6th Social Science Lesson 20 Notes in English

20] Globe

North, South, East and West are the Major cardinal Direction.

Globe:

In order to see the **shape of the Earth as a whole and to know its unique features**, a three dimensional model of the Earth was created with a specific scale.

The surface area of the Earth is 510.1 million square kilometres.

Geoid:

The Earth **which is spherical, is flat at the poles and bulges at the Equator**. The Earth cannot be compared with **any other geometrical shape as it has a very unique shape**. Hence, its shape is called a geoid (earth shaped).

Inclination:

The Earth moves around the Sun. It also rotates from the West to East on its axis at an inclination of 23 ½°. The globe is also inclined at an angle of **23 ½°.** The axis is an imaginary line. **It is not actually found on the Earth.**

Equator:

- The imaginary lines which are drawn **horizontally on East - West direction** on the Earth are called the lines or parallels of latitudes. The **0° line of latitude which divides the Earth into two** halves is known as the Equator.
- The latitudinal extent between **1° line of latitude on Earth is 111 km.**

Latitudes and longitudes:

- There are imaginary lines which are drawn on the **globe horizontally and vertically** to find a location and calculate distance and time. These imaginary lines are called lines of latitudes and longitudes.
- The lines of latitude that are drawn horizontally between **the Equator and the North Pole** are called **'Northern latitudes'** and those which are found between **the Equator and the South Pole** are called **'Southern Latitudes'.**

Latitude Lines:

The lines of latitude consist of **89 parallels** in the Northern Hemisphere and **89 parallels** in the Southern Hemisphere, **one at the Equator** and the **two poles** are found as points. Totally, there are **181 parallels** found on earth.

Northern Hemisphere:

The area of the Earth found between **the Equator (0°)) and the North Pole (90°N)** is called the Northern Hemisphere.

Southern Hemisphere:

The area of the Earth from **the equator (0°) to the South Pole (90°S**) is called the Southern Hemisphere.

Climatic Zones:

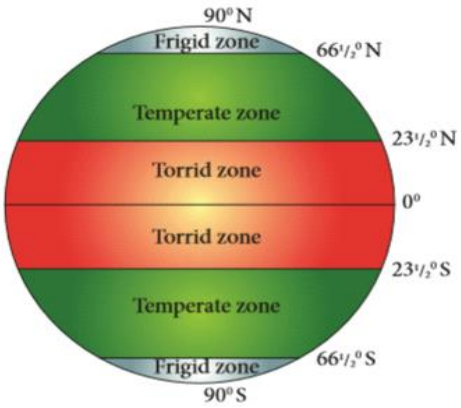
- The Sun's rays do not fall equally on all parts of the earth. They fall vertically over the Equator and slanting towards the poles.
- Thus, all the places on earth **do not have the same amount of temperature**.
- Based on the amount of heat received from the Sun, the lines of latitude help in dividing the earth into different climatic zones.

Torrid Zone:

The region from the Equator towards **the Tropic of Cancer (23½°N) and the Tropic of Capricorn (23½°S)** is called the Torrid Zone. The Sun's rays fall vertically over this region and the average temperature is very high. Hence this region is known as the Torrid Zone.

Temperate Zone:

From the **Tropic of Cancer (23½°N) to the Arctic Circle (66½°N) and from the Tropic of Capricorn (23½°S) to the Antarctic Circle (66½°S),** the Sun's rays fall slantingly. Moderate temperature prevails in this region. Hence, this region is called Temperate Zone.



Frigid Zone:

From the **Arctic Circle (66½°N) to the North Pole (900N) and from the Antarctic Circle (66½°S) to the South Pole (90°S),** the Sun's rays fall further inclined, through out the year. The temperature is very low. Hence, this region is known as Frigid Zone.

Prime Meridian:

- The imaginary lines drawn vertically **connecting the North Pole and the South Pole are called lines or meridians of longitude**. These lines of longitude are seen as semi circles. The 0° line of longitude is called the Prime Meridian.
- There are 180 lines of longitude towards the East and West from the Prime Meridian. So, there are **totally 360 lines of longitude.** These lines converge at the poles. The 180° W and 180° E line of longitude are the same line.

Eastern and Western Longitude:

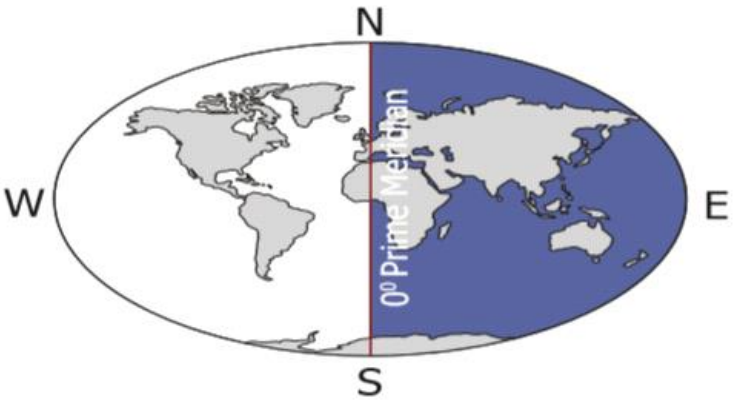
The lines of longitude that are found between **the Prime Meridian and the 180° East line of longitude** are called **'Eastern Longitudes'** and the lines of longitude that are found between the **Prime Meridian (0°) and the 180° West line of longitude** are called **'Western Longitudes'.**

Great Circle:

Two opposite meridians form a great circle. The **Equator is the longest of all lines** of latitude. Hence, it is also known as 'The Great Circle'.

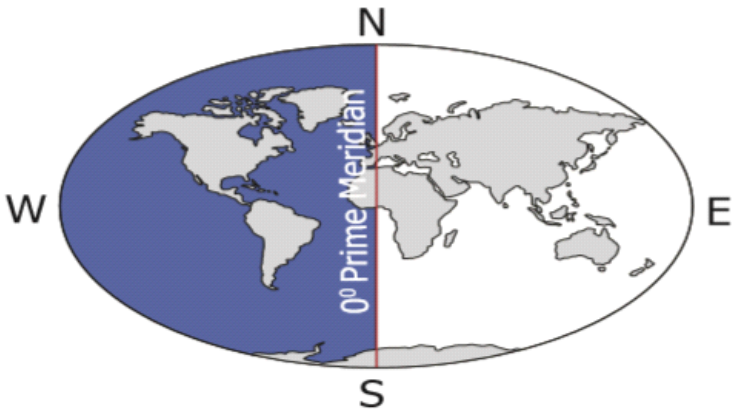
Eastern Hemisphere:

The part of the Earth between the **0° line of longitude and the 180° East line of longitude** is known as the Eastern Hemisphere.



Western Hemisphere:

The part of the Earth from **0° line of longitude to 180° West line of longitude** is called as Western Hemisphere.



Greenwich Meridian:

- The Royal Astronomical Observatory is located at **Greenwich near London in England.**
- According to the International Meridian Conference held in **1884 in Washington DC in the U.S.A.** all nations agreed on choosing the Greenwich Meridian as the international standard meridian (0°).
- This line of longitude is called **the Prime Meridian** and it is also known as the Greenwich Meridian because it passes through Greenwich.

International Date Line:

The **180° line of longitude has been fixed as the International Date Line**, drawn on the Pacific Ocean between Alaska and Russia through Bering Strait. If a person crosses this line from the West to East, he loses a day. On the other hand, when he crosses from the East to West, he gains a day.

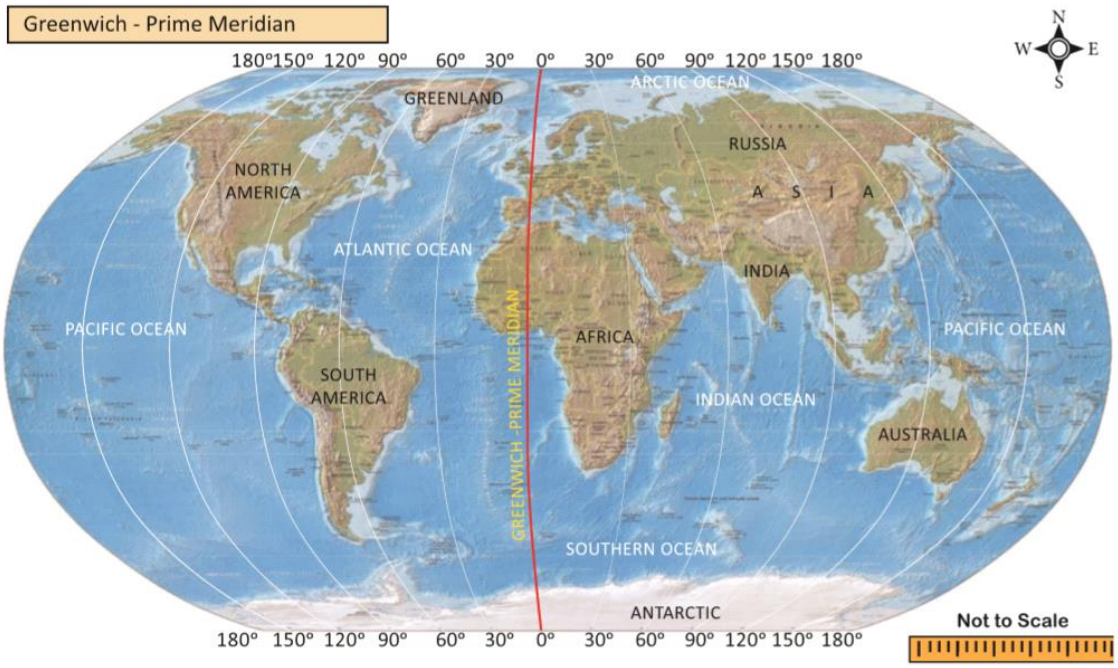
Earth Grid:

The **imaginary lines of latitude and longitude form a grid like pattern** on the surface of the earth, known as the 'Earth grid' or 'Geographic grid'.

Time is Calculation:

- As many as 360 lines of longitude are drawn to connect the North and South Poles around the Earth 180° on the Eastern Hemisphere and 180° on the Western Hemisphere. **Time is calculated on the basis of the lines of longitude.**
- When the sun is overhead on a particular line of longitude, **it is 12 noon at all the places** located on that line of longitude. This is called local time.

- When the Sun is overhead the **Greenwich Meridian at 12 noon,** it is the local time of that place. The world time is calculated by this **standard line of longitude.** It is known as the Greenwich Mean Time (GMT).



- Many lines of longitude may pass through a country. **Countries may or may not observe a common time.** The standard time of a country or a part of it is calculated keeping a particular meridian as a standard one.
- The meridians are selected in multiples of **15° or 7 ½°.** It is done in such a way that the variation of standard time from the Greenwich is expressed either as 1 hour or ½ an hour.

Indian Standard Time

- The longitudinal extent of India is from **68°7' E to 97°25' E**.
- As many as twenty nine lines of longitude pass through India.
- Having **29 standard time** is not logical.
- Hence **82½° E** line of longitude is observed as the Prime Meridian to calculate the Indian Standard Time (IST).

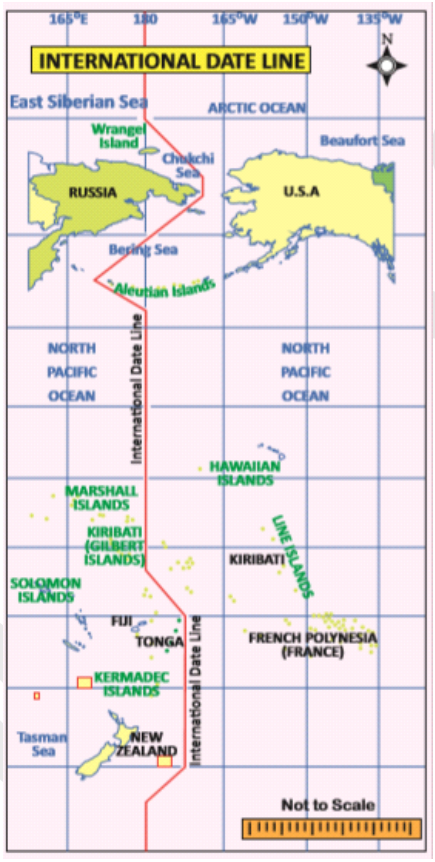
Meridian Mean:

- The word meridian is derived from the **Latin word 'Meridianus'.** It means mid day. (Medius - Middle, dies - day). So, meridian means the position of the Sun found overhead at a place at noon.

- a.m. means 'anti Meridiem' (anti - before) -Before Noon.
- p.m. means 'post Meridiem' (Post -after/later) - After noon.

International Date line:

The International Date Line is not straight**. If the line is drawn straight, two places in the same country would have different dates.** So the International Date Line is found zigzag in certain places to avoid confusion.



More to Know:

1. The lines of longitude are found as semi circles covering **111 km at the Equator,** 79 km at 45° latitude and no space between the lines at the poles.

2. Some lines of latitude are also called by the following names in Tamil:

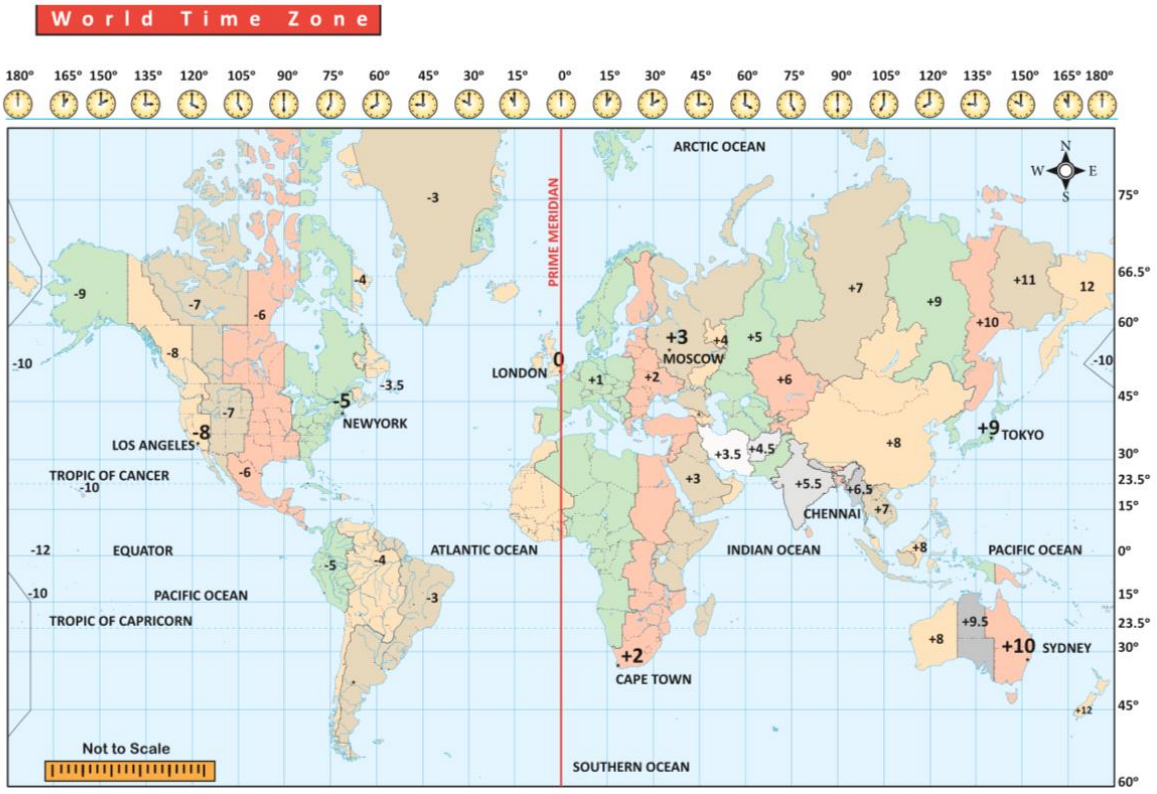
Latitude	-	ahalangu (அகலாங்கு)
Longitude	-	nettangu (நெட்டாங்கு)
Equator	-	nilanaduvarai (நிலநடுவரை)
Tropic of Cancer	-	kadagavarai (கடகவரை)
Tropic of Capricorn	-	magaravarai (மகரவரை)

3. Low High and Middle latitudes:

- **0° N and S – 23½°N and S** lines of latitudes are called -Low latitudes
- **23½°N and S – 66½°N and S** lines of latitudes are called - Middle Latitudes
- **66½°N and S – 90°N and S** lines of latitudes are called - High Latitudes

4. The first globe was created by the Greeks in the year 150 AD(CE).

5. The world has **24 time zones**. Some countries have a great longitudinal extent. So they have more than one standard time. Example: **Russia has 7 time zones.**



6. The 82½° E line of longitude passes through **Mirzapur** near Allahabad in Uttar Pradesh. This is located at an equal distance from Ghuar Mota in Gujarat and Kibithu in Arunachal Pradesh.

7. The Indian astronomer Aryabhatta - has mentioned in his book. '**Aryabhatta Sidhantha'.** 'The stars in the sky seem to move towards the West because of the Earth's rotation on its axis'.

8. Ptolemy, a Greco – Roman mathematician, astronomer and geographer, was the first person to draw the lines of latitude and longitude on a map. In his book, **'Geographia'** a detailed description about the Earth's surface, its size and circumference and many locations based on the lines of latitude and longitude are given.