15 Maps : Meaning and Types

You know that many foreign tourists visit tourists places of our country. Even though they are not acquainted with the geographical region of our tourists places, they easily reach their destinations. What is the reason ? Only reason is that they have the map of the tourist spots. By reading the maps, they can fulfil their purpose of their tour. In recent times, map has become useful tool not only for tourism but for other purposes as well. So, come friends, let us get some useful information about maps in this chapter.

Geography cannot be studied without maps. Different maps are used for geographical study of different countries of the world. It is impossible to carry out a comparative or a direct study of all places in the world. But a map is such a tool which provides complete information of all places. That is why a map is an encyclopaedia for geographers. Every information on the surface of the earth can be depicted easily on a map. Natural elements (mountains, river, plain, plateau, lake, vegetation, sea etc.) and cultural elements (settlements, transport routes, industries, agriculture, irrigation, telecommunication facilities etc.) are interrelated. So these elements are scrutinised while preparing a map. Geography is a practical science where maps occupy a larger coverage. Cartography, a specialised branch of Geography, studies the process of map making in details. Besides tourists, a map guides the soldiers, traders, vehicle drivers, founders of industrial units and also a common man. For this it is necessary to know the script of the map.

Meaning of Map

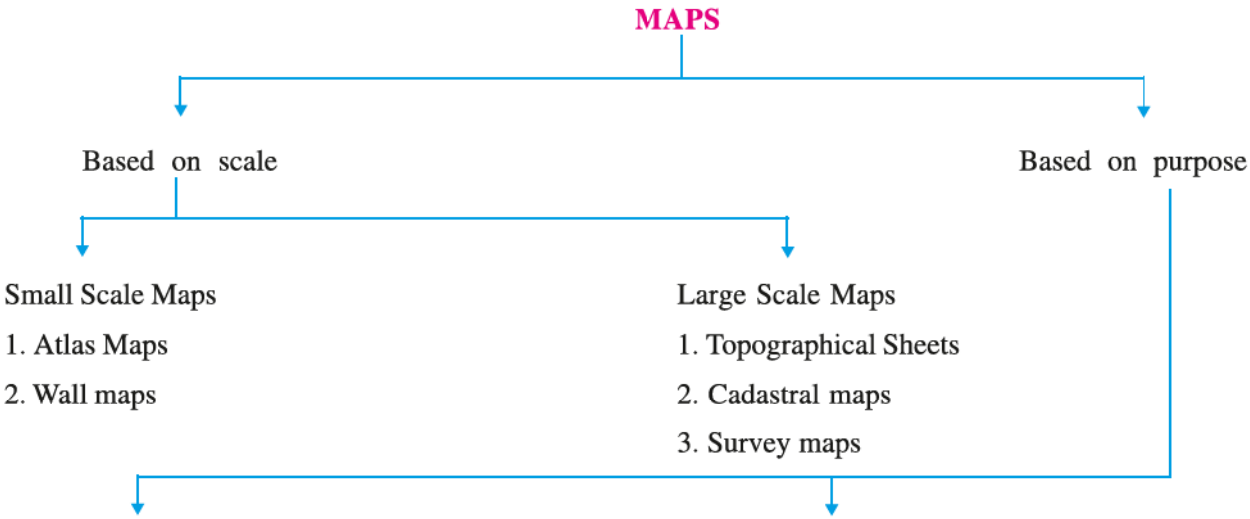
The word map is derived from the original Latin word **'Mappa Mundi'**. It means a small piece of cloth which can be kept in hand. In 840, a Christian Missionary Mikon popularised the word Mappa Mundi. In general, a map is a small scale conventional representation of the curved surface of the earth or a part thereof as seen from space. In Geography, maps are prepared for a geographical region on the surface of the earth. Map includes an area much larger than its size. Following is the definition of a map.

A map is a small scale conventional representation of the earth or a part thereof as seen from above. Or A map is a conventional representation of the curved surface of the earth or a part of it, drawn with proportional scale, projection and conventional signs, as seen from above. A map can be prepared on a flat paper, cloth, plastic, film strips or plaster of paris. Scales, conventional signs and projection are chief components of a map.

Types of map

Maps are prepared to provide supplement to various requirements. So there are many types of maps, e.g. atlas maps, wall maps, maps for newspapers or books, survey maps, astronomical charts etc.

According to the scale and the purpose, maps are divided into two types : (1) Maps based on the scale (2) Maps based on the purpose.



Physical Maps

- Relief maps
- Geological maps
- Weather and Climate maps
- Soil maps
- Natural resources maps
- Natural vegetation maps
- Wild life resources maps
- Hydrological maps
- Other

Cultural Maps

- Agricultural maps
- Industrial maps
- Transport maps
- Demographic maps
- Military maps
- Settlement maps
- Political maps
- Space maps
- Other

(1) Maps based on the scale : According to the scale, there are two types of maps : (1) Small scale maps and (2) Large scale maps.

We have two maps. One of the maps is in the scale of 1 cm : 50 km and scale of other map is 1 cm : 100 km. If we have to compare these two maps on the basis of their scale, then the map which has smaller denominator, which shows the distance on the ground, is a **large scale map**. When this figure is larger, the map is a **small scale map**.

In large scale maps, limited area of the earth is shown with more details. Maps for city, village, taluka, district etc. are of this type.

In small scale maps, a large area of the earth is shown. Maps of different countries are of this nature. Atlas maps, wall maps fall under this category.

(2) Maps based on the purpose : Such maps are prepared according to the requirements. Maps which are prepared according to the purpose can be divided into two parts, according to the physical or cultural facts to be shown in the map. : (1) Physical Maps, and (2) Cultural Maps.

Physical Maps :

The maps which show physical or natural elements are called Physical Maps. Such maps hold more importance in Geography.

- **Relief Maps :** Mountains, plains, plateaus, river systems etc. are shown in these amps.
- **Weather Maps :** Here, short term or daily conditions of the elements of climate like temperature, rainfall, winds, atmospheric pressure etc. are shown.
- **Climate Maps :** Here, long term (monthly, yearly) conditions of the elements of climate like temperature, rainfall, winds, atmospheric pressure etc. are shown.
- **Soil Maps :** Here the characteristics of the soil like type, use, distribution etc. are shown.
- **Wild Life Maps :** Here the distribution of National Parks, sanctuaries are shown.

Besides, the maps showing the natural resources like minerals, vegetation, grasslands, drainage pattern, geological structure, oceanic regions, astronomy etc. are also known as Physical Maps.

Cultural Maps :

In these maps, man made features are shown. Different economic activities of man are depicted in these maps. These include farming, transport routes, industrial centres, cities, ports, administrative divisions of the nation, state capitals, villages, settlements etc. On the basis of man induced elements, such cultural maps like agricultural maps, industrial maps, population maps etc. are prepared.

In recent times, satellite maps are prepared using modern computer techniques for the details received from artificial satellites.

Components of a map

It becomes necessary to know about the components of a map for map reading and its interpretation. More the information about the components of map, its reading and interpretation becomes clear and meaningful. There are three components of a map : (1) Scale (2) Projection, and (3) Conventional signs.

(1) Scale : Areas shown in the map are drawn at a specific scale. While deciding the scale, it is necessary to establish relation between two points on the map and their corresponding distance on the ground. Thus, the ratio between the reduced distance between two points shown on the map and their corresponding actual distance on the ground is called SCALE.

Method to show scales on the map

Three methods can be used to show scale on the map : (1) Statement scale (2) Numerical or Representative Fraction scale (3) Linear or Graphical scale.

Statement Scale : This is most simple and easy method to show the scale. A common man also can understand and can calculate the distance between two points on the surface.

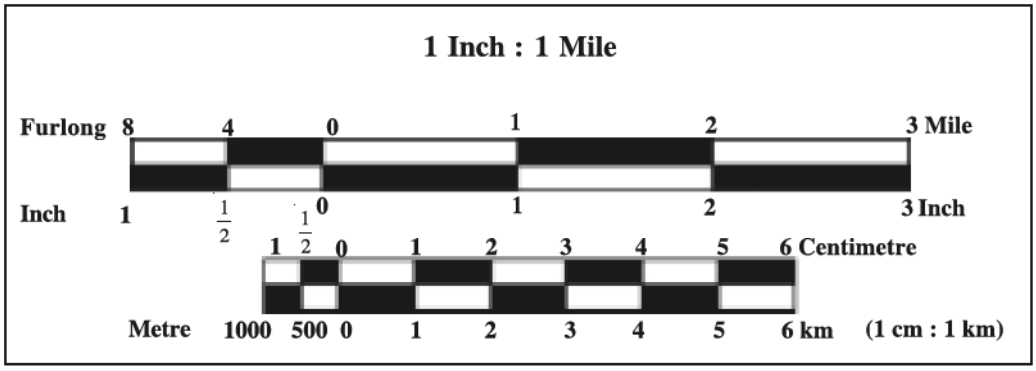
In this method, the details of the scale are shown by words or by a statement. Signs signifying the unit of the scale or ratio are not used. It is written as 1 cm : 10 km. As a statement is written here, this type of scale is known as Statement Scale.

Numerical Scale / Representative Fraction : In this method, the units depicting the unit of the distance are not mentioned. The distances are shown only by numerical figure or in arithmetic fraction, e.g. 1 : 10,00,000 or 1 / 10,00,000. Here the figure on the left side, or numerator, shows the distance on the map, while the figure on the right side or the denominator, shows the distance on the ground.

This method is also known as Representative Fraction method because the scale here is shown in the form of a ratio. In this method, no unit like cm or km is mentioned in the scale after the numeric figures. So in any country this scale can be used for calculation.

(3) Linear (Graphical) Scale :

In this method a line is drawn to show the scale, so this is known as Linear or Graphical Scale. Even though this method is easy, it is also slightly complicated and so is used little less. On the scale (Foot rule) which we use, inches or centimetres are shown, but on this scale the units showing distances like metre, furlong or mile are also shown. In this method, a linear scale is drawn in any part of the body of the map which enables us to read directly the distances on the surface. This is called Graphical scale. A line is used to show the scale so this is also known as Linear Scale. Generally, a small line of proper length according to requirement is drawn in any part of the map. In a small scale map, the scale is drawn by a line of even 1 centimetre or 1 inch. In this scale, major divisions (km or mile or other) of the scale are shown on the right side of zero. On the left side, the main division is subdivided into required number of divisions which show the smaller divisions of metre or furlong etc. This fact can be understood from the figure given below :



15.1 Linear Scale

(2) Projection : While transferring the curved surface of the earth on a flat surface, its area, location, distance, relative direction, shape or size may change. To avoid this a map projection is used. A projection is an attempt to transfer the curved surface of the earth on paper. A map projection is drawn by geometric method on any surface . The method in which the latitudes and longitudes on the curved surface of three dimensional globe are transferred on a two dimensional flat paper is known as Projection.

A projection is a process to project. The method to show the curved surface of the earth on flat paper is known as projection. Three things are required for this. (1) A wire globe (2) A flat surface on which the projecting process is to be done (3) Source of light.

With the combination of these three things and on the basis of the properties retained by them there can be many projections.

(3) Conventional Signs : Many physical and cultural things are shown in the map. In order to show these two things easily, few conventional signs and symbols are used. It is not possible to show all the details on the surface of the earth in the same form as they exist. In physical features, relief, landform, drainage pattern, natural vegetation, climate, soil types etc. are shown by conventional signs. Colours and symbols are used to show the cultural features like human settlements, transport routes, agriculture and irrigation facilities etc. In the topographical maps of India contours, layer tint

method, and hachures are used frequently to show relief features. In coloured maps, different colours are used to depict physical and cultural features.

Elements	Colours
• Landforms	• Brown/almond
• Water bodies	• Blue
• Vegetation region	• Green
• Railways	• Black
• Landroutes	• Red
• Human Settlements	• Red
• Agriculture	• Yellow

Some specific symbols or initial words are used for certain settlements, e.g. RH for Rest House, PTO for Post and Telegraph office, CH for Circuit House, PO for Police Station etc. For specific buildings like temple, mosque, church etc. a small replica of their shape is used in the map. This way, such conventional signs are used to shorten the verbal interpretation of cultural features. So these conventional signs are also known as the shorthand language of maps.

'The Survey of India' institute, located at Dehra Dun (Uttarakhand), prepares and publishes the survey maps of India wherein the internationally accepted conventional signs and symbols are used.

The signs which are used in the survey maps, topographical maps are known as conventional signs. A detailed study of these conventional signs and symbols is necessary for reading and interpretation of topographic maps.

Importance of Maps :

Since early times till to-day, maps have been inseparable part of human life. In geographical studies, map is an important tool. Besides maps have been useful to History, Political Science, Economics, Biology, Engineering, Military Science etc. also. A general and common use of maps is to know the geographical location of any place. Whether it is a travel or a thing of exchange of goods for trade purpose, maps are required to know the distances. Now a days, maps given in television, news papers and periodicals give very accurate and effective information about the daily events, weather information and forecasts, polotical or social problem etc. maps are needed for national or institutional planning of new settlements and their expansion. Map can give us information much in advance about the Maps that are needed by all. In modern period of research, maps have become a blessings to ocean explorers, space explorers and land explorers. There is hardly any field which does not use a map.

EXERCISE

1. Write answers to the following questions in details :

(1) State the types of maps.

(2) What is a scale ? Explain its necessity.

(3) Describe the importance of the map.

2. Write to-the-point answers for the following questions :

(1) Projection Write short note.

(2) Linear Scale Explain.

(3) Conventional Signs are the shorthand language of maps Give reasons.

3. Answer the following questions in brief :

(1) Which are the three methods to show scale in the map ?

(2) Which things are necessary for projection ?

(3) What are the major components of a map ?

4. Answer the following questions in one-two sentences :

(1) What are the conventional signs ?

(2) Where in India is located the institution preparing topographical maps ?

(3) Which colour is used in maps to show railways ?

(4) What is shown by yellow colour in maps ?

(5) What is meant by a map projection ?

(6) Define a map.

(7) Which things are shown in a relief map ?

5. Select the correct option from the options given for the questions and write answer.

(1) By which colour are the water bodies shown ?

(a) Blue (b) Green (c) Black (d) Red

(2) Which symbol is used to show Rest House ?

(a) PTO (b) CH (c) RH (d) PS

(3) Which of the following maps is not included in Cultural Maps ?

(a) Agricultural maps (b) Transportation maps (c) Settlement maps (d) Soil maps

Activity

- Find the distances between the capitals of different states in the political map of India.

16 Geographical Information and Map Making

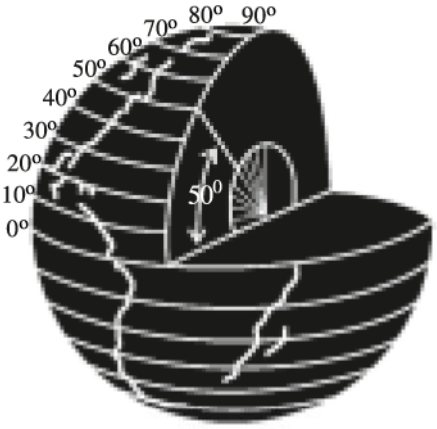
Man studies the earth as a home of mankind. Practical work is at the base of the subject matter of Geography. Fieldwork and the laboratory work are the soul of practical work. In fieldwork, the area has to be observed in person and collect necessary information for actual study. Authentic literature and Reports are consulted. Inclination to research work and capacity are necessary for a researcher. With this information and with modern cartographic techniques, a geographical report of an area along with the maps and diagrams is prepared in the laboratory. Some basic information is necessary for preparing a map of a specific geographical region. In this chapter we shall know as to what information is needed beforehand in map making.

Parallels of Latitudes and Meridians or Longitudes

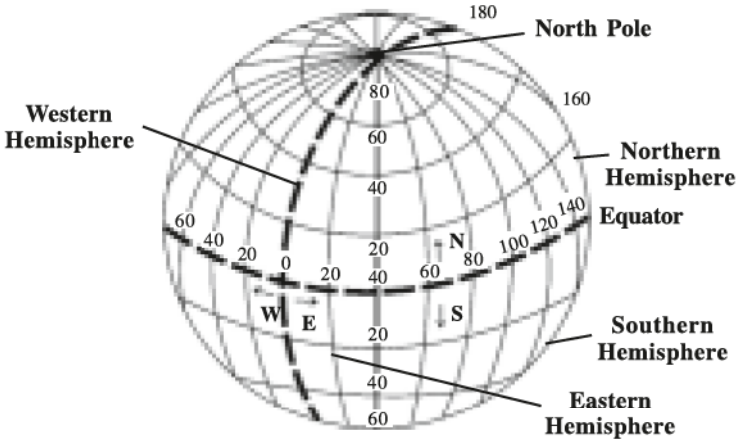
Parallels of latitudes : The earth completes one full round on its axis in twenty four hours. This is called the **daily motion** of the earth. Any place on the surface of the earth, e.g. Ahmedabad, completes one full round in twenty four hours and forms an imaginary circle. This circle is known as **parallel of Latitude**. Equator which is zero degree latitude is the main and the largest latitude. Other important latitudes are Tropic of Cancer (23.5^0 North latitude), Tropic of Capricorn (23.5^0 South Latitude), Arctic Circle (66.5^0 North latitude), Antarctic Circle (66.5^0 South latitude), North Pole (90^0 North) and South Pole (90^0 South).

Equator is the largest latitude and divides the equator into two equal parts. Latitudes are parallel to each other. The distance between two consecutive latitudes on the surface is 111 km. There are 90 latitudes to the north of equator and 90 to the south.

If any place on the surface of the earth is joined by a straight line with the centre of the earth, then the angle formed by this straight line and the imaginary equator is the latitude of this place. A circle joining all places situated at 45^0 north of equator is called 45^0 North latitude.



16.1 Measurement of latitude from angular distance



16.2 Latitudes and Longitudes on the Globe

Meridians of Longitudes : An imaginary half circle passing through both the poles and forming an arc of earths circumference is called Longitude. Equator is a full circle which has 360 degrees. If a semi-circle is drawn passing through each degree joining North Pole and South Pole, then **every semi-circle**