Unit - 8

Map Reading

Learning Objectives

- Compare maps and globes
- Identify the components of maps
- Know the methods of representation of scale
- Describe how signs and symbols are used on maps
- Understand different types of maps

4HDGU

Introduction

Maps and globe are important tools for Geographers. Maps help geographers compare places and relate people's activities to the locations where they live. Cartographers use various methods to make maps as precise as possible .They design maps in a way that they can be read and understood by people throughout the world.

What is a map?

A map is a visual representation of an entire or a part of an area, typically represented on a flat surface. The work of a map is to illustrate specific and detailed features of a particular area, most frequently used to illustrate geography.

Map Reading

Map reading is an act of interpreting or understanding the geographic information portrayed on a map. By map reading, the reader could be able to develop a mental map of the real-world information by processing the symbolized information shown on maps.

Difference Between a Map and a Globe.

Map is different from the globe. Map gives a two dimensional Representation of certain regions or the entire world while a globe gives a three dimensional Representation of the entire world and it is a miniature form of the earth (model of the earth).

Globe

The study and practice of many facets of maps and map making is called Cartography. It can be described as the art and science of map making.

Components of a map

The basic components of a map are the 1. Title 2. Scale. 3.Legend or key. 4. Direction 5. Source 6.Map projection and locational information and 7.Coventional signs and symbols

a. Title

Title tells about the content of the map and is placed mostly at the top corner or at the bottom corner of the map

b. Scale

The scale is a ratio between the actual distance on the ground and the distance shown on the map. Generally the cartographers cannot draw maps the same size as the land. So, they reduce the size of land or features proportionally. For this purpose maps are drawn to scale. Each map has its own scale, which is indicated on the map. Often the scale is shown with a scale bar or a line and number and is placed just below the title or somewhere at the bottom of the map.

To show large areas like continents or countries small scale maps are used. Small scale maps can show only major features omitting the minor ones due to lack of space .For example physical map of the world will show us only the major physical features in the world. It represents more area of the earth but gives us less information.

To show a small area like a taluk or district large scale maps are used.

The large scale maps portray the information in detail than the small scale maps. For example physical map of India represents a small area of the earth but gives us more information. However, there is no criteria for the classification of maps based on scale. It is only a comparative term.

ACTIVITY

Compare and find out the physical features of India which are omitted in the physical map of the world

Scales on maps can be represented in three different ways. They are:

1. Statement or Verbal scale
2. Representative Fraction (RF) or Ratio Scale
3. Graphical or Bar Scale

1. Statement or Verbal scale

In this method, the map scale is stated in words i.e., 1cm to 1 km. It means 1cm distance on the map corresponds to 1 km distance on the ground. Thus it is written on the map like 1cm to 1 km, 1 inch to 1 mile etc.

Simple statement scale has the following characteristics.

a. If the numerator is in centimeter, the denominator is either in meters or kilometers

b. If the numerator is in inch, the denominator is in miles

2. Representative Fraction (RF) or Numerical Fraction or Ratio Scale

It shows the relationship between the map distance and the corresponding ground distance in the same units of length. R.F. is generally shown as a fraction.

For example, a fraction of 1: 50,000 shows that one unit of length on the map represents 50,000 of the same units on the ground i.e., 1cm or 1 inch on the map represents 50,000 cm or 50,000 inches respectively on the ground.

RF is represented as 1/ 50,000 or 1: 50,000

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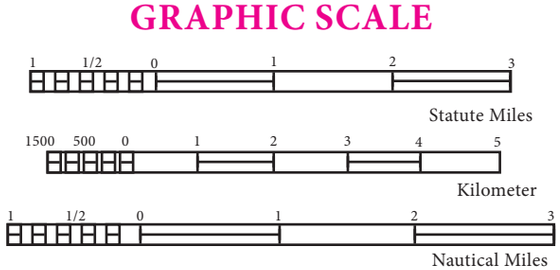
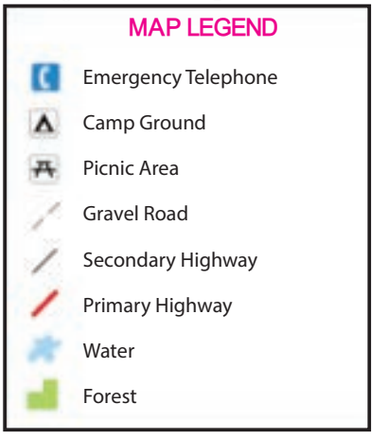
3. Graphical or Bar Scale or Linear Scale

A graphic scale looks like a small ruler drawn at the bottom of the page. This line is divided and sub divided into lengths each of which represents a certain distance on the ground. In this way distances on the ground can directly be measured and read off from the map by using a piece of string or dividers. This scale has added advantage for taking copies of maps as the measurement does not change.



c. Legend or key

A map key or legend is included in a map to unlock it. It gives you the information needed for the map to make sense. Maps often use symbols or colours to represent things, and the map key explains what they mean. Symbols in the key might be pictures or icons that represent different things on the map.



d. Direction

A map must indicate direction. This is done by means of an arrow pointing to the north. Once the north is located, it is easy to find the rest of the directions. Directions on a map are often given with symbol called a compass rose, which always shows north. Sometimes all the Cardinal directions such as north, south, east and west are shown. In addition the Intermediate directions of north east, north west, south east and south west may be given.

e. Source

All maps must show the source of the data used in the respective maps. The source should normally be given outside the frame of the map on the bottom right. On the bottom left the name of the author, publisher, place of publication and year of publication must be given.

f. Map Projection and locational information

A map projection is a way of representing the spherical earth on a flat surface of a map. The curved surface of the earth cannot be shown accurately on a map. So, cartographers use map projections while mapping the earth surface which would help them to reduce distortions. Latitudes and longitudes marked on maps give the locational information of the area covered in the respective maps.

g. Coventional signs and symbols

Conventional signs are symbols used in maps to represent different features. The symbols are explained in the key of the map. These symbols give a lot of information in a limited space. With the use of these symbols, maps can be drawn easily and the concept of the map can be understood well. There is an International agreement regarding the use of certain symbols. The symbols fall under this category are Called Conventional Symbols. Other category is called contextual symbols which are decided by the cartographers.

	Battlefield		Motorway Junction
	Bus Station		Railway Line
	Bridge	PH	Public House
	Camp Site		Public Telephone
	Contour Lines		Radio or TV Mast
	Footpath		Power Line
	Lighthouse in Use	B 5132	Scondary Road
H	Helliport		View Point
	Information Centre		Windmill
A 41 (T)	Main Road	P	Parking

Types of Maps

Maps are classified on several basis. Each basis gives a different types of maps. In this lesson, we will learn about the nature and characteristics of Relief maps, Cadastral maps and Thematic Maps

1. Relief or Physical Map

The map that shows the physical features of an area is usually called a Physical Map or a Relief Map. Their primary purpose is to show landforms like deserts, rivers, mountains, plains, plateaus etc. These maps present the overall picture of the local terrain. Different levels of altitudes and depths are also shown by these maps. Generally the sea is coloured blue and shallow waters are shown by light blue colours. For showing altitude, the following order is observed from low to high : light green, light brown, dark brown, crimson, red and finally white for the high altitudinal(ice covered) places.

2. Cadastral Map

A cadastral map refers to a map that shows the boundaries and ownership of land within a specified area. These maps are sometimes known as plans. As they are on large scale, they show full details of the boundaries and buildings. They are useful for local administration such as the city survey, taxation, management of estates and to define property in legal documents Usually these maps are maintained by the government and they are a matter of public record.

The term 'Cadastral 'is derived from the French word "Cadastre" meaning , 'Register of Territorial property'

Importance of Cadastral Maps

Cadastral surveys document the boundaries of land ownership, by the production of documents, diagrams, sketches, plans, charts and maps. They were originally used to ensure reliable facts for land valuation and taxation.

Scale of a Cadastral Map

Cadastral maps commonly range from scales of 1:500 to 1:10,000. Large scale diagrams or map shows more precise dimensions and features (e.g. buildings, irrigation units, etc.) are often prepared by cadastral surveys.

Cadastral maps

ACTIVITY

Prepare a cadastral map to show your school building and premises with the guidance of your teacher.

3.Thematic Map

A thematic map is a map that focuses on a specific theme or subject area such as physical phenomena like temperature variation, rainfall distribution and population density in an area. Thematic maps emphasize spatial variation of human issues like population density or prevalence of diseases. This is in contrast to general reference maps, which just show natural features like landforms, lines of transportation, rivers, human settlements, political and administrative boundaries. General reference maps do not focus any specific theme. .

Kinds of Thematic maps

Thematic maps are classified into qualitative and quantitative thematic maps. Qualitative map is in the form of a quality and expresses the presence or absence of the object on a map,

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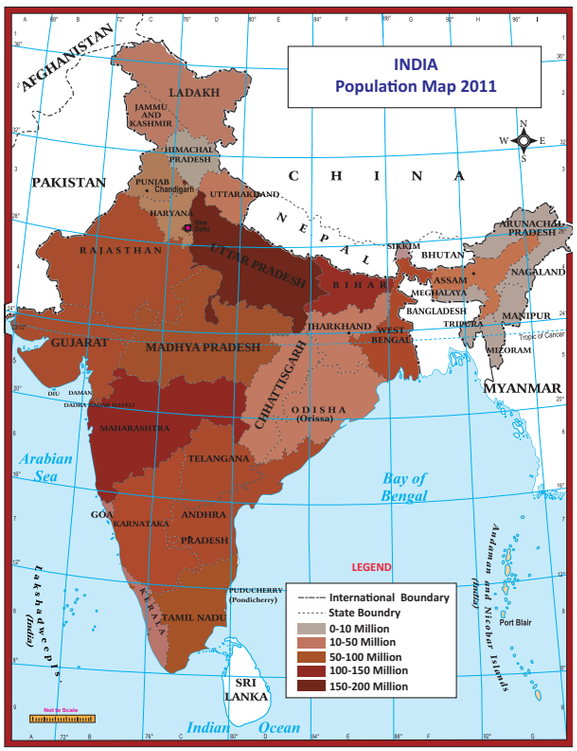
like the kind of vegetation present or occupying a region. Map showing the distribution of soil types is also a qualitative map. Quantitative map expresses the information of numerical values, like elevation in meters, temperature in degrees Celsius etc. Choropleth map, isopleth map and dot density map are the common types of quantitative thematic maps.

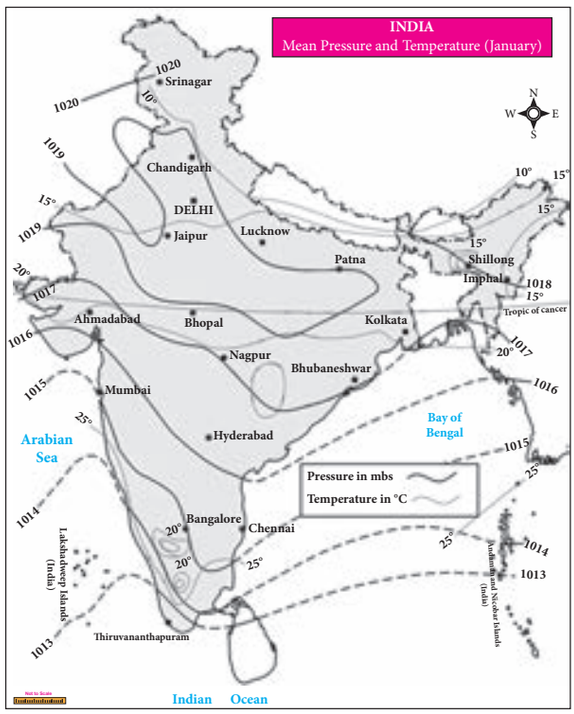
Choropleth Mapping

A choropleth map is a thematic map in which areas are shaded or patterned in proportion to the measurement of the statistical variable being displayed on the map, such as population density or per-capita income

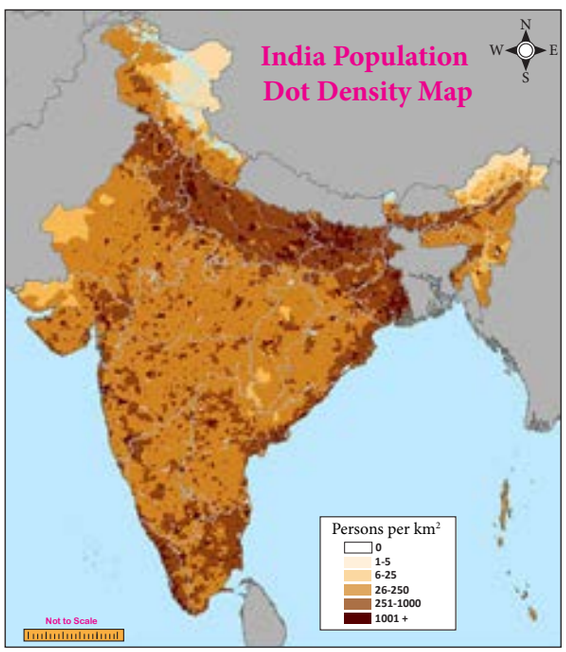


Isoline Maps

Isolines are lines drawn to link different places that share a common value. The prefix 'iso' is a Greek word meaning equal. So, an isoline is a line joining equal points. Isobars showing the distribution of atmospheric pressure and isotherms showing the distribution of temperature are the examples of isoline maps.



Dot Density Map



A dot-density map is a type of Thematic map that uses dots on the map to show the values of one or more numeric data fields. Each dot on a dot-density map represents some amount of data. In a dot-density map, areas with many dots indicate high concentration of values for the chosen field and fewer dots indicate lower concentrations.

Uses of maps

- To find the location of objects and places
- To find the transportation routes
- Maps showing strategic locations are useful for military
- Serve as tourist guide
- To find the spatial distribution of different phenomena
- Display weather conditions
- Highly helpful in learning geography
- Represent the real world on a small scale

Recap

- Map reading is an act of interpreting or understanding the geographic information portrayed on a map
- A cadastral map refers to a map that shows the boundaries and ownership of land within a specified area.
- A thematic map is a map that focuses on a specific theme or subject area.

GLOSSARY		
Map	A map is a two dimensional representation of the earth as a whole or part of the earth drawn with a specific scale on a flat surface	புவிப்படம்
Cartography	Cartography is the science and art of map-making	நிலவரைபடவியல்
Map Scale	Map scale refers to the relationship (or ratio) between distance on a map and the corresponding distance on the ground.	புவிப்பட அளவை
Cadastre	'Register of Territorial property'	காணிப் புவிப்பட பதிவேடு

Evaluation

I Choose the correct answer

1. The subject which deals with map making process is _____.
   a) Demography
   b) Cartography
   c) Physiography
   d) Topography

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2. A map that shows the physical features of an area is called ____.
   a) Cadastral map b) Relief map
   c) Climatic map d) Resource map
3. Shallow water bodies are represented by _____ colour.
   a) Yellow b) Brown
   c) Light blue d) Dark blue
4. The maps which are known as plans are.
   a) Cadastral maps
   b) Topographical maps
   c) Isoline maps
   d) Transport maps
5. Actual distribution of population can be represented by _____ .
   a) lines b) Shades
   c) Dots d) Contours

II Fill in the blanks

1. The globe is the true representation of the _____.
2. A way of representing the spherical earth on a flat surface is _____.
3. A line that joins the points of equal elevation is _____.
4. Cadastral maps are usually maintained by _____.
5. _____ map is focused on a specific theme.

III Choose the option which matches the following correctly

A. Legend	-	1. 45º
B. North East	-	2. brown colour
C. Contour Line	-	3. thematic map
D. Cadastral map	-	4. key of a map
E. Choropleth	-	5. taxation

a) 3,5,1,4,2 b) 4,1,2,5,3

c) 2,5,1,3,4 d) 5,2,4,1,3

IV Match the statement with the reason and select the correct answer

1. **Statement :** Small scale maps can show only major features.

   Reason : Due to lack of space ,it shows large areas like Continents and countries.

   a) Statement is true but reason is wrong.

   b) Statement is wrong and reason is correct.

   c) Both the statement and reasons are correct.

   d) Both the statement and reasons are wrong.

2. **Statement :** The conventional signs and symbols are the keys of map reading.

   Reason : These symbols give a lots of information in a limited area.

   a) Both the statement and reasons are correct.

   b) Statement is wrong and reason is correct.

   c) Statement is true but reason is wrong.

   d) Both the statement and reasons are wrong.

V Answer the following in one or two sentences

1. Define "Map scale".
2. What is a physical map?
3. Write a short note on map projection.
4. Name the Intermediate directions.
5. What are the uses of a cadastral map?

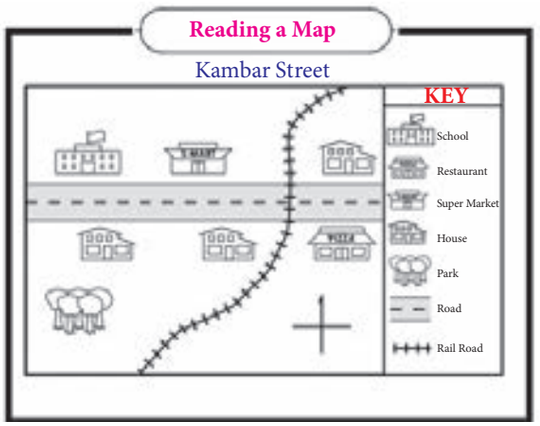
VI Distinguish between

1. Relief map and thematic map.
2. Large scale map and small scale map.
3. Globe and Map.

VII Answer in a paragraph

1. Explain the different types of scales in detail.
2. Describe the Cadastral map and its importance.
3. Write a paragraph about the conventional signs and symbols.

VIII Students Activity



a) Underline the map title

b) Show the direction of N,S,W & E on the map.

c) The rail track runs from Southwest to _____.

d) In which direction of the rail track, the park is located?

e) Colour the school with red.

f) Colour the supermarket with brown.

g) Colour the restaurant with yellow.

h) Colour the house east of the railroad with orange.

REFERENCE BOOKS

1. T.P. Kanetkar and S.V.Kulkarni , *Surveying and leveling Part-I,* AVG Ptakashan – Poona-2.
2. GRP Lawrence, *Cartographic methods,* Methuen and Co- Ltd. 1971.
3. *Ministry of Information and Broadcasting Govt of India,* Refrence Annual -1976.

ICT CORNER

Map Reading

Through this activity you will know about map skills

Step – 1 Open the Browser and type the URL given below (or) Scan the QR Code.

Step – 2 Click on **"Map Skills"** and select any topic (ex.Scale)

Step – 3 Click on Next or previous button to know about mapping scale

Step – 1

Step – 2

Step – 3

Web URL: http://www.ordnancesurvey.co.uk/mapzone

*Pictures are indicatives only.

*If browser requires, allow Flash Player or Java Script to load the pag