13 Our Earth

Before We Start, Let's Check

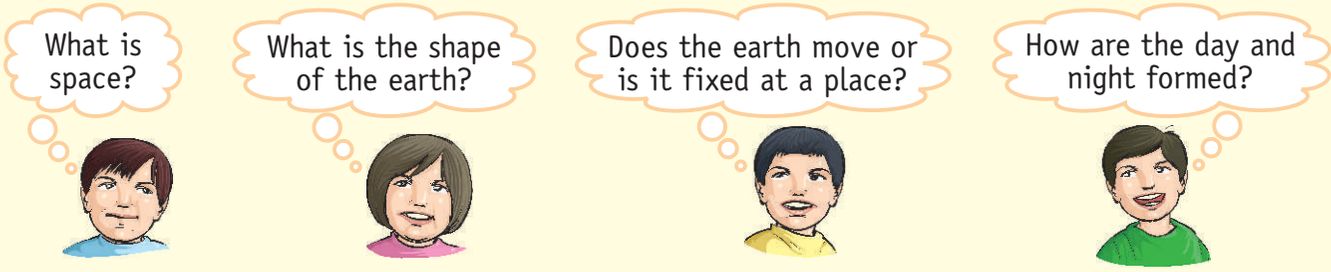
What you already know

Fill in each blank choosing the correct words.

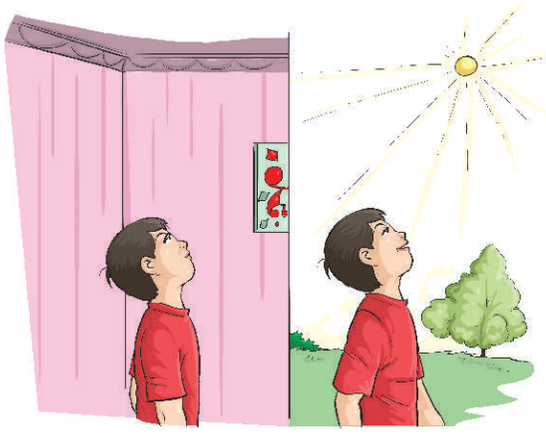
night *sky* *sun* *day*

- The _____ gives us heat and light.
- The sun shines in the _____.
- The sun shines during the _____.
- It is dark at _____.

What you will know



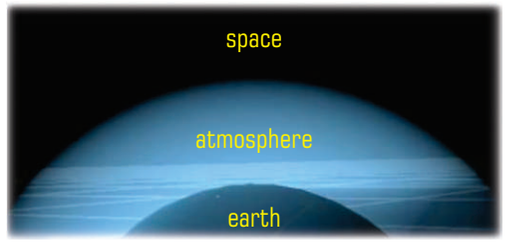
SPACE



Stand in a room and see above. You will see the ceiling of the room. Now go out in the open and again look above. This time you will see the sky. In the room, you can touch the ceiling by using a ladder, table, etc. But however high you may go up, you cannot touch the sky. Do you know why? Because the sky is limitless.

We see the sun, moon and stars in the sky. All these bodies are situated in space. Our earth is also situated in space.

The earth is surrounded by a layer of air, called the **atmosphere**. The region beyond the atmosphere is space.



Space has countless big and small heavenly bodies.

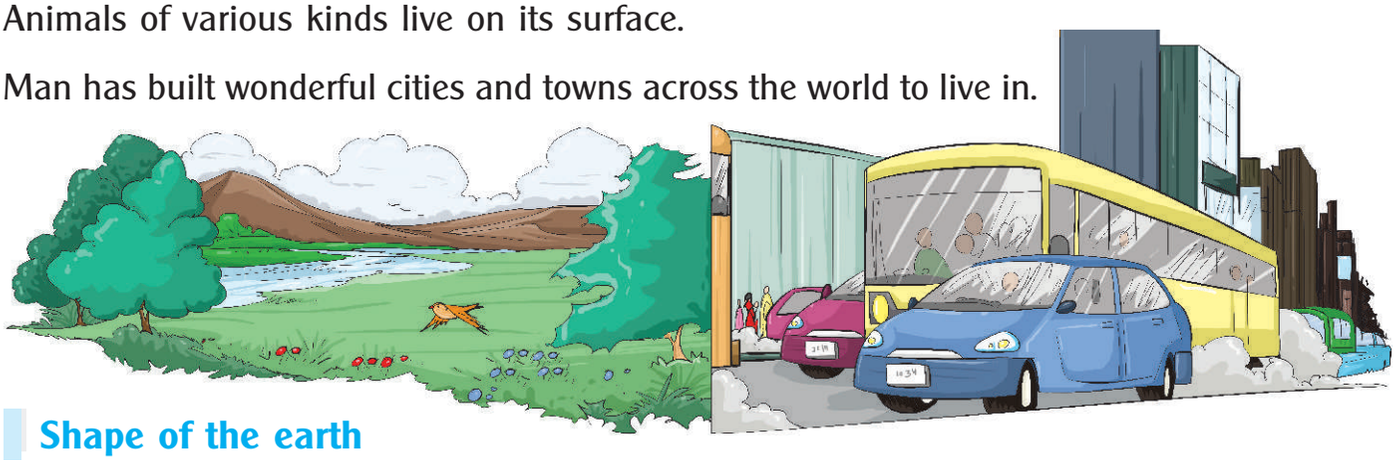
THE EARTH

The earth is the only place in the universe, where life is known to exist.

About three-fourth part of the earth's surface is covered with water and only one-fourth part is land.

The earth has lovely mountains, lakes, rivers and seas. Many plants and trees grow on it. Animals of various kinds live on its surface.

Man has built wonderful cities and towns across the world to live in.



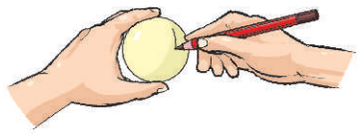
Shape of the earth

You may believe that the shape of the earth is flat. In ancient times, people also used to believe the same. But our earth is not flat, it is round like a ball.

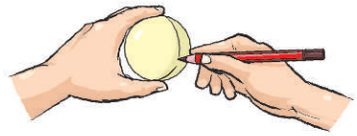
Hundreds of years ago, some sailors discovered that the earth is round. They started sailing from a certain point. They sailed on and on in the same direction. After a very long journey, they arrived at the same point from where they had started. This is possible only when the path of the journey is circular.

Fun and Learn

Take a ball and a pencil.



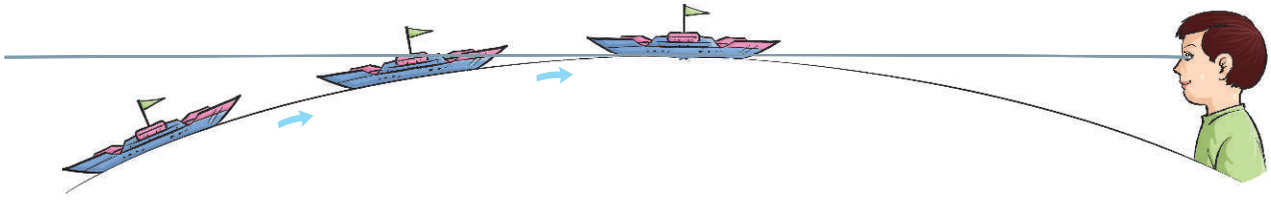
Put the pencil tip at a point on the ball and start moving it in one direction.



After some time, you will reach the point from where you started.

From a sea coast, if we look at a distant ship coming to the coast, we can see only its mast at first. As the ship comes nearer to the coast, we can see the whole of it.

It is because the ship is sailing on a curved surface.



A few years ago, some astronauts went into space. They took some photographs of the earth from space. These photographs show the round shape of the earth.

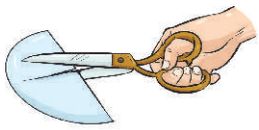
the earth in space

So, our earth is round in shape but to us it appears flat. Do you know why? Because we see a very small part of it.

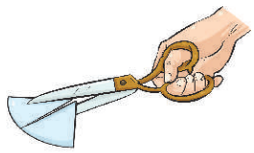
To understand it more clearly, let us do an experiment.

Fun and Learn

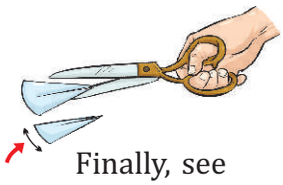
Take a circular piece of paper and cut it into half.



Now, cut one of the halves again from the middle.



Go on cutting the parts into smaller and smaller halves.



Finally, see the edge of the smallest part.

The edge appears straight. The same thing applies to the earth.

MOVEMENTS OF THE EARTH

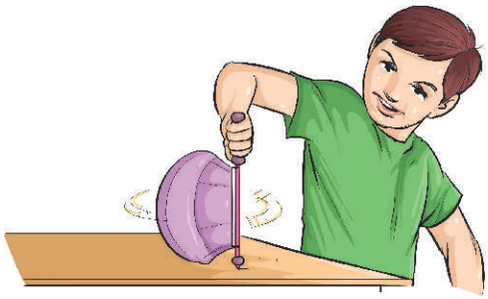
The earth is not stationary as we think it to be. It moves. We do not feel the movement because we also move along with the earth at its constant speed.

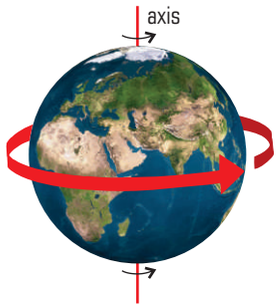
Our earth shows two kinds of movements. They are rotation and revolution.

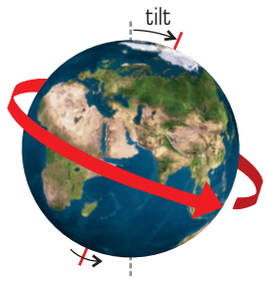
Rotation

The earth spins like a top on its axis. Do you know what an axis is?

Take a hand fan. Spin this fan on a table as shown in the picture. The axis of this fan is its handle since the fan is rotating around it.







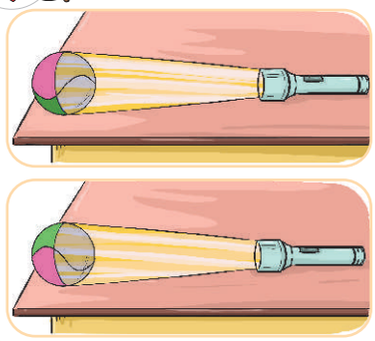
The axis of the earth is not a physical thing. It is an imaginary line, which we cannot see.

The earth's axis is slightly tilted.

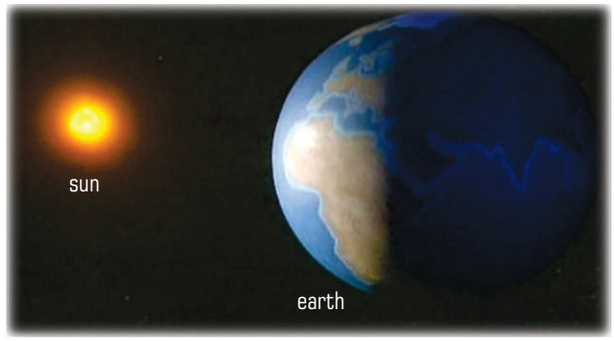
Day and night

The rotation of the earth causes day and night.

Fun and Learn



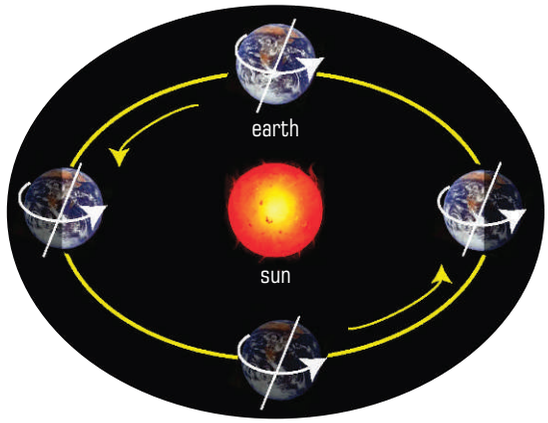
- Take a torch and a ball. Place them as shown.
- Switch on the torch.
- You will see that the half of the ball facing the light is bright. The other half is dark.
- Now, rotate the ball.
- You will see that the half which was dark earlier is now lit.
- The half that was bright earlier is now dark.



In the same way, as the earth rotates, half of it faces the sun. This half has day. The other half, which is away from the sun, has night.

It takes the earth about twenty-four hours to complete one rotation. This makes a complete day. The earth rotates continuously. Day changes into night and night changes into day. As the earth rotates from the west to the east, it appears to us that the sun rises in the east and sets in the west.

Revolution



Besides rotating, the earth also revolves around the sun in a fixed path. This fixed path is called the earth's **orbit**.

The earth takes about three hundred and sixty-five days to complete one revolution. That makes a year.

Words to Remember

space	–	the entire region beyond the earth's atmosphere
atmosphere	–	the layer of air around the earth
universe	–	everything that exist in space
rotation	–	the spinning movement of the earth on its axis
revolution	–	the movement of the earth around the sun in a fixed path
earth's axis	–	an imaginary line passing through the centre of the earth
orbit	–	the fixed path in which the earth moves around the sun

Points to Recall

- We cannot touch the sky as it is limitless.
- The earth is surrounded by a layer of air called the atmosphere.
- The area beyond the atmosphere is space.
- About three-fourth part of the earth's surface is covered with water and the rest is land.
- The earth is not flat but it is round as a ball.
- The earth is spinning on its axis from the west to the east.
- It takes about twenty-four hours for the earth to complete one rotation.
- Day and night are caused by the earth's rotation.
- The earth revolves around the sun in a fixed path called its orbit.
- The earth takes about three hundred and sixty-five days to complete one revolution.

Exercises

A. Tick (✓) the correct option.

1. What do we not see in the sky?
   (a) sun ☐ (b) moon ☐ (c) river ☐ (d) stars ☐
2. What part of the earth's surface is covered with water?
   (a) half ☐ (b) one-fourth ☐ (c) three-fourth ☐ (d) one-fifth ☐
3. Who discovered first that the earth is round?
   (a) astronauts ☐ (b) sailors ☐ (c) scientists ☐ (d) drivers ☐
4. How many kinds of movements does the earth show?
   (a) only one ☐ (b) two ☐ (c) four ☐ (d) five ☐
5. The earth completes one revolution in about a
   (a) day ☐ (b) week ☐ (c) month ☐ (d) year ☐

B. Match the following.

Column A	Column B	
1. sun	(a) rotation	1. ☐
2. air	(b) revolution	2. ☐
3. day	(c) space	3. ☐
4. year	(d) path	4. ☐
5. orbit	(e) atmosphere	5. ☐

C. Answer in one or two words only.

1. Where are all the heavenly bodies situated? _____
2. Name the layer of the air surrounding the earth. _____
3. Name the imaginary line around which the earth rotates. _____

4. Is the earth a stationary body? _____
5. What is the fixed path in which the earth moves around the sun called? _____

D. Answer in one sentence only.

1. How is the earth a unique heavenly body?
2. Who took photographs of the earth from space?
3. Why does the earth appear flat to us?
4. Why do we not feel the movement of the earth?
5. Besides it being imaginary, what else is unique about the earth's axis?

E. Answer in two or three sentences.

1. How did some sailors discover the shape of the earth?
2. While looking from a seashore, what will you observe if a ship sails towards you?
3. How did astronauts prove the circular shape of the earth?
4. What causes day and night and how?
5. Write a few lines on the earth's revolution.

Creative Skills

BRAINSTORM

Cheeku and Cheenu are cousins. Cheeku lives in India and Cheenu lives in the USA. One evening, Cheeku calls his cousin. He is told on the phone that Cheenu has gone to school. How is it possible?

FIND OUT

Look at this picture. He is the first man to go into space. Find out his name, the year of his journey and the name of his country.

_____

_____

There are places in the world that have six-month-long days and six-month-long nights. Find out their names.

_____

_____

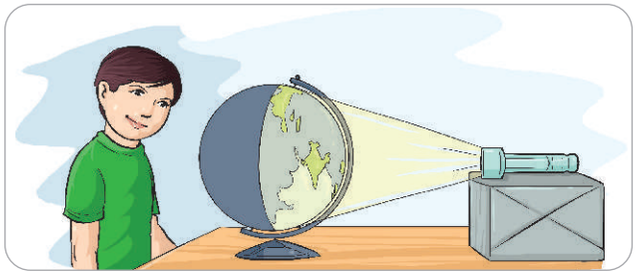
Project

'What would happen if the earth stopped rotating?'

Use your imagination and think about it. Then take some sheets of paper and write on them three or four paragraphs about it. Write your name on the top of the first page and submit the project to your teacher.

Experiment

The globe is a model of the earth. It shows the correct shape of the earth. We can see all the parts of the earth on it by rotating it.

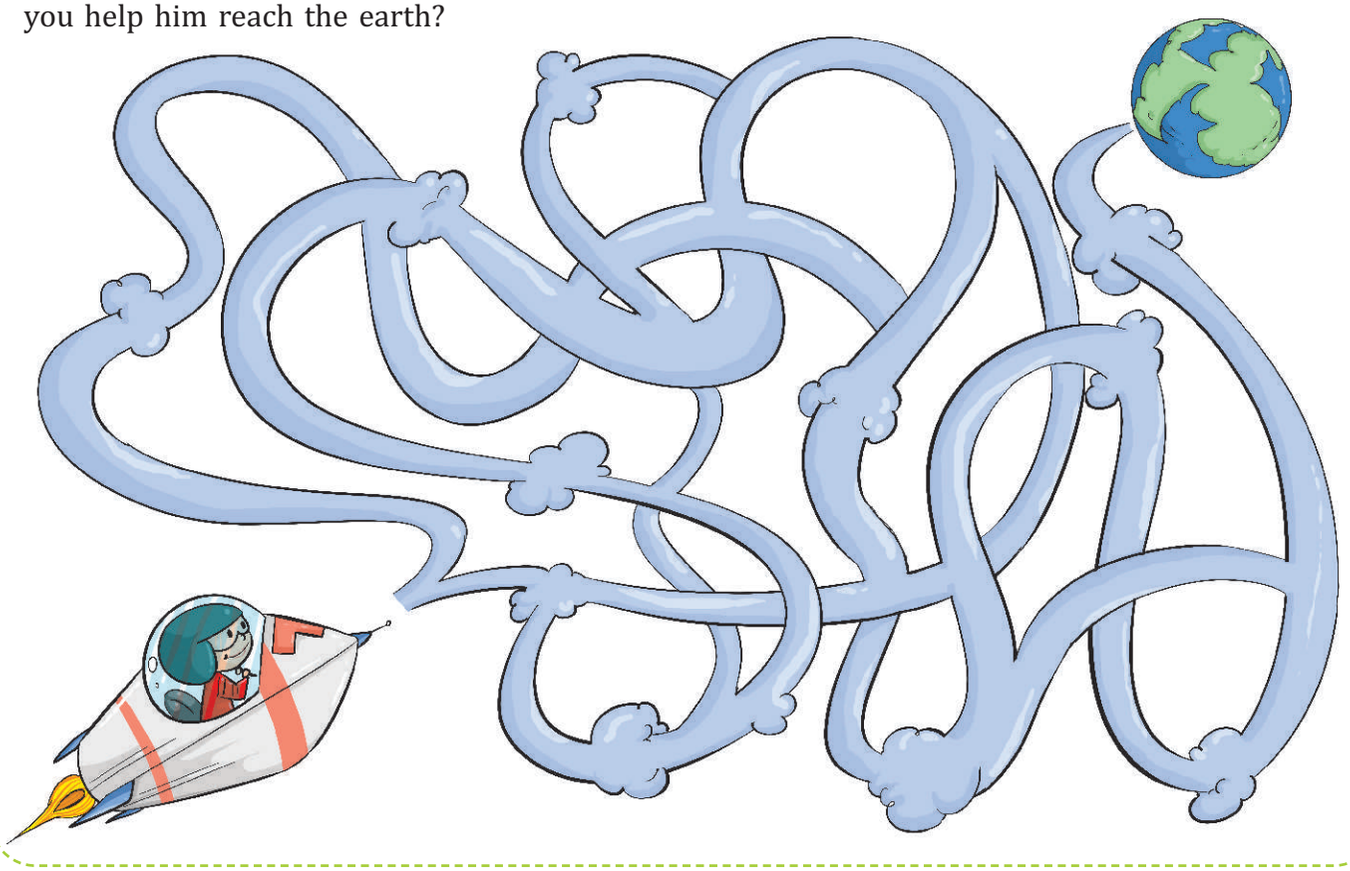


Take a globe and a torch. Switch on the torch and place it in front of the globe in such a way that the map of India is lit.

Now look at the dark side of the globe. Find the names of any five countries which have night when India has day.

Let's Have Fun

Tinku went into the space on his rocket. But he has forgotten the way back to the earth. Can you help him reach the earth?



Virtual Tour

For more information visit:

- *http://www.bbc.co.uk/bitesize/ks3/science/environment_earth_universe/astronomy_space/revision/4/*
- *http://kinderzone.blogspot.in/2013/07/the-earths-shape.html*