

Name: _____ Class & Sec: _____ Roll No. _____ Date: 20.05.2020



Parallels and Meridians



Get Set!

- Look at a globe. There are some lines on it. Fill in the missing letters to complete their names.

1. E _ _ J _ _ T _ _ R _ _

2. T _ _ P _ _ r of C _ _ _ C _ _ R _ _

3. A _ _ _ T _ _ _ _ I _ _ C L _ _

4. _ _ R _ _ _ I _ _ of _ _ _ P _ _ I C _ _ N _ _

5. _ _ N _ _ _ R _ _ T _ _ _ C _ _ R _ _ E _ _

6. P _ _ _ M _ _ M _ _ R _ _ _ I _ _ N _ _

You have read that the Earth is spherical in shape. To find the location of places on the Earth, we need certain imaginary lines as reference. These lines are called parallels and meridians.

The Earth rotates on its **axis**. It is an imaginary line drawn through the centre of the Earth. The end points on the axis are called **poles**. The poles are used as two fixed points. The point on the top is the North Pole. The one at the bottom is the South Pole.

PARALLELS

A set of circles is drawn on the surface of the globe. These circles run from east to west. They are called parallels or lines of latitude.

The Earth is divided into two equal parts by drawing an imaginary line midway between the North Pole and the South Pole. This line is called the Equator. It is the longest parallel. The part of the Earth which lies to the north of the Equator is called the Northern Hemisphere. The other half, known as the Southern Hemisphere, lies to the south of the Equator.



Fig. 2.1 Parallels are lines of latitude.

FactWise

The word 'latitude' originates from the Latin word *latus* which means wide. The word 'meridian' originates from the Latin word *meridies* which means midday. It is from the word meridian that we get words such as *ante meridiem* (a.m.) meaning 'before noon' and *post meridiem* (p.m.) meaning 'after noon.'

Important features of parallels

- All parallels are complete circles, except for the North Pole and the South Pole. These are points.
- The length of the parallels decreases as we move away from the Equator and towards the poles.
- All parallels are located at an equal distance from each other.
- Parallels neither touch nor cross one another.

How are parallels numbered?

We start from the Equator and mark it as 0° latitude. We mark the other parallels from 0° to 90° . Apart from their value, the parallels are also marked N (North) or S (South), according to their location. The North Pole is written as 90° N. The South Pole is written as 90° S. Parallels are drawn at intervals of one degree. There are 90 parallels in the Northern Hemisphere and 90 parallels in the Southern Hemisphere. Therefore, there are 181 parallels in all, including the Equator.



Fig. 2.2 Important parallels

Important parallels

Other than the Equator (0°), the North Pole (90° N) and the South Pole (90° S), there are four other important parallels. These are

- the Tropic of Cancer ($23\frac{1}{2}^\circ$ N)
- the Tropic of Capricorn ($23\frac{1}{2}^\circ$ S)
- the Arctic Circle ($66\frac{1}{2}^\circ$ N)
- the Antarctic Circle ($66\frac{1}{2}^\circ$ S)

The Arctic and the Antarctic circles are also called polar circles.



Checkpoint

Write T for True or F for False.

1. The east-west lines drawn on a globe are called parallels. _____
2. All parallels are of the same length. _____
3. The North Pole lies in the Southern Hemisphere. _____
4. The Tropic of Cancer lies in the Northern Hemisphere. _____

MERIDIANS

Imaginary lines running from north to south are called meridians or lines of longitude. These lines are drawn from pole to pole.



Fig. 2.3 Meridians are lines of longitude.

Important features of meridians

- All meridians are of the same length.
- The maximum distance between any two meridians is at the Equator.
- The distance between any two meridians decreases as we move away from the Equator towards the poles.
- Meridians cut the parallels at right angles (90°).
- Meridians are used to measure distances in the east-west direction.

How are meridians numbered?

You have read that to number the parallels we start from the Equator. Similarly, we need a starting point to number the meridians. In 1884, it was decided to fix Greenwich, a place near London, as the starting point for numbering meridians. The meridian that passed through Greenwich was

marked 0° and named Prime Meridian. The longitude of a place is measured east or west of the Prime Meridian.

Like parallels, meridians are also drawn at intervals of one degree. If we move away from the Prime Meridian towards the east or the west, we reach halfway round the Earth at 180° . Thus, there are 180 meridians towards the east of the Prime Meridian and 180 meridians towards the west of the Prime Meridian. The meridian of 180°E and 180°W is the same line. So, in total there are 360 meridians.

Locating places on the globe

The parallels and meridians form a network of lines on the globe. This is called a grid. We use it to locate places on the globe.

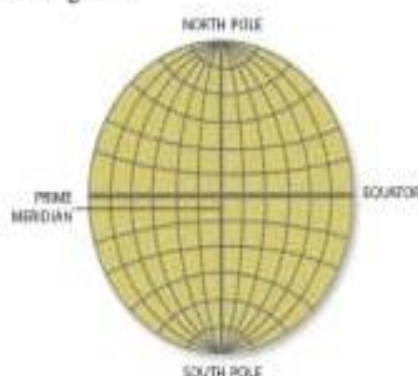


Fig. 2.4 A grid is a network of parallels and meridians.

To locate a place, we must know the values of its parallel or latitude and its meridian or longitude. The point at which the parallel and the meridian cross each other is the location of that place.

Words to know

- axis** an imaginary line passing through two extreme points on a sphere around which it spins
- pole** either of the end points at the top or bottom of the Earth's axis



Quick recap

- The two end points on the Earth's axis are called poles. The North Pole is in the Northern Hemisphere and the South Pole is in the Southern Hemisphere.
- Lines of latitude, also called parallels, are drawn from east to west.
- The Equator is the longest parallel. It divides the Earth into two equal halves.
- Lines of longitude are also called meridians. They are drawn from north to south.
- The Prime Meridian (0°) is taken as the starting line for all other meridians.
- The network of parallels and meridians on the globe is called a grid. To locate a place on a globe, we must know its latitude and longitude.



Read and answer

A Tick (✓) the correct answers.

- The two end points of the Earth's axis are called
a. dots. _____ b. lines. _____ c. poles. _____ d. caps. _____
- The part of the Earth above the Equator is called the
a. North Pole. _____ c. South Pole. _____
b. Southern Hemisphere. _____ d. Northern Hemisphere. _____
- If parallels are drawn at intervals of one degree, there will be
a. 181 parallels. _____ c. 360 parallels. _____
b. 90 parallels. _____ d. 180 parallels. _____
- The Prime Meridian passes through a place called
a. Sandwich. _____ c. Norwich. _____
b. Greenwich. _____ d. London. _____
- To locate a place on a globe we must know its
a. latitude. _____ c. latitude and longitude. _____
b. longitude. _____ d. time zone. _____

B Complete the series.

1. Tropic of Cancer : $23\frac{1}{2}^{\circ}\text{N}$:: Tropic of Capricorn : _____
2. Equator : _____ :: Prime Meridian : Longitude
3. _____ : Longitudes :: Parallels : Latitudes
4. North Pole : 90°N :: _____ : 90°S
5. _____ : $66\frac{1}{2}^{\circ}\text{N}$:: Antarctic Circle : $66\frac{1}{2}^{\circ}\text{S}$



The Prime Meridian passes through the Royal Observatory at Greenwich.

C Answer these questions.

1. What is a parallel? Write three features of parallels.
2. How do we number parallels on a globe?
3. What is a meridian? Write three features of meridians.
4. How can we locate a place on a globe?

D Think and answer.

The length of a parallel increases as we move away from the poles towards the Equator. Why?



Do and learn

- E ACTIVITY** Fill in the table with the names of the countries through which the parallels pass. Choose from the box. You can look up an atlas for help.

Kenya Paraguay Mexico Saudi Arabia Canada Russia Ecuador Australia

Equator	Tropic of Cancer	Tropic of Capricorn	Arctic Circle

- F** A place that is closer to the poles is always colder than a place that is closer to the Equator. Which of these places will be colder? Give reasons.

1. Hammerfest – 70°N , 23°E OR Vostok Station – 78°S , 106°E
2. Lagos – 6°N , 3°E OR Melbourne – 37°S , 144°E
3. Turkmenbat – 39°N , 63°E OR Valdivia – 39°S , 73°W

- G** Through which states in India does the Tropic of Cancer pass? Use an atlas to find out.

- H WEBLINK** To play an interesting game on locating places, visit rsgrin/bss501.

A. Tick the correct answer:

1. C
2. D
3. A
4. B
5. C

B. Complete the series:

1. $23\frac{1}{2}^{\circ}$ S
2. Latitude
3. Meridians
4. South pole
5. Arctic circle

C. Answer the following questions:

1. What is a parallel? Write three features of parallels.

Ans 1 . A set of circles is drawn on the surface of the globe. These circles run from east to west. They are called parallels or lines of latitudes.

Features of parallels

- i. All parallels are complete circles except for the North Pole and South Pole. These are points.
- ii. All parallels are located at an equal distance from each other.
- iii. Parallels neither touch nor cross each other.

2. How do we number parallels on a globe?

Ans 2 I. We start from the equator and mark it as 0° latitude.

II. We mark the other parallels from 0° to 90° .

III. Apart from their value, the parallels are also marked N (north) or S (south), according to their location.

3. What is meridian? Write three features of meridians.

Ans 3. Imaginary lines running from north to south are called meridians or lines of longitudes.

Features of Meridians

- i. All meridians are of same length.
- ii. The maximum distance between any two meridians is at the equator.

iii. Meridians cut the parallels at right angle (90°).

4. How can we locate a place on a globe?

Ans 4. To locate a place on a globe, we must know the value of its parallels or latitude and meridians or longitude. The point at which the parallel and meridian cross each other is the location of that place.