

Lesson-8

Application of Technology in the Study of Geography



Learning outcomes :

Students will–

- ✦ have a brief idea regarding the use of maps and modern technology in the study of Geography.
- ✦ have a brief idea about the history of map.

You must have acquired some idea about the use of different tools in the study of Geography such as maps, sketch, compass and diagrams etc, in the lesson titled 'Tools for study of Geography : Map' in the Social Science Textbook of Class-VI. In this lesson you shall learn about the fundamentals of drawing map, use of technology and the history of map making. It is not possible to view every element of the surface of the earth at the same time. Only a map can make this possible to a certain extent. Natural and man made elements of the earth or any part of it can be represented on a map and studied. The actual area of a place or a country can not be shown in a small piece of paper. Hence certain techniques are adopted for drawing the map of a place or a country on a small paper. The size of the place to be shown in the map is reduced according to a certain ratio. The ratio in which the actual distance between places over the earth surface is reduced, is called Scale in Cartography.

In simple language, a scale can be termed as the ratio between two places on the map and the actual distance between these two places on the surface of the earth. It may be noted that scale is indispensable for drawing a map. A map without scale is called a sketch.

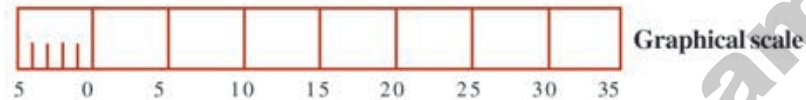
Three types of scales are used to draw maps- 1) Scale of statement, 2) Representative Fraction and 3) Geographical Scale.

1) Scale of Statement : This scale may be expressed in terms of written statements. For example 1 centimetre = 10 Kilometre. It means a distance of 1 cm. between two places on the map represents actual distance of 10 km. between the two places on the earth's surface.

2) Representative Fraction : This type of scale is expressed in the form of a fraction. For e.g. 1 : 25,000 or $1/25,000$. It means that 1 unit on the map represents 25,000 units on the actual ground distance. In this type of scale no units of measurement are used. Since the units of measurement are different in different parts of the world, this scale is expressed, devoid of any unit of measurement, as a ratio or fraction. This measure is widely used as it can be used anywhere in the world.

3) **Graphical Scale :** This type of scale shows map distance and corresponding ground distance using a line bar. Two straight lines are drawn parallel to one another and marked in divisions of 1 cm each. The division along the extreme left is divided in millimetre scale representing the distance on the ground. A primary division of 1 cm represents 5 km of ground distance and the secondary division of 1 mm. represents a ground distance of 1 km.

Different types of maps are drawn according to the theme of the map or information. For instance, physical maps are drawn to show the physical elements of the earth's surface. Maps are also drawn for representation of weather and climate, various socio-economic information etc.



You have come across conventional signs in the lesson from class VI. These signs help in understanding the physical and man made elements of a place shown on the map. Study of the map of a particular place at different times help in knowing the various changes coming up in that particular place. During leisure, you can play games of identifying mountains, hills, seas and oceans, rivers, towns and cities etc. Such games or competitions enable us to gain sufficient geographical knowledge about a particular place.

Write Answer :

- ★ How many types of scales are there and what are they?
- ★ Which types of scale can be easily used by people in all countries?

The various natural and cultural features of the earth surface are presented in geography with the help of some information. This is called geographical information. This information can be collected directly from the field or from various journals, books etc. Such information can be shown with the help of some diagrams and maps. These diagram and maps help a lot in giving knowledge about the subjects. Geographical data can be represented with the help of line graph, bar diagram, pie-diagram, maps etc. Nowadays, for representation and analysis of geographic information, computers are being used increasingly for speedier calculation of data and analysis, processing and management of huge database and its analysis, which is not possible manually. In addition, computers are also being used to produce large number of maps within a short time. Presently, information technology deserves importance for obtaining spatial information. Normally, spatial information technology includes Remote Sensing, Geographic Information System (GIS) and Global Positioning System (GPS).

Application of New Technology in the Study of Geography

Remote Sensing : Remote Sensing is the technique of acquiring and measuring the necessary information about objects from a distance without coming into direct physical contact with the object under study. Various types of sensors are used in remote sensing to gain knowledge about the earth surface. The sensors are placed in high flying aircrafts or artificial satellites. They provide us with information relating to various features of the earth surface. The images and

information captured through remote sensing process are made ready for use with the help of computers.

Geographical Information System : It is an advanced computer based system for representation and analysis of various information related to natural and man-made elements over the earth's surface. It can be called a spatial information system or a system that can analyse the information in various ways. In other words, Geographical Information System is a system for capturing, checking, analyzing and displaying data which are spatially referred to the Earth. In traditional method, different statistical techniques were used for interpretation of geographic information. Nowadays, such work is done with the help of computer. This is Geographic Information System or GIS. Necessary instructions are programmed into the computer for displaying the geographic information through various diagrams and maps.

Global Positioning System : Global Positioning System is used to collect informations relating to the location of places over the surface of the earth, its longitudinal and latitudinal extent, altitude etc. Artificial satellites have been put in the space to determine the location of various features on the earth's surface. Information relating to the location, direction, altitude etc. of any place on the earth's surface being sent by the satellites can be retrieved with the help of GPS. Normally, GPS is used to find out the exact location of any place while making voyages in the oceans, making surveys etc. GPS provide the correct location of a place while preparing maps with the help of Geographic Information System.

Activity

- ★ What are determined by Remote Sensing, Geographical Information System and Global Positioning System? Discuss in group and write.

Development in Map-Making

It is not an easy task to develop a meaningful map. Adequate knowledge is required in terms of methods and tools to be used. Man has been trying to draw maps since the beginning of human civilization. The oldest map was found in Mesopotamia (present Iraq) This map was drawn on mud plastering. Such map was produced in Egypt as well. They showed the flood affected areas of the river Nile. It has been found that the Chinese drew maps with scale in the 2nd century B.C. They drew maps to show mountains and hills, rivers, roads etc. on silk clothes. Amongst the ancient scholars, Ptolemy (90-168 B.C.) showed keen interest and skills in drawing map. He tried to determine the location of places with the help of longitude and latitude. Columbus, Vasco da Gama etc. discovered different places and enriched people's knowledge about the earth. Invention of printing machines in Europe brought drastic changes in the field of map making. The Industrial Revolution that had originated in Europe gradually spread to all parts of the world. People could tap various types of resources with the help of machineries. Thematic Maps were prepared to show distribution of resources, their use etc. Maps were prepared in India from 2500 BC onwards. Emperors and kings in India prepared maps to show the boundaries of their kingdoms. In India the British for the first time applied scientific techniques in the preparation of maps. They established the organization named The Survey of India in the year 1767. In the beginning of 19th century, the Surveyor General of India, William Lenton adopted scientific method for drawing maps. Subsequently, Sir George Everest developed this method further. As

mentioned above, nowadays the use of remote sensing technology and computer have enabled to prepare very perfect maps.

Let us remember

- ✦ The ratio in which the actual distance between various places on the earth's surface is reduced is called scale in cartography.
- ✦ Three types of scales are used in drawing maps : 1) Scale of Statements, 2) Representative fraction and 3) Graphical Scale.
- ✦ The technique of making inferences about objects and collecting necessary information without coming into direct physical contact with the object under study is called Remote Sensing.
- ✦ Geographical Information system is an advanced computer based system to detect and analyse the various features and events occurring on the earth's surface.
- ✦ The System which collects, checks, analyses and displays the data related to various places on the earth's surface in a systematic manner is called a Geographic Information System.
- ✦ Global Positioning System is used to determine the latitude, longitude, altitude etc. of a place on the earth.
- ✦ The English for the first time developed maps in India in a scientific manner.

Exercise

1. Give short answers :

- a) What do you mean by scale?
- b) What do you mean by Geographical Information System?

2. Tick ☒ the correct answer :

- a) The person who drew map for the first time on the basis of latitude and longitude is-
i) Eratosthenese ii) Ptolemy iii) Carl Ritter.
- b) The scale that is expressed as 1/10,000 is -
i) Representative fraction ii) Graphical scale iii) Scale of Statement.
- c) The oldest map was found in—
i) Egypt ii) Mesopotamia iii) Chile

3. Write elaborately on the development in map-making.

4. What technologies are used in the study of Geography?



Economics Section

Our Economic Life

Preface



The economic activities act as a catalyst for the building of strong foundation of a nation. The internal infrastructure, production, income, investment, etc. of a nation are also parts of the economic aspects. It can be stated that without the economic factors, the concept of a nation is crucial. The aspects of a nation or a region like goods and services production, supply, exchange, distribution and consumption, etc. are discussed intensely deeply in Economics. People need various resources to live a life. But resources are limited, whereas need is limitless. Therefore, the main aim of Economics is to fulfil the limitless needs of the people with these limited available resources by the appropriate use of the resources. In this textbook, some of the basic concepts on certain topics of Economics have been introduced for the benefit of the students according to their age and mental ability. The lessons of the textbook have been developed with a focus on how students can understand about the individuals, the society, and a nation's important economic activities. To do the same, the textbook takes examples from people's daily lives and activities and does not directly reflect any economic theories and corollaries. The lessons have been prepared based on weightage of the subject in accordance with the prevalent instructions of the curriculum. This has been done so that the teachers and parents do not face much difficulty in imparting the knowledge both in classrooms and at home respectively. It will also enable the students to achieve the intended Learning Outcomes easily.

The following Learning Outcomes are attempted to achieve intended through the lessons included in the Economics section of the textbook for Class VIII-

- Provides an idea on Human Resource and its development.
- Enlightens the impact of Human Resource in Socio-Economic fields.
- Enlightens about the development of Human Resource through Vocational education.
- Enlightens awareness about the socio-economic development and the role of financial institutions towards it.
- Provides idea about the self-help group, their pros-cons, their relevance.
- Provides idea on Consumer, Consumer Rights, Consumer Protection Law and Court.
- Provides basic idea about MRP, ISI, AGMARK, HALLMARK, EPO MARK etc.