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Unit 1 : Our Earth

# 1

## Globe : A Model of the Earth

The earth is very big. We can see only a small part of it from a place and, as a result, it looks flat. For thousands of years, people thought that the earth was flat. But now lots of pictures, shot from the space, are available with us which prove that the earth is round. We use a globe to study the earth.



Photograph of the earth taken from the moon



### Do You Know

The earth is the third nearest planet to the sun. It is also the fifth largest. Its distance from the sun is 14,94,07,000 kms. Its mean equatorial diameter is 12,756 km.

### Globe



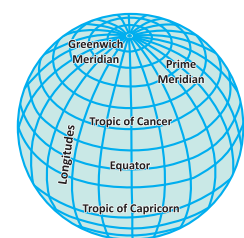
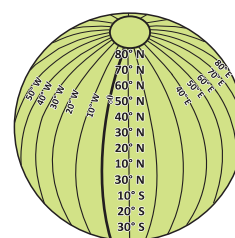
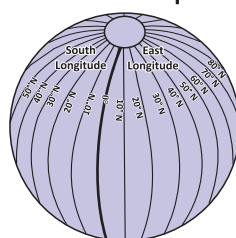
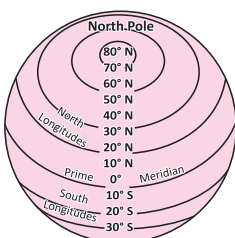
A globe is a small model of the earth. With its help, we can know the shape, size and location of continents and oceans. As you know, there are seven continents on the earth— Asia, Africa, Australia, Europe, North America, South America and Antarctica. In the same way, there are four oceans – Pacific Ocean, Indian Ocean, Atlantic Ocean and Arctic Ocean.

A globe has two points. The upper one is called **North Pole** and the lower one is called **South Pole**.

### Parallels of Latitude

There is an imaginary circle drawn between the North Pole and the South Pole. It is called the **Equatorial Circle**. It divides the earth into two equal halves. To its north is the **Northern Hemisphere** and to its south is the **Southern Hemisphere**. North Pole lies in the middle of the Northern Hemisphere and South Pole is in the middle of the Southern Hemisphere.

On the globe, there are some other imaginary circles which are called **parallels of latitude**. These are parallel to the equatorial circle and never meet each other.



Latitudes and Longitudes



Equator is the largest circle while the other circles reduce on moving towards the poles. Equator is 0° latitude and the number of circles increase at a difference of 1° till 90°, as one moves towards the poles. The parallels lying in the northern hemisphere are called **northern parallels** while the parallel lying in the southern hemisphere are called **southern parallels**.

### Meridians of Longitude

The semi-circular lines drawn from the north pole to the south pole are called the **meridians** of longitude. These are not parallel. The distance between two meridians is the most at the equator which goes on reducing as one moves to the poles, where they meet. These are at a distance of one degree, so these are 360 in number.

As you already know, the parallels are measured from the equator but the meridians are measured from the **Prime Meridian** which passes through the **Royal Observatory at Greenwich**, near London in England. It is also considered 0° and is called **Prime Meridian** or **Greenwich Meridian**. It also divides the earth into two hemispheres – Eastern Hemisphere and Western Hemisphere.

**Do You Know**  
On the equator, the distance between two meridians is 111 km.

All the meridians are from 0° to 180°, to the east and west of the prime meridian. Since 180° W lies on 180° E, so E or W is not written with it.

The parallels of latitude and meridians of longitude form a net on the globe, called a **grid**. This grid helps to locate any place on the earth.

### Important Latitudinal Circles

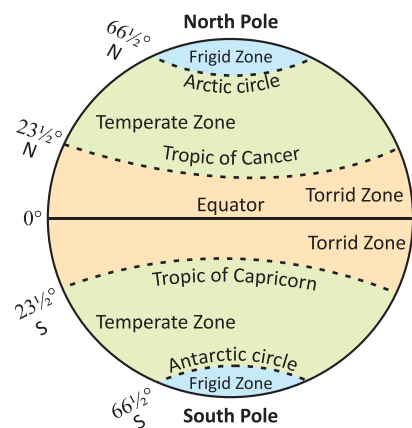
Besides the equatorial circles, there are other important latitudinal circles as well. In the northern hemisphere, there is **Tropic of Cancer** and **Arctic Circle**, and in the southern hemisphere is **Tropic of Capricorn** and **Antarctic Circle**.

The Tropic of Cancer lies at 23 ½° North and the Tropic of Capricorn lies at 23 ½° South. The Tropic of Cancer passes through the middle of our country. Arctic Circle lies at 66 ½° North and Antarctic Circle lies at 66 ½° South.

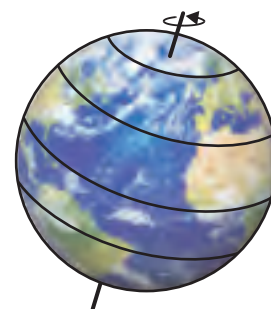
The earth keeps on moving on its axis, completing one rotation in 24 hours. It means that it moves 360° in 24 hours or 15° in 1 hour or 60 minutes.

Since all the countries lie on different meridians, the standard time for each country also differs. For example, when it is 6:30 pm in India, it is 11:00 pm at Sydney and 8:00 am in New York.

**Do You Know**  
On the surface of the earth, the angular distance of any point north or south to the equator is called the latitude.  
The angular distance of any meridian east or west from the prime meridian is longitude.



Important circles



Earth rotating on its axis



## Do You Know

The time at prime meridian is also called Greenwich Mean Time (GMT). Time of each country is fixed according to GMT.



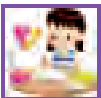
## Know This Also

Indian Standard Time is fixed according to  $82\frac{1}{2}^{\circ}$  E meridian, which passes through Allahabad.

## Learnt by Now



- A globe is a small model of the earth. Its upper end is called the North Pole and its lower end is called the South Pole.
- Equator divides the earth into two equal halves. In its north is the Northern Hemisphere, and to its south lies the Southern Hemisphere.
- Equator is the largest Parallel of Latitude.
- The lines drawn from the North Pole to the South Pole are called Meridians of Longitude.
- In the Northern Hemisphere lies the Tropic of Cancer and the Arctic Circle whereas Tropic of Capricorn and Antarctic Circle lie in the Southern Hemisphere.
- All the countries are located at different meridians so their standard times are different.



## Exercise



### A. Tick (✓) the correct answer : (MCQs)

1. In terms of size, what is the earth's rank in the solar system ?  
 (a) Second  (b) Third  (c) Fifth
2. What is the upper end of the globe called ?  
 (a) North Pole  (b) South Pole  (c) West Pole
3. The distance between two meridians of longitude on the equator is :  
 (a) 50 km  (b) 70 km.  (c) 111 km.
4. How much does the earth rotate in one hour ?  
 (a)  $15^{\circ}$   (b)  $25^{\circ}$   (c)  $45^{\circ}$

### B. Answer the following questions :

1. What is a globe ? Describe it.
2. What is the equatorial circle ?
3. Differentiate between a parallel and a meridian.
4. What is Prime Meridian ?
5. In which hemisphere is the North Pole located ?
6. Which important longitudinal circle passes through India ?

### C. Fill in the blanks :

1. Parallels of latitude are parallel to \_\_\_\_\_.
2. The distance between the \_\_\_\_\_ lines is maximum at the equator.
3. \_\_\_\_\_ divides the earth into two equal halves.



4. North polar circle is also called \_\_\_\_\_.
5. The time at Prime Meridian is also called \_\_\_\_\_.

**D. Tick (✓) the correct statement :**

1. Our earth has 7 continents and 4 oceans.
2. Equator lies at 90° latitude.
3. Prime Meridian is the Central Meridian.
4. Tropic of cancer lies at 66½° N.
5. Earth completes one rotation in 24 hours.



**E. Match the following :**

A	B
1. Arctic Circle	66½° S
2. Equator	66½° N
3. Tropic of Capricorn	23½° N
4. Antarctic Circle	23½° S
5. Tropic of Cancer	0°

**F. Write the answer in one word :**

1. Small model of the earth.
2. Biggest parallel.
3. Network of parallels and meridians.
4. 23½° N and 23½° S.
5. Total number of parallels.

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**■ Creative Task**



1. On a globe, find the latitudes and longitudes of Delhi, Mumbai, Kolkata and Chennai.
2. On a globe, find out through which states of India the Tropic of Cancer passes.
3. With the help of your teacher, draw the positions of North Pole, South Pole and Prime Meridian.

**Amazing But True**

- \* North and South Poles are always covered with snow.
- \* Day and night are always equal on the equator.
- \* Norway is called 'The Land of the Midnight Sun.'
- \* Antarctica has nearly 70% of the fresh water on the earth.
- \* The continent of Australia is also called the 'Continent of Islands.'