

Fig. 1.2 Elements of a Map

## Elements of a Map

There are few basic elements on each map and their knowledge is a must for reading and interpreting a map. They are—

- Title
- Direction
- Scale
- Grid system
- Legend or Key

### Title

The main title of the map tells us about the name of the country, continent, state, district, village, country, or region. The secondary title tells us about the theme, topic, or content of the map, e.g. political map, road map, crop map, mineral map or relief map.

### Direction

Usually, a compass gives us an idea of directions. But, carrying a compass with each map is not easy. So, directions are marked on the map with the help of an arrow. Generally, the head of the arrow indicates the 'North' and this is known as the North Line. In its absence, the upper part is assumed to be the north, the lower part

as south and the right and left indicate east and west; respectively. North, south, east and west are the four cardinal directions as indicated on the compass. Knowing about these cardinal points is essential to locate a place or feature on a map and its direction with reference to another object.



Fig. 1.3 A Compass

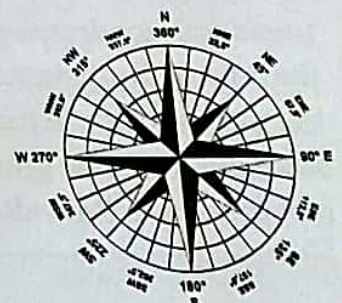
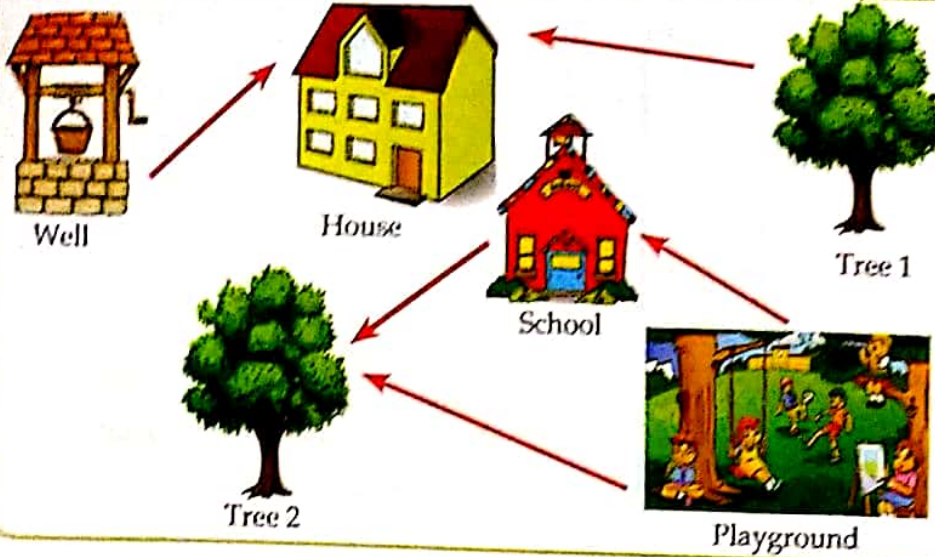


Fig. 1.4 The Compass Rose

A compass also shows **intermediate directions**. These are the intermediary points such as— NE (north-east), SE (south-east), NW (north-west), SW (south-west), etc. If a position lies half-way between north and east it will have a north-east (NE) direction. If a position lies halfway between south and west



## Activity 1



What is the direction:

1. From house to tree 1
2. From house to well
3. From tree 2 to school
4. From play ground to house
5. From playground to school

it will have a south-west (SW) direction. Thus, these directions are known as the intermediate directions. These direction points put together form a rose (flower) like structure called the 'Compass Rose'.

### Scale

The distances on the Earth are vast. A map cannot be drawn equal to the original size of the Earth. Maps have to be reduced in size, according to a fixed ratio. So, a cartographer uses a scale for drawing a map. A scale indicates the ratio of the distance between two points on the map and the actual distance between the same points on the ground. The scale of a map is expressed in three different ways:

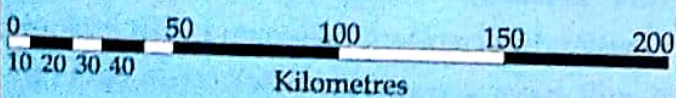
#### (i) Statement Scale

1 cm = 1 km

#### (ii) Representative Fraction Scale

1: 1,00,000, or 1/1,00,000

#### (iii) Graphical Scale



### Grid System

To measure the exact location of any place on the surface of the Earth, a grid system has been developed. It gives us the exact location of any place by using two coordinates—'latitude' and 'longitude'. These are imaginary lines based on the motion of the Earth (You have studied about them in earlier classes). With the longitudes and latitudes, a network or grid pattern develops which is known as 'graticule'.

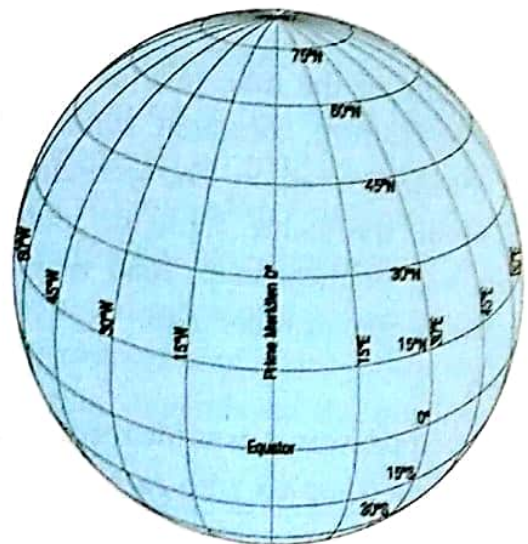


Fig. 1.5 A Spherical Diagram of the Earth Showing the Grid of Latitude and Longitude Lines

We can locate a place easily by finding the point at which the two lines meet, e.g. the position of London lies at the intersection of 51°N latitude

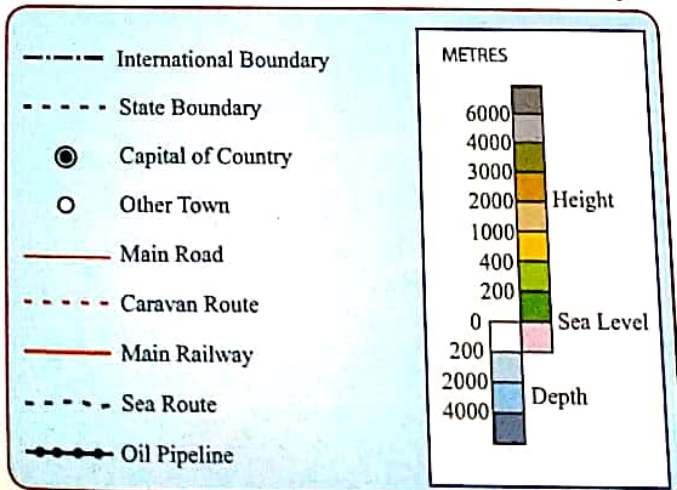




Fig. 1.6 Locating a Place with the help of Latitudes and Longitudes and  $0^\circ$  longitude, while the location of New Delhi is at the intersection of  $29^\circ\text{N}$  latitude and  $77^\circ\text{E}$  longitude (Fig.1.6).

### Legend

Maps provide information about the Earth's surface. So, all the information of any place is depicted on a map with the help of certain symbols. These symbols are graphical signs



that are used on maps. They can be of—various shapes; lines of different pattern, thickness, and direction; dots of various colour and sizes; different texture pattern; grey tones; and different colours. Along with these, alphabetical symbols are also used.

Thus, a key or a legend is a collection of various signs, symbols, colours and alphabetical abbreviations used in the map for representing natural and man-made features. The key or legend is usually printed close to the map (Fig 1.7).

### Types of Maps

#### Maps Based on Purpose

There are several types of maps. For different purposes, a new and different map is designed, depicting different information. Some maps focus on the physical features, whereas others represent the political units along with their specifications. Some maps focus only on the man-made features or cultural environment. Thus, we have various types of maps but most important types are—Physical, political, and thematic maps.

**Political maps** show international and national boundaries. Boundaries between states, districts, or lower administrative units along with their capitals and headquarters

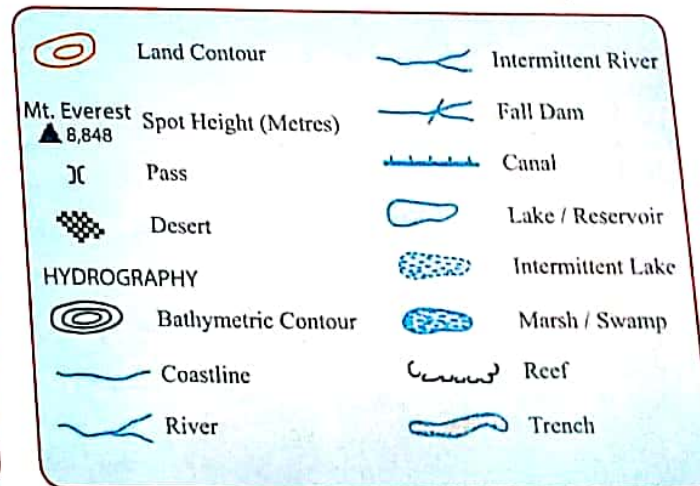
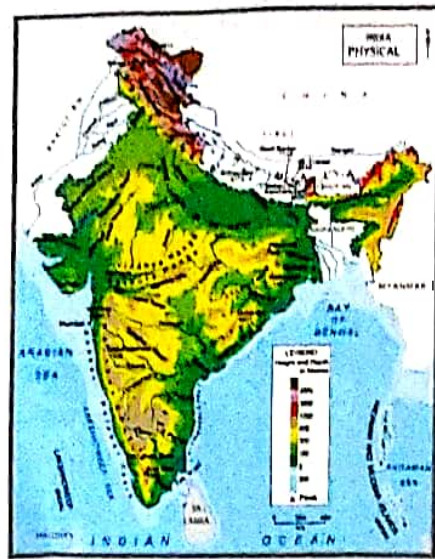


Fig. 1.7 Key or Legend box—Explanation of the Symbols used in the map

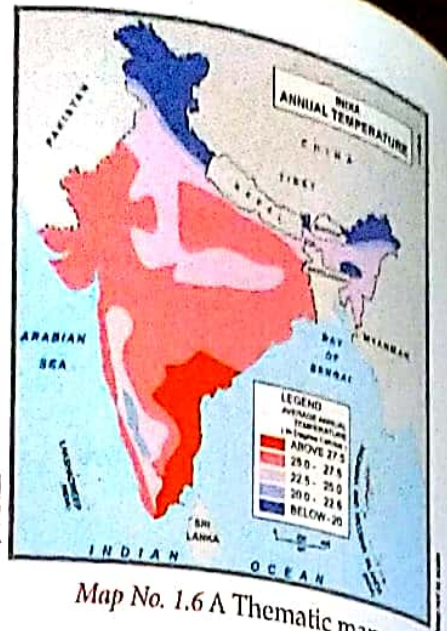




Map No. 1.4 A Political map



Map No. 1.5 A Physical map



Map No. 1.6 A Thematic map

are shown in a political map. Neighbouring countries and states are also mentioned to complete the relative location information.

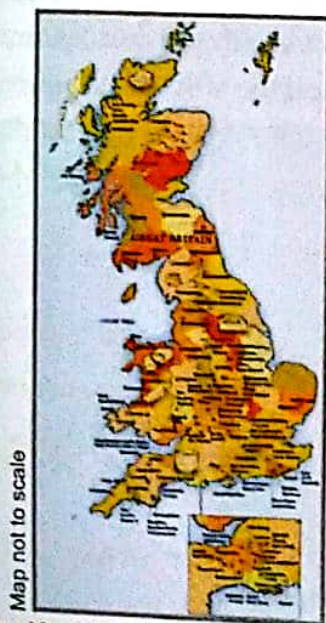
**Physical maps** show all the natural landforms such as—mountains, plateaus, valleys, and plains. They include water bodies such as rivers, lakes, seas, and oceans. Focus of this map is on the irregularity of the earth surface. It shows variation of height and depth.

**Thematic maps** show any one particular theme in a map, e.g. the distribution patterns of population density, types of soils, wildlife,

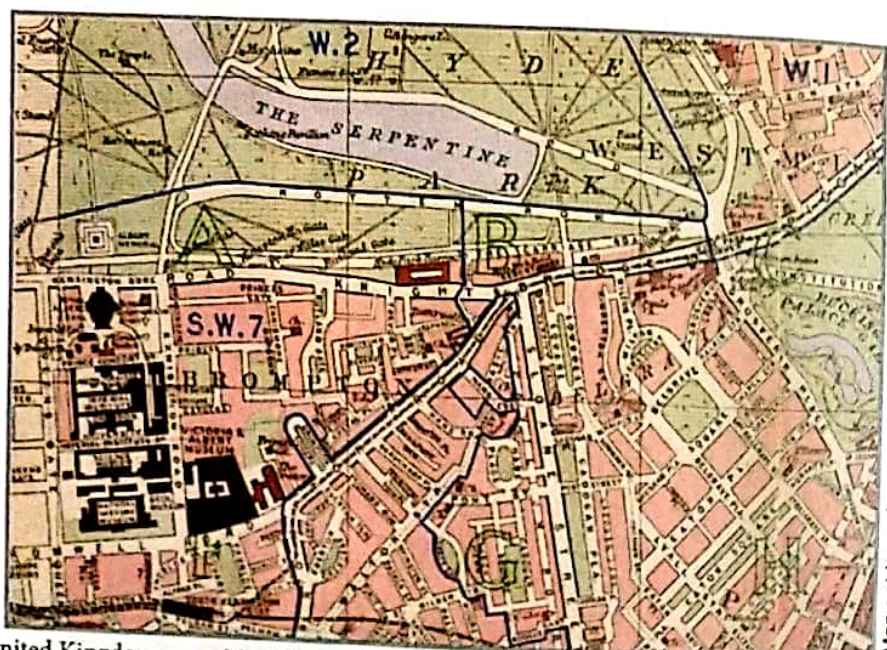
rainfall, availability of minerals, industries, roadways, railways, seaways, airways, route maps, street maps, etc. A climatic map, a vegetation map or a weather map; all are examples of thematic maps.

### Maps Based on Scale

Based on the ratio chosen for representing the Earth's reality, maps can be small scale or large scale. The amount of information depicted on map, and their detailing; varies according to the scale.



Map No. 1.7 A Small Scale map of United Kingdom



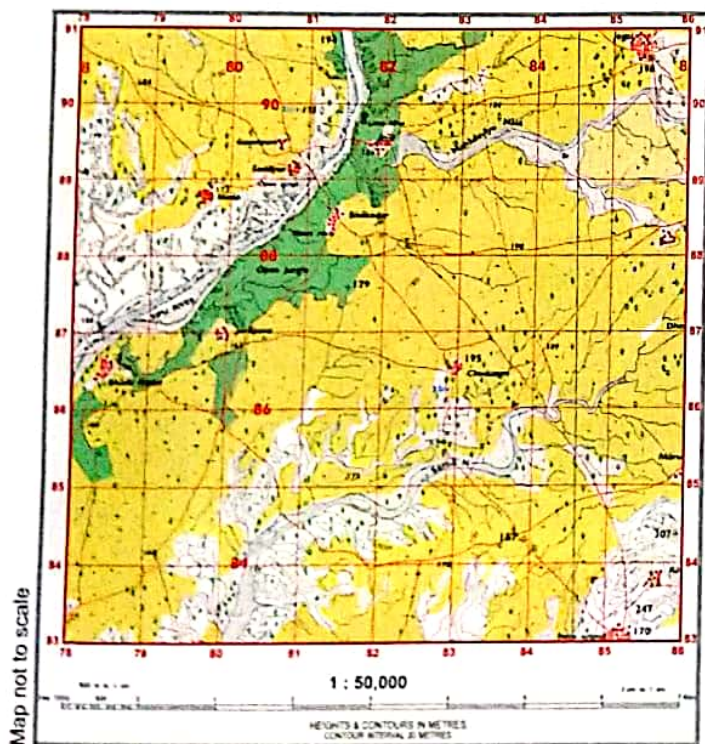
Map No. 1.8 A Large Scale map of London city



**Small scale maps** are the maps that present a large area of the Earth on a small size map, e.g. maps given in an atlas. They cannot show much detail. All the world maps, continent maps, country maps and even state maps are small scale maps. These are relative with other maps. Any state map will be larger than a country map but smaller than any lower level district map.

**Large scale maps** are those maps which show a smaller area on the comparatively larger-sized map. It is possible to depict detailed information on these maps.

**Topographical map** is a large-scale map. It represents political, physical, and socio-cultural features of any area on the same map. It uses various symbols for representing wide range of features. We will learn about these maps in further classes.



Map No. 1.9 A Topographical Map

## Diagrams

So far, we have discussed globes, maps, and plans for representing the Earth's reality. They are used for depicting huge and large areas on a two-dimensional surface. But, geographical features are of various sizes and range. For representing various landforms, simple diagrammatic representation is used; which can easily depict the important and relevant features of any land form under the study.

## Representation of Folded and Faulted Landforms

**Anticline and Syncline**—Anticline and syncline are the two terms associated with the Earth's movements. During the process of folding bends or folds are formed in the rocks due to compression. When layers of rocks are folded, some parts are upward folded and some are downward folded. In an anticline, the fold arches away from the Earth. The top of the arch on the anticline is called the 'crest'. Synclines are downward folds like 'troughs'. In a syncline, the fold bends down towards the Earth. Basins are depressions formed by synclines.



Fig. 1.8 Formation of Folds

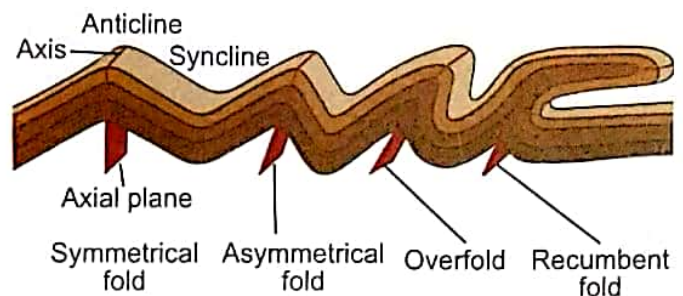


Fig. 1.9 Types of Folds



**Block mountain-Rift valley (Horst and Grabben)**—A mountain formed by the upliftment of the blocks of the Earth's crust is called 'block mountain'. These are formed due to the faults. When the forces in the Earth's crust pull it apart, some parts of the Earth's crust are pushed upward while some collapse down. The upward lifted blocks are called 'horst' and the downward collapsed part is called 'grabben'. Thus, the movement of large crustal blocks forms the fault block mountains. Such horsts are called the 'block mountain' and grabben are called the 'rift valley'. For example, River Narmada flows through the rift valley

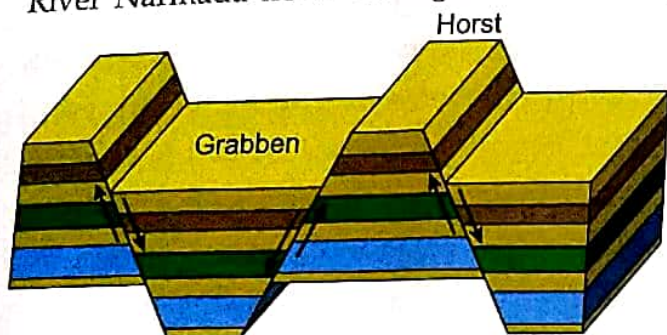


Fig. 1.10 Horst and Grabben

formed between the Vindhyas and Satpuras. Their slopes are straight and standing. They create ideal situation for waterfalls as well.

### Representation of River Landforms

**River meanders**—A meander is a bend in the river course. A snaking pattern develops as a river swings in a zig-zag manner across the plain, in the middle course of the river.

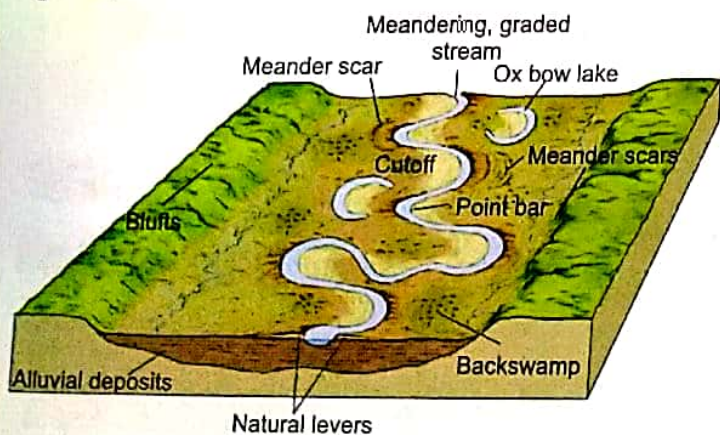


Fig. 1.11 Meanders and Ox-bow lake

Meandering happens when there is erosion in the outer banks and it widens its valley. At the same time, there is deposition of silt on the opposite inner bank. When a meander gets cut off from the main river, an 'ox-bow lake' is formed.

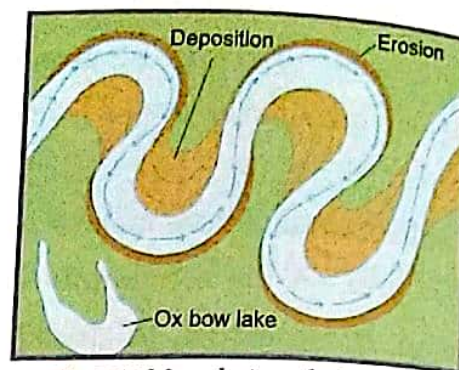


Fig. 1.12 Meandering of a River

### Geo Fact

Do you know the course of a river is divided into three parts or stages? First stage is termed as young or youthful stage, second stage is middle stage which is called as mature stage and lastly the old stage of the river which arrives when it meets the ocean.

**Tributaries**—Tributaries are the streams or rivers that flow into a larger main stream of a river. The main river receives a large number of these streams which drain a large part of the drainage basin. The point where a tributary

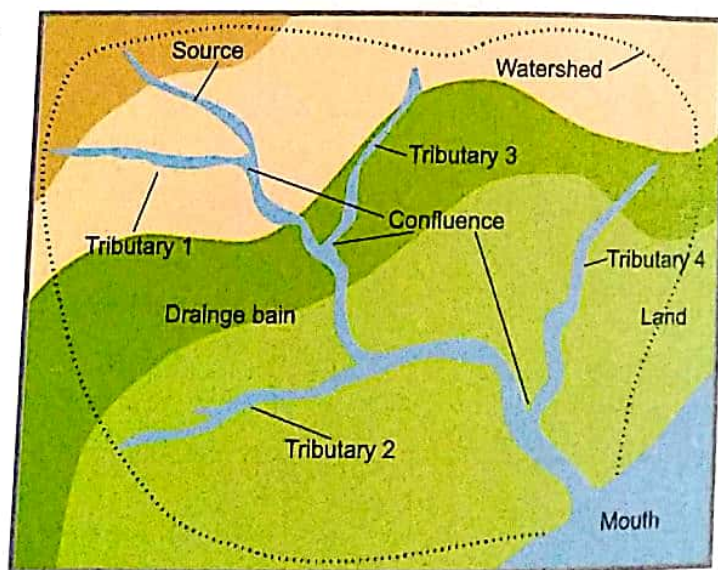


Fig. 1.13 Tributaries to a River



meet or joins the main river is called the 'confluence'. Tributaries do not drain directly into the ocean. The side of the river, through which a tributary joins the river is accordingly indicated as a 'left bank tributary' or a 'right bank tributary'. For example, the Kosi River is a left bank tributary while the River Yamuna is a right bank tributary of the River Ganga.

**Distributaries**—A distributary is a stream that branches off and flows away from the main stream. These tiny streams or distributaries are the most common feature of the river delta.

They are formed just before the river drains into the sea or ocean; in the lower course or old stage of the river.

**Delta**—A river delta is a landform that forms from the deposition of sediment carried by a river as it leaves its mouth and enters the sea or ocean. It is generally triangular, resembles the Greek alphabet 'Δ'; which is called as 'delta'. The largest delta in world is that of the River Ganga and Brahmaputra. Some other famous river deltas are of Mississippi and Nile etc.

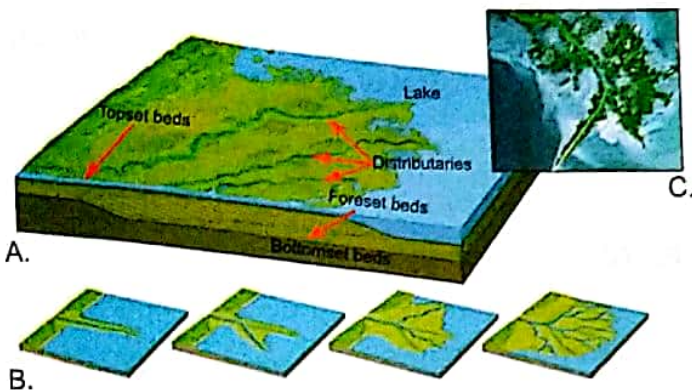
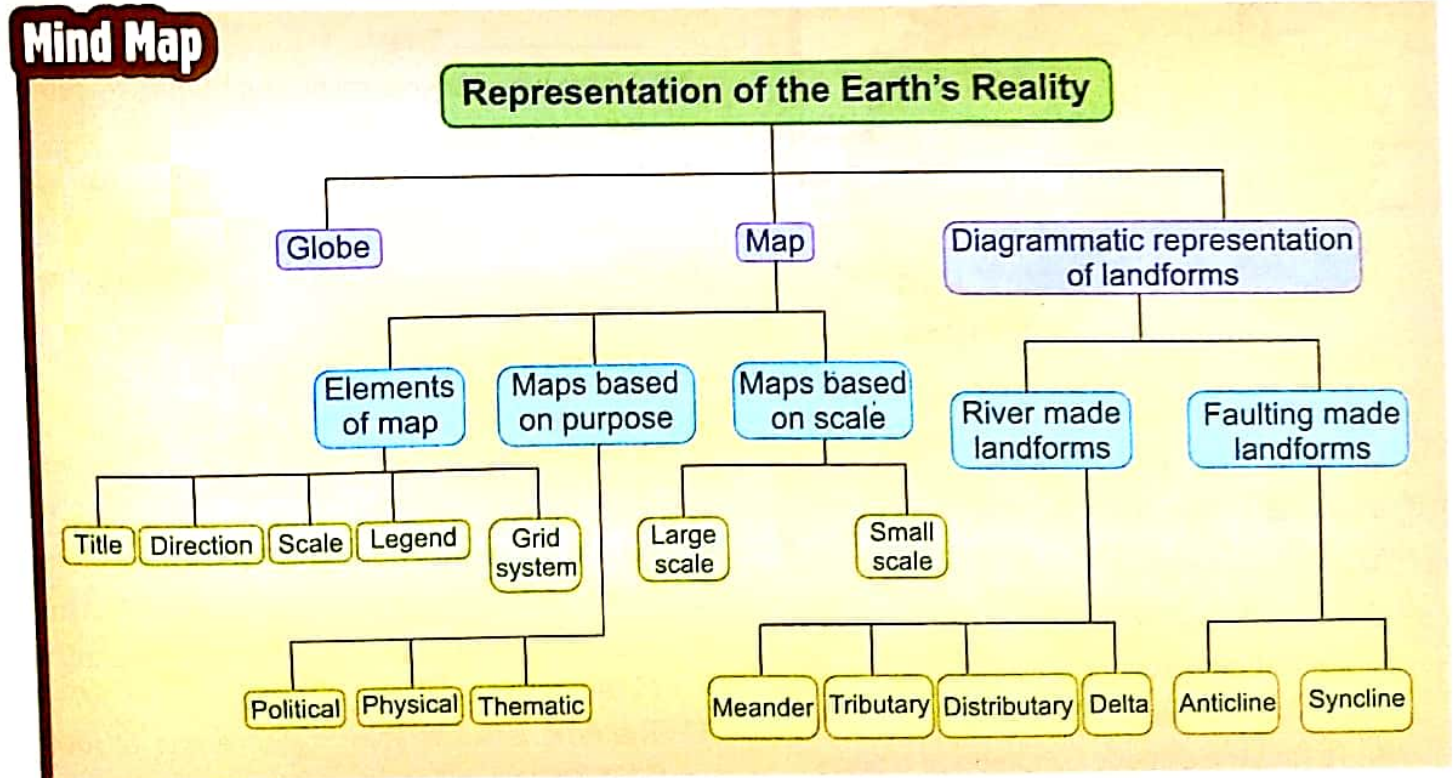


Fig. 1.14 Stages of Delta Formation



Fig. 1.15 A Satellite image of Ganga-Brahmaputra Delta





□ Answer the following questions -

1) What are the five elements of a map?

2) Why North line is drawn on a map?

3) Why directions are shown on a map?

4) Differentiate between cardinal and intermediate directions.

5) Why scale is needed while drawing a map?

6) What are the three types of scale?

7) How Grid system help us?

8) Why legends and conventional signs and symbols important parts of a map?

9) Differentiate between large-scale and small-scale map.

10) What does a Physical map show?



■ Fill in the blanks -

- 1) With longitudes and latitudes a network or grid pattern develops which is known as \_\_\_\_\_.
- 2) A map which shows relief and human features is a \_\_\_\_\_ map.
- 3) The top of the arch on the anticline is called the \_\_\_\_\_.
- 4) The point where a tributary meets or joins the main river is called the \_\_\_\_\_.
- 5) \_\_\_\_\_ is the ratio between map distance and ground distance.