

## Globe - A Model of the Earth

One evening Sundar & Kalpana were looking at the moon and Sundar asked, "If I went to the moon what would the earth look like? What can I see from there?" Kalpana told him that they could easily find out from the internet. Later she showed him some pictures of the earth taken from the moon. This is how it looked:



Fig: 2.1 Earth rise on the Moon

Doesn't the Earth look like a blue moon? It looks blue because a large portion of the Earth is covered with oceans. In the above photograph we can see only one part of the earth which receives sunshine.

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- Can you explain why the bottom portion of the Earth is not visible in this photograph?

### The Earth is like a ball

From this picture you can see that the shape of the Earth is like that of the Moon.

Bring to the class room some globes. Ensure that every group of five to six students has a globe. Globe is a model of the Earth – it shows the shape of the Earth, the land and water, the continents and oceans and the main countries of the world.



Fig: 2.2 A Globe

- Let each student take a globe in her/his hand and look at it carefully. See how the Earth rotates.
- With the help of your teacher locate the North Pole, the South Pole and the Equator.

You can see that the earth is like a ball – spherical in shape. Can you see how people can stand on it? Place standing figures on different parts of the globe. It may seem that the person at the lower part is standing upside down or that the person on the middle may just fall down from the Earth. We never fall off the Earth because the Earth acts like a very powerful magnet which pulls us towards it. In fact we can only fall on the Earth and never off the Earth!

### Spheroid Shape

Actually the Earth is not like a perfect sphere – not perfectly round. It is a little pressed at the two poles in the North and South and bulges slightly in the middle around a line called Equator. However this is so slight that most globes and maps do not show it at all.

The interesting thing about the shape of the Earth is that if we keep travelling from one point in one direction we come back to the same point without turning back! Try this on the globe – start from any point and keep going in the same line and see if you come back to the point from where you started.

Some six hundred years ago most people believed that the Earth was flat and that if you kept travelling in any direction you would reach the edge of the Earth and 10 Social Studies

from there you would fall off into the sky. Around 1400 AD, scientists and sea-farers began to figure out that the Earth must be like a ball. That was why Columbus, the Italian explorer set out from Europe in 1492 AD in the western direction with the hope of reaching India. Of course he did not reach India but stopped at the Caribbean islands near America. In case he had travelled on, he might have reached India.

- Look at the globe and see how Columbus would have travelled to reach America and how he could have gone on to reach India.

### Oceans and Continents

As you can see on the globe, most of the Earth surface consists of water in the form of oceans. If you live by the sea in the Coastal Andhra you would have seen the Bay of Bengal.

- Describe the sea in a few lines or draw a picture of the sea?
- State the main difference between the water you drink and the sea water?

Seas and Oceans stretch for hundreds and thousands of kilometers – just endless water! You can travel from one end to the other only with the help of ships and it may take many days or even months.

- One of the oceans is frozen into ice – find out its name.
- Look at the globe and write down the names of the four great oceans:

1. ....
2. ....
3. ....
4. ....

- Which of these do you think is the largest ocean - underline it.

Naturally we cannot live on these oceans. We live on the land. You can see large land masses on the globe which are called continents. There are seven major continents.

- Find out the names of the continents and write them down:

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

- One of these continents is actually covered with ice – find out its name and location.

Is it not interesting that the Northern and Southern poles of the Earth are covered with ice? One Pole has frozen ocean and the other Pole has a huge accumulation of ice on it! This is called the Antarctic Shield of ice.

- Look for India on the Globe – name the continent in which India is located.
- Similarly look for the countries you have heard of.

Villages, towns and cities are located on the continents. It is on the land that you will find hills and valleys, agriculture, mines, factories, etc.

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### Directions on the globe

You have learnt about the four directions in the earlier lesson. You can locate the North and the South Pole. To the right side is the East and to the left side is the West. The Earth rotates every day from the West to the East – can you rotate the globe and see how this happens?

You looked at the Poles. What is meant by Poles? Poles are the two points on the opposite ends of the Earth – if you were to draw an imaginary line connecting the two Poles passing through the interior of the Earth it will form the axis or the line around which the entire Earth rotates. Poles are the points which lie at the end of the Axis of rotation.



Fig: 2.3 Axis of Rotation

To understand this better, put three or four dots on the globe in different colours starting from the Equator to the Pole. Now rotate the globe and observe.

You would notice that if you put a dot just on the Pole, it will not move at all - but remain in the same place! What happens to the dot placed on the Equator?

### Lines on the globe

You will see many lines crossing on the globe. Some run from the North Pole to the South Pole while others run around the Earth from the West to the East. These imaginary lines drawn by map makers help us locate places on the globe and maps. We will see how these are drawn in later classes. Now we will look for the most important lines.

### Latitudes

These are the imaginary lines that are drawn from the West to the East. Can you spot these lines? Compare the length of these lines. Do you think they are all of the same length?

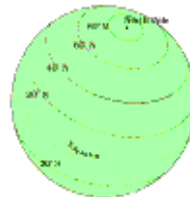


Fig: 2.4. Latitudes on the globe

The longest of these lines is called Equator; it divides the globe into two equal halves. These two halves are called hemispheres. Identify the Equator on the globe and follow it around and note down the continents it passes through. Also identify the northern and southern

hemispheres. In which hemisphere is India located? In which hemisphere is there more water than land?

### Longitudes

These lines run from one pole to the other. You can see that unlike the latitudes these lines are all of the same length. There are two main longitudes – the Greenwich Line which is also called the 0 degree longitude and the International Date Line. This is 180° Eastern, Western longitude. You will learn more about the importance of these lines in higher classes.

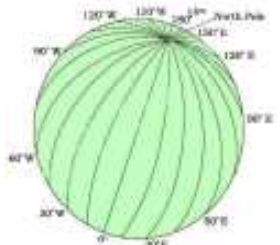


Fig: 2.5. Longitudes on the globe

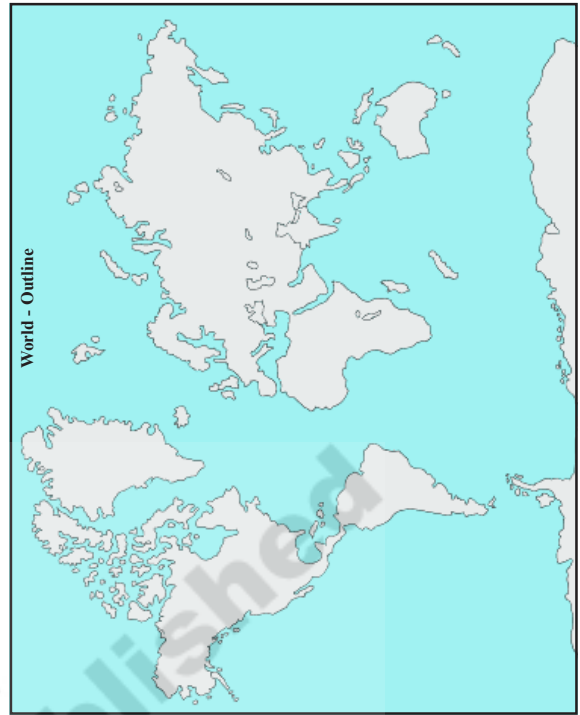
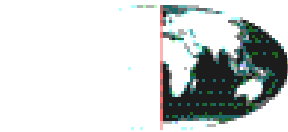
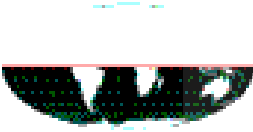
Together the Latitudes and Longitudes create a net that covers the map and helps us to locate places. If you know the latitude and longitude of a place you can easily locate it on the globe or a map.

### Key words

- Latitude
- Longitude
- Date Line
- Axis

**Improve your learning**

1. On the next page there is an outline map of the world. Identify and write the names of continents and the oceans. Then colour the map using appropriate colours. Draw and write the names of the main latitudes also.
2. Ramesh says "Earth is flat". What do you say?
3. Rosy is turning a bangle like a top – what is the shape you visualize?
4. Collect information about explorers like Columbus.
5. Draw the Latitudes and Longitudes on the surface of a ball.
6. "Sun always rises in the East." Find the reason.
7. Why do we draw imaginary lines on the globe/ map?
8. Observe the following pictures and fill the boxes by writing the name of the shaded hemisphere.



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