UNIT 9 TOOLS OF TEACHING GEOGRAPHY

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9.1 INTRODUCTION

Geography teaching involves primarily the analysis of casual relationship and the intelligent understanding of phenomena occurring on the earth surface. It is being accomplished by direct and indirect observations and by compilation of basic information of geographical importance. Therefore the subject needs a broad and rich base of preceptual experiences as an important basis for good teaching. Though it is almost impossible to provide real learning experiences for school children to acquaint themselves with geographical knowledge, the study of the subject could still be made more lively, interesting and comprehensible through wise and intelligent use of tools namely maps, globes, models, specimens which are simply reproduction of the reality etc. In this Unit, we would like to concentrate on the content, namely, the tools for teaching geography and provide you with some teaching strategies that you may adopt for teaching such contents.

9.2 OBJECTIVES

At the end of the unit, you will be able to:

- identify the different concepts, terms, facts in the unit;
- explain why maps are important in teaching of the subject;
- describe the basic characteristics of maps;
- develop the skills for using different tools in teaching of geography;
- develop skills of making maps and models;
- formulate instructional objectives for the topic on maps;
- design teaching-learning activities for the topic on maps;
- develop lesson plan on the topic ‘Maps’, and
- construct evaluation items on the topic.
9.3 CONTENT

Any topic consists of facts, concepts, principles etc. A student-teacher needs to be thorough with the content of the topic so as to plan for effective instruction. This means the student-teacher has to decide how the content has to be sequentially and logically presented to the learners so that it is effectively learnt by them. Keeping this in mind the content specifications have been given below:

Content Specification
- Concept of map
- Scales, symbols, direction
- Concepts of latitudes and longitudes
- Significance of equator and prime meridian
- Types of maps
- Concept of globe
- Use of globe and maps

9.3.1 Concept of Map

A map is usually considered to be a drawing to scale of the whole or a part of the surface of the earth on a plane surface. Till recently, it was manually a drawn picture of the earth showing the location and distribution of various national and cultural phenomena. Now computerised maps are also available. Even one can have maps of the heavenly bodies as well.

Unlike a photography, a map being the mental and manual creation of man gives only those details which the mapmaker wants to give. Instead of showing the details of their true or visible shape and size as in photographs it uses symbols which may or may not have similarities with the shape and size of objects represented. We should, therefore, define a map as a symbolic drawing to scale of the visible as well as conceived locational and distributional patterns of the whole or a part of the earth.

Certain maps are meant to give very minute details about very small areas like towns and villages. These maps are called plans.

The main problem of map-making is to transform the spherical surface (i.e. earth) into a two dimensional (plane) surface (i.e. map). Such a transformation introduces some changes in the directions, distances, areas and shapes from the way they appear on the spherical surface. This system of transformation from the spherical to the plane surface is called ‘map projection’. The construction of map projections requires a lot of mathematical calculations.

Check Your Progress

Notes:  a) Space is given below for your answers.
        b) Compare your answers with those given at the end of the unit.

1. What do you mean by map?
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2. Define ‘map projection’.
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Scale is the means which enable us to reduce the whole or part of the earth to a convenient size in a logical and scientific manner. Scale is defined as a ratio between the distance on a map and the corresponding distance on the earth. For example, if two places located one mile apart are shown as 1 inch apart on a map, then the scale of the map is 1 inch to one mile. It should be noted here that the scale of a map does not show the ratio of "actual distance" (through transportation lines) between two places but only the horizontal straight line distance between them.

A scale present a ratio \[ \frac{\text{Map distance}}{\text{Ground distance}} \]

In the above example it is \[ \frac{1 \text{ inch}}{1 \text{ mile}} = \frac{1}{63,360} \text{ inches} \]

In a scale, ratio of map to earth is a fraction or RF since ratio is also known as fraction.

Therefore a scale tells us what to expect in the way of details as well as to help us estimate distances.

In a map, scale is also expressed in a verbal notation (simple statement) or in the diagrammatic way (graphic scale).

Each component of a map is a symbol. To aid legibility in map reading, it is necessary to employ distinctive symbols for various features and to make use of different types of lettering for different purposes. These symbols have been internationalised so that any departure from them appear to be unnatural and incorrect to the average map reader. For example, we represent water features by blue and plains by green. If we try to reverse the colour scheme and show the water feature by green and the plains by blue, the consequences will be disastrous.

If we compare the topographic maps published by various government agencies all over the world, the symbols used are common which are often referred to as conventional symbols. These conventional symbols are normally given on the margins of the maps. They are learnt by constant practice in interpretation and application.

**Direction**

It is defined as an imaginary straight line on a map or ground showing the angular position of various points with respect to a common base direction which is normally 'north'. You will find the arrow pointing to the north direction - on the left top corner of the map.

A very important aspect of map-reading is the ability to identify our position in the country in relation to the position on the map corresponding to our actual location. To do this properly one is to be proficient in what is known as setting the map. To set a map is to adjust it so that the North point of the map corresponds with North in the actual country.

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**Check Your Progress**

**Notes:**

a) Space is given below for your answers.

b) Compare your answers with those given at the end of the unit.

3. What is a scale?

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9.3.3 Concept of Latitudes and Longitudes

Geographic coordinates provide the convenient reference points for the determination of location, distance, and direction relationships on the ground as well as on the map. The principle underlying the division of the earth by a network of geographic coordinates is the same as the preparation of a line graph with X and Y axes. In a graph, one must have a point of origin and two reference lines - an horizontal line or X axis and a vertical line or Y axis. The intersection of a pair of these lines gives the location of a point (or a place on a map). If these sets of lines are shown on the map or on the spherical earth, we call the horizontal lines to be parallels or latitudes and the vertical lines to be meridians or longitudes. The network of these parallels and meridians (latitudes and longitudes) is called geographic coordinates.

A place (or a point) on the earth surface or a map can be located with the help of the intersection of its corresponding latitudes and longitudes.

9.3.4 Importance of Equator and Prime Meridian

If we represent the earth by a sphere, a line drawn midway between the northern and southern ends of the axis, will divide the sphere into two halves. This mid-line is called the equator. As the equator is the line of origin from which latitudes are measured, it is called ‘O’ latitude. As the angular distance between the equator and the pole is 90°, the latitudes are numbered till 90. These latitudes being the lines parallel to the equator, are therefore called ‘parallels’.

A latitude tells us how far from the equator a place lies. But to pinpoint the location of place, one has to state where along a particular latitude it is located. Longitudes are the lines running between the north and south poles which divide the latitudes into numerous parts and thus help to locate exactly the object on the earth surface. Unlike the parallels, the meridians are not parallel to each other. There are 360° of longitudes. It is difficult to determine the point of origin for longitudes (unlike the latitudes where the 0° latitude i.e equator, is the point of origin). After a lot of discussion, it was decided to have meridian passing through Greenwich as the 0° meridian. This is called prime meridian. At present all countries use this meridian as the prime meridian. While numbering around the sphere ends up with 0° and 360° to be the same. Therefore to avoid this problem, it was stopped midway and the order of numbering was reversed. That is why we have the meridians starting from 0° to 180° only. Moving eastward the numbering increase to 180° (labelled as E) and then decreases back to 0° (from 180° to 0° labelled as W). This makes it possible to locate a point in terms of its latitude north or south of the equator and its longitude east or west of the prime meridian.
Check Your Progress

Notes:  a) Space is given below for your answers.
        b) Compare your answers with those given at the end of the unit.

5. Fill in the blanks.
   a) Horizontal lines on the map are called .........................................
      .........................................
   b) Vertical lines on the map are called ..........................................

6. What is equator?

9.3.5 Types of Maps

The most meaningful listing of varieties of maps is the one based on utility. They include topographical maps, thematic maps, economic maps, historical maps etc.

The large scale topographical maps which are produced by the Survey of India show the relief and the terrain in detail.

The maps dealing with a single factor such as rainfall, crops, population etc. are classified as thematic maps.

9.3.6 Concept of Globe

Globe is a three-dimensional representation of the earth. It resembles the earth in shape and shows water and land masses in proper relative sizes and position. It is, thus, the spherical model of the earth.

9.3.7 Uses of Maps and Globe

Different people will assign different values to large scale topographical maps. To the tourist, the most prominent features will be the roads and the towns and villages where a halt may be made at some suitable place. The mountain climber may be interested in contours as depicting the heights at various points in the mountainous area. The soldier is concerned with topographical information likely to be useful for locating strategic positions. From the academic point of view of a student, he makes use of maps in outdoor excursion work, in connection with his practical mapwork course and as an aid to study of physical geography and geomorphology.

9.4 INSTRUCTIONAL STRATEGY

Instructional strategy for the unit includes instructional objectives, teaching-learning activities and evaluation items.

9.4.1 Instructional Objectives

Once the content has been analysed, the teacher has to decide what specific changes in behaviour in terms of cognitive, affective and psychomotor skills, are to be expected in the pupils.
While planning instruction, it becomes imperative to decide the learning outcomes before hand so as to select the appropriate learning experiences in order to attain the expected learning outcomes. The content provides the scope for a range of instructional objectives from simple 'recall' to, 'to appreciate and develop a sense of curiosity regarding our planet and its relation with the rest of the systems in universe'. These instructional objectives will also include developing concepts based on the text and relevant psychomotor skills. Hence a teacher needs to visualise a comprehensive list of objectives for any given topic. Though a teacher visualises a very exhaustive list of behavioural outcomes, only a limited number of these may actually be attained, because of the constraints of time and other factors in a given instructional period. Therefore, you may find that the exemplar, only selected instructional objectives are considered for that particular plan. All the same, it should be noted that each teaching point selected for the lesson should have at least one instructional objective. Further, an attempt should be made to plan instructional objectives at various levels.

You have already learnt how to state instructional objectives. As instructional objectives indicate the expected learning outcome, they refer to changes in learners' behaviour. So, while formulating instructional objectives, care need to be taken that:

- each objective refers to a single behaviour of the learner
- this behaviour is observable or over
- conditions under which the behaviour is manifested or performed is mentioned, and
- standard of performance of the behaviour is indicated.

Conditions need to be mentioned in case they are very specific for the behaviour, but after in the classroom instruction these conditions are not so stated specifically. And hence these conditions are many a times not explicitly stated, but are implicit.

Standards define to the extent of which the learners' behaviour are expected i.e. whether they state an answer or respond in a few words, or give specific amount of information or perform certain action as per their age and standards. This is because any given content can most often be discussed at different levels and depth. This needs to be explicitly stated in the instructional objective.

Keeping these four points in mind, the instructional objectives for the selected topic are stated below:

**Instructional Objectives**

The student will be able to:

- to define the concept of map,
- to explain the significance of latitudes and longitudes in the understanding of geographical concepts of distance, time and climate,
- to locate new places on the map with the help of latitudes and longitudes,
- to develop the skill of marking different regions (natural, physical and political) on an outline map,
- to develop skill of drawing the topography of his/her locality indicating the different landmarks and directions,
- to differentiate the different kinds of map,
- to differentiate between maps and globes. He can explain the division of earth in different hemispheres,
- to explain the concepts of eclipse with the help of globes, and
- to explain the cycle of seasons and wind system with the use of maps and globes.

**9.4.2 Teaching-Learning Activities**

Teaching-learning activities are made up of methods and techniques (or procedures) which would ensure the learners attaining the objectives. It includes the nature, scope and sequence
of events which provide the learning experiences. A strategy takes into consideration the
available resources (physical as well as human) in order to plan the variety of learning
experiences. As we have seen earlier, the same instructional objectives may be attained by
a variety of methods. That means, for each learning outcome, the learning experiences that
could be provided are innumerable. Out of these, in a given instructional period, a teacher
would be able to provide only a select few. All the same, the teacher should be in a position
to take recourse to alternatives, if the selected ones fail to achieve the desired effect.

While preparing a strategy, we have to initially decide how to view the topic. That is to say,
we have to be clear about the approach we shall be adopting for dealing with the content.
Two of the commonly used approaches in teaching Social Studies are Inductive and Deductive.

Inductive Approach originates from the term ‘to induce’ meaning ‘to lead on’ or ‘to tow’. According to this approach, a teacher begins by providing unorganised information in various
formats to the learners. The students study these pieces of information in the context of the
problem or the content they are to discuss. That is from individual and separate facts (ideas)
the students are led towards hypothesising and arriving at a tentative generalisation which
is to be analysed for acceptance or rejection or modification.

Deductive Approach means that the students draw out from a given principle or generalisation,
some example or illustration that shows the operation of the given principle or the generalisation.
In this approach a teacher states a law, principle or generalisation and then the students are
asked to apply the same to problems of their own. That is to make them aware of the operation
of the law or generalisation in their environment. The approach necessitates an initial exposition
which sets the students thinking to apply the knowledge to understand the phenomenon
around them. This approach is more suitable to disciplines which are axiomatic in nature.

Having understood these two approaches, you would be able to decide which of the approaches
would be more suitable for the particular content you are expected to transact with the
students in the classroom. As you may have observed, social studies as a course of study
yields itself well to the adoption of the Inductive Approach wherein the learners are able to
observe various phenomena surrounding them and understand the underlying principles
operating them. It provides scope for analytical thinking, and hence in the exemplar provided,
Inductive Approach has been adopted and planning has been carried out accordingly.

You have already learnt the format of Unit Planning in the first block. To refresh your memory,
it is once again presented hereunder. A Unit Plan has the following details:

**Format of Unit Plan**

<table>
<thead>
<tr>
<th>Name of Candidate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>School:</td>
</tr>
<tr>
<td>Subject:</td>
</tr>
<tr>
<td>Previous Knowledge/entry behaviour of pupils:</td>
</tr>
<tr>
<td>Major Objectives of the Unit:</td>
</tr>
<tr>
<td>Theme of the Unit:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub Units</th>
<th>Teaching Topics</th>
<th>No. of Periods and Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching Points</td>
<td>Specific Objectives of each Topic</td>
<td>Method, Media and Approach to be adopted</td>
</tr>
</tbody>
</table>

**References:**

i) For Teacher

ii) For Pupils

**Unit Test:**

**Assignment:**
Having prepared a unit plan, a teacher has to prepare a detailed lesson plan for the sub-units (as many as there are in the unit). For your reference a lesson plan which deals with providing learning experiences for a selected sub-unit that could be covered in one instructional period is being presented hereunder. This will give you an idea as to how to plan a lesson for just one instructional period.

The sub-unit selected here from the unit “Tools of Geography” is the concept of map. While planning to teach this concept, the teaching points need to be identified. An attempt has been made to identify the teaching points and are listed hereunder:

Maps
  i) Meaning and definition of Maps
  ii) Scale
  iii) Legends and their uses
  iv) Latitudes/Longitudes
  v) Types of Maps
  vi) How to read a map, and
  vii) The importance of accuracy in mapping for international relations.

As you can see for yourself, the teaching points we have selected for the model (exemplar) lesson plan has been limited to one concept, i.e. Maps, keeping in mind the time available for a single instructional period. And this selection of teaching points is made on the teachers' personal decision as to what concepts need to be emphasised according to the entry level behaviour of the pupils. So, for this exemplar, we have further restricted to only three leading points that could be covered say in a period of 40 minutes.

Earlier you were presented with the format of a Unit Plan. For this exemplar we require a lesson plan, the format of which is being presented hereunder:

**Format of a Lesson Plan**

<table>
<thead>
<tr>
<th>Name of the Candidate :</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject : Topic : Std. :</td>
</tr>
<tr>
<td>1. Entry behaviours :</td>
</tr>
<tr>
<td>2. General objectives of the Topic :</td>
</tr>
<tr>
<td>3. Methods :</td>
</tr>
<tr>
<td>Media :</td>
</tr>
<tr>
<td>Approach :</td>
</tr>
<tr>
<td>4. Reference Books :</td>
</tr>
<tr>
<td>5. Introduction :</td>
</tr>
<tr>
<td>6. Presentation :</td>
</tr>
<tr>
<td>Teaching Point Specific Objectives in Behavioural Terms Learning Experiences Teachers &amp; Pupils Activities Point-wise Evaluation</td>
</tr>
<tr>
<td>7. Recapitulation :</td>
</tr>
<tr>
<td>8. Home Assignment :</td>
</tr>
<tr>
<td>9. Blackboard Summary :</td>
</tr>
</tbody>
</table>

This format of a lesson plan comprises eight components beginning from the specification of the entry behaviour of the pupils to the blackboard summary. The detailed explanation and relevance of each of these eight components have been already discussed in the earlier module.
Now, let us try to plan the topic ‘Maps’ according to this format wherein we shall be
discussing only the initial three teaching points since that’s all that could be possible to be
transacted effectively in 40 minutes or so.

**Model Lesson Plan**

**Subject : Social Studies**

**Topic : Maps**

**Standard : VIII**

1. **Entry Behaviour**
   i) Pupils are aware of the concept ‘Map’ in general terms.
   ii) Students have variety of maps in their text books and
       atlases. They have also used large maps in the classroom.
   iii) Students also know that different types of maps represent
       the different features of the earth (such as physical, political,
       relief etc.)
   iv) Students are aware of the standardised use of specific
       colours to indicate specific features on the map.

2. **General Objectives of the Lesson**
   i) Students will develop awareness regarding the use of maps in the understanding
      of geography,
   ii) Students will develop interest in map reading and map making, and
   iii) Students will acquire knowledge regarding the history of map making.

3. **Methods** : Discussion, Narration, Question & Answer and Demonstration.
   **Audio-Visual Aids** : Different types of map, a ‘space photograph’ of England.
   **Approach** : Inductive.

4. **Reference Books**

5. **Introduction** : The teacher should begin with a preliminary step that makes clear the
   relation which the plan of an object (say a pencil box) bears to the object itself. The
   simplest and most obvious plan is that made by drawing round the base of an object
   as it stands. By doing this, the children will realise that a plan (or map) shows the
   horizontal space occupied by a given object on a table. Then the problem arises as
   to how a plan can be made of an object that is too large to fit on a piece of paper.
   The children are quick to suggest “drawing it smaller” deriving that one inch stands
   for one foot etc. i.e. using scale. The ‘idea’ of scale will become familiar.

   The teacher can extend this idea to the plan of the classroom, which is the first ‘real’
   map to be made by children. The classroom is chosen because it is the room equally
   well known to everyone in the class. Then comes the representation of the space
   relationships of one object to another in the classroom. Distance and direction and
   relative sizes of all important pieces of furniture have to be considered. The classroom
   plan is indeed a map.

   The student can be asked to measure the room and represent it on the piece of paper
   according to scale. Each student can locate his desk on the plan. The symbols (drawn
   according to the shape and size of the objects) can be listed in the legend.

   Then the teacher encourages the students to draw a map showing the position of the
   classroom in relation to neighbouring rooms and corridors.

   In the presentation the teacher starts with the published maps.
<table>
<thead>
<tr>
<th>Teaching Point</th>
<th>Specific Objectives in Behavioural Terms</th>
<th>Learning Experiences Teacher &amp; Pupil</th>
<th>Evaluation Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of Map</td>
<td>Pupils — recall definition of Map. — differentiate the plan of a classroom with that of a topographical map. — describe the features of a map. — are able to read the North-East-West-South directions of a map.</td>
<td>Teacher compares plan of the classroom with that of topographical map. Teacher gives the definition of a map as following: &quot;A map is the representation on a flat surface of all or part of the earth's surface, to show physical, political, or other features, each point on the diagram corresponding to a geographical position according to a definite scale.&quot; Teacher draws the attention of the pupils to the small figure drawn like this on a map.</td>
<td>— How does a map differ from an aerial photograph? — How do you define a map? — What does the figure N W + E S indicate? — How does this help in map reading?</td>
</tr>
<tr>
<td>Concept of Latitudes; Equator, Tropic of Cancer, Tropic of Capricom</td>
<td>Pupils recognise that parallel lines drawn in the direction of East and West are Latitudes. — explain how there are 180° Latitudes — explain how latitudes are drawn. — give reasons for stating Latitudes as North Latitudes and South Latitudes.</td>
<td>Teacher draws the attention of the pupils to the horizontal lines drawn on a map and tells them that they are called the latitudes. Pupils question whether there are real horizontal lines on the surface of the earth. Teacher explains about latitude in the following manner: Running round the earth halfway between the two poles is an imaginary line which we call the Equator. Latitudes are the angular distance of a point on...</td>
<td></td>
</tr>
</tbody>
</table>
Pupils recall the distance between each Latitude.

Recall the names of the 3 main Latitudes-Equator.

Tropic of Cancer and Tropic of Capricorn.

The earth's surface measured from the centre of the earth. For going from the south pole we should go through a quarter of the whole circle or the circumference, that is, through one right angle of 90°. So we mark 90 divisions from the equator to the North Pole and 90 divisions to the South Pole. The Equator is marked 0°. The diagrammatic representation is as given below:

![Diagram of latitude lines]

Teacher draws the attention of the students to three important Latitudes:

1. 0° Latitude: which we call the Equator.
2. 23½° North: Tropic of Cancer.
3. 23½° South: Tropic of Capricorn.

The distance between two latitudes is approximately 69 miles anywhere on the earth's surface, except near the Poles where they are slightly longer because of the flattening of the earth's surface at the poles.

Teacher asks the students as to why Tropic of Cancer is indicated as 23½° North while Tropic of Capricorn is 23½° South.

Tools of Teaching Geography

Longitudes

Pupils recall the definition of Longitudes.

Recall that there are 360° longitudes.

Will be able to draw what are Longitudes? How are they calculated?
Teaching of Geography

the longitudes on an outline map.

— explain how the distance between two longitudes are 4 minutes per one degree longitude.

— can state why longitudes are referred to as Longitudes East or West.

Pupils: Why are longitudes referred to as East or West?

Teacher: The Latitude that passes through Greenwich on the Thames, East London, is known as the Prime Meridian or 0°. Greenwich is significant because there has been a very important observatory located there. We number the degrees East and West of Greenwich till we reach half way round the globe and the line 180° West of Greenwich is the same as 180° East of Greenwich.

Teacher easily draws longitudes on the blackboard and lets the children draw in their note books; thereby develops the skill of drawing.

What does Prime Meridian mean?

How do we calculate the distance between longitudes?

Pubils: We have learnt that longitudes help us to calculate time of a place. How exactly is time calculated?

Teacher: You know that the earth rotates on its axis from West to East in 24 hours and so its surface moves at the rate of 15 degrees an hour. In other words, it moves 1 degree in 4 minutes. The Prime
Uses of Latitudes and Longitudes

Pupils:  
- are able to state the use of Latitudes and Longitudes in the locating of any place on the earth with the help of Latitudes and Longitudes.
- can calculate time at different Longitudes on the East or West of Prime Meridian.

Teacher: You have now understood the meaning of the term Latitudes. Now let us try to understand the use of these two concepts.

When we try to plot a point on any graph, how do we go about?

Pupils: We know the distances on the X and Y axis and locate the plot. For example if we are seeing the relationship between the temperature of a place and its humidity we may draw the graph like this:

![Graph showing relationship between temperature and humidity]

Teacher: Very good. Keeping the same principle in mind, we are able to locate places on the map with knowledge of the Latitudes and Longitudes. That is, if we wish to locate a place on the map and we know the Latitude and the Longitude of the place, on the map we trace where this particular Latitude and Longitude cross each other. We would find the place there correctly i.e. we know that the Latitude of a place is 43° N and Longitude is 83° E. Then on the map we search the same.
In the same way, if we know the time at Greenwich which is on 0° Longitude or on the Prime Meridian we can calculate the time on any other Longitude on the East of Prime Meridian or the West. On the East, we add 4 minutes to each Longitude from Greenwich and deduct 4 minutes to each Longitude on the West of Greenwich. So, on the basis of the Longitudinal distance of Indian Standard Time from Greenwich Meantime, we can calculate that I.S.T. is 51 hours leading of G.M.T.

— How can latitudes and longitudes help to locate any place on the map?
— Locate New Delhi, Madras, Calcutta and Mumbai in your Atlas.
— If it is 12.00 noon according to I.S.T. what would be the time at Hong Kong, Sydney and California.

7. Recapitulation: — Define a Map and state the names of the different types of map.
— How are Latitudes and Longitudes drawn?
— State their uses.

8. Home Work: i) Refer to your Atlas and study carefully the differences between the variety of maps.
ii) As an activity, work out the time at London, New Delhi, Karachi and Melbourne when the World Cup Cricket is played in Melbourne.
iii) Ask the students to draw the route map from their home to school locating important features, landmarks and buildings.

9. **Backboard Summary:**
   - Main concepts and their definitions.
   - Drawing of how Latitudes and Longitudes are worked out.
   - Calculation of time on different Longitudes.

In the preceding pages an attempt has been made to present a model lesson plan. We hope you have got an idea about how to plan any lesson. Keeping the proforma and exemplar in mind you can plan your lessons. What you need to keep in mind is the different components of the plan which would direct you to make your design. These are:

- Selection of teaching points -(Content analysis).
- Formulation of instructional objectives
- Identifying learning experiences, and
- Proposing evaluation procedures.

9.4.3 **Evaluation**

- Define the meaning of map,
- Differentiate between maps and plans,
- What are the functions of map projection,
- What is a scale? Give example of a scale,
- Discuss the functions of a scale,
- Differentiate between scale and symbol on a map,
- Give examples of some conventional symbols used in topographic maps,
- What does the symbol N on a map signify?
- What is meant by geographic co-ordinates on a map?
- Differentiate between latitudes and longitudes,
- What is equator and what is the latitude of equator?
- Which latitude divides the globe into two parts — Northern hemisphere and Southern hemisphere?
- What is prime meridian?
- Define east and west according to meridians,
- List the types of maps generally used in geography teaching,
- What do you mean by a globe?
- Discuss the uses of maps and globe.

9.5 **LET US SUM UP**

In this Unit, we discussed the major tools which are used in teaching of geography. The concept of map was defined and the various functions of maps were discussed. Thus, a map is a symbolic drawing to scale of the visible as well as conceived. While defining scale, we said that scale is a ratio between the distance on a map and the corresponding distance on the earth. Each component of a map is a symbol. Directions on a map are also very important for map reading, we discussed the concepts of latitude and longitudes and the importance of prime meridian. We also touched upon the uses of maps and globe.
After presenting the content, we formulated instructional objectives for the unit and presented a model lesson plan on 'Map'. We also provided some evaluation items for the unit.

### 9.6 UNIT-END ACTIVITIES

1. Prepare appropriate teaching aids to teach the topic ‘Map’.
2. Prepare different types of Map.
3. Prepare instructional material for the topic “Types of maps and their uses”.

### 9.7 POINTS FOR DISCUSSION

- Role of Maps in teaching of geography.
- How to evolve indigenous and effective teaching aids in the absence of sophisticated models and teaching aids.

### 9.8 ANSWERS TO CHECK YOUR PROGRESS

1. A map is a drawing to scale of the whole or a part of the surface of the earth on a plane surface.
2. The system of transformation from the spherical surface (i.e. earth) into a two-dimensional surface (i.e. map) is called ‘map projection’.
3. Scale is defined as a ratio between the distance on a map and the corresponding distance on the earth.
4. Direction is defined as an imaginary straight line on a map or ground showing the angular position of various points with respect to a common base direction which is normally ‘north’.
5. a) Latitudes
   b) Longitudes
6. The line which divides spherical surface i.e. earth into two halves is called equator. It is also called 0° latitude.

### 9.9 SUGGESTED READINGS


Maude Lintrom Frandson (1960): Know Your World, Map Study for Middle Grade, Denoyar Geppert Co., 5235 Evenswol Avenue, Chicago.


Aerial Photographs may be available from National Remote Sensing Agencing, Balanagar, Hyderabad.