

Latitudes and Longitudes

Class 6 Social Science

Complete Study Notes

Learning Objectives

Students will understand the concepts of latitudes and longitudes and their importance in locating places on the Earth. They will learn about the Equator, important parallels, heat zones, the Prime Meridian, standard time, and how the Earth's rotation helps calculate time across different regions.

Introduction to Latitudes and Longitudes

The Earth is represented by a globe, which is a small model of our planet. To accurately locate places on the globe, geographers use an imaginary network of latitudes and longitudes. These lines form a coordinate system that helps identify the exact position of any place on Earth.

Understanding latitudes and longitudes also helps explain climate, heat distribution, navigation, and differences in time around the world.

Latitudes and Heat Zones

Latitudes are imaginary circles drawn parallel to the Equator. The Equator divides the Earth into the Northern Hemisphere and the Southern Hemisphere and is located at 0° latitude.

The important parallels include the Tropic of Cancer ($23\frac{1}{2}^\circ$ N), Tropic of Capricorn ($23\frac{1}{2}^\circ$ S), Arctic Circle ($66\frac{1}{2}^\circ$ N), and Antarctic Circle ($66\frac{1}{2}^\circ$ S).

Based on the amount of sunlight received, the Earth is divided into three heat zones. The Torrid Zone receives the maximum direct sunlight and remains the hottest region. The Temperate Zones experience moderate temperatures throughout the year. The Frigid Zones receive slanting rays of the Sun and remain extremely cold for most of the year.

Longitudes and Standard Time

Longitudes are imaginary lines running from the North Pole to the South Pole. The Prime Meridian, passing through Greenwich, London, is marked as 0° longitude and divides the Earth into the Eastern and Western Hemispheres.

Since the Earth rotates 360° in 24 hours, every 15° longitude represents one hour, while 1° corresponds to 4 minutes. This relationship allows geographers to calculate the local time of different places around the world.

Indian Standard Time (IST)

Standardizing Time: Using the local time of every city would create confusion in transportation and communication. Therefore, countries adopt a single Standard Time. India follows the longitude of $82\frac{1}{2}^{\circ}$ East, passing near Mirzapur (Uttar Pradesh), as its Standard Meridian. The time based on this longitude is called Indian Standard Time (IST), which is 5 hours 30 minutes ahead of Greenwich Mean Time (GMT).

Importance of Latitudes and Longitudes

Latitudes and longitudes are essential for navigation, map reading, weather forecasting, climate studies, aviation, shipping, and modern GPS technology. They help accurately locate places and understand geographical patterns across the Earth.

Practice Questions

1. What are latitudes?
2. What is the Prime Meridian?
3. Name the three heat zones of the Earth.
4. Why is Indian Standard Time used?
5. What is the difference between latitudes and longitudes?

Answer Key

- **ANSWER 1:** Latitudes are imaginary circles drawn parallel to the Equator that help determine the north-south position of places on the Earth.
- **ANSWER 2:** The Prime Meridian is the 0° longitude passing through Greenwich, London, from which all longitudes are measured.
- **ANSWER 3:** The three heat zones are the Torrid Zone, Temperate Zone, and Frigid Zone.
- **ANSWER 4:** Indian Standard Time is used so that the entire country follows one uniform time, avoiding confusion caused by different local times.
- **ANSWER 5:** Latitudes run east-west and measure distance north or south of the Equator, while longitudes run north-south and measure distance east or west of the Prime Meridian.