

GLOBE : LATITUDES AND LONGITUDES



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Globe is a true model (miniature form) of the earth . A needle is fixed through the globe in a tilted manner, which is called its **axis**. Two points on the globe through which the needle passes are two poles – North Pole and South Pole.

ADVANTAGES OF GLOBE

- IT CORRECTLY REPRESENTS THE SHAPE OF THE EARTH.
- IT SHOWS THE NORTH AND SOUTH POLE EXACTLY.
- IT SHOWS THE CORRECT SIZE AND SHAPE OF THE CONTINENTS AND OCEANS.



Latitudes

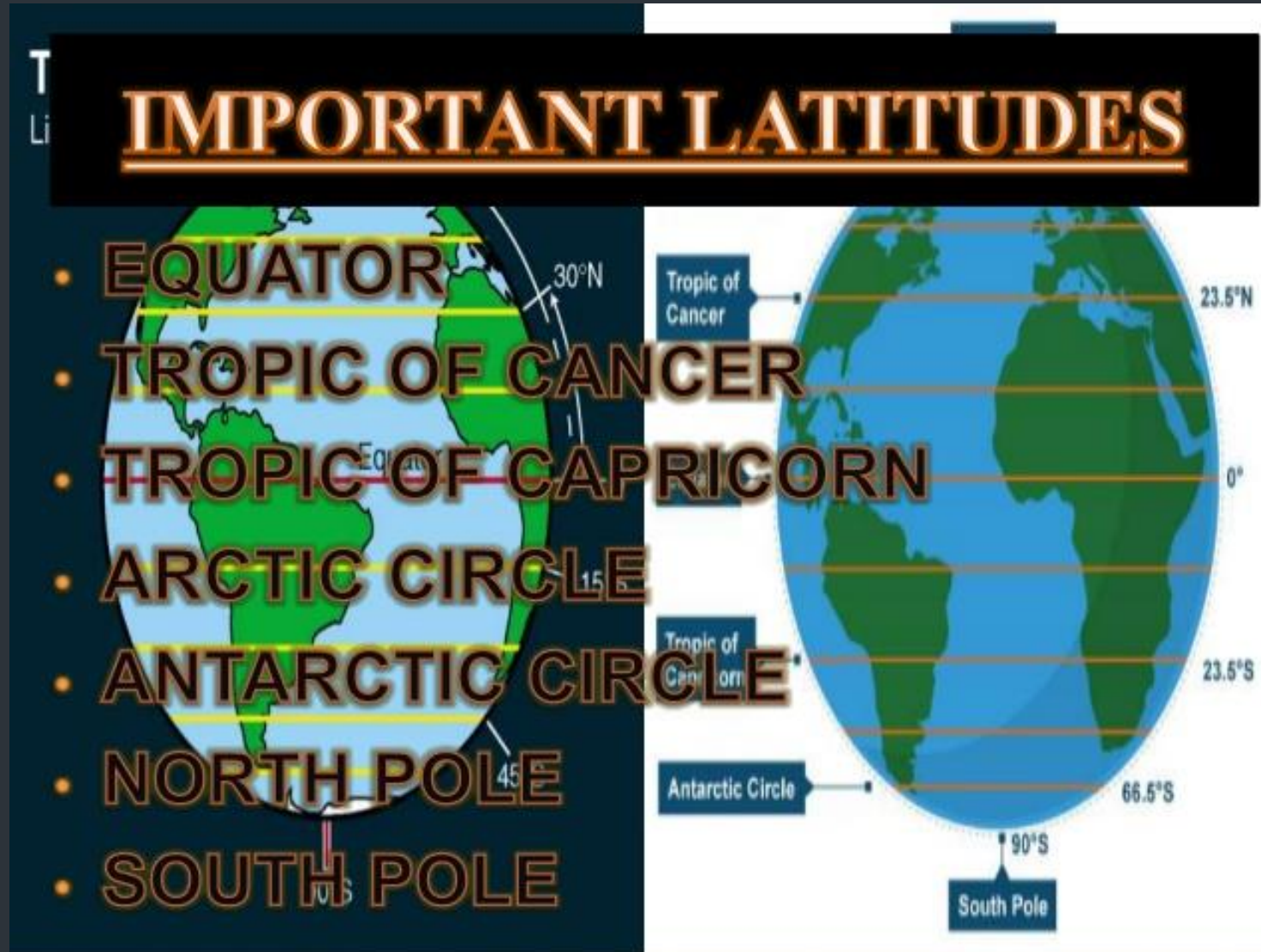
Another imaginary line running on the globe divides it into two equal parts. This line is known as the **equator**. The northern half of the earth is known as the Northern Hemisphere and the southern half is known as the Southern Hemisphere. Therefore, the equator is an imaginary circular line and is a very important reference point to locate places on the earth. All parallel circles from the equator up to the poles are called **parallels of latitudes**. Latitudes are measured in degrees. The equator represents the zero degree latitude.

Since the distance from the equator to either of the poles is one-fourth of a circle round the earth, it will measure $\frac{1}{4}$ th of 360 degrees. Thus, 90 degrees north latitude marks the North Pole and 90 degrees south latitude marks the South Pole. All parallels north of the equator are called 'north latitudes.' Similarly all parallels south of the equator are called 'south latitudes.'

IMPORTANT PARALLELS OF LATITUDES

Besides the equator (0°), the North Pole (90°N) and the South Pole (90°S), there are four important parallels of latitudes–

- (i) **Tropic of Cancer** ($23\frac{1}{2}^\circ\text{N}$) in the Northern Hemisphere.
- (ii) **Tropic of Capricorn** ($23\frac{1}{2}^\circ\text{S}$) in the Southern Hemisphere.
- (iii) **Arctic Circle** at $66\frac{1}{2}^\circ$ north of the equator.
- (iv) **Antarctic Circle** at $66\frac{1}{2}^\circ$ south of the equator.



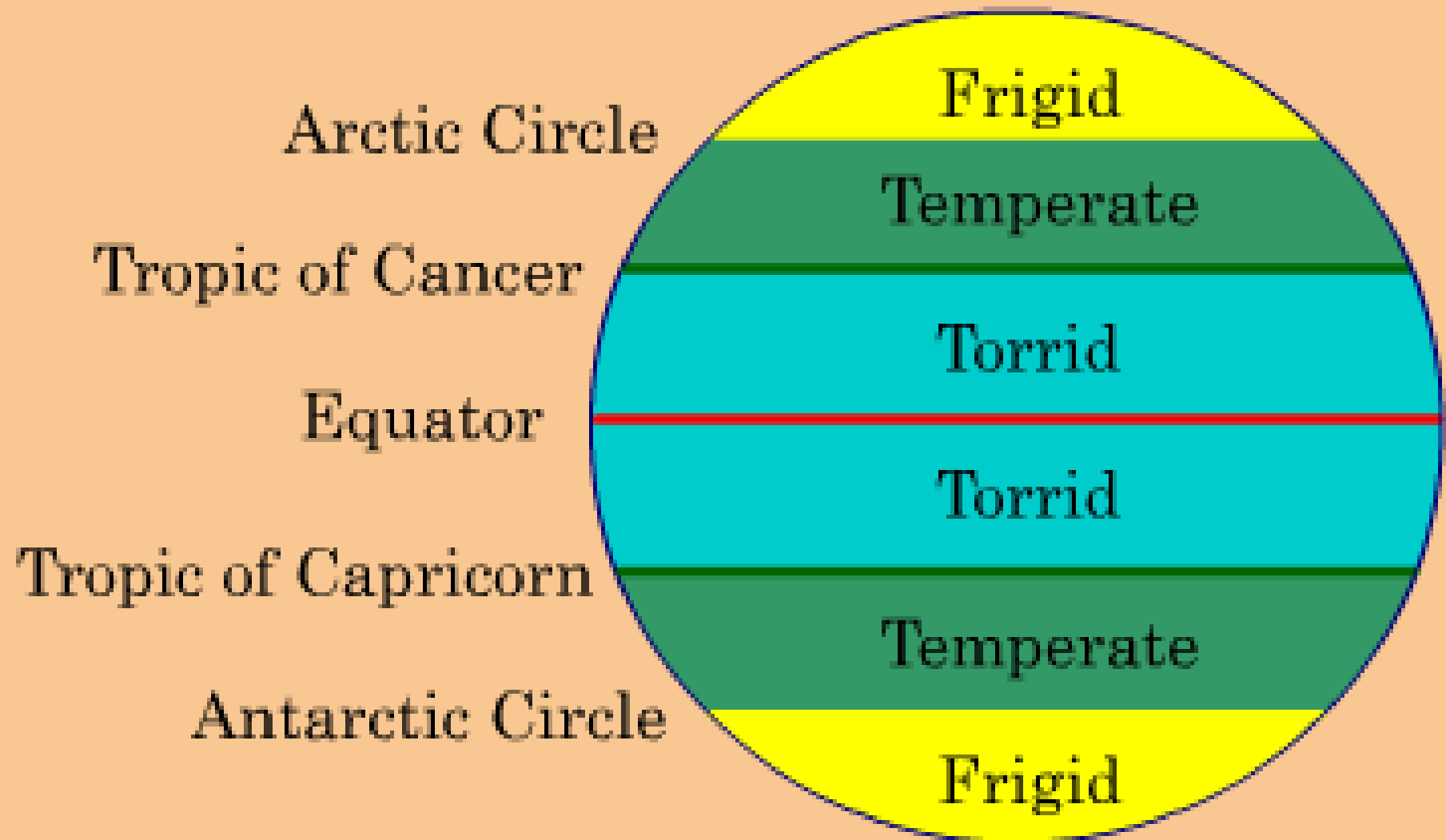
HEAT ZONES OF THE EARTH

The mid-day sun is exactly overhead at least once a year on all latitudes in between the Tropic of Cancer and the Tropic of Capricorn. This area, therefore, receives the maximum heat and is called the **Torrid Zone**.

The angle of the sun's rays goes on decreasing towards the poles. As such, the areas bounded by the Tropic of Cancer and the Arctic Circle in the Northern Hemisphere, and the Tropic of Capricorn and the Antarctic Circle in the Southern Hemisphere, have moderate temperatures. These are, therefore, called **Temperate Zones**.

It is because here the sun does not rise much above the horizon. Therefore, its rays are always slanting and provide less heat. These are, therefore, called **Frigid Zones** (very cold).

Heat Zones of the Earth



WHAT ARE LONGITUDES?

These lines of references are called the meridians of longitude, and the distances between them are measured in 'degrees of longitude.' Each degree is further divided into minutes, and minutes into seconds. They are semi-circles and the distance between them decreases steadily poleward until it becomes zero at the poles, where all the meridians meet.

the count should begin from the meridian which passed through Greenwich, where the British Royal Observatory is located. This meridian is called the **Prime Meridian**. Its value is 0° longitude and from it we count 180° eastward as well as 180° westward.

the Eastern Hemisphere and the Western Hemisphere. Therefore, the longitude of a place is followed by the letter E for the east and W for the west.

LONGITUDES

- ◎ THE IMAGINARY SEMICIRCULAR LINES RUNNING FROM NORTH POLE TO SOUTH POLE ARE CALLED LONGITUDES.
- ◎ THEY ARE EQUAL IN LENGTH BUT NOT PARALLEL.
- ◎ 180 DEGREE EAST AND 180 DEGREE WEST MERIDIANS ARE ON THE SAME LINE.

LONGITUDE AND TIME

The best means of measuring time is by the movement of the earth, the moon and the planets. The sun regularly rises and sets every day, and naturally, it is the best time-keeper throughout the world. Local time can be reckoned by the shadow cast by the sun, which is the shortest at noon and longest at sunrise and sunset. When the Prime Meridian of Greenwich has the sun at the highest point in the sky, all the places along this meridian will have mid-day or noon.

WHY DO WE HAVE STANDARD TIME?

In India, the longitude of $82\frac{1}{2}^{\circ}$ E ($82^{\circ} 30'E$) is treated as the standard meridian. The local time at this meridian is taken as the standard time for the whole country. It is known as the Indian Standard Time (IST). India located east of Greenwich at $82^{\circ}30'E$ is 5 hours and 30 minutes ahead of GMT. So it will be 7:30 p.m. in India when it is 2:00 p.m. noon in London. In Russia, there are as many as eleven standard times. The earth has been divided into twenty-four time zones of one hour each. Each zone thus covers 15° of longitude.