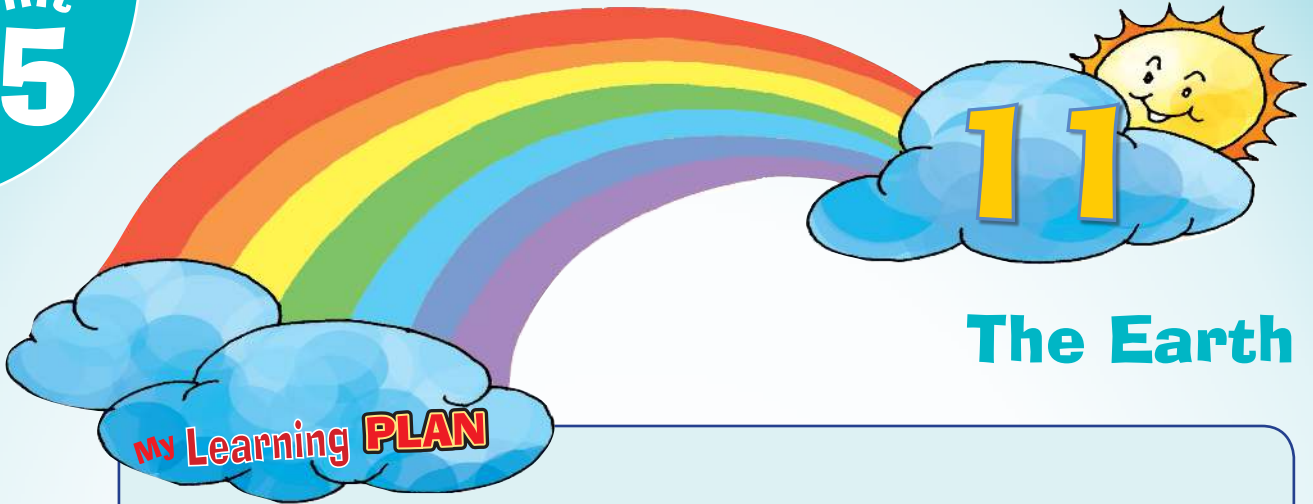




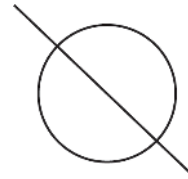
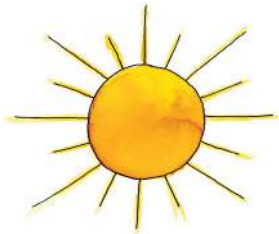
The Earth

- Understand the formation of the earth
- Learn about the various movements of the earth
- Know about the shape of the earth



WARM-UP

1. The diagram below shows the sun shining on the earth. Use yellow crayon to colour the part of the earth that will have day. Use black crayon to colour the part of the earth that will have night.



Earth is the third planet from sun. Of all the planets, earth is the only planet to have life on it. It has water, air and sunlight which helps us to live.

HOW WAS THE EARTH FORMED?

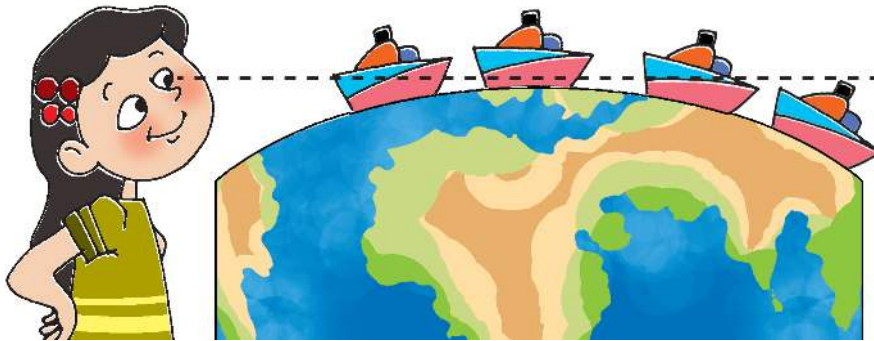
Scientists believe that the earth was formed billions of years ago from clouds of dust and gases. In the beginning, the earth was very hot and surrounded by hot gases. It took millions of years for it to cool down. The hot gases turned into clouds. These clouds caused rain. The rainwater collected and formed oceans. Slowly, life began to appear on earth.

SHAPE OF THE EARTH

Photographs taken from space show that the earth is round in shape. Actually, it is slightly flat at the top and at the bottom, like an orange! These flat parts are the North Pole and the South Pole.

If you observe a ship sailing away from the horizon, the bottom portion of the ship disappears first and then the top. This is because the earth is not flat.

The earth is made up of three parts—water, land and a layer of gases that surround it.



▲ The bottom of the ship disappears first and then the top.

MOVEMENTS OF THE EARTH

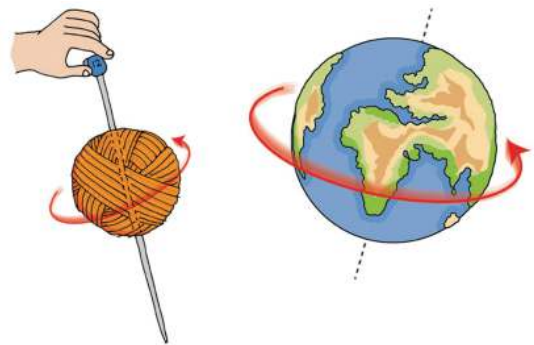
The earth is moving all the time. It shows two kinds of movement—rotation and revolution.

Rotation

Push a knitting needle through the centre of a ball of wool. Now, spin the ball slowly using the needle.

The earth also spins like this ball. It spins around an imaginary line running from the North Pole to the South Pole. This line is called the **axis**. The spinning

movement of the earth on its axis is called **rotation**. The earth spins from west to east. Unlike the axis of the spinning ball in your activity, which is upright, the earth's axis is tilted.



▲ rotation

Importance of Rotation The rotation of the earth causes day and night.



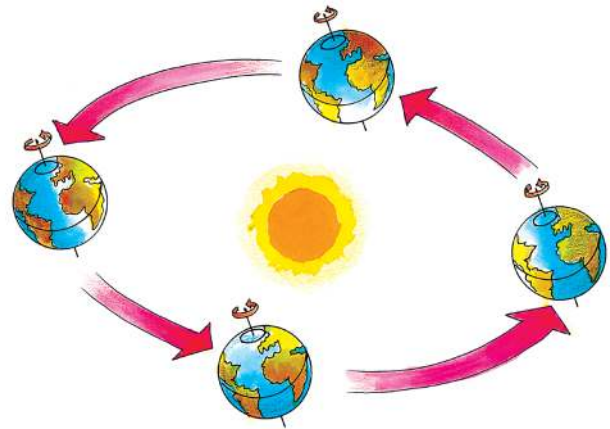
The earth completes one rotation on its axis in 24 hours. So one day and night are of 24 hours. Do you know why is it day-time in India when it may be night-time in some other part of the world? This is because when the earth rotates on its axis, one half of the earth that faces the sun has day-time, while the other half has night-time.

Revolution

While rotating on its axis, the earth also goes around the sun. This movement of the earth is called **revolution**. The earth follows a fixed path during its journey around the sun. This path is called the orbit of the earth. Each planet takes its own time to complete one revolution.

The earth takes about 365 days to complete one revolution. This period is called a **year**.

The revolution of the earth and the tilt in the earth's axis cause change of season. We experience summer, winter, spring and autumn depending on the amount of sunlight that we get at different times of the year. The part of the earth that faces the sun and receives direct sunlight has summer, while the part that is away from the sun and receives slanting rays has winter.



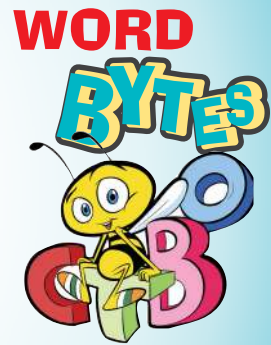
▲ revolution

axis: an imaginary line around which the earth spins. It runs from the North Pole to the South Pole.

rotation: the spinning movement of the earth on its axis

revolution: the movement of the earth around the sun

year: the period in which the earth completes one revolution around the sun



- The shape of the earth is just an orange. It is round but flattened at the poles.
- The earth rotates on its axis once every 24 hours.
- The rotation of the earth causes day and night.
- The earth completes one revolution in about 365 days.
- The revolution of the earth and the tilt in the earth's axis causes change of season.



REVIEW ZONE

A Tick (✓) the correct answer.

- What describes the actual shape of the earth?
 - round but flattened at the poles
 - completely round, like a ball
 - semicircular
 - flat
- The rotation of the earth causes
 - only day.
 - only night.
 - day and night.
 - seasons.
- The axis is an imaginary line running from
 - the earth to the sun.
 - the North Pole to the South Pole.
 - the sun to the earth.
 - the South Pole to the North Pole.

B Choose the suitable word from the following and fill in the blanks.

sun	365	orbit	hot	24	gases
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- The path that the earth follows around the sun is called
- One day and one night are of hours.
- Billions of years ago, the earth was very and surrounded by hot
- The earth takes about days to complete one revolution.

C State whether the following statements are TRUE or FALSE.

- The spinning movement of the earth on its axis is called rotation.
- The part of the earth that is away from the sun and receives slanting rays has monsoon season.
- The part of the earth that receives direct sunlight and faces the sun has autumn season.

D With the help of the clues given, unscramble the letters to form the correct words.

- ROITB—the path the earth follows around the sun _ _ _ _ _
- OLPES—parts of the earth that are flattened _ _ _ _ _

3. TITOARNO—the spinning movement of the earth on its axis _ _ _ _ _
4. ELITRUNOVO—the movement of the earth around the sun _ _ _ _ _
5. SXAI—imaginary line that passes from the North Pole to the South Pole _ _ _ _ _

E Answer the following questions.

1. What was the earth like when it was formed?
2. What is the difference between rotation and revolution?
3. Explain how day and night are caused.
4. What causes change of season on Earth? Explain briefly.



1. Which planets in the solar system are bigger than the earth and which are smaller?
2. Earth is not flat but appears to be so. Explain.



1. Earth Day is celebrated on 22nd April every year. It is celebrated to remind people that they too should care for the mother earth. We can take care of our earth in the following ways.
 - a. We should plant more trees. Have you ever planted trees? Yes/No
 - b. We should not use plastic bags. Do you use paper bags or plastic bags?
 - c. We should switch off the lights and fans when not in use. Do you do this? Yes/No
 - d. We should not throw away the waste paper. We can reuse it at home or sell it to the scrape dealer or the local *kabadiwala*. Do elders in your family sell newspapers to them? Yes/No
 - e. We should also save water. In what way(s) do you save water?



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ONLY A CLICK AWAY

1. Jantar mantar was built by Maharaja Jai Singh (II) in early 1700's. It is located in Delhi and Jaipur. The structures here can be used for astronomical measurements. To read more about it, you can visit the following links.
 - a. http://en.wikipedia.org/wiki/Jantar_Mantar_%28Delhi%29
 - b. http://en.wikipedia.org/wiki/Jantar_Mantar_%28Jaipur%29
2. Find out why is Japan called the 'Land of Rising sun'.



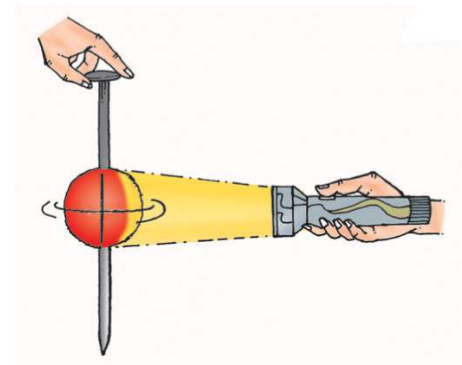
ACTIVITY BAG

1. Rotation of the Earth Causes Day and Night

Activity
1

Keep rotating a ball of wool around a knitting needle. Your teacher will shine a torch on the ball.

You will see that light falls only on the part of the ball that faces the torch. The other part is dark. If you slowly rotate the ball, the part facing the light will become dark, and the part in darkness will light up. In the same way, the part of the earth that faces the sun has day while the part that is away from the sun has night.



2. Use brown and blue clay to make a simple model of the earth. Remember there is more water on the earth than land. So, use more blue clay (to show water) and less brown clay (to represent land).



Teacher's Notes

- Teacher can bring a globe to the class and use it to explain rotation as well as day and night.
- Teacher can tell the students that the orbit of the earth is oval in shape, and not a perfect circle. So at certain times of the year, the earth is closer to the sun than at others.