



BAL BHARATI PUBLIC SCHOOL, PITAMPURA, DELHI-110034

SUBJECT – GEOGRAPHY

CLASS - IX

CHAPTER – INDIA – SIZE AND LOCATION

Kindly read the content given below and view the links shared for better understanding. Attempt the given assignment in the Geography notebook. Please mention date, index and topic.

<http://ncert.nic.in/textbook/textbook.htm?iess1=1-6>

Before taking up the topic - **Calculation of Time**, let's recall the concept of the **Latitudes and Longitudes**.

Latitudes are the imaginary parallel lines across the globe in East-West direction. Equator is the longest latitude that divides the earth into Northern and Southern Hemisphere.

Longitudes are the imaginary non parallel lines across the globe in the North-South direction. All longitudes are of equal size, however, Prime Meridian is the most important longitude dividing earth into eastern and western hemisphere.

Latitudes and longitudes are measured in terms of degrees.

IMPORTANCE OF LATITUDES AND LONGITUDES

- They help in finding out the exact location of a place on the earth.
- Latitudes divide the earth into three heat zones: torrid, temperate and frigid zone.
- Longitudes help in the calculation of time.

CHANGE IN TIME

There are 360 longitudes on the earth. As the earth rotates from west to east direction, the time of every longitude changes by 4 minutes. This time that is experienced by every longitude is known as **local time**. A country may have several local times depending upon the size (width) of the country or the number of longitudes that a country has.

For example: There are 30 longitudes in India from Arunachal Pradesh to Gujarat, which means that there are 30 local times in the country, therefore with every longitude the time changes by 4 minutes.

So, the time difference between Gujarat and Arunachal Pradesh is 120 minutes (2 hours) {30 longitudes X 4minutes}

When the sun rises in Arunachal Pradesh at 6 a.m., simultaneously time at Gujarat is 4 a.m.

Several local times may lead to confusion in time in a country, therefore, the concept of **Standard time** was introduced. Standard meridian is basically for the time

calculation from this particular longitude which is considered as the time for the entire country or a region.

In India, as there is a time gap of 2 hours (as per the local times), a standard meridian is selected for the country in order to have a uniform time which is $82^{\circ}30'E$, passing through Mirzapur (Uttar Pradesh). Time along this particular longitude is taken as the standard time or uniform time for the whole country no matter what the local time is for any particular place.

There are many countries in the world which have several standard meridians. For example, Russia, USA, Canada, China...this is mainly because of the vast size of these countries. If one is travelling within these countries, the person has to change the time as per the existing time zone. Fortunately, in India we follow a single time zone system.

For a detailed and advanced understanding of the concept of time zone, follow the link

<https://www.youtube.com/watch?v=GrWc2EU6sKE>

Before moving ahead let's summarize the topic covered so far:

Need for having a standard meridian for India: because of the vast longitudinal extent of the country (approx. 30°) that gives birth to 30 local times which may further lead to confusion amongst the people.

Why only $82^{\circ}30'E$ is taken as the standard meridian?

1. This meridian is the **centremost longitude of India**, which creates an equal time difference between the westernmost and the easternmost points of India. It means from the standard meridian to Arunachal Pradesh, the time difference is 1 hour and similarly, from the standard meridian to Gujarat, the time difference is again 1 hour. (leading to a total difference of 2 hours from Gujarat to Arunachal Pradesh)



2. Due to **vast longitudinal extent**, there might be confusion in the country if we start following the local times. So, in order to avoid this confusion, $82^{\circ}30'E$ is taken as the standard meridian of India.
3. As per the international norms, a standard meridian should be divisible by 15 or 7.5. Since, along with fulfilling all the other criteria $82^{\circ}30'E$ is also divisible by 7.5, therefore it is selected as the standard meridian of the country.

IMPORTANT THINGS TO KNOW ABOUT THE INDIAN STANDARD MERIDIAN

- Divides India into two equal halves.
- Passes through Mirzapur in Uttar Pradesh, where there is a solar observatory.
- It is 5.30 hours ahead of Greenwich Meridian Time (GMT). It means if the time at 0° is 12 noon, the time in India will be 5:30pm. We can also say that in India, we experience sunrise before London (GMT).

ASSIGNMENT (in continuation to the previous assignment)

Q.6. What problem might occur, if the government of India changes the standard meridian from $82^{\circ}30'E$ to $97^{\circ}4'E$? (One point)

Q.7. If a cricket match starts in India at 10 a.m., at what time will my friend be able to see the live telecast of the match in London? (Show the calculations as well)

Q.8. Find out the differences between a standard meridian and the Prime Meridian. (Two points)

Q.9. Out of 30 longitudes in India, why only the one passing through Mirzapur is taken as the standard meridian for the country? (Three points)

Q.10. My friend A lives in West Bengal and friend B lives in Bangladesh. My friend A and I share the same time whereas my friend B and I experience different time. Why does this happen?