their opinion in a responsible manner. The information and tasks given under headings like ‘Read and discuss’, ‘Think!’, ‘Speak and write’, etc. will help them form this habit.

Preface

The 'Primary Education Curriculum 2012' was prepared in the State of Maharashtra following the 'Right of Children to Free and Compulsory Education Act, 2009', the 'National Curriculum Framework 2005' and the 'Maharashtra State Curriculum Framework 2010'. The Textbook Bureau has launched a new series of textbooks based on this syllabus approved by the State Government from the academic year 2013-2014. We are happy to place this textbook 'Environmental Studies (Part One)' Standard Five in this series in your hands.

Our approach while designing this textbook was that the entire teaching-learning process should be child-centred, emphasis should be given on active learning and constructivism and at the end of Primary Education the students should have attained the desired competencies and that the process of education should become enjoyable and interesting.

There are many colourful illustrations and maps in this textbook. Some activities have been included in this textbook under the titles 'Can you tell?', 'Try this.', 'Use your brain power!'. They will help the students to understand the concepts introduced in the lossons and will also reinforce them. The textbook will motivate the children to observe their environment. Conscious efforts have been made to impart values which are relevant today in the context of this textbook.

Variety in the exercises will help the children to revise and retain the concepts in the lessons and will motivate them to study on their own. They will also help the teacher with continuous, comprehensive evaluation.

This textbook introduces the children to their natural, social and cultural environment. It attempts to develop the students' skills of problem solving and application and a healthy attitude towards the environment.

The language of presentation used in this book is simple. The topics have been presented in an inter-disciplinary manner without forming compartments of science, geography and civics. It may lead to an approach that looks at several dimensions of an issue or topic simultaneously. We have tried to keep in mind the diverse experiences of all the children in Maharashtra while writing the book.

This book was scrutinized by teachers from all parts of the State, by educationists, experts and members of the syllabus committee to make it as flawless and useful as possible. Their comments and suggestions have been duly considered by the Subject Committees while finalising the book.

The members of Science, Geography and Civics Subject Committees, Panel members, quality reviewers and artists have taken great pains to prepare this book. The Bureau is thankful to all of them.

We hope that this book will receive a warm welcome from students, teachers and parents.

(C. R. Borkar)
Director
Maharashtra State Bureau of Textbook
Production and Curriculum Research, Pune.

Pune
Date : March 5, 2015

CONTENTS

1. Our Earth and Our Solar System

When we look up from an open ground, we see the sky. In a clear night sky we can see many stars. They are very far away from the earth.

Some stars are prominent while some are tiny and faint. If we look at them carefully, we find that many of them twinkle, but some do not.

The sun and the moon are comparatively close to the earth. So, we can see their round shapes clearly. The sun, the moon, the stars, the planets, etc. are all known as heavenly bodies.

Try this.

Observe the sky on two clear nights, keeping a gap of about a week between them. Base your observation on the following points :

- The brightness of the heavenly bodies
- Whether they twinkle
- Their colour and size
- Changes in their positions

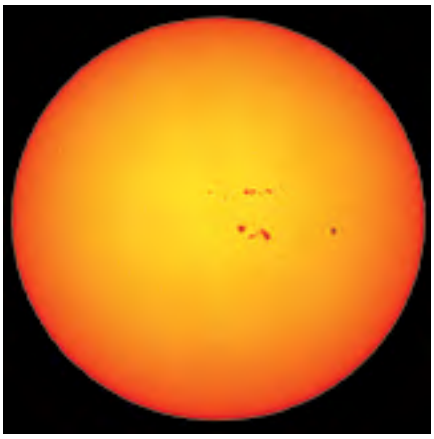
On both nights, draw a picture of the illuminated portion of the moon and note how it changes from day to day.

For teachers : For the sky-watching activity, call the children along with their guardians to a large open area on a clear dark night.

Stars : The heavenly bodies that twinkle are called stars. Stars have their own light.

The sun is a star. It is closer to us than any of the other stars. Hence, it appears big and brilliant. In its bright light, during the day, we cannot see other stars.

Planets : The heavenly bodies that do not twinkle are called planets. Planets do not have light of their own. They get light



The sun

from the stars. Planets revolve around a star, even as they rotate around themselves.

The solar system : Our earth is a planet. It gets its light from the sun. It moves around the sun. Its movement around the sun is called the revolution of the earth.

Besides earth, there are seven other planets that revolve around the sun. They are Mercury, Venus, Mars, Jupiter, Saturn, Uranus and Neptune.

A photograph of the earth taken from a man-made satellite

Every planet in the solar system revolves around the sun along a specific path. This path is known as that planet's orbit. The sun, which is a star, and the planets that revolve around it are together called the solar system. Besides the planets, the solar system also includes various other heavenly bodies.

Other heavenly bodies in the solar system

Satellites : Some heavenly bodies revolve around planets. These are called satellites. Satellites too get their light from the sun. We see the moon at night. It revolves around the earth. Hence, it is called a satellite of the earth.

The moon as seen on a full moon night

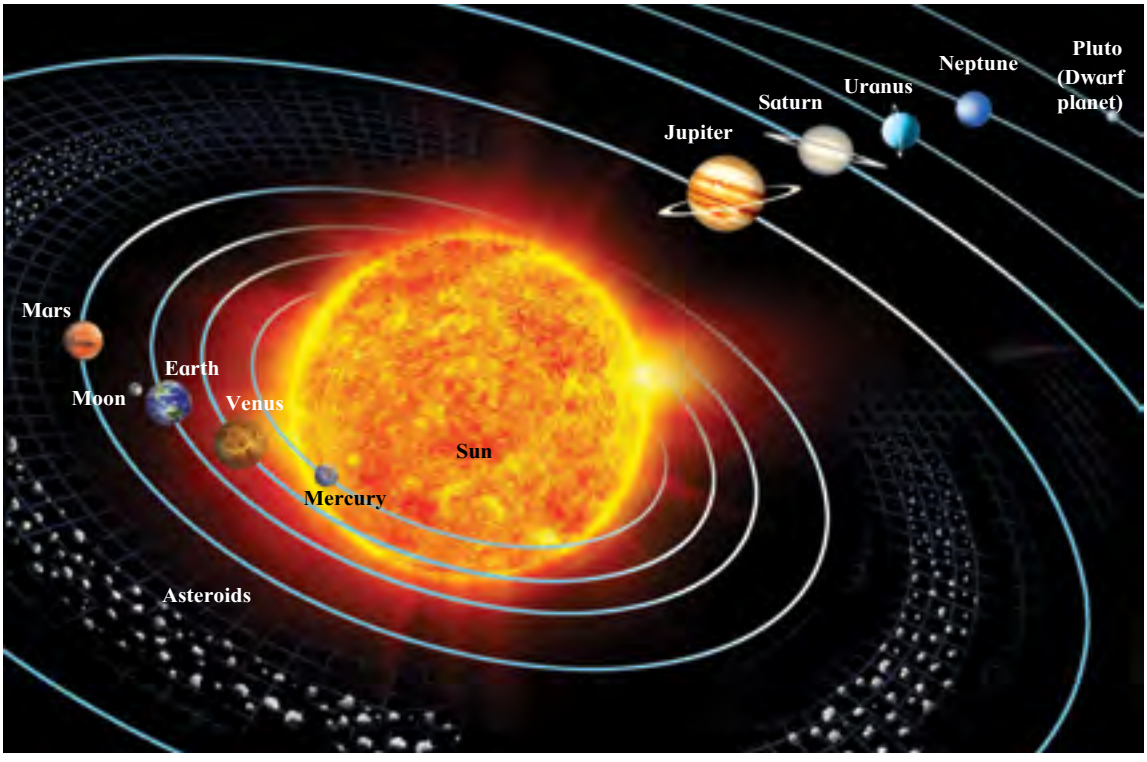
Most of the planets in the solar system have satellites. The planets revolve around the sun along with their satellites.

Dwarf planets : There are some smaller heavenly bodies that revolve around the sun. They are called dwarf planets. Of these, the most well-known is Pluto. Dwarf planets revolve independently around the sun. They have an orbit of their own.

Asteroids : Between the planets Mars and Jupiter, there is a band of numerous small heavenly bodies. They are called asteroids. Asteroids also revolve around the sun.

Compared to the sun, other heavenly bodies in the solar system are much smaller. The moon is closest to the earth. That is why, it appears to be so big although it is actually very much smaller than the sun.

A diagram of the solar system is given below. In it, you see the sun in the centre, the heavenly bodies that revolve around it and their orbits. The planets, satellites, dwarf planets and asteroids are all part of the solar system.



A diagram of our solar system. Please note that only the earth's satellite is shown in it.

Can you tell ?

Look at the picture of the solar system and answer the following questions.

(1) Which planet is nearest to the sun?
(2) At what position is the earth from the sun?
(3) Which planet is placed between the earth and Mercury?
(4) Name the planets beyond the orbit of Mars in serial order.
(5) Which planet in the solar system is furthest from the sun?

Gravity

All heavenly bodies exert a force of attraction or a pull on one another. This force is called the force of gravity.

The sun exerts a gravitational pull on all planets whereas the tendency of the planets is to move away from the sun. As a result of these two forces, a planet keeps revolving around the sun at a fixed distance in a fixed orbit. In the same way, satellites revolve around their planets.

In which direction do these things fall?

(1) Leaves, flowers, fruits from a tree.
(2) Rocks that come loose from a hillside.
(3) Rain falling from the sky.

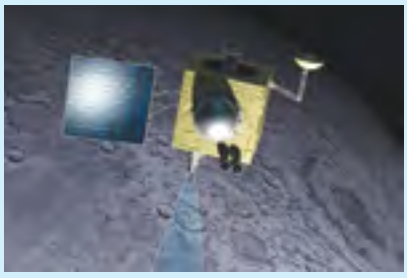
Due to the earth's gravity, all things on the earth remain on it. Even if we throw something upwards with great force, it finally falls down to the ground.

◆ **A new word – Space :** The emptiness between and beyond the stars and planets is called space or outer space.

People have always been curious about the heavenly bodies in the sky. They have always wanted to reach them. However, to send some object from the earth into space, it must be given power

Do you know ?

India's Space Missions

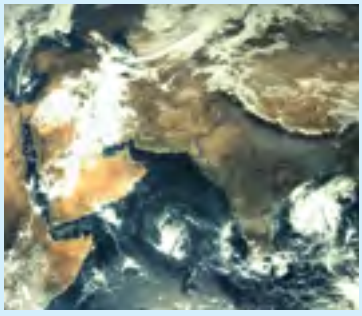


Chandrayaan

On 22 October 2008, the Indian Space Research Organization, ISRO, launched a spacecraft to the moon. The mission is known as Chandrayaan-1.

Mangalyaan is another important Indian space mission. It is known as M.O.M. or Mars Orbit Mission. It was launched on 5 November 2013. It got established in an orbit around the planet Mars on 24 September 2014. ISRO achieved this feat in its first attempt. Both these missions are unmanned, i.e. there were no people on board these spacecraft. The objective of the missions is a deeper study of the moon and Mars.

Mangalyaan



A photograph of the region around India taken by Mangalyaan

against the force of gravity. Rocket technology or space launch technology is used for that purpose.

One of the Diwali firecrackers is called a 'rocket'. It is packed with explosive substances. The explosives burn rapidly and produce a lot of energy. The design of the rocket is such that the firecracker is pushed in a certain direction at a great speed.

Space launch using a rocket

Diwali rockets

Very powerful rockets are used to send a spacecraft into space. A tremendous quantity of fuel is burnt in rockets so that spacecraft weighing thousands of tons can be launched into space. In the twentieth century, a few countries of the world developed space technology and sent hundreds of spacecraft into space. Our country is well-known for the development of its space launch technology.

Some spacecraft remain in space. Some are brought back to earth while some land on other planets or satellites. In some missions, scientists also travel in the spacecraft. They are called astronauts.

Do you know ?

Indian astronaut

Rakesh Sharma became the first Indian astronaut to go into space in 1984. He spent eight days on a space station for a joint mission of the ISRO and the Soviet Intercosmos. Seeing India from space, he said that it looked 'Saare jahan se achha!'

Find out more about the work of Kalpana Chawala and Sunita Williams, astronauts of Indian origin.

Man-made satellites : Man-made satellites provide useful information for agriculture, environment, weather forecasting, making maps, and searching for water and mineral wealth on the earth. They are also used for telecommunication. They are put into orbit around the earth. They can remain in space for many years.

Always remember –

Space scientists have not yet been able to find a single other planet which has life on it. Therefore, our earth is an invaluable planet. The degradation of its environment for any reason will be a threat to the existence of life itself.

What we have learnt –

- The sun is a star. All the other bodies in the solar system get light from the sun.
- The sun and the planets, their satellites, dwarf planets and asteroids that revolve around the sun are together called the solar system.
- Things on the earth remain on it due to the force of gravity.
- To travel in space, the earth's gravitational force has to be overcome. Rocket technology helps us do that.

Exercises

1. What's the solution?

One of the asteroids has fallen out of its place in the asteroid belt and is hurtling towards the sun. Our earth is in its way and there is all likelihood of a collision. What can be done to prevent this collision?

2. Use your brain power!

(1) What will happen to our solar system if the sun were to suddenly disappear?

(2) Suppose you want to give your address to a friend you have on the planet Mars. How will you write your address if you want them to understand exactly where you live?

3. In the picture below, correct the sequence of the planets from the sun.

4. Who am I?

(a) You can see me from the earth but the lighted part of me that you see changes every day.

(b) I have my own light. It is only from me that the planets get light and heat.

(c) I turn around myself, around a planet and also around a star.

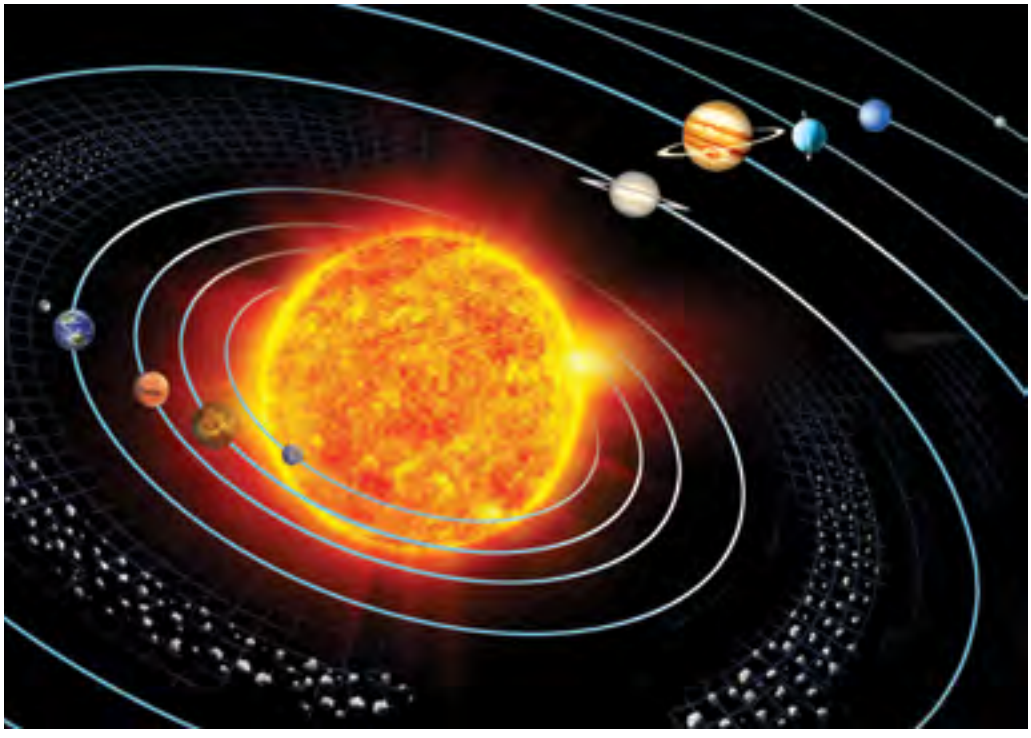
(d) I turn around myself and revolve around the sun.

(e) No other planet has a living world like mine.

(f) I am the nearest star to the earth.

5. (a) For what purpose are rockets used in space travel?

(b) What information do man-made satellites provide?



Activities (1) Make charts about space research and display them in an exhibition.
(2) Find out which planets in the solar system have satellites.

* * *

2. Motions of the Earth

Rotation

Try this.

Take a top. Spin it and observe its movement.

The top turns around itself. Any object that turns about itself actually turns around a certain imaginary line. The turning of an object around itself is called 'rotation' and the imaginary line around which it rotates is called its 'axis of rotation'.

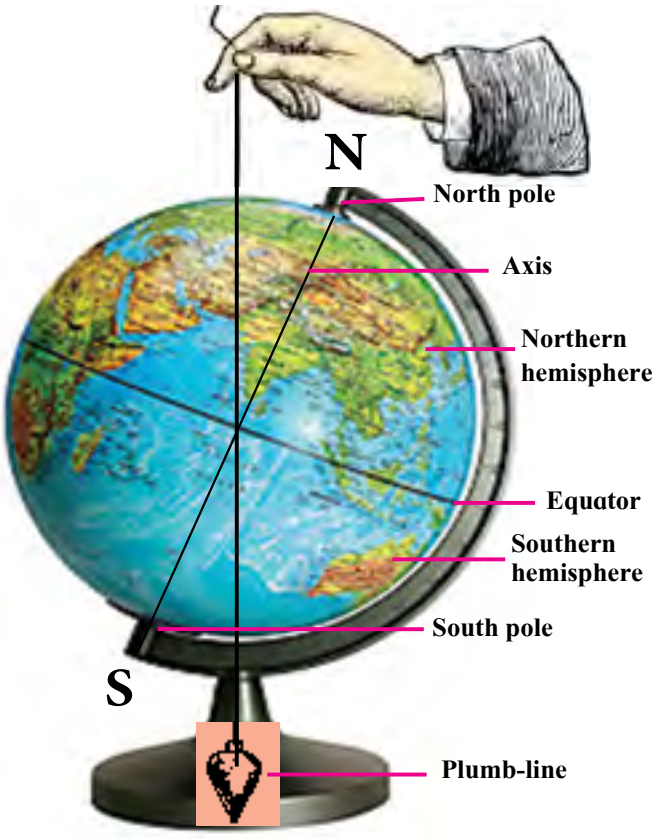
A top

The earth's rotation

Try this.

Take a globe like the one in the picture and spin it. Note the line around which it rotates. Now take a plumb-line and hold it close to the globe as shown in the picture. (If you cannot get a plumb-line, tie a long thread to an eraser and make one.)

You will see that the plumb-line and the earth's axis are at an angle to each other. That is, the earth's axis is inclined.



A globe

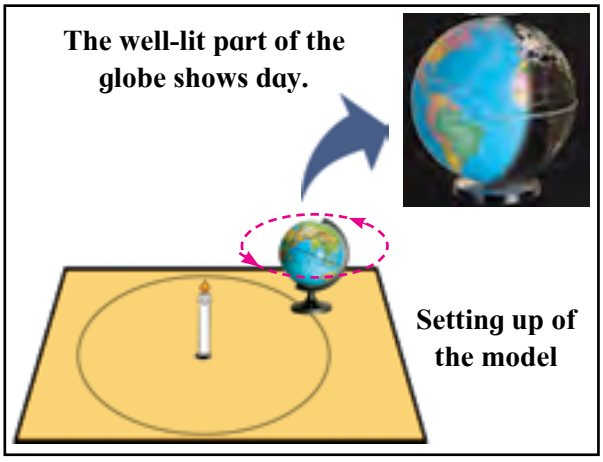
The earth rotates with its axis inclined like this. The line NS in the picture shows the earth's axis. It passes through the centre of the earth. The points N and S are called the poles of the earth. N is the north pole of the earth and S is the south pole.

If a circle were drawn around the surface of the earth exactly in between the north and south poles, it would divide the earth into two equal parts. This imaginary circle is called the 'equator'. The two equal parts it makes of the earth are called the northern hemisphere and the southern hemisphere respectively.

Try this.

Stand a candle in the middle of a large table. Draw a big circle around the candle. Place a globe at any point on this circle. Light the candle. See that it is dark in the room. Suppose that the candle is the sun.

Observe which part of the globe gets the sun's light and which one does not.



Now, looking at the globe from the direction of the north pole, turn it anti-clockwise. This is how the earth rotates, i.e. it rotates from west to east. As the earth rotates, its different parts come into the light of the sun one after the other and turn away from it also in the same order.

Sunset and sunrise

Try this.

Stick a red bindi on the globe. Set up the previous model of the globe and the candle.

Turn the globe anti-clockwise. Note when it is sunrise, noon and sunset at the location of the bindi.

Day and night on the globe

After one sunrise, note when the next one occurs at the bindi. You will see that this happens when the earth completes one rotation, that is, when it makes one complete turn around itself.

This period of time that the earth takes to complete one rotation is called a day. A day has two parts, daytime and nighttime or simply day and night. For the purpose of measuring time, we divide the whole day into 24 parts, each of which is called an hour.

A year

Try this.

Now, move the globe along the circle on the table. As you do this, keep rotating the globe and ensure that the axis does not change its orientation. Eventually, the globe will come back to its original place on the circle. This is how the earth revolves around the sun even as it rotates around itself. The period of time the earth takes to complete one revolution around the sun is called one year. There are about 365 days and 6 hours in a year.

A leap year

In the Gregorian calendar, the year is taken to have 365 days. It means that it counts 6 hours less every year. That makes 24 hours or one day in every four years. To make up for this lost one day, the month of February in the Gregorian calendar has an extra day every fourth year. That year is called a leap year and it has 366 instead of 365 days and February has 29 instead of 28 days.

Do you know?

You know that the length of day and night is not always equal. This happens because of the earth's inclined axis and its revolution around the sun.

In the northern hemisphere, between 22 March and 23 September, the days are longer than the nights. Therefore, it is warmer there. That is, it is summer in the northern hemisphere. However, during this same period in the southern hemisphere, the nights are longer than the days. The earth gets less heat in these parts and therefore it is winter in the southern hemisphere.

In the period from 23 September to 22 March, the days are longer than the nights in the southern hemisphere. It gets more heat and it is summer there. In this period in the northern hemisphere, it is the nights that are longer. The northern hemisphere gets less heat and it is winter there.

Note that there may be differences in these dates due to the leap year.

In India, summer, the rainy season and winter are considered to be the main seasons. We also divide the year into six seasons, namely, Vasant, Grishma, Varsha, Sharad, Hemant and Shishir. This cycle of six seasons is called the 'rituchakra'. Many of our festivals are connected with the seasons. Many of our songs and games are also related to the different seasons.

Phases of the moon

Can you tell?

(1) What is the name given to the changing shapes of the moon that we see?

(2) What are the names of the days on which we see a round moon and on which we see no moon at all?

The full moon and the new moon

The moon revolves around the earth and the earth revolves around the sun. However, these two orbits intersect. Hence, the sun, the moon and the earth are not always along a straight line.

We see half of the moon's surface which faces the earth. That is, from the earth we see only one side of the moon.

The moon has no light of its own. We can see the moon because of the sun's light that falls on it. On a full moon night, we see the entire side of the moon that faces the earth. On a new moon night, we cannot see any of it.

From the full moon to the new moon the illuminated part of the moon seen from the earth becomes smaller and smaller. From new moon to full moon it again grows bigger and bigger. These different shapes of the moon that we see are called the phases of the moon.

The lunar month and days (*tithi*)

You know that it takes 14 or 15 days from new moon to full moon. This is the

fortnight of the 'waxing' moon. After the full moon, the moon appears smaller and smaller and after 14 - 15 days it is new moon again. This period is the fortnight of the 'waning' moon. Thus, the period from one new moon to the next is of 28 - 30 days. It is called the lunar month. Every day of the lunar month is called a *tithi*.

Always remember –

The rotation of the earth gives rise to day and night. The revolution of the earth and the inclination of its axis give rise to the cycle of seasons.

The phases of the moon

The new moon $\xrightarrow{15 \text{ days}}$ The full moon = The waxing moon (*Shukla Paksha*)

The full moon $\xrightarrow{15 \text{ days}}$ The new moon = The waning moon (*Krishna Paksha*)

The fortnight of the waxing moon + The fortnight of the waning moon = A lunar month

What we have learnt –

- The rotation of the earth causes day and night.
- The revolution of the earth around the sun and its inclined axis together cause the seasons.
- The revolution of the moon around the earth gives rise to the phases of the moon.
- The period from one new moon to the next is called a lunar month. It has about 28 to 30 days.
- The fortnight ending on a full moon is that of the waxing moon. The fortnight that ends on a new moon is that of the waning moon.
- The days of the lunar month are called '*tithis*'.

Exercises

1. What's the solution?

Amit wants to take his granny to Australia which is in the southern hemisphere. But she cannot bear very cold weather. When should they make this trip?

2. Use your brain power!

(a) How many rotations does the earth complete during one revolution around the sun?

(b) It is sunrise at Itanagar in Arunachal Pradesh. Write the names of the following cities in the order in which the sun will rise there.

Mumbai (Maharashtra), Kolkata (West Bengal), Bhopal (Madhya Pradesh), Nagpur (Maharashtra).

3. Fill in the blanks.

(a) The motion of the earth around itself is called ..... .

(b) The motion of the earth around the sun is called ..... .

(c) The rotation of the earth gives rise to ..... .

4. What is meant by each of the following terms?

(a) Full moon

(b) New moon

(c) Lunar month

(d) *Tithi*

5. Answer the following questions.

(a) What is the equator?

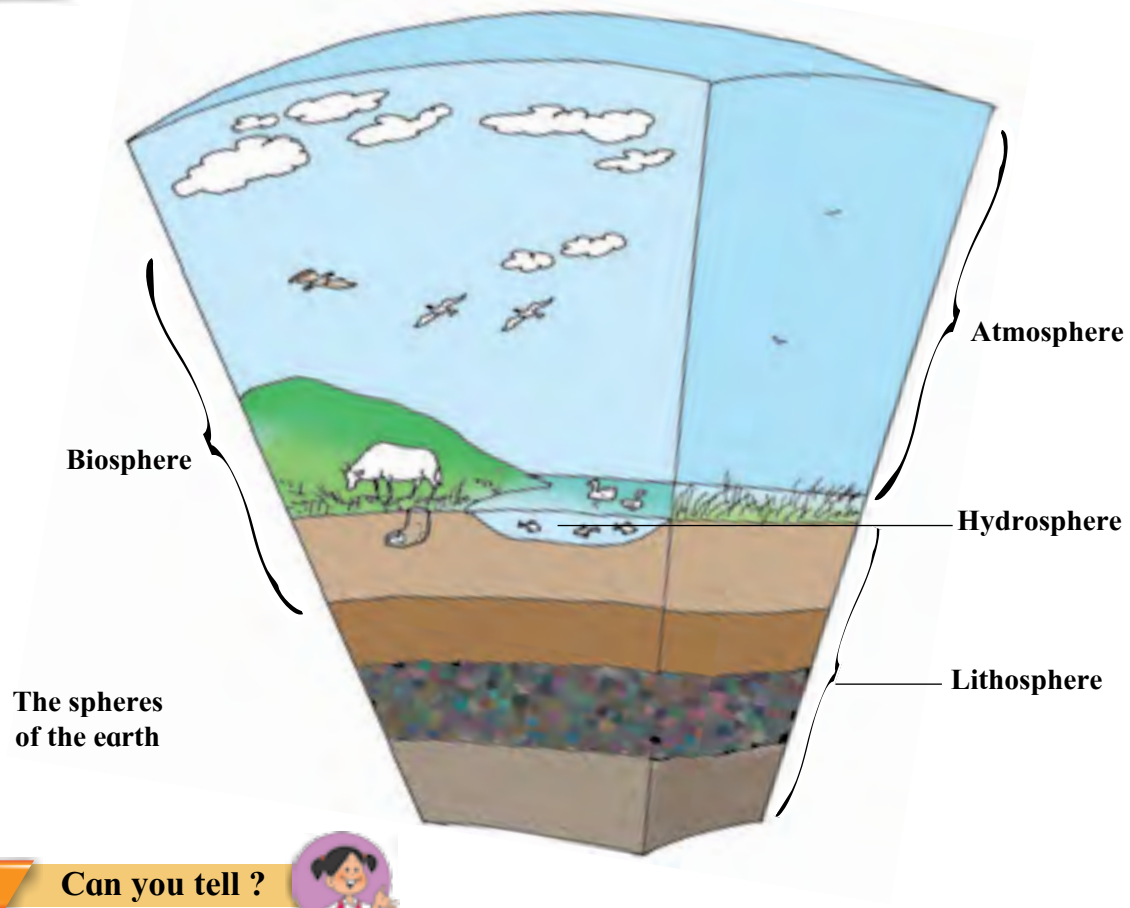
(b) What are the two parts of the earth made by the equator ?

Activity

Find the names of the various '*tithis*' using a calendar which shows them.

* * *

3. The Earth and its Living World



The spheres of the earth

Can you tell ?

(1) Where do you get water from ?

(2) Where do we lay the foundation of buildings ?

(3) What need do we meet through breathing ?

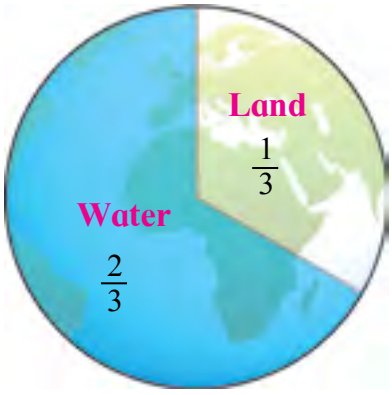
(4) From where does the earth get light and heat ?

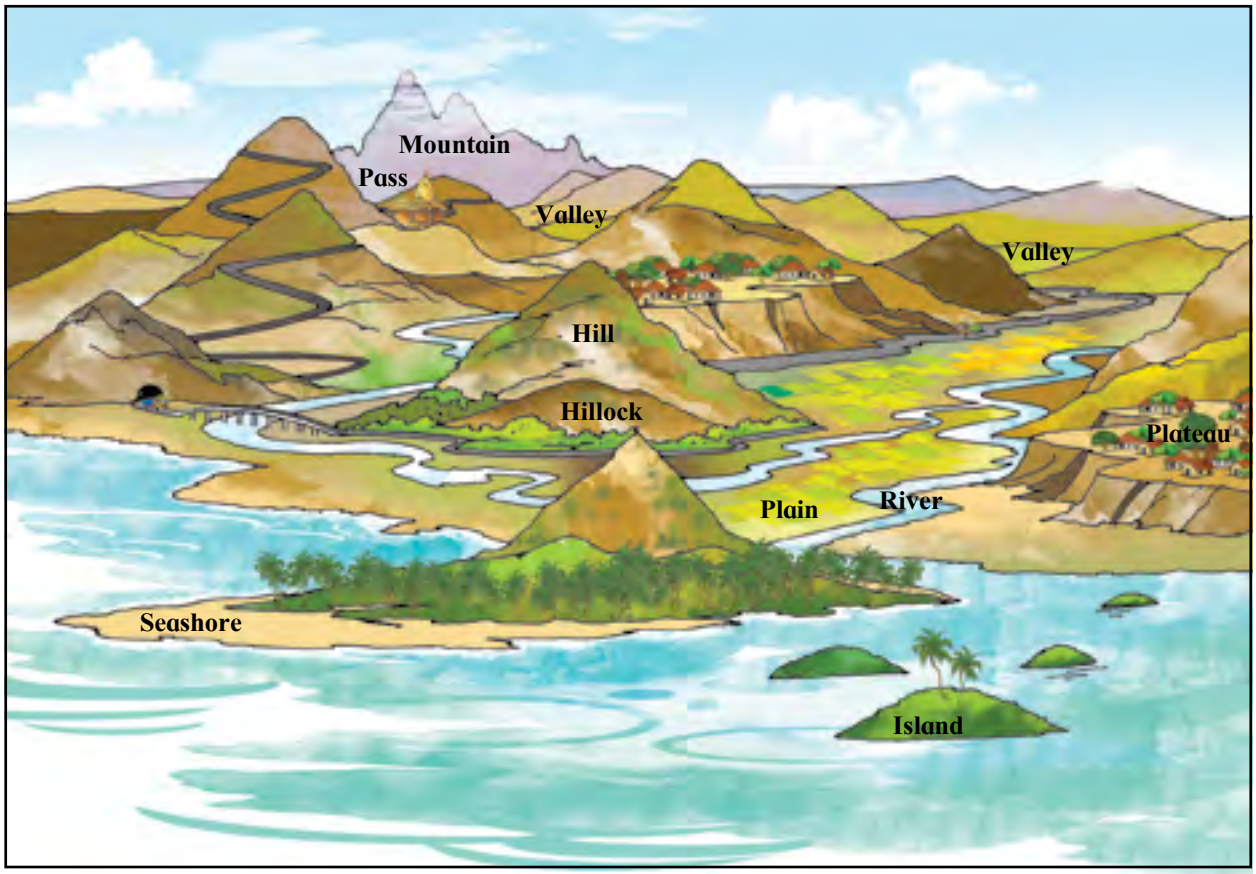
On the surface of the earth, we find land in some places and water in others. The earth is surrounded by the atmosphere. There are living things on land, in water and in the air. The sun is the cause of many natural processes on the earth. Water, land and air constitute envelopes of the earth, namely, the hydrosphere, lithosphere and atmosphere. The biosphere spreads in all the other three spheres.

The lithosphere and the hydrosphere

The earth's crust is hard. It is mainly made of rock.

When we travel in hilly regions, we see layers of soil and rock along road-cuts. We see grassy expanses of land in some places and only sand in others. The land is covered with crops in some places and with forests in others. Sometimes we get to see the deeper layers of soil into which tree roots spread. At others we see rocks split apart by the





Various landforms

tree roots. There are gentle mountain slopes as well as sheer cliffs of rock. All these land features are a part of the earth's lithosphere. Much of the earth's surface is occupied by water. The lithosphere extends under this water too.

About a third of the surface of the earth consists of land. A vast continuous stretch of land is called a continent. The land on earth is divided into seven continents. They are Asia, Europe, Africa, North America, South America, Antarctica and Australia. Asia is the largest continent and Australia the smallest.

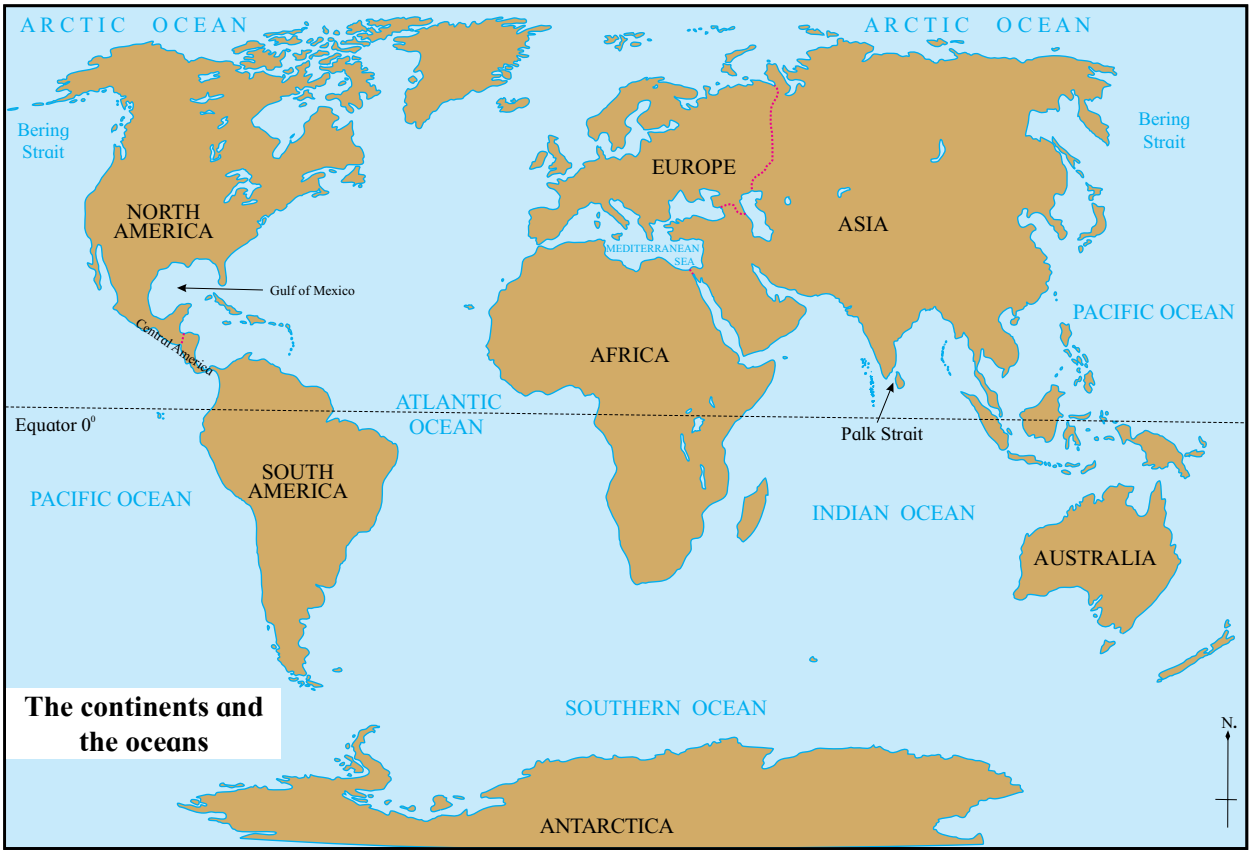
The land is not even in all places. The unevenness gives different shapes to the land in different places. They are called landforms. In the picture above you can see some landforms like the plain, hill, mountain, etc.

Two-thirds of the earth's surface is covered with water. Most of this water is in the oceans. Ocean water is salty. There are five oceans, namely, the Atlantic, Pacific, Arctic, the Southern Ocean and the Indian Ocean. The land along the margins of an ocean is called the coastal region. Water bodies of different shapes and sizes are formed along the coast, for example, sea, bay, strait, gulf, creek, etc. These water bodies are part of the ocean.

Surface water

There are many streams of water flowing over the land. This water is not salty but fresh. These streams of water may be rills, brooks, streams or rivers. Rills are the smallest and rivers, the biggest.

Rills, brooks, streams join each other to form rivers. Rivers which join to make



The continents and the oceans

a bigger river are called its tributaries. In some places, a river cascades down a sudden drop. This forms a 'waterfall'. All rivers eventually flow into the ocean.

Lakes : A water body formed by water collecting naturally in a low-lying area of land is called a lake.

Water in the form of ice : Water particles in the clouds freeze and in cold regions, they come down in the form of snow. When layers of snow pile up on the ground, they form ice. When such layers of ice pile up in a low-lying area, they become enormous in size. This huge mass slips down a slope at a very slow speed. This is called a glacier.

There are also huge blocks of ice floating in the sea. They are called icebergs.

Groundwater : Besides these water bodies on the earth's surface, there is a lot of water stored in the underground layers of rock. It is called groundwater. We reach it by means of dug wells and bore wells. Many lakes and wells get water from underground springs.

The water or ice that occupies the earth's surface, groundwater and the water vapour in the atmosphere together form the earth's hydrosphere.

The atmosphere

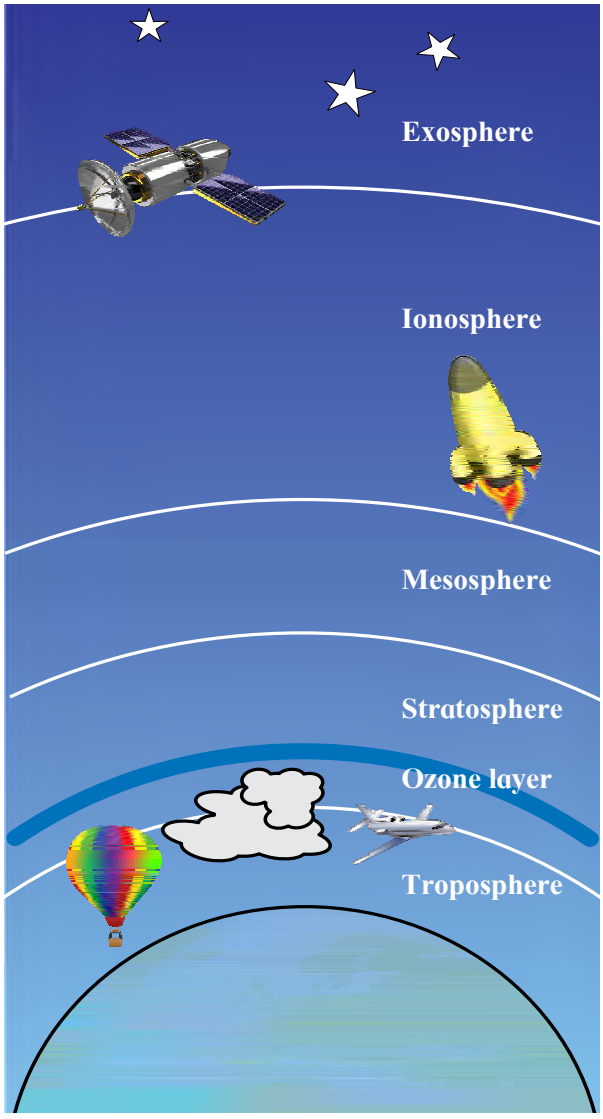
The envelope of air around the earth is called the atmosphere. As we go higher from the surface of the earth, the air in the atmosphere becomes rarer. The atmosphere consists of a mixture of gases, namely, nitrogen, oxygen, water vapour and carbon dioxide. There are some other gases too in the air in very small quantities.

The layers of the atmosphere are named as the troposphere, stratosphere, mesosphere, ionosphere and exosphere. The layer that extends from the earth's surface to a height of about 13 km is called the **troposphere**. The conditions in the troposphere change continuously. They affect the living world to a great extent.

The surface of the earth gets heated due to the heat it receives from the sun. Hence, the air nearest the surface is the hottest. As we go higher in the troposphere, it becomes cooler.

Almost all the water vapour in the atmosphere is contained in the troposphere. That is why, all weather-related phenomena such as formation of clouds, rain, fog, winds and storms take place in the troposphere. The air on high mountains is rarer than the air near the earth's surface. Aeroplanes fly in the higher parts of the troposphere. There, the air is very rare. Therefore, arrangements have to be made to ensure that passengers get enough air for breathing.

Beyond the troposphere, up to a height of about 50 km from the earth is the layer called the **stratosphere**. In the lower part of the stratosphere, there is a layer of a gas called ozone. Ultraviolet rays coming from the sun are harmful for living things. But the ozone layer absorbs them and protects the living world from those rays.



The earth's atmosphere

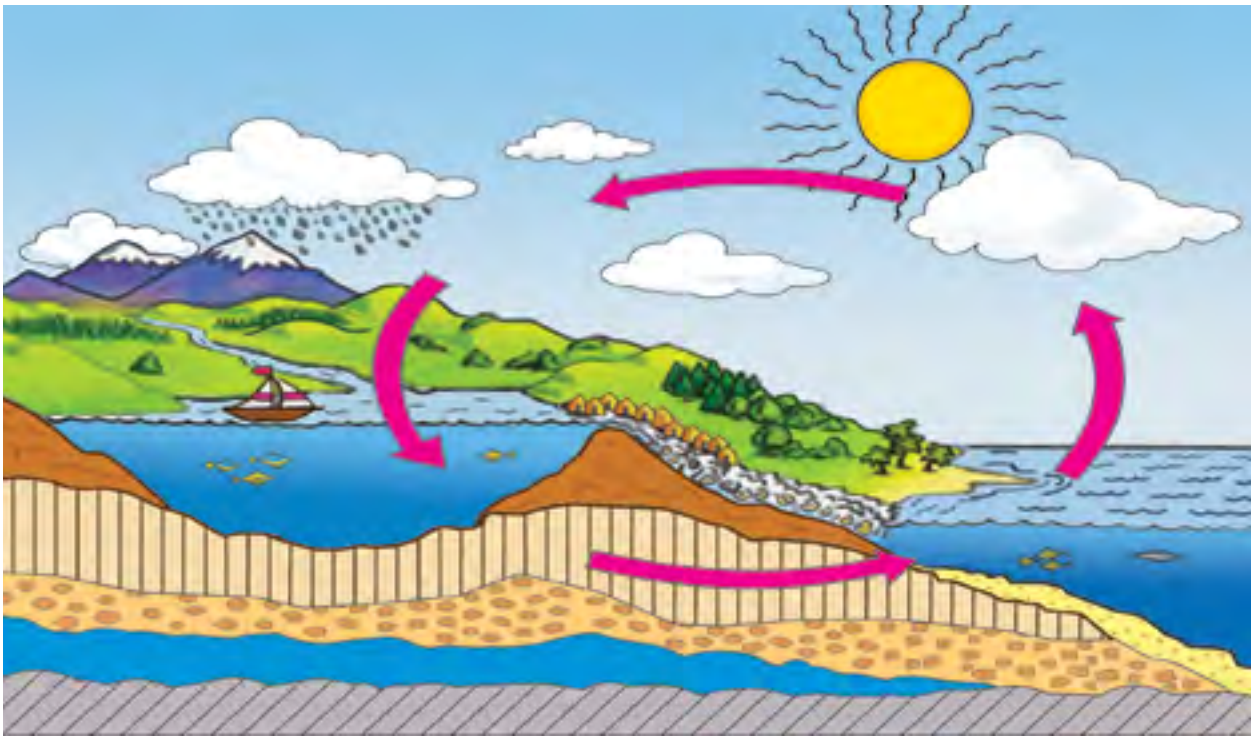
Use your brain power!

(1) In which layer of the atmosphere do we see the rainbow?

(2) Mountaineers carry oxygen in cylinders when they climb mountains that are more than 5000 m high. What could be the reason for that?

A new word

Condensation : the process of vapour turning into water on cooling.



The water cycle

How does it rain?

Water on the earth evaporates continuously due to the heat of the sun. Water that has percolated into the soil also evaporates due to the heat and enters the atmosphere. As water vapour is lighter than air, it rises high up into the atmosphere. As it goes higher, it cools and condenses forming very fine droplets of water. The droplets are so small and light that they float in the atmosphere forming clouds. These small droplets join together and form bigger drops which are heavy. They cannot float. Such drops of water fall down on the earth in the form of rain.

This rainwater flows into rills, streams, rivers and finally into the sea. Ice in the snow-covered regions also melts due to the heat of the sun to finally flow into rivers.

These processes of evaporation, condensation and rainfall go on in a continuous cycle. This is known as the **water cycle** in nature.

The biosphere

Can you tell?

Make as long a list as you can of all the living things you see in the lithosphere, hydrosphere and atmosphere.

There are innumerable kinds of living things on the earth. The various regions of the earth differ in many ways. Some regions are always covered with ice while others have a hot climate. There are mountains in some places and plains in others. Some places have a lot of rainfall while others are dry deserts. There are salty seas and oceans and also freshwater lakes. The ocean is shallow near the coast but away from the coastline, the ocean can be several kilometres deep.

We see a great variety in the living things that inhabit these different regions.

The polar bear is seen only in the snowbound polar regions. Zebras are found in Africa and kangaroos are found only in Australia. These animals are not found in any other regions. Elephants and lions are found in regions of hot climate. Plants in all these different regions also show a great variety. This variety is characteristic of those different regions.

Many different kinds of plants, animals and micro-organisms are found everywhere on the earth – on land, in water and in the air. Living things exist in the lithosphere, hydrosphere and atmosphere. They also interact with these spheres. This living world constitutes the biosphere.

Always remember –

All animals, plants and micro-organisms are dependent on one another. They are also dependent on the spheres of the earth. The biosphere is where they take birth, live and die.

What we have learnt –

- The earth's crust and a small hard portion of the layer under it is called the lithosphere.
- About one-third of the earth's surface is occupied by land while about two-thirds is covered with water.
- Surface water, ice on the land, groundwater and the water vapour present in the air together form the hydrosphere.
- The envelope of air around the earth is called the atmosphere.
- The water cycle on earth goes on continuously.
- The ozone gas in the stratosphere absorbs the harmful ultraviolet rays coming from the sun and protects the living things from them.
- Living things occupy parts of the lithosphere, hydrosphere as well as the atmosphere. Living things and all the parts they occupy are together called the biosphere.

Exercises

1. What's the solution ?

Dark patches appear on the skin after exposure to the sun.

2. Use your brain power !

(a) Why are micro-organisms important ?

(b) Think about all the foodstuffs obtained from the sea. Find more information and write ten lines about them.

3. Answer the following questions.

(a) What are clouds made of?

(b) What is meant by 'biosphere' ?

(c) Make a list of the landforms you see in your surroundings and give a description of any two of them.

4. In the following sentences, underline the words that refer to landforms.

(a) Anil lives at the foot of a hill.

(b) Ria lives in the plateau region.

5. Write a note about the following.

(a) Evaporation (b) Condensation

(c) The water cycle

6. Give two examples of each.

(a) Weather-related events

(b) Sources of water

7. Draw a labelled diagram showing the water cycle.

Activity

Find out more information about the different layers of the atmosphere.

* * *

4. Environmental Balance

Try this.

Ask the elders in your family to take you to a riverside or to a lake or stream.

Observing the various living things

Make a list of all the living things you see there. If you do not know the names of any of the living things you see, make a note of them describing their shape, colour, sound, shelter, etc. Or, draw their pictures. Count how many types of living things you see.

Now repeat the activity near your house, in the school garden or in a field.

Can you tell?

(1) In the course of your observations, did you notice any signs of the presence of living things though the living things themselves were not seen? For example, did you notice any partly eaten fruits or shells, fallen feathers, animal tracks, dung, droppings, nests, cocoons, eggs, honeycombs, etc.?

(2) Could you observe any micro-organisms?

(3) How many types of living things did you see at the places you visited? Do you think you saw all the kinds of living things that belong there? Did you see the same living things at various places or different ones?

The variety we see in all the living things that belong to a particular area is called the 'biodiversity' of that place.

Can you tell?

Which one of the places you visited shows greater biodiversity?

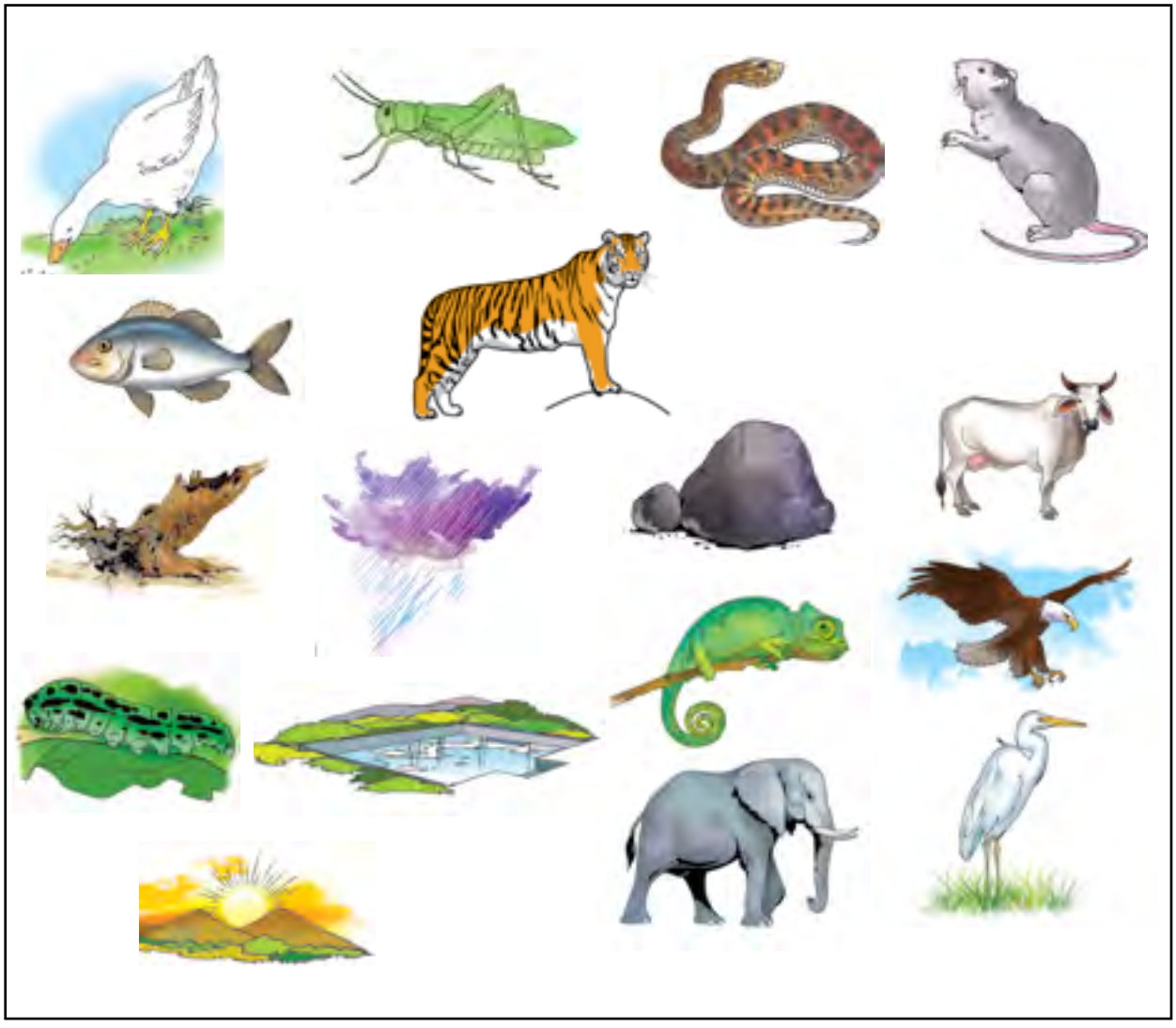
To study the biodiversity of a place, scientists make a large number of observations. They make these observations in different conditions such as day and night, in different seasons, etc. They use special devices to make observations of living things that are found at great heights or depths as well as of micro-organisms. Observations of many scientists are brought together and studied again. Only when all such efforts are made over a long period of time can we be sure of the biodiversity of a place.

The environment

The surroundings and the conditions in those surroundings which affect the life of the organisms there, are together known as their environment. It includes many components such as sunlight, air, water, soil, plants and animals, etc.

Living and non-living things are dependent on each other. There is a lot of give and take or interaction between them. Environmental Science studies these interactions.

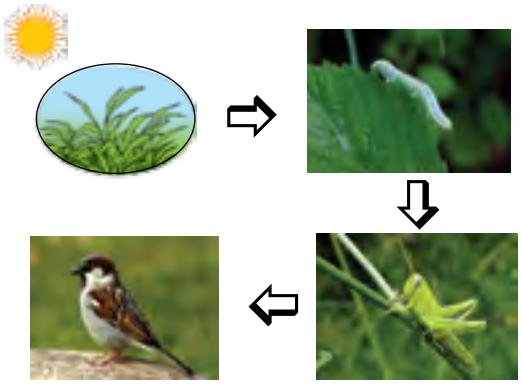
Look at the pictures of the living and non-living things shown below. Discuss the mutual relationships between these various factors of the environment.



Living and non-living factors of the environment

The food chain

Look at the pictures below.

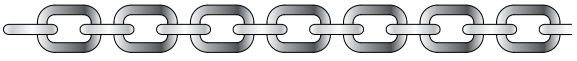


A worm eats grass and leaves. A grasshopper eats worms. Birds eat grasshoppers.

Can you tell?

(1) Who eats birds?
(2) What is the food of plants?

Look at the picture below.



There are several links in this chain. If the links were to separate from each other, could they be called a chain? Even though each link is a complete object, it is joined to the links before and after it. If any link comes loose, the chain is broken.

In the first picture, we see the sun, some plants, a worm, a grasshopper and a sparrow. They are all connected. Each of the components – plants, worm, grasshopper, bird – is food for the next one. That is why we say that they form a chain. Such a chain is called a food chain. Each of these components is a link in a food chain.

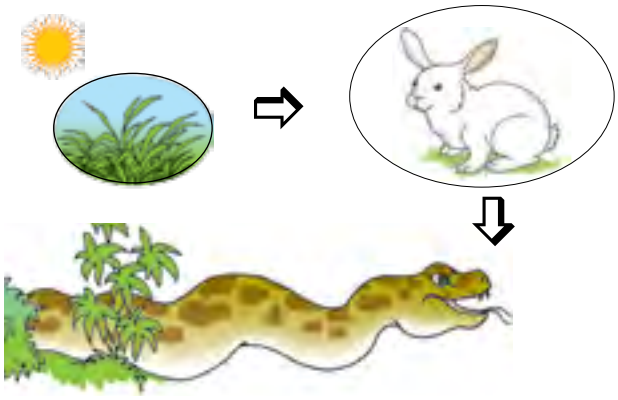
Can you tell?

Look at the pictures.
What is the deer's food?

What is food for the tiger?

The picture below shows another food chain. You have to guess the missing link in it. Look at the first and third pictures. Think of the connection between them and complete the chain.

In nature, there are many food chains. If one of the links in a chain is lost from the chain, can the food chain last?



The food web

Observe the various food chains shown in the picture below.

Can you tell?

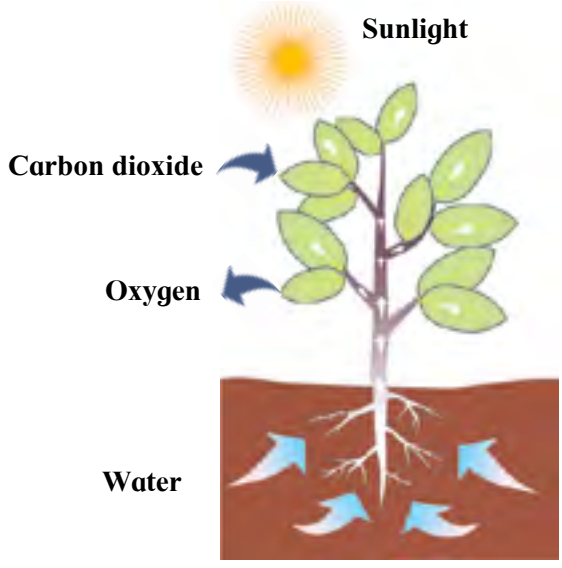
Find the different food chains of which the worm and the mouse form a link.

One living thing can be a part of a number of food chains. That gives rise to a food web in nature.

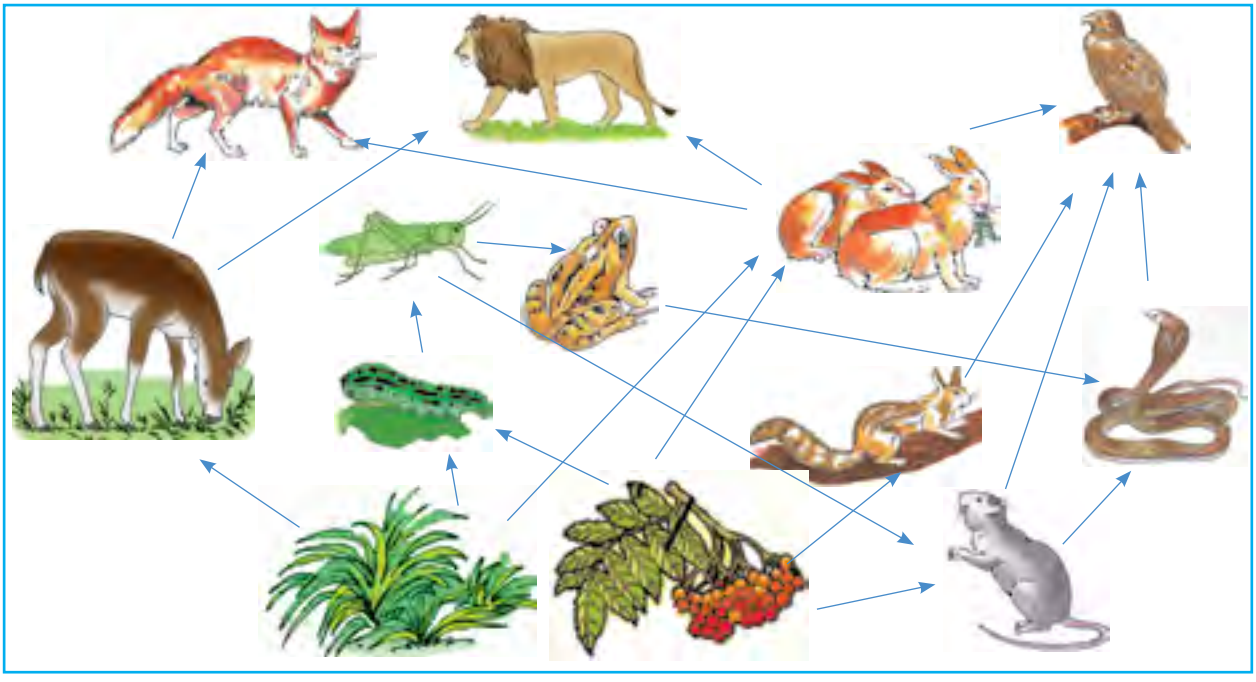
The most important food in food chains – plants

Every living thing gets its food from the environment.

Many animals in the environment eat only plants. Other animals eat the animals that live on plants. But plants make their own food in the presence of sunlight using water and the carbon dioxide from the air. It means that plants are the main support of every food chain.

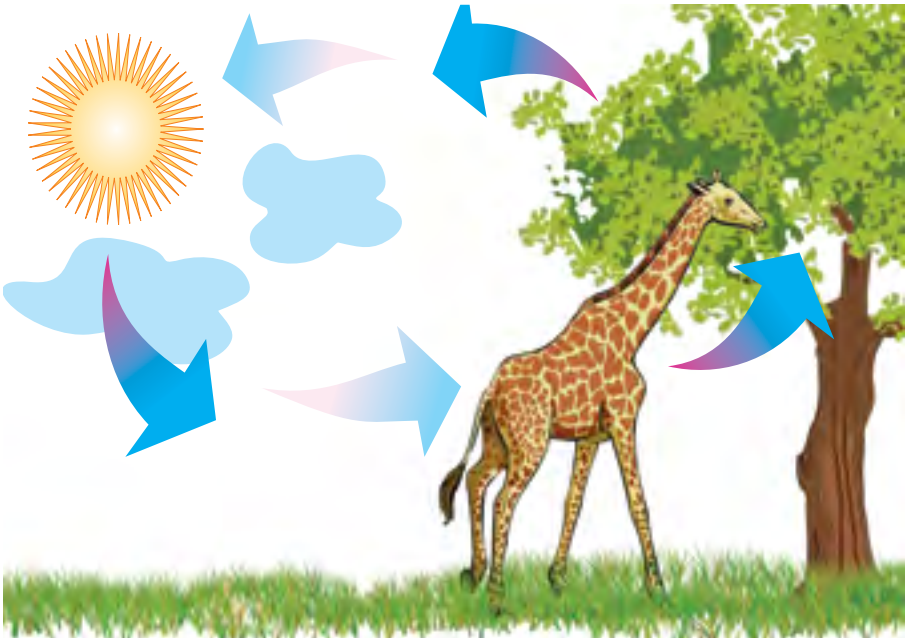


A plant



A food web formed by the interlinking of several food chains

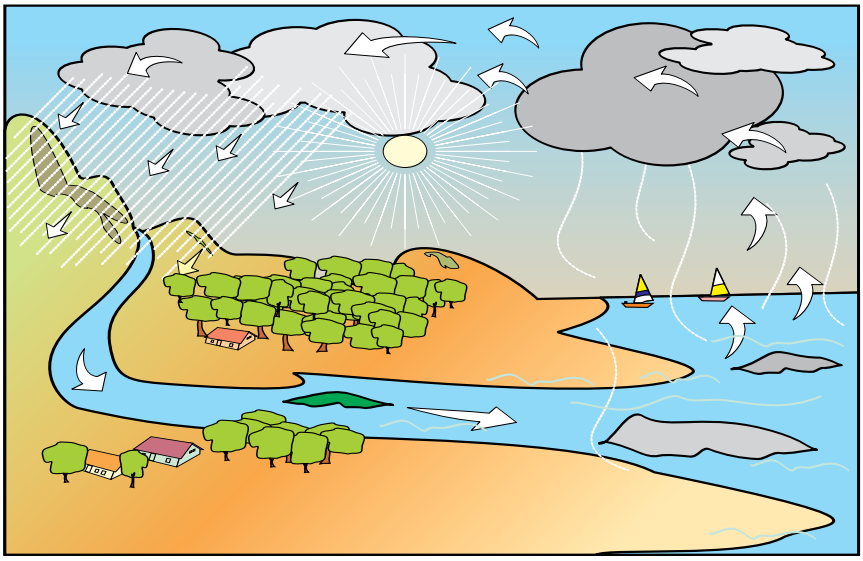
Environmental balance



There are many food chains in our environment. Because of these food chains, every living thing gets the food it needs and therefore continues to live. Micro-organisms living in the soil help the process of decomposition of plant residue, dead animals, excreta, etc. As a result, substances that help the growth of plants are formed and get added to the soil. Plants use them for their growth.

Thus plants use substances in the soil for their growth and when plants and animals die, the decomposition of their remains adds these substances to the soil once again. This is an important cycle in the environment.

Also, living things get a continuous supply of water because of the water cycle.



Living things use oxygen from the air for breathing and give out carbon dioxide gas. Plants use the carbon dioxide from the air for making their food. Oxygen is given out in this process and gets added to the air again. This too is a cycle in nature.

There are several other such cycles in nature. Thus, there is interaction amongst living things and between living and non-living things in nature. The interactions go on continuously. This helps to maintain the food chains in the environment. When the various cycles in the environment go on uninterrupted, environmental balance gets maintained.

Always remember –

For the existence of living things, it is important that environmental balance is maintained.

What we have learnt –

- There are innumerable types of living things on the earth.
- There is interaction between living and non-living things in the environment.
- Different kinds of animals, plants and micro-organisms are found in different regions of the earth.
- The water cycle, various other cycles and food chains in nature help to maintain the balance in the environment. This balance has been maintained for thousands of years.

Exercises

1. What's the solution?

We have to remove insects from the grain without using insecticides.

2. Use your brain power!

Make up a food chain :

Frog, kite, worm, snake, grass.

3. Answer the following questions.

(a) What is a food chain? Give an example of it.

(b) How is the balance in the environment maintained?

4. What substances in the soil are useful for the growth of plants?

5. True or false?

(a) Micro-organisms form a part of the environment.

(b) It is necessary to maintain biodiversity.

(c) A grasshopper eats birds.

Activities

1. Find out more about the birds you see in your surroundings.
2. Make up your own slogans about maintaining environmental balance.

* * *

5. Family Values

Can you tell?

(1) In your family, how do you make the decision to go on a trip?

(2) Do you offer suggestions about the places to visit during the trip?

(3) Do you get to suggest which guests should be invited over during a holiday?

(4) How do you help during preparations for festivals or functions at home?

Role in decision-making

We live together in a family. Every person's likes and dislikes are different. Thoughts and opinions can also differ. We ourselves are different from others. Even so, our thoughts and opinions can match those of others on various topics. We have love and affection for each other. We take care of each other and are concerned about other people's well-being. We talk to each other before making decisions about anything in the house. We consult each other and make decisions that everyone agrees with. In this way, we are part of the decision-making in the family.

What happens when everyone has a role in decision-making?

- Each person gets the opportunity to say what they think.
- By asking everyone's opinions, the subject is thoroughly discussed from every aspect.
- We feel like a more important part of the family when we see that our opinion is valued.

Just as we have a role in making decisions in our family, we also have a role in public decision-making. In newspapers, we read about matters requiring public participation. A few examples of such news have been summarized below.

Read and discuss :

Citizens participate in municipal budget planning. Citizens to decide the matters on which to spend money.

Citizens crowd to suggest improvements to city development plan.

Inauguration of road joining six villages : Joint effort by six villages bears fruit.

We feel the need for minor changes in our environment. It is to our advantage that everyone has a role in making decisions about changes in our surroundings. The government we elect makes decisions regarding public matters. If we feel that a decision made by the government is wrong, we can register our opinion. In this way, we can be a part of the decision-making process.

Think!

Be a part of the decision-making process in your home. Do not form your opinions merely on the basis of what others say. Share your thoughts with others.

Can you tell ?

Note the following situations carefully. State which of the children show honest behaviour.

(1) Afreen borrowed a pencil from Meenu. After she finished using it, she returned it.

(2) Shama fell from her bicycle. However, she told her mother, "Neha pushed me off the bicycle".

(3) Mary took the bag she found in a rickshaw to a police station.

Effects of honest and dishonest behaviour

We do many different things every day. Sometimes we make mistakes. When we realise that we have made a mistake, we should talk about it openly with our friends and family. By doing this, we learn to be honest and find a way to correct our mistakes.

It is also necessary to be honest and sincere in our work. We must try hard to keep the trust in any relationship and never cheat. If we are honest, we do not have to be afraid. But if we are dishonest, we lose our self-confidence. We must be honest at home as well as in public. Everyone respects an honest person. Honesty is our strength.

Do you know ?

In 2011, during a cricket match between India and the West Indies, a bowler caught Sachin Tendulkar right at the beginning of the match. The bowler appealed to the umpire. Thinking that the ball had not touched the bat, the umpire declared Tendulkar not out. However, knowing that the ball had touched his bat, Tendulkar returned to the pavilion though he was declared not out.

Honesty in public life

If we are honest in our public life, we will get better public services and facilities. What happens if we travel on a train or bus without a ticket? Our public transport system will run at a loss and would soon have to shut down. If each person buys a ticket honestly, this problem will not arise.

Honesty can increase efficiency in public life. Honesty is the best way to increase discipline and efficiency in public life.

Advantages of co-operation

In a family, we co-operate with each other. Similarly, in team sports, the more the players co-operate with one another, the better is their game. Instead of keeping the feeling of co-operation restricted to sports, we should bring it into public life as well. Everyone needs co-operation in public life. We, too, need the help of others. Fairs, rallies and other such gatherings can only be arranged successfully if we co-operate with one another.

What's the solution ?

(1) We meet a boy who has lost his way.

(2) While on a trip, we realise that our friend has forgotten her tiffin at home.

(3) Some people are stuck in the lift of a building.

Read and discuss :

Read the dialogue given below. Discuss the problem stated and its solution.

Our teacher's taking us to see a fort. It will be a lot of fun ! But let us not include Savita and Sameer in our group. Savita talks too much and Sameer is always playing pranks.

So what ? Savita sings well. Sameer tells jokes. Let's talk to them. They will understand. Let's not leave them out.

That's true! I didn't think of that. Let us prepare for the trip together.

Yes, Gayatri's right. Let us learn new songs from Savita and new jokes from Sameer.

Tolerance

We all have some faults. We can improve on these faults with the help of our family and friends. We may not agree with each other every time. Sometimes, there are disagreements even between friends. At such times, we must try to understand the point of view of others instead of insisting that only our point of view is correct. On such occasions, we must listen to the other person. In this way, we learn to be tolerant. Respecting opinions which are different from our own is called tolerance or broadmindedness.

Tolerance has a special significance in our country. People from various religions, creeds, cultures and following different customs live here. That is why, it is necessary for everyone to be tolerant or broadminded. Diversity can be preserved through tolerance. Diversity enriches our social life. It encourages us to think about others with concern. We can solve problems in our environment by being broadminded.

Gender equality

Boys and girls or men and women are equal as human beings. Considering boys and girls to be equal without discrimination is called gender equality. Boys and girls must respect one another. In the company of our friends, we consider all of them to be our equals. We must maintain this sense of equality as citizens when we grow up.

By developing this sense of equality, everyone gets to learn and make progress. Food, clothing, shelter, health and education are the common needs of men and women. For the purpose of equality, each of these needs must be fulfilled properly. Men and women have equal rights to facilities such as these. Similarly, men and women must get equal opportunities of progress.

- **Prepare slogans on gender equality.**

What's the solution ?

The following things are observed in some families.

(1) In some homes, boys' uniforms, textbooks and bags are bought first. Purchases for girls are put off.

(2) When his team lost a kabaddi match, Raju began to cry. Dinesh said, "Why are you crying like a girl ?"

(3) Vandana likes the bat and ball a lot; however, she is given dolls and toy stoves and utensils to play 'house'.

(4) Sarika helps her mother with the cooking and household chores. Her brother is never asked to do the same.

Always remember –

Honesty increases efficiency in public life and makes it possible to avoid wastage of time, money and labour.

What we have learnt –

- Everyone in the family must have a say in decision-making.
- We must be honest in our private and public life.
- Tolerance and co-operation make our community life harmonious and peaceful.
- A tolerant attitude makes it easy to preserve diversity.
- Men and women are equal. It is not right to discriminate between them.

Exercises

1. Fill in the blanks.

(a) Honesty is our ..... .

(b) Everyone needs ..... in public life.

(c) ..... has a special significance in our country.

(d) By developing a sense of equality, everyone gets to ..... .

2. Answer in one line.

(a) Who should make decisions regarding changes in our environment ?

(b) What is tolerance ?

(c) What is gender equality ?

(d) What are the common needs of men and women ?

3. Answer in short.

(a) How do you take part in the decision-making process in the family ?

(b) How do we develop a sense of tolerance ?

Activities

1. Collect stories of social reformers which highlight the values of tolerance and gender equality. Narrate the stories in the class.
2. Can you narrate a few incidents of your honesty ? Do so.

* * *

6. Rules Are for Everyone.

Can you tell?

(1) Can you tell some traffic rules?

(2) Give reasons why we should obey these rules.

(3) Which one of these rules do you feel needs to be changed?

(4) What other rules do you think are needed for better discipline in traffic?

We follow traffic rules so that traffic moves smoothly. In the same way, there are rules of social life that tell us what each person should be doing. Rules need to be made to specify each person's duties and responsibilities. If we follow the rules, our day-to-day life becomes disciplined. We can work more efficiently.

Rules are meant for everybody. They apply equally to all. No one is above the rules. Disobeying the rules leads to punishment. There is no discrimination in punishments for breaking the rules. In this way, 'equality' is the basis of rules.

Changes in rules for the society

Our society works according to certain rules. We make the rules ourselves. We follow these rules because they are meant for the common good. Proper changes are also introduced in the rules made for a society. There is a difference between the rules of society and the laws of nature.

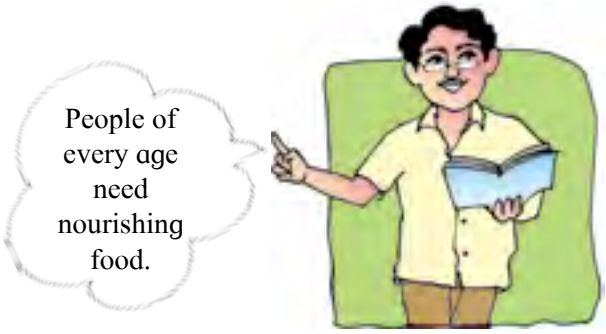
Natural occurrences follow laws of nature. We cannot change the laws of nature. The rising and setting of the sun and the change in the seasons never stop. The law of gravity does not change. The rising and falling of the tides, the phases of the moon – all of these things occur according to the laws of nature. Nature's laws are constant and fixed; they do not ever become outdated. However, human laws need to be changed with changing conditions. The laws followed in India under the rule of the British were different. When India gained Independence, the situation changed and the laws of civic life changed accordingly. For example, after Independence, the voting age was 21 years. After 1988, the voting age was lowered to 18 years.

Try this.

Ask your parents and grandparents what rules were followed during their time at school. Make three columns – one each for yourself, your parents and grandparents. Enter the school-rules related information in each column and compare it. Discuss which rules have changed and which have not.

Always remember –

Boys and girls or men and women are equal. They must get the same opportunities for development.



Can you tell?

(1) How will you answer the girl's question?

(2) In what other ways do you feel there is discrimination between boys and girls?

It is incorrect to discriminate between boys and girls. It is unjust to deprive girls of good food or to prevent them from going to school. Such injustice can also be seen with respect to other sections of society.

In the pictures below, what injustice do you observe?

Rules have to be made to ensure that no injustice is done.

Can you tell?

A list of rules is given below. Each rule has a specific purpose. Some rules have more than one purpose. Discuss each rule in class. Under the heading, 'This is what I think', note down your opinions.

(1) Prohibition against loudspeakers in public places after 10 o'clock at night.

(2) Free primary education for boys and girls.

(3) Prohibition against dumping garbage in the river.

(4) Protection against domestic violence for women.

(5) Ban on child labour.

(6) Ban on felling trees, hunting and poaching.

We follow many customs and traditions in our lives. We follow those traditions by observing our mother, father, grandparents and other relatives. There are several good customs and traditions in our society. We celebrate festivals together. We welcome guests who visit us

and are hospitable to them. Many of our customs enable us to maintain the balance of nature. We express our love and gratitude towards animals. The values of non-violence and peace have been a part of our social life since ancient times.

Even so, there are some traditions and customs that are not desirable. They are not beneficial for our society, for example, caste distinction. Because of this, a divide has been created in society. It has given rise to inequality. Untouchability was an inhuman and unjust custom. The Constitution of Independent India abolished the custom of untouchability.

Many times, laws have to be made to abolish unjust customs. In our country, customs such as *sati* and child marriage were abolished by making laws that banned them. The law that banned the use of magic for cheating people was first enacted in Maharashtra. Receiving a dowry has been banned by law.

Wrong customs and traditions cause the neglect of some sections of society. They have no access to education, therefore, they do not get opportunities of development. They have no means of livelihood. Therefore, they have to face poverty. Poverty and lack of education are the two big obstacles in our society. We can only make progress together if we get rid of these obstacles.

Protecting our environment

Just as laws are necessary to maintain equality and justice in society, laws are also required for the protection of the environment. We are dependent on nature in many ways. Most of our needs are fulfilled by nature. Natural resources should be available in enough quantities for the needs of our future generations. Therefore, we must conserve these natural resources. We must use them carefully.

Our Social Issues

Do you know ?

- Caste discrimination, gender inequality and lack of education for women were some of the big obstacles in our society. Mahatma Jotirao Phule, Rajarshi Shahu Maharaj and Dr Babasaheb Ambedkar tried to get rid of these obstacles. Savitribai Phule had to fight a great battle for women's education. Her colleague, Fatima Sheikh, provided her with valuable assistance in this fight. Maharshi Dhondo Keshav Karve also did great work to promote women's education.

The work of all these social workers was instrumental in bringing about positive change in our society.

What we have learnt –

- Rules made for people are changed from time to time.
- Rules in the olden days were in the form of religious traditions and social customs.
- Laws are made to combat inhuman and undesirable traditions and customs.

Exercises

1. Fill in the blanks.

(a) Our society works according to certain ..... .

(b) The Constitution of Independent India abolished ..... .

(c) Wrong customs and traditions cause the ..... of some sections of society.

2. Answer in one sentence.

(a) Why are rules made ?

(b) Which values have been a part of our social life since ancient times ?

(c) What are the big obstacles in our society ?

3. Answer in short.

(a) Which unjust customs have been banned by law ?

(b) Why do we need to make laws for the protection of the environment ?

Activity

Make a list of the rules you follow in the following situations.

(1) At the time of the School Assembly.

(2) During the lunch break.

(3) On the playground.

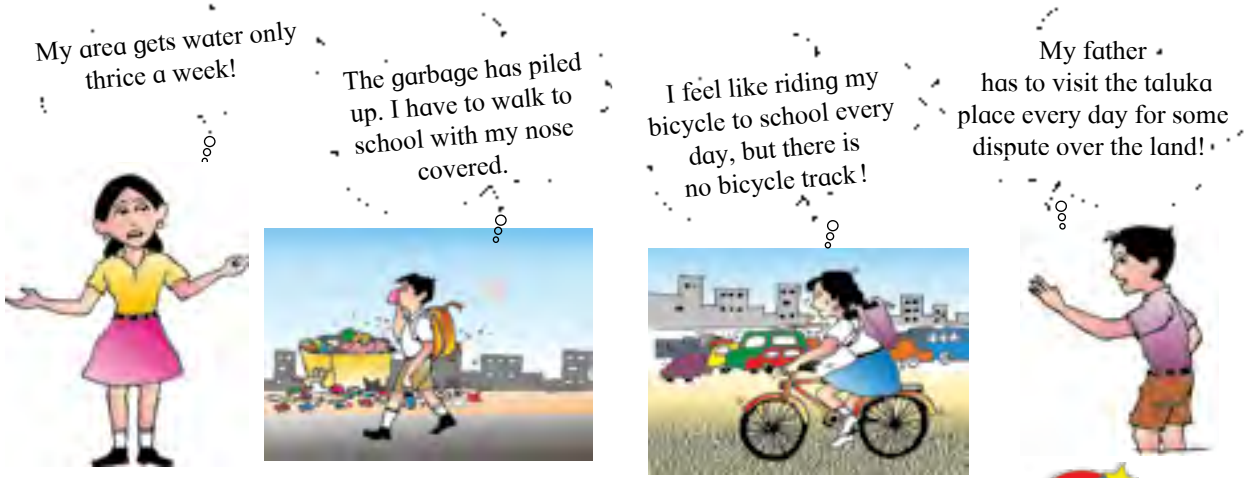
(4) In the school library.

* * *

7. Let us Solve our own Problems

Can you tell ?

What problems can you identify from the following picture ?



Issues in civic life

We encounter many problems in our civic life. These problems cause us inconvenience. Sometimes our life is thrown into disorder. If we turn a blind eye towards problems, they become worse. So it is best to solve them in time. The problems faced by people in cities and villages can be called problems or issues in civic life. It is important to be able to identify such issues. One person alone cannot solve such problems. They can be solved through everyone's efforts and co-operation.

Solving disputes

Disputes arising over various issues in our towns and villages can also be a problem. The well-being of a village is affected by constant disputes. It leads to loss of unity and obstructs the progress of the village. If the disputes are not serious, they can be solved locally by speaking to the parties involved. However, if the dispute is not solved in this way, it has to be taken to the appropriate bodies or the courts.

Do you know ?

Since 2007, the 'Mahatma Gandhi Dispute-Free Village Mission' is being implemented in our State. The aim of this scheme is that villages should be able to solve their own disputes through peaceful discussions. This method of solving disputes increases harmony in the village. Villages which have solved their disputes by using this method also get a peace award. In cities, Mohalla committees help to solve disputes.

Problem solving

Have you heard about these attempts at solving problems ?

Hiware Bazaar : In the village of Hiware Bazaar in Ahmadnagar district, water shortage was a big problem. This problem was solved with the help and participation of the villagers. The problem of animal feed was also solved. Now, Hiware Bazaar has lush green surroundings.

- Many villages face water shortage. Find the reasons for this and suggest solutions.

Cleaning a village through 'shramdaan' : The people of Khudawadi village in Osmanabad district cleaned their village through 'shramdaan' or voluntary contribution of labour. They decided that everyone should help in cleaning the village. First, the waste water was dealt with. The garbage was used to make manure using vermiculture. A toilet was built in each house.

Sant Gadgebaba used *kirtans* to stress the importance of keeping the village clean. He told the people that we cannot make progress without cleanliness, education and self-reliance. He showed people how to clean the village through his own actions.

Rashtrasant Tukdoji Maharaj explained the importance of cleanliness through his 'Gram Geeta'.

'मिळोनी करावी ग्रामसफाई । नाली, मोरी ठायीठायी ।
हस्ते परहस्ते साफ सर्वहि । चहूकडे मार्ग ।'

Sant Gadgebaba

Rashtrasant Tukdoji Maharaj

- Newspapers carry several articles about 'shramdaan'. Collect these articles. Discuss the things that can be achieved through it.

Can you tell ?

(1) Do you think that there should be a group of peacekeepers in your school ?

(2) What criteria will you use to select these peacekeepers ?

(3) Which rules will you include in the rulebook for these peacekeepers ?

(4) What methods should peacekeepers use to solve your disputes ?

(5) How did you understand that disputes can be solved peacefully ?

For a society to be peaceful, the basic needs of all of its sections need to be met. Each person must get the necessary security. The exploitation in society must stop. Inequality must decrease. Everyone must have the right to participate in public life. By learning the importance of peace and by using peaceful methods, we can create a peaceful environment in our family, school and community.

Do you know ?

In order for peace to spread worldwide, and for nations to be able to strive for the development of their people, 21 September has been designated by the UN as 'International Peace Day'. On this day, in New York, where the United Nations have their headquarters, a bell is rung at 10 o'clock in the morning. This is followed by a few moments of silence. This bell has been made from coins given by people from around 60 nations.

If you would like to know more about this, visit the following website :

http://www.internationaldayofpeace.org

Always remember –

If there is peace in the family, school and society, everyone will benefit. Peace contributes significantly to progress. It creates scope for advances in various fields like business, industry, education, art, literature, entertainment, science and technology. In this way, peace becomes a social value rather than a personal need.

What we have learnt –

- Everyone has a responsibility to solve problems in civic life.
- Problems can be solved if everyone co-operates.
- Dialogue and discussion can help solve disputes.
- Disputes can be solved peacefully.
- If there is peace in the family, school and society, everyone benefits.
- Peace is a social value.

Exercises

1. Fill in the blanks.

(a) Turning a blind eye towards problems makes them..... .

(b) It is important to be able to identify ..... .

2. Answer in one sentence.

(a) What is meant by issues in civic life?

(b) How can problems in civic life be solved?

(c) Name the great personalities that stressed the importance of cleanliness.

3. Answer in short.

(a) Explain the concept of cleaning the village through 'shramdaan'.

(b) How can a suitable environment for peace be created?

4. What will you do in the following situations?

(a) The class leader wishes to maintain quiet in the classroom.

(b) For some unavoidable reason, the maths teacher is unable to attend class today.

(c) During a match, a dispute has arisen between the two teams on the playground.

Activities

1. Write a letter to your local representatives about the garbage problem in your area and discuss the problem with them in person.

2. Find out who you should contact if stray dogs are a problem in your locality. Find information about solutions for the stray dog problem.

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