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# Social Studies

*(An Environmental Approach)*

BOOK 5



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## ENVIRONMENT

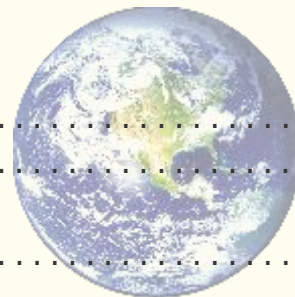
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## Unit 1: The Face of the Earth

# 1

## The Globe



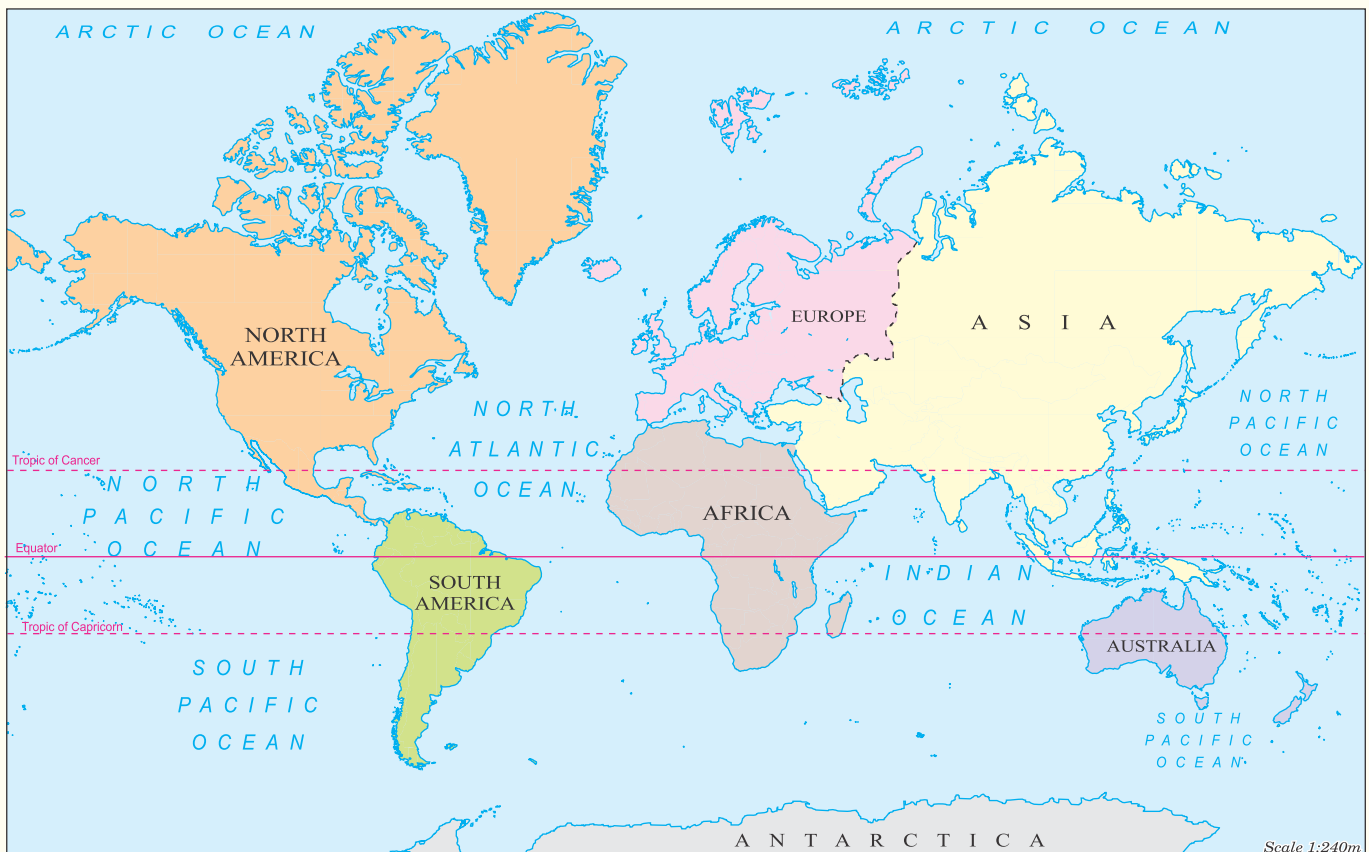
Our planet, Earth, is home to all living beings. It has both landmasses and water masses on its surface. It is also surrounded by an envelope of air called the **atmosphere**. The presence of water and air makes life possible on the Earth. The Earth was believed to be flat for many years, whereas it is actually **spherical** in shape, as proved by explorers and astronomers. The photographs taken from the spaceships show that our Earth is spherical in shape.



### Surface of the Earth

The Earth as seen from space.

More than 70% of the Earth's surface is covered with water and the remaining is land. There are huge landmasses called **continents** and large water bodies called **oceans** on its surface. The landmasses have mountains, plateaus, hills, plains or deserts.



Continents and Oceans

There are also smaller water bodies in and around the continents called seas, bays, gulfs, rivers, lakes, etc. In all there are seven continents and five oceans. The International Hydrographic Organization has created a fifth ocean by the name Southern Ocean. It comprises the southernmost parts of the Indian, Pacific and Atlantic Oceans.

Continents		Oceans
Asia		Pacific Ocean
Africa		Atlantic Ocean
Antarctica		Indian Ocean
Europe		Arctic Ocean
North America	South America	Southern Ocean
Australia		

## The Globe

To study the Earth, which is a large planet, a model of the Earth showing all the continents, countries, oceans, seas, rivers, etc., in their correct positions and shape is made. This man-made model of the Earth is called a **globe**. It gives an accurate picture of the Earth's surface as it is a spherical representation. The globe has two end points — the North Pole, which is at the top and the South Pole which is at the bottom. There is an imaginary line joining the North Pole with the South Pole. This is called the **axis** of the Earth. Halfway between the two poles is another imaginary line called the **equator**. It divides the Earth into two equal halves, the **Northern Hemisphere** and the **Southern Hemisphere**.



A globe is a model of the Earth.

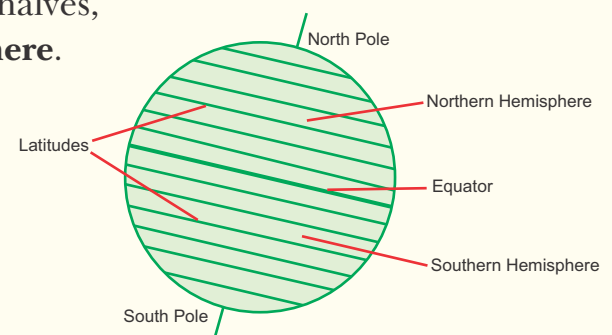
## Latitudes

If you observe the globe carefully, you will be able to see a number of lines running parallel to the equator. These lines are called **Parallels** or **Latitudes**. They are numbered from 0° to 90°, the equator being at 0°. The North Pole is at 90° N and the South Pole is 90° S. The other important latitudes are :

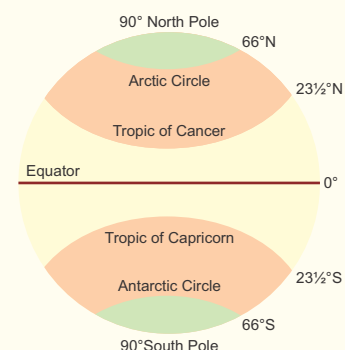
- Q The Tropic of Cancer — 23½° N
- Q The Tropic of Capricorn — 23½° S
- Q The Arctic Circle — 66½° N
- Q The Antarctic Circle — 66½° S

## Properties of Latitudes

- Q The equator is the largest latitude. It is also called the Great Circle.



The lines of latitude



Important Lines of Latitude or Parallels



Q Latitudes don't touch or cut each other.

Q All latitudes are complete circles, except the North Pole and the South Pole, which are points.

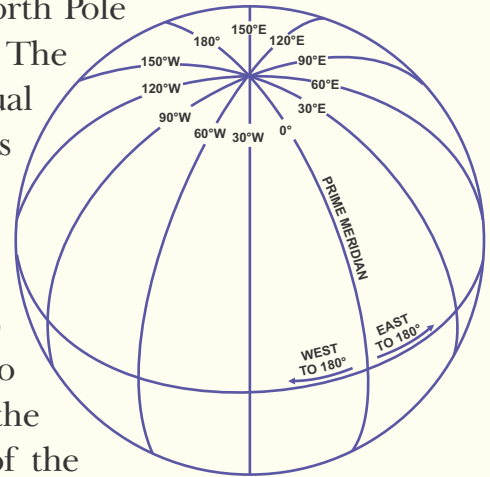
Q All latitudes are located at an equal distance from each other.

Q There are 181 latitudes.

Q Latitudes are marked in degrees ( ° ) and minutes ( ' ), where  $60' = 1^\circ$ .

## Longitudes

On the globe, we can also see semi-circles running from the North Pole to the South Pole. These are called **Longitudes** or **Meridians**. The word meridian means 'mid-day'. The longitudes are of equal length unlike the latitudes and are 360 in number. But it was difficult to number them due to their equal length. Thus, it was decided all over the world that the meridian passing through Greenwich near London should be taken as the  $0^\circ$  meridian. The meridian is also called the **Prime Meridian**. Meridians to the east of the Prime Meridian are called East Meridians those to the west are called West Meridians. There are 180 meridians to the east of the Prime Meridian and 180 meridians to the west of the Prime Meridian. India is located to the east of the Prime Meridian.



The lines of longitude

## Properties of Longitudes

Q All longitudes are of equal length.

Q Longitudes cross the latitudes at right angles ( $90^\circ$ ).

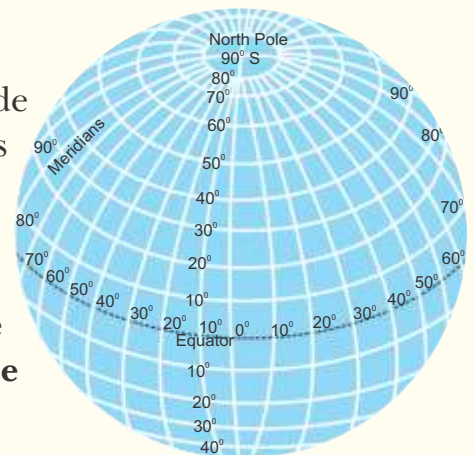
Q The distance between any two longitudes decreases as one moves away from the equator towards the poles.

Q Longitudes are marked in degrees ( ° ) and minutes ( ' ), where  $60' = 1^\circ$

*The  $180^\circ$  meridian is called the International Dateline. The moment you cross to the east of it, you gain a day. The moment you cross to the west, you lose a day.*

## The Grid

On a globe, the lines of latitude and the lines of longitude intersect each other at right angles forming a grid. The grid is a network of both these lines drawn on the globe. Thus, the grid is very helpful to locate a place on a globe or a map. **For example, if we know that Delhi's latitude is  $28.30^\circ$  N and its longitude is at  $77.12^\circ$  E, we can easily locate a point where these two lines cross each other. This point will give us the exact location of Delhi.**



The grid

## Word Meanings



- Envelope of air** : layer of air  
**Explorer** : a person who travels through an unfamiliar area so as to learn about it.  
**Astronomer** : a person who studies heavenly bodies like stars, planets, etc.  
**Hemisphere** : a half of a sphere  
**Grid** : a network of crossed lines forming a series of squares

## It's a Fact



- D The largest continent is Asia and our country India is in Asia. The smallest continent is Australia.
- D Antarctica is the only continent having no human population as 90% of it remains covered with ice throughout the year.

## Let's Recall



- D The Earth is spherical in shape.
- D There are huge landmasses called continents and large water bodies called oceans on its surface.
- D In all there are seven continents and five oceans.
- D A man-made model of the Earth is called a globe.
- D Circular lines running parallel to the equator are called latitudes or parallels.
- D Semi circular arcs running from the North Pole to the South are called longitudes or meridians.
- D The latitudes and longitudes intersect at right angles, forming a grid on the globe.

## Exercises



### A. Tick (3) the right answer.

1. The largest continent is  
(a) Africa ☐ (b) Asia ☐ (c) Australia ☐
2. The imaginary line that divides the Earth into northern and southern parts is  
(a) equator ☐ (b) meridian ☐ (c) grid ☐
3. The 0° meridian is called  
(a) main meridian ☐ (b) equator ☐ (c) prime meridian ☐

### B. Fill in the blanks. Choose the right word from the box.

air    Greenwich    70%    Tropic of Capricorn    360

1. More than \_\_\_\_\_ of the Earth's surface is covered with water.
2. The Earth is surrounded by an envelope of \_\_\_\_\_.
3. The longitudes are \_\_\_\_\_ in number.
4. The \_\_\_\_\_ is a parallel at 23½° S.
5. The Prime Meridian passes through \_\_\_\_\_.

**C. Correct and rewrite the following statements :**

1. India is located to the west of the Prime Meridian.

\_\_\_\_\_

2. The latitudes are of equal length.

\_\_\_\_\_

3. The largest continent in the world is Africa.

\_\_\_\_\_

4. The South Pole is at  $66\frac{1}{2}^{\circ}$  S.

\_\_\_\_\_

5. Longitudes are also called parallels.

\_\_\_\_\_

**D. Define the following terms :**

1. Axis

\_\_\_\_\_

2. Latitude

\_\_\_\_\_

3. Longitude

\_\_\_\_\_

4. Tropic of Cancer

\_\_\_\_\_

**E. Answer the following questions.**

1. What is the shape of the Earth?

2. How many continents and oceans are there in all? Name them.

3. How is a globe useful?

4. List the properties of longitudes.

5. What do you understand by grid? How is it helpful?

**Websites for More Information**



(i) [www.en.wikipedia.org/wiki/continent](http://www.en.wikipedia.org/wiki/continent)

(ii) [www.mapofindia.com/lat\\_long](http://www.mapofindia.com/lat_long)

**Activity**



1. Make your own globe using a ball and a base. Cut continents from a physical map of the world and paste on the ball. Write the names of the continents and oceans.

2. Observe the globe carefully and find out the names of any five countries through which the equator passes. Also name the continents they lie in.



**Teacher's Notes**

Help the children to actually locate the continents, oceans, latitudes, longitudes, poles, etc., on a globe, for a better understanding of the terms.

## Unit 1: The Face of the Earth

# 2 Maps — Our Guides



A map is defined as a two-dimensional representation of the whole or a part of a geographical area of the Earth's surface. It may show many things together like mountains and rivers or roads, towns and cities, or it may be a specific map showing agricultural areas or mining locations or industries and so on. Thus, maps are more useful than a globe in certain ways.

### Advantages of a Map Over a Globe

- Q Maps are often drawn on a flat surface like paper, hence they can be folded and carried easily anywhere. But globes are not portable.
- Q Maps give us detailed information which is not possible on a small globe. For example, we can easily locate towns, cities, mountains, hills, plains, rivers, etc., on maps.

However, maps also have certain limitations.

### Limitations of a Map

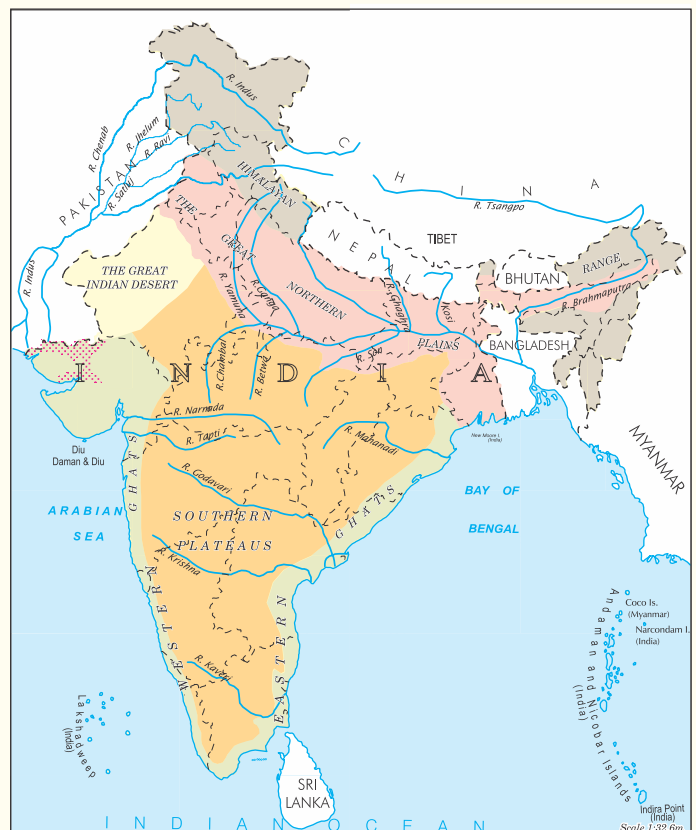
Maps being 2-dimensional cannot show the curved surface of the Earth accurately, unlike globes which have a 3-dimensional representation. This may lead to an error in the map.

There are certain signs, symbols or colours used to show details on a map. These form the **language of the map**. For better understanding of a map, we need to understand the language of the map. The book of maps is called an **atlas**. It contains different types of maps showing physical features, countries, states, climate and so on.

### Types of Maps

Let us briefly discuss a few types of maps :

- Q **Physical Maps** show physical features like mountains, plateaus, rivers, lakes, oceans, etc. Different colours are used to show different features, e.g., blue colour is used for all water bodies.



India — Physical Map



- Q **Political Maps** show the political boundaries of different countries, their capitals along with other states in the countries. Different symbols are used to mark the country capitals and the state capitals.
- Q **Road Maps** show major roads, highways, airports, cities, etc., giving people the correct directions while driving. They also help people to plan trips.
- Q **Climate Maps** give general information regarding the climate and rainfall of an area. Different colours are used to show different climatic zones.

### Directions in a Map

Every map has four major directions north, south, east and west. The top of a map shows the north direction, while the bottom shows the south direction. To your right is the east and to your left is the west. Apart from these four major directions, there are four sub-directions as well. They are :

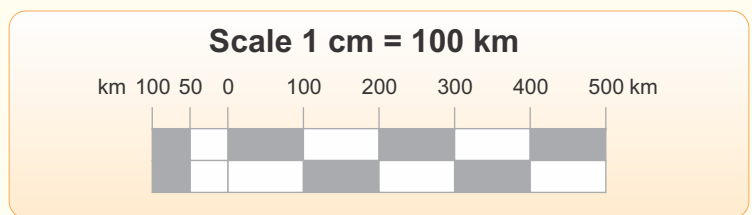
- Q **North-East (NE)** : The direction between the north and the east.
- Q **North-West (NW)** : The direction between the north and the west.
- Q **South-East (SE)** : The direction between the south and the east.
- Q **South-West (SW)** : The direction between the south and the west.

Thus, a sub-direction is a midway between any two major directions. Thus, a place which is not exactly in one of the major directions, may be in a sub-direction.

### Scale of the Map

Different places are shown on the map. However, it is not possible to show the actual distance between two places on a map. For instance, if the distance between Delhi and Ambala is 200 km, it is just impossible to show the actual distance on a map.

Thus, 200 km on the ground is represented as 2 cm on the map. In other words, 100 km on the ground is represented by 1 cm on the map or 1 cm : 100 km. This ratio between the distance on the map to the distance on the ground is called the scale of the map. The scale of a map can also be shown with the help of a bar divided into equal divisions. Each division represents a fixed distance on the ground. This type of map scale is called a **linear scale**.



Linear Scale

All maps have a scale in one corner. The scale helps us to measure the actual distance between any two places.

### Colours on a Map

Generally, all maps use a uniform colour scheme to show different types of features on the maps. For example, to show the various physical features of land in a map, the following colours are used :

**Q Blue :** It denotes water bodies like oceans, seas, rivers, lakes, etc. Light blue indicates shallow waters whereas deep blue indicates deep waters.

**Q Green :** It denotes plains or lowlands.

**Q Brown :** It is used to show hills and mountains.

**Q Yellow :** It denotes agricultural land.







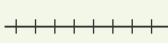


Such maps also have a **key**, telling the meaning of the colour used. A key is also known as an index or a reference. By looking at the key, we can easily tell the type of feature shown in a particular area.



Physical Map of the world showing colour scheme.

## Signs and Symbols

A variety of features can be shown on maps by drawing signs or symbols, for example rivers, roads, highways, railway lines, airports, capital cities, dams, etc. These signs and symbols which are also given in a key along with their meanings, help us to read the map easily. They are same all over the world and hence are called **international symbols**. Let us look at some of the commonly used signs and symbols given below :

International Boundary	- . - . - . - . -	Country Capital	
State Boundary	- - - - -	State Capital	
National Highway		Other Cities	
Major Roads		District Headquarters	
Railway Lines		Rivers	
Airport			

## Word Meanings

<b>Portable</b>	:	able to be carried
<b>Midway</b>	:	halfway
<b>Shallow</b>	:	not deep

## It's a Fact

- D The art and science of map making is called **cartography**. A person who makes maps is called a **cartographer**.

## Let's Recall

- D A map is a drawing of the whole or a part of the Earth's surface on a flat surface.
- D The book of maps is called an atlas.
- D Every map has four major directions — north, south, east and west.
- D Maps are always drawn to scale. A scale is the ratio between the distance on the map to the distance on the ground.
- D Different colours are used to show the various physical features of land.
- D Certain signs and symbols are also used to show other features.

# Exercises



## A. Tick (3) the right answer.

1. The science and art of map making is called  
 (a) orthography ☐ (b) cartography ☐ (c) lexicography ☐
2. A book of maps is called a/an  
 (a) atlas ☐ (b) register ☐ (c) album ☐
3. A type of map which shows physical features like rivers, lakes, etc., is called a  
 (a) political map ☐ (b) physical map ☐ (c) climate map ☐
4. Green colour on a map indicates  
 (a) plains ☐ (b) hills ☐ (c) water bodies ☐

## B. Fill in the blanks. Choose the right word from the box.

language   north   brown   direction   road

1. A sub-direction is a \_\_\_\_\_ between any two directions.
2. \_\_\_\_\_ colour is used to show hills and mountains on a map.
3. \_\_\_\_\_ maps help people to plan trips.
4. The top of a map shows the \_\_\_\_\_ direction.
5. Signs, symbols and colours used on a map form the \_\_\_\_\_ of the map.

## C. Write true (T) or false (F).

1. Maps are a 3-dimensional representation of the Earth's surface.
2. Globes are easy to handle and portable.
3. Maps are always drawn to scale.
4. A key is also known as an index.
5. The signs and symbols used in maps are same all over the world.



## D. Draw symbols used for the following :

1. National Highway
2. Rivers
3. Country Capital
4. Railway Lines
5. International Boundary
6. Major Roads
7. State Capital
8. Airport
9. State Boundary

**E. Answer the following questions.**

1. Define a map.
2. What are the advantages of a map over a globe?
3. What do you understand by the scale of a map?
4. How are physical maps different from political maps?
5. How is a key in a map useful?

## Websites for More Information



[libraries.uta.edu/ccon/whatis.shtm](http://libraries.uta.edu/ccon/whatis.shtm)

## Activity



With the help of an atlas, find the latitudes and longitudes in which India lies. Also find the latitudes and longitudes of five major cities of India, namely, Delhi, Mumbai, Kolkata, Chennai and Bangalore.



Help the children to read the maps correctly with the help of a key and guide them how to use the atlas. While teaching, use wall maps of the world and India (physical as well as political) for a better understanding and teach them how to find latitude and longitude of a place.