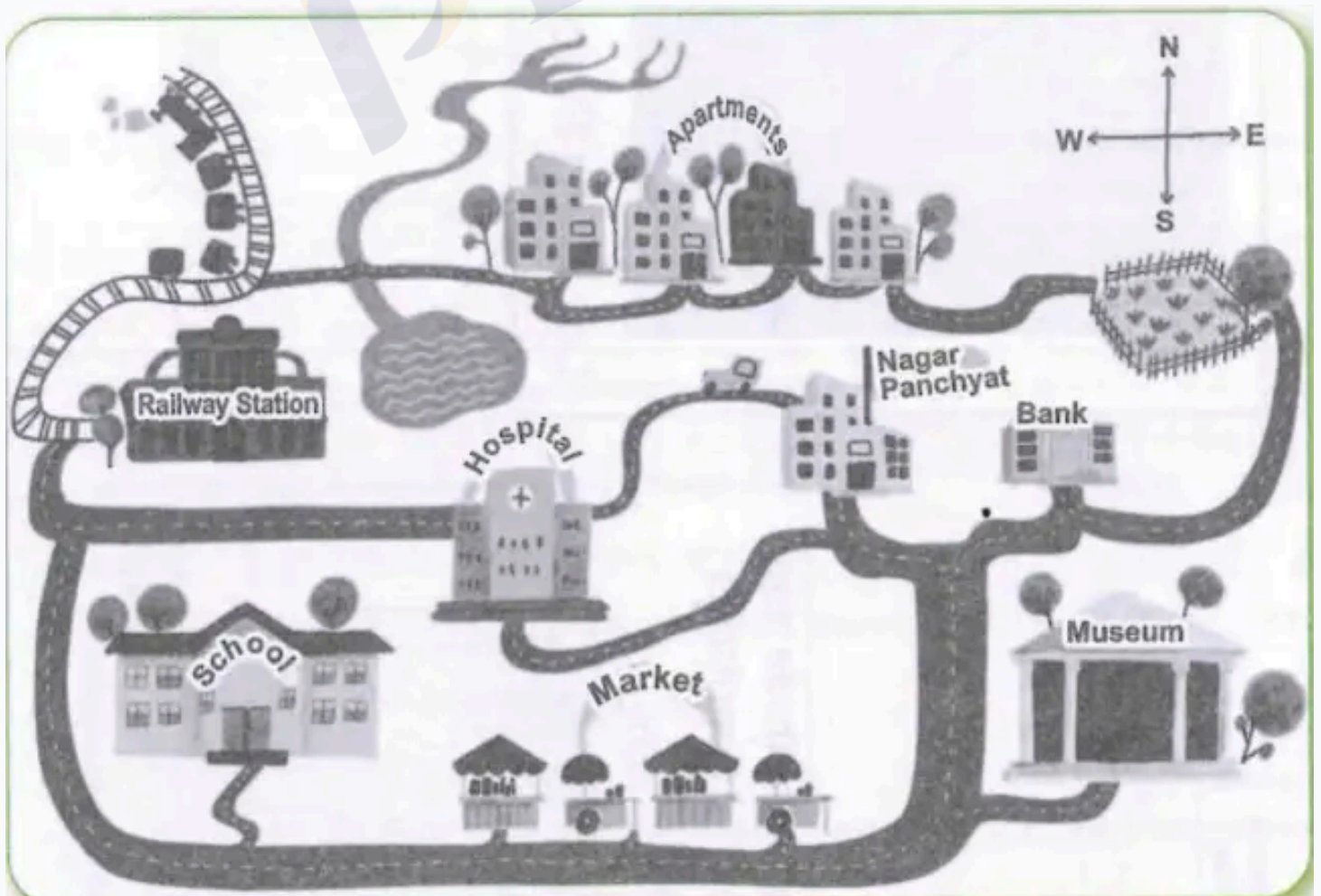


- Locating Places on the Earth

## Locating Places on the Earth

### Introduction

The Earth is a spherical body composed of fire, water, land, and air, situated in space. It supports all living beings, both aquatic and terrestrial. When visiting a new city, maps are used to understand the layout and locate important places.



This map shows a town with places like a railway station, hospital, school, apartments, market, bank, museum, and Nagar Panchayat (local government office). Roads and railway lines connect these places, facilitating travel. A compass indicates the four cardinal directions: North, South, East, and West.

## What is a Map?

A map is a flat representation of the Earth's surface or a part of it, drawn to scale. Different types of maps show various features. Collections of maps are compiled into an atlas.

## A Map and its Components

Maps have three main components:

- **Distance:** Represented by scale, which is the ratio between actual ground distance and map distance.
- **Direction:** Cardinal points (North, South, East, West) and intermediate directions (Northeast, Southeast, Southwest, Northwest) help locate places accurately. A magnetic compass is used to find directions.
- **Symbols:** Conventional symbols represent features like water bodies (blue), mountains (brown), plateaus (yellow), and plains (green).

**Physical Maps:** Show natural features (mountains, rivers, oceans).

**Political Maps:** Show boundaries, cities, states, and countries.

**Thematic Maps:** Show specific data (population, rainfall).

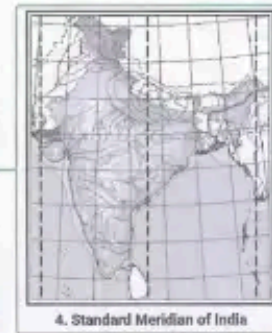
**Distance (Scale):** Shows real-world distance (e.g., 1 cm = 500 km).

**Direction:** Cardinal (N, S, E, W) and intermediate directions.

**Types of Maps**

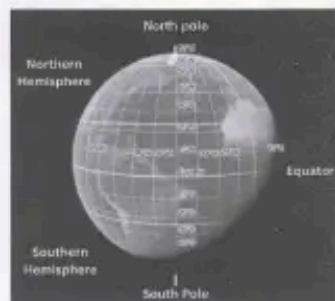
**1. Maps and Components**

**Components of a Map**

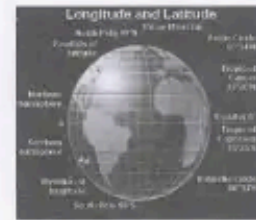


India has its standard time at 82½° E meridian, which passes through Mirzapur.

4. Standard Meridian of India



**Locating Places on the Earth**



Lines running from the North Pole to the South Pole.

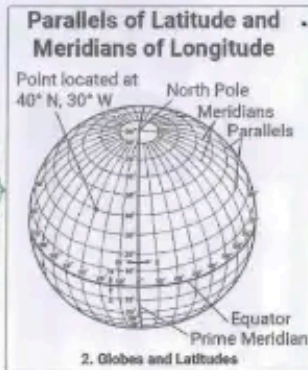
Longitudes

**Globe:** Spherical model representing the Earth.

**Latitudes:** Lines running parallel to the Equator.

**Equator:** 0° latitude, divides Northern and Southern Hemispheres.

**Torrid, Temperate, Frigid Zones:** Climate zones based on latitude.



2. Globes and Latitudes

**3. Longitudes and Time Zones**



Prime Meridian

0° longitude, passes through Greenwich, England.

Time Zones

Based on Earth's rotation (15° = 1 hour).  
Example: IST is +5.5 hours from GMT.

## Kinds of Maps

Maps are classified into:

- **Physical Maps:** Show natural features like mountains, rivers, and plains.
- **Political Maps:** Show boundaries of countries, states, cities, and towns.
- **Thematic Maps:** Focus on specific information such as rainfall, forests, or industries.

**KINDS  
OF MAPS**

**PHYSICAL**

**POLITICAL**

**THEMATIC**

 Prepzy



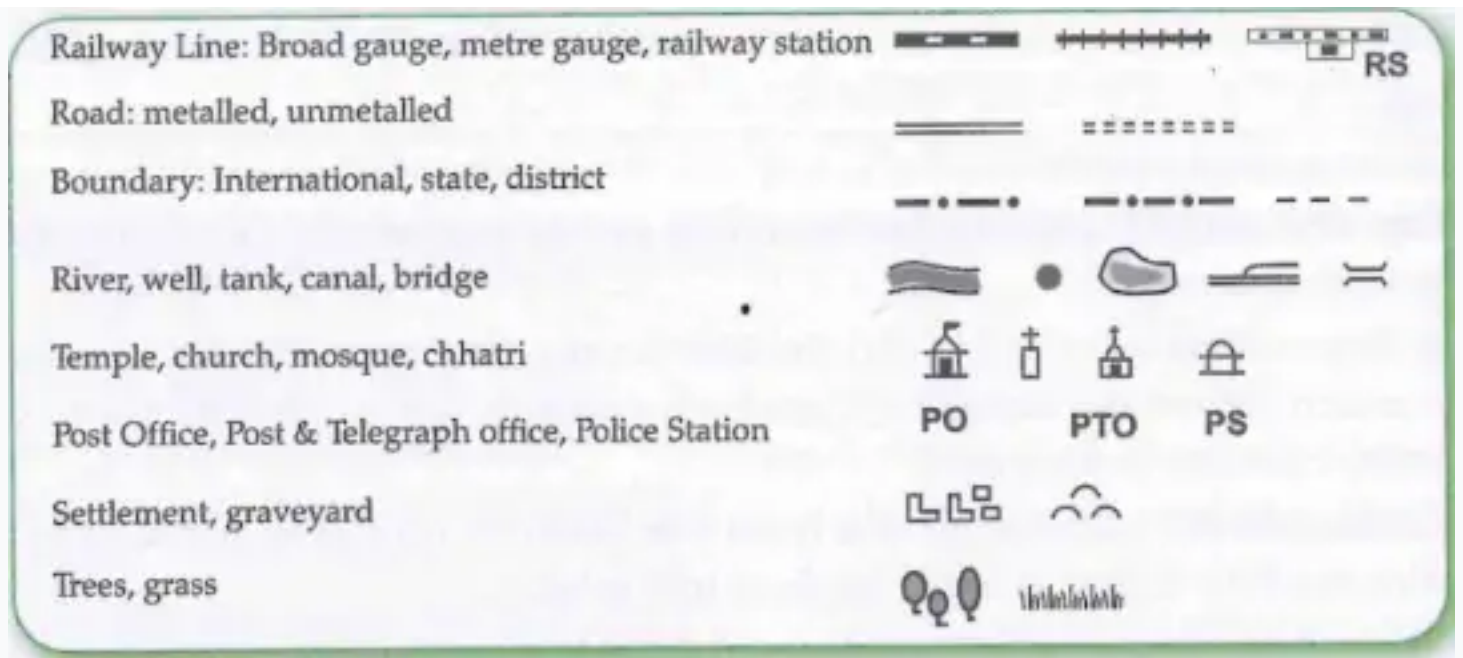
North

Northwest Northeast

West East

Southwest Southeast

South



## Mapping the Earth

The globe is a spherical model of the Earth showing the North and South Poles. The Equator divides the Earth into Northern and Southern Hemispheres. Latitude and longitude are coordinates used to locate places on Earth.

### Important Parallels of Latitude:

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

Latitude lines run parallel to the Equator, while longitude lines run from the North Pole to the South Pole. Together, they form a grid system on the globe.

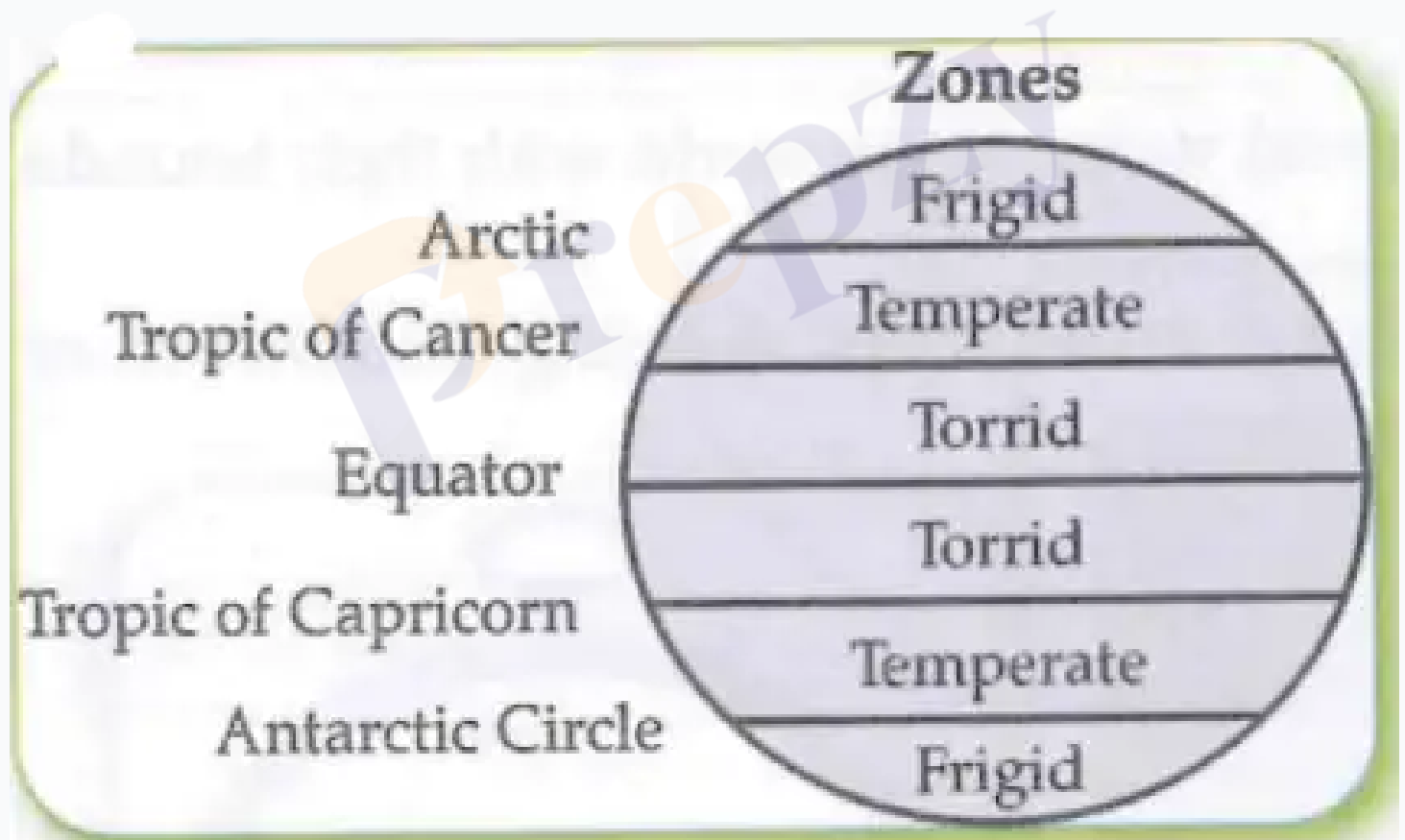
## Understanding Time Zones

The Earth is divided into climate zones based on latitude:

- **Torrid Zone:** Receives maximum heat near the Equator.
- **Temperate Zone:** Has moderate temperatures.
- **Frigid Zone:** Near the poles, with cold climate due to slanting sun rays.

The Earth rotates 360° in 24 hours. Standard Time is set when the Sun is at its highest point at a place. To maintain uniform time, countries adopt a Standard Meridian. India's Standard Meridian is 82.5°E, passing through Mirzapur, and Indian Standard Time (IST) is 5 hours 30 minutes ahead of Greenwich Mean Time (GMT).

The Prime Meridian at Greenwich (0° longitude) is the reference for time zones. The International Date Line is approximately at 180° longitude, opposite the Prime Meridian.



## Keywords

- **Globe:** A true miniature model of the Earth showing latitudes and longitudes.
- **Atlas:** A book containing a collection of maps.
- **Scale of a Map:** Ratio of actual distance to map distance.
- **Frigid Zones:** Cold zones beyond Arctic and Antarctic Circles with slanting sun rays.
- **Parallel of Latitudes:** Circles parallel to the Equator used to measure latitude.

- **Tropic of Cancer:** Latitude  $23\frac{1}{2}^{\circ}\text{N}$  where the Sun is overhead on 21st June.
- **Tropic of Capricorn:** Latitude  $23\frac{1}{2}^{\circ}\text{S}$  where the Sun is overhead on 22nd December.
- **Arctic Circle:** Latitude  $66\frac{1}{2}^{\circ}\text{N}$  with 24 hours daylight on 21st June.
- **Antarctic Circle:** Latitude  $66\frac{1}{2}^{\circ}\text{S}$  with 24 hours daylight on 22nd December.
- **Local Time:** Time based on the position of the Sun at a place.
- **Grid:** Network of latitude and longitude lines on the globe.
- **Plan:** Large scale drawing of a small area.
- **Symbols:** Icons and colors used on maps to represent features.
- **Longitudes:** Lines running North–South measuring angular distance East or West of Prime Meridian.
- **Prime Meridian:**  $0^{\circ}$  longitude passing through Greenwich, England.
- **Standard Time:** Uniform time adopted based on a central meridian.
- **Standard Meridian in India:**  $82.5^{\circ}\text{E}$  longitude passing through Mirzapur.
- **Estuary:** Place where a river meets the sea.

## Solved Examples

**Example 1:** What are the main components of a map?

**Answer:** The main components of a map are distance (scale), direction (cardinal and intermediate points), and symbols (conventional signs representing features).

**Example 2:** Explain the significance of the Standard Meridian of India.

**Answer:** The Standard Meridian of India at  $82.5^{\circ}\text{E}$  longitude is used to maintain uniform time across the country, known as Indian Standard Time (IST), which is 5 hours 30 minutes ahead of GMT.

## Practice Set

### Easy

1. Define a map.

2. What are the four cardinal directions?
3. What is a globe?

### Moderate

1. List the three main types of maps and their features.
2. What is the significance of the Tropic of Cancer?
3. Explain the role of symbols on a map.

### Challenging

1. Describe how latitude and longitude help in locating places on Earth.
2. Explain the concept of time zones and why India follows a single Standard Time.
3. Discuss the importance of the International Date Line.

### Answer Key

1. A map is a flat representation of the Earth's surface or part of it drawn to scale.
2. North, South, East, and West.
3. A globe is a true miniature model of the Earth showing latitudes and longitudes.
4. Physical maps show natural features; Political maps show boundaries; Thematic maps show specific information like rainfall or industries.
5. The Tropic of Cancer is the latitude where the Sun is directly overhead on 21st June, marking the beginning of summer in the Northern Hemisphere.
6. Symbols represent features on a map in a simple and understandable way, helping to read the map easily.
7. Latitude and longitude form a grid system that helps in pinpointing exact locations on Earth.
8. Time zones divide the Earth based on longitude to standardize time; India follows a single Standard Time based on 82.5°E to maintain uniformity.
9. The International Date Line marks the change of one calendar day to the next, important for global timekeeping.

### Quick Reference

- **Map:** Flat representation of Earth's surface.
- **Globe:** Spherical model of Earth.
- **Scale:** Ratio of map distance to actual distance.
- **Directions:** Cardinal (N, S, E, W) and intermediate points.
- **Latitude:** Horizontal lines parallel to Equator.
- **Longitude:** Vertical lines from pole to pole.
- **Standard Time:** Uniform time based on a central meridian.
- **Indian Standard Time:** Time at 82.5°E longitude.

## Glossary

### Atlas

A collection of maps in book form.

### Compass

Instrument used to find directions.

### Equator

Imaginary line dividing Earth into Northern and Southern Hemispheres.

### Intermediate Directions

Directions between the cardinal points: NE, SE, SW, NW.

### Latitude

Distance north or south of the Equator measured in degrees.

### Longitude

Distance east or west of the Prime Meridian measured in degrees.

### Meridian

Imaginary line running from the North Pole to the South Pole.

### Prime Meridian

0° longitude line passing through Greenwich, England.

### Scale

Ratio of map distance to actual ground distance.

### Standard Meridian

Central meridian used to set standard time in a region.

### Time Zone

Region where the same standard time is used.