
UNIT 8 TEACHING-LEARNING PROCESS IN GEOGRAPHY

Structure

- 8.1 Introduction
- 8.2 Objectives
- 8.3 Meaning, Nature and Scope of Geography as a Discipline of Social Science
 - 8.3.1 Meaning
 - 8.3.2 Nature of Geography
 - 8.3.3 Scope of Geography
- 8.4 Aims and Objectives of Teaching Geography
 - 8.4.1 Aims and Objectives of Teaching Geography at Secondary Stage
 - 8.4.2 Aims and Objectives of Teaching Geography at Higher Secondary Stage
- 8.5 Teaching-Learning Methods in Geography
 - 8.5.1 Questioning
 - 8.5.2 Demonstration
 - 8.5.3 Peer Learning
 - 8.5.4 Games
 - 8.5.5 Simulation and Role Play in Geography
 - 8.5.6 Problem Solving and Decision Making
 - 8.5.7 Experiential Learning:
 - 8.5.8 Field Visits and Engagements in the Field
- 8.6 Teaching-Learning Resources
 - 8.6.1 Textbook
 - 8.6.2 Atlas
 - 8.6.2 Map
 - 8.6.3 Pictures
 - 8.6.4 Satellite Imageries and Aerial Photographs
 - 8.6.5 AV Programmes
 - 8.6.6 CDs
 - 8.6.7 Multimedia
 - 8.6.8 Internet
- 8.7 Let Us Sum Up
- 8.8 References and Suggested Readings
- 8.9 Answer to Check Your Progress

8.1 INTRODUCTION

Social science is one of the curricular areas in school education. It enables students to develop a critical understanding of the society. In Block-1, we have discussed how social sciences encompass diverse concerns of society by including wide range of contents drawn from the disciplines of History, Geography, Political Science, Economics and Sociology. As a teacher you may have experience of teaching all these components of social sciences, though you may not have studied about these disciplines during your school or college days. Now you might be facing difficulties sometimes while transacting learning experiences pertaining

to these disciplines. Taking cognisance of the situation, an attempt is made to provide you exposure to these major components of social sciences in Block-2. In the present unit you will be acquainted with another important component of social sciences i.e. Geography where you will be exposed to two major questions: what is geography and why should geography be taught at school stage? Through this unit, you will also be acquainted with different strategies through which students can be facilitated to learn geography. We will also describe various learning resources which can be used in classrooms.

8.2 OBJECTIVES

After going through this unit, you should be able to:

- explain the nature of geography as a discipline of social sciences;
- appraise how geography is an important component of social sciences;
- analyze the scope of geography;
- classify the branches of geography;
- discuss the rationale of teaching geography at different stages of school education;
- describe different methods of teaching geography;
- examine the different ways to create learning situations in geography; and
- explore the use and relevance of different learning resources in teaching-learning in geography

8.3 MEANING, NATURE AND SCOPE OF GEOGRAPHY AS A DISCIPLINE OF SOCIAL SCIENCES

8.3.1 Meaning

Geography, as we study it, has a long historical background. The first homo-sapiens might have encountered their geographical environment and might have endeavoured to negotiate with it. But the word ‘Geography’ was first used by Eratosthenes (276 – 194 BC) to mean the ‘description of the earth’. Etymologically, the word has been derived from two Greek words: geo (earth) and graphos (description). Let us look into some definitions given by scholars which throw light on nature of geography.

Some Definitions of Geography

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“Geography provides a view of the whole earth by mapping the location of places.”
Ptolemy, 150 CE

“Geography is a synoptic discipline synthesizing findings of other sciences through the concept of RAUM (Area or Space).”

Immanuel Kant, C.1780

“Geography is a synthesizing discipline to connect the general with the special through measurement, mapping, and a regional emphasis.”

Alexander von Humboldt, 1845

“Geography examines the way environment apparently controls human behaviour.”
Ellen Semple, c. 1911

“Geography is the study of human ecology; adjustment of man to natural surroundings.”

Harland Barrows, 1923

“Geography is the science concerned with the formulation of the laws governing the spatial distribution of certain features on the surface of the earth.”

Fred Schaefer, 1953

“Geography is concerned to provide accurate, orderly and rational description and interpretation of the variable character of the Earth’s surface.”

Richard Hartshorne (1959)

“Geography is the study of the patterns and processes of human (built) and environmental (natural) landscapes, where landscapes comprise real (objective) and perceived (subjective) space.”

Gregg Wassmansdorf, 1995

Source: Matt Rosenberg (geography.about.com/od/studygeography/geodefinitions.htm)

It is pertinent to note down that there is no single pervasive definition of Geography which can encompass the vast canvas of the subject due to its dynamic nature and frequent paradigm shifts. Geography is the study of distribution of the phenomena or it studies the human-environment relationship. It meant that geography is the study of physical environment on the one hand and the human activities on the other.

8.3.2 Nature of Geography

Geography is the discipline which seeks to explain the character of places and the distribution of features and events as they occur and change the surface of the earth. Geography is concerned with human – environment interactions in the context of specific places and locations. In addition to its central concern with space and place, it is characterised by a width of study, a range of methodologies, a willingness to synthesise work from other disciplines and an interest in the future of people – environment relationships. Finding answers to these questions requires investigation of the location, situation, interaction, spatial distribution and differentiation of features. Explanations of current situations come from both historical and contemporary sources. Trends can be identified which indicate possible future developments.

Some of the central concepts of geographical studies are location and distribution, place, people-environment relationships, spatial interaction, and regions. The teaching objectives of geography can best be achieved through a range of approaches. Geography often addresses the questions like where is it. (Location; absolute and relative), what it is like? (Spatial patterns), why is it there? (Cause and effect factors), why did it happen and how does it change? (Processes), what impact does it have? (Results), how should it be managed for the mutual benefit of humanity and the natural environment? (Conservation).

In the early stages of its development, geography provided the inventoried information by answering ‘What’ and ‘Where’ questions. For example, where is a particular country, place, river or mountain located? In which region or country,

a particular soil is found or crop is cultivated or a particular mineral is found? Thus, it was concerned with attending to locational questions. It provided information about the location of resources such as minerals, precious metals, agricultural commodities opening up the possibilities of trade. It was also beneficial to the colonial powers whose main purpose was to extract the resources of the colonies through the ports. So in this way this branch of knowledge had a narrow scope by providing information only about what and where.

Geography studies the physical as well as human aspects over the earth's surface. Physical characteristics that include landforms, climate, natural vegetation and soils provide background of various kinds of human activities. We are aware that human intervention through the modification is rooted through technology. You must have noted that the modifications of living conditions in the hot desert conditions of Arabian countries is successfully taken up by cooling technology such as refrigeration and air conditioning making life comfortable, on the other hand, the heating technology has made it possible to live comfortably in temperate and polar countries even when the temperature is below freezing point. Thus we can say that geography deals with two basic parameters in a holistic manner. These are natural/physical environment and the socio- cultural attainments of the human society as a result of their interactive activities within a spatial frame.

Geography is the science which deals with variations. The variable character is noted in both physical as well as human realms. There are variations over the space in terms of the physical landscape, such as mountains, hills, plateau, plains, and water bodies' like oceans, lakes, rivers as well as climate, vegetation, wildlife, soils and minerals. Likewise variations exist in the human realm such as population distribution, their economic activities, socio-cultural elements such as food, clothing, house types, religions, beliefs, customs, and mediums of expression such as languages and dialects. All these elements vary with reference to definite locational identities called regions. The human beings have occupied certain spatial niche in which they have developed their economy and society taking advantage of the resource base provided by the physical environment. The human-nature interaction produced numerous features and the human beings, in turn, went on improving upon it with the help of ever evolving scientific knowledge and technology. Actually the large part of cultural attainments of human civilization was made possible only with the help of technology. The human beings have been influenced by the dynamism of physical environment, technology and institutions created by them. Thus, this inter-relationship has often been described as the relationship between human beings and ever changing environment. Geography developed as the science of spatial synthesis which has made it to be an inter-disciplinary and trans- disciplinary subject.

Geography deals with regions. The region, basically, represents the spatial frame in which economic and social activities are carried out. Space is organized in a way that a pattern of phenomena emerges. Geography studies the spatial organization of the phenomena and analyses the spatial pattern according to certain laws.

Geography witnessed changes in the emphasis with the changing time. The geographers, before the publication of Friedrich Ratzel's (1844-1904) book "*Anthropogeographie*" thought that Geography is the study of earth's body with precise natural laws and human beings had no place in their understanding of

Geography. They thought that humans because of their unpredictable behaviour cannot be subjected to natural laws, hence were excluded from geography. Soon it was realized that human behaviour cannot be quantified hence behavioural and humanistic approaches were advocated.

The globalised world has thrown new challenges. With the development of technology, spaces on the globe have come closer. The distances have shrunk through faster modes of transport and revolution in information and communication technology. Today world has become a 'global village' where the information about every phenomenon is available at hand. Hence, the task of geography in the modern era is to study the spatial organization which is effected through networks on the surface and air. The modern Geography has to meet the challenges by studying the new type of spatial and social barriers being created in this uni-polar world.

Geography from its earliest days as a subject has always had a core focus on maps and spatial pattern and in the recent years GIS has become an important component in Geography. The present generation of geographers is well empowered through the modern techniques of Remote Sensing and Geographical Information System (GIS). These are very powerful tools but to be able to use them properly, one requires proper theoretical understanding of the phenomena.

Geographers are also addressing to the problems/issues which the world is facing today e.g. global warming, how the environment works and how human societies interact with it, global economy, food security, impact of new communication technologies, disaster management, etc. The geography in the modern age is a subject which takes cognizance of and seeks to understand the complexities of the earth in all its natural and human manifestations.

8.3.3 Scope of Geography

Domain of geography is vast enough. The subject matter of geography is studied through specialised number of branches. These branches are based on two approaches: systematic and regional. The branch having interface with natural sciences is known as physical geography, whereas the branch having interface with social sciences is known as human geography. Let us know more about these branches.

1) **Physical Geography** evolved from geology and other natural sciences. In fact, this is more of a natural science rather than a social one. Physical geography is concerned with environmental variables:

- Flora and fauna
- Climate
- Landforms, including rock type and arrangement, relief and drainage
- Soils
- Wild vegetation
- Relationships between these variables.

i) *Geomorphology* is devoted to the study of landforms, their evolution and related processes.

- ii) *Climatology* encompasses the study of structure of atmosphere and elements of weather and climates and climatic types and regions.
 - iii) *Hydrology* studies the realm of water over the surface of the earth including oceans, lakes, rivers and other water bodies and its effect on different life forms including human life and their activities.
 - iv) *Soil Geography* is devoted to study the processes of soil formation, soil types, their fertility status, distribution and use.
- 2) **Human Geography** is concerned with the spatial organization of society. In the beginning, the focus was on the description of the places where people lived. More recently, economic activities receive more attention with some emphasis on the regional distribution of resources and economic activities. Environmental issues also receive attention, but the focus is more on how landscape affects people than the reverse.
- i) *Social/Cultural Geography* studies the society and its spatial dynamics as well as the cultural elements contributed by the society.
 - ii) *Population and Settlement Geography (Rural and Urban)*. It studies population growth and distribution, density, sex ratio and migration age structure, occupational structure, etc. Settlement geography studies the characteristics of rural and urban settlements.
 - iii) *Economic Geography* studies the economic activities of the people including agriculture, industry, tourism, trade, and transport, infrastructure and services, etc.
 - iv) *Historical Geography* studies the historical processes through which the space gets organised. Every region has undergone some historical experiences before attaining the present day status. The geographical features also experience temporal changes and these form the concerns of historical geography.
 - v) *Political Geography* looks at the space from the angle of political events and studies boundaries, space relations between neighbouring units, delimitation of constituencies, election scenario and develops theoretical framework to understand the political behaviour of the population.

3) **Biogeography**

The interface between the physical geography and human geography has led to the development of Biogeography which includes:

- i) *Plant Geography* which studies the spatial pattern of natural vegetation in their habitats.
- ii) *Zoo Geography* which studies the spatial patterns and geographical characteristics of animals and their habitats.
- iii) *Ecology/Ecosystems* deals with the scientific study of the habitats and characteristics of species.
- iv) *Environmental Geography* concerns with the world leading to the realisation of environmental concerns and issues.

4) Regional Geography

- i) *Regional Studies/ Area Studies*: Comprising Macro, Meso and Micro Regional Studies
- ii) *Regional Planning: Comprising Country/ Rural and Town/ Urban Planning*
- iii) *Regional Development*
- iv) *Regional Analysis*

Geo-Informatics comprises Technology such as Remote Sensing, GIS, GPS, etc.

8.4 AIMS AND OBJECTIVES OF TEACHING GEOGRAPHY

Subject matter of geography is taught in different forms at different stages of school education. At the early primary stage, geography is introduced to small kids by exposing them to natural and social environment and is taught as integral part of languages and mathematics. In the later primary stage geography is taught through environmental studies where a child is initiated to locate and comprehend the relationships between the natural and social environment and introduced to analogies between the natural diversity and socio-cultural diversity. At upper primary and secondary stages geography is taught as part of social sciences where geography helps child in developing a proper perspective related to the issues concerning environment, resources and development at different levels from local to global. Issues related to geography are taught keeping in mind the needs to inculcate in the child a critical appreciation for conservation and environmental concerns. At the higher secondary stage geography is taught as an independent discipline as an elective. The foundation laid at this stage equips children with basic knowledge, skill and attitude to make meaningful contribution to the field of geography.

8.4.1 Aims and Objectives of Teaching Geography at Secondary Stage

At the secondary stage, Geography like other component of Social Sciences has a distinct entity. Yet adequate space has been given to develop multiple perspectives on a few selected themes, So that one also develops a comprehensive view. Geography draws its content from natural sciences as well as social sciences, therefore, unlike other social sciences, it does not study only human behaviour which is governed by reasons, it also studies physical phenomena, which are governed by cause and effect. Learners at this stage are prepared to take up a more intensive study for developing a deeper understanding of the socio-economic challenges before the nation. Local/regional context makes the learning relevant and enjoyable. Issues of gender, class, and caste may be woven with the given content in an appropriate manner.

The major objectives at this stage are as under:

- understand and appreciate the diversities in land and people of India in relation to their own place in the larger canvas.

- understand the process of economic and social change and development in their own surrounding and relate it with the contemporary India.
- understand the process of change and development in India in relation to the world economy and polity.
- understand the need for judicious utilisation of resources as well as the need for conservation of the natural environment.
- appreciate the rights of local communities in relation to their environment

Check Your Progress 1

Note: a) Write your answers in the space given below.

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

1) Differentiate between human geography and biogeography.

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2) Mention any three objectives of teaching geography at secondary school level.

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8.5 TEACHING-LEARNING METHODS IN GEOGRAPHY

NCF-2005 envisaged child-centered pedagogy which means giving primacy to children's experiences, their voices and their active participation. As per this approach, teaching- learning methods in geography must focus on helping learner acquire knowledge and skills in an interactive environment. It is important that the process of learning must promote the spirit of inquiry and creativity among both learners and teachers. The teaching of geography must adopt methods that promote creativity, aesthetics and critical perspectives. The geography teacher, who is an important medium of transacting the curriculum, must simplify concepts in a language comprehensible to students and must make efforts for making the process of learning participatory by shifting from mere imparting information to involvement in debate and discussion. This approach of learning will keep both learners and teachers alive to social realities. Geography teacher must clarify concepts through the lived experiences of individuals and communities.

8.5.1 Questioning

A question is any sentence which has an interrogative form or function. In classroom settings, teacher questions are defined as instructional cues or stimuli that convey to students the contents to be learned and directions for what they are to do and how they are to do with them. Questioning is an important teaching skill as well as a teaching learning method.

We have discussed questioning in Unit-3 of Block-1 of this course. In this section our focus is not on skill of questioning but on questioning as a teaching-learning method.

In a constructivist learning design questioning is one of the important elements in the process of teaching and learning. The teacher must anticipate questions to be asked to the students. Teachers must also predict the questions. Questioning is a method to make teaching-learning process more lively and participatory. Questions are the most important tool of thinking. It is tool for reasoning, learning and teaching. Good quality question can stimulate thinking among students. A quality question forces the students to think for themselves and apply the knowledge they have acquired to solve the problems. The question provides the students a lead to proceed further in their learning. Questions are used at every stage of teaching, i.e. pre-active, interactive and post-active stages. Questioning in classroom teaching learning process is used as under:

- to make an estimate of previous knowledge/ experiences of learners.
- to stimulate the thought process.
- to encourage and promote discussion/ brainstorming.
- to facilitate learners to acquire, organize, use and evaluate information.
- to generate interest, curiosity and creativity among learners.
- to assess the level of learning.
- to develop interest and motivate students to become actively involved in lessons
- to evaluate students' preparation and check on homework completion
- to develop critical thinking and inquiring skills.
- to nurture insights by exposing them to new relationships.
- to stimulate students to pursue knowledge on their own.

Level or order of questioning: Depending upon the mental processes involved, there are three levels/ orders of questions. Lower order questions are of lower cognitive level and are asked to test recall and recognition words and material previously read or taught by the teacher. Lower cognitive questions are also referred to in the literature as fact, closed, direct, recall, and knowledge questions.

The middle order question is asked to assess understanding level and higher level questions are asked to assess higher order mental processes. Higher cognitive level questions are also called open-ended, interpretive, analysis, evaluative, inquiry, inferential, and synthesis questions.

When children speak, they are usually only answering the teacher's questions or repeating the teacher's words. They rarely do things, nor do they have opportunities to take initiative. The curriculum must enable children to find their voices, nurture their curiosity—to do things, to ask questions and to pursue investigations, sharing and integrating their experiences with school knowledge—rather than their ability to reproduce textual knowledge. Reorienting the curriculum to this end must be among our highest priorities, informing the preparation of teachers, the annual plans of schools, the design of textbooks.

Page 13 NCF-2005

Questioning as a pedagogical tool in Classroom should be used not only for checking whether they have learnt but also to motivate them to think on various aspects. The students may be encouraged to put forth their arguments in support of their answer. **Use of 'one minute paper'** (Chizmar and Ostrosky, 1998) not only helps to get a clear understanding of student's learning but also acts as a pedagogical innovation for improving teaching. This method can be used in the final minute or two of the class hour. Students can be asked to write down important things that they have learned during transaction of a theme and also point out the issues or concepts which they are yet to grasp. This will help the teacher to gauge as to what is being learned, assess the learner's learning ability and also have an idea as to what is still needed. Short in- class Quizzes, debates, discussion and similar classroom checks on students understanding provides a proven framework to assess what students are and are not learning during the course.

Assessment: The type of questions asked has a very crucial role to play while assessing the students' learning. They should be framed in such a manner that they check the students':

- understanding of core concepts,
- ability to analyse, interpret the information,
- skills of presentation,
- reflective thinking,
- application of concepts to real- life situations, and
- making inter-connections between different concepts and topics

8.5.2 Demonstration

Demonstration is a technique through which the teacher shows various geographical phenomena and processes to students so that they can have concrete experiences and understand the concept properly. It is done with the help of two- dimensional or three dimensional models (static or functional), visual charts, flash cards, bulletin boards, power point presentations, multimedia presentations, films, documentaries, etc. Demonstration helps in motivating learners, retaining their attention and interest, which result in effective teaching and learning. In this method, both teacher and learners participate actively.

Example: Teacher with the help of working model, demonstrates the formation/ occurrence of seasons and in another instance teacher demonstrates the properties of rocks with the help of specimens of rocks.

8.5.3 Peer Learning

Peer learning essentially refers to students learning with and from each other as fellow learners without any implied authority to any individual based on the tenant that “ students learn a great deal by explaining their ideas to others and by participating in activities which they can learn from their peers”(Boud, 2001).

In peer learning students construct their own meaning and understanding of what they have to learn. Essentially, students are involved in searching for collecting, analyzing, evaluating and applying information to solve the issues. Students engage themselves intellectually, emotionally in constructive conversation and learn by sharing and questioning each other’s view point and reaching consensus. Peer learning can ensure conducive learning environment in the classroom. Teacher can ensure that the groups are viable enough; it must be small collaborative group. Peer learning leads to acquisition of content knowledge and fosters self directed learning skills, critical thinking and problem solving skills, and inter personal skills. It also leads to fun and joy while learning. The success of peer learning depends on the design, strategy and commitment of teachers and students.

To realize the benefits of peer learning in classroom, geography teacher must provide intellectual scaffolding. S/he may select topics in such a way that all students have some relevant knowledge of the issue to be discussed. They can raise questions to ensure that all group members participate meaningfully.

Peer learning strategies in geography classrooms

- 1) **Buzz groups:** While teaching the chapter on Environmental Conservation in geography to class X students, you can divide the class into smaller groups of 4-5 students to consider the conservational strategies of natural resources. Let the first group deal with water resources; the second group forest resources; the third group wildlife; the fourth group fisheries; and the fifth group mineral resources. After initial briefing, you may provide those 15-20 minutes for discussion and then you may ask one member of each sub-groups to share the findings with the whole classroom.
- 2) **Affinity Groups:** You may constitute one or more than one smaller groups of students comprising 4-5 members, who have strong affinity to each other and exhibits strong association among themselves. You can provide them the task to work beyond the school hours and ask them to present the findings to the whole class in the next formal meeting. Suppose you are teaching in a school located in rural area, you can form a small group who will design a small interview schedule for farmers working in the field about several geographical factors required for cultivation of standing crop. You can ask groups to present their findings in the class during the next formal meeting.
- 3) **Solution and Critic Group:** In this strategy one sub-group is assigned a discussion topic and the other group constitutes ‘critics’ who observe, offer comments and evaluate the presentation of the sub-group.
- 4) **Teach-Write-Discuss:** You can try out this method by providing instruction to the students, and then let them answer short questions in written form and justify their answers. After working on the questions individually,

students compare their answers with each other. A whole class discussion subsequently examines the array of answers that seem justifiable and the reasons for their validity.

Critique sessions, role-plays, debates, case studies and integrated projects are other exciting and effective methods which encourage and promote peer learning. Through these learning methods students acquire learning experience in free and relaxed classroom environment.

8.5.4 Games

The activity is meant to be enjoyable and that it does not matter who wins. Teacher can design several games based on maps and atlas. A large class is divided into smaller groups of six or less and each group is given a short time to accomplish a task, carry out an action, or discuss a specific topic, problem or a question. The advantage of games is very beneficial.

When groups are large and time is limited, games maximize students' inputs. Students get to know one another better and consider how another person thinks. This activity takes approximately 45-55 minutes and may take more or less time, but this activity is a great way to start a new unit when you typically open a new unit with a geography lesson.

Example of a Game (Pair or Small Group Activity) :

- Place a wall map in the classroom.
- Break up students into small groups or pairs, and refer to groups as teams. Make sure you have an even number of teams.
- Ensure that each team (each group) gets one question per round.
- The question will be based on identification of places known for their mineral deposits. Each team will be provided clue if the team is not able to identify the place on a map.

This will help students familiarize with the location of places known for mineral deposits.

8.5.5 Simulation and Role Play in geography

Simulation and role play: They work best when they are brief and discussed immediately. Students should be asked to imagine themselves in a situation or play the assigned roles. Role playing and simulation have the following advantages:

- powers of analysis and synthesis
- an ability to think ahead from an exciting situation.
- anticipating the probable actions of opponents.
- foreseeing the consequences of alternatives.
- evaluating the pros and cons of alternative courses of action one might take.

Role play is a useful activity in geography to help learners' to understand different viewpoints. Appropriate topics are generally easy for teachers to identify and they can research for the background information that is needed. What is more

problematic for most teachers is to implement the strategy effectively in the classroom. A good starting point is to observe some drama lessons and discuss with a drama teacher how he/she encourages students to take on convincing roles. Equally, it is important to note that learners need sufficient information to enable them to develop a realistic role. Role play is often used to help pupils appreciate the value positions of different people.

In order to plan for simulation and role play, you must keep following points in mind,

- What resources will be needed? How much do you want students to get “into role”? Do you need props?
- How will the classroom be arranged?
- Will role cards be provided by you, or will students research for information about their role and the views to represent?
- How will the roles be assigned? How long will the students need to prepare for their roles? Will any students need special support?
- What interventions will you make during the role play?
- How will a debrief be organized? How much time will be needed?
- What follow-up work will be taken up?

While dealing with a chapter on drainage, students may role play biographical account of rivers describing their geographical personality. Or a group may present a role play on conservation of water resources or forest resources for sensitising other students and for their own learning.

8.5.6 Problem Solving and Decision Making

Problem solving enables us to deal constructively with problems in our lives. Significantly problems that are left unresolved can cause mental stress and give rise to accompanying physical strain.

Development of life skills such as critical thinking skills, interpersonal communication skills, negotiation/ refusal skills, decision making/ problem-solving skills, and coping and self-management skills are very critical for dealing with the demands and challenges of everyday life.

Page 40. NCF -2005

Problem solving is an important strategy in the process of higher levels of learning that involve transfer and application of the knowledge and understanding to new situations. Problem solving strategy make learners think rationally, understand intellectual processes and practice intellectual skills. Problem Solving strategies are rooted in John Dewey’s philosophy of pragmatism. Piaget and Vygotsky also emphasized it for construction of knowledge. There are different approaches to problem solving method. You must have studied about different approaches to problem solving like behaviorist, information processing, Gagne’s condition of Problem solving, Piaget’s condition of Problem solving and Vygotsky’s social constructivism.

Problem solving requirements:

- 1) Problem solving strategies become important when role of student changes from 'knowledge acquisition' to 'knowledge construction'.
- 2) In this method students are active participants in construction of knowledge.
- 3) The active participation and personal involvement of the learner motivates students to learn and contribute to the feeling of self-worth.
- 4) It requires identifying and defining a problem, selecting or designing suitable solutions, testing trial solution, evaluating the solutions and revising or redesigning the steps, if required.
- 5) The role of the teacher in problem solving is that of a guide or a facilitator. He/she may select, organize and direct experiences.
- 6) The problems must be real and relevant to the students.
- 7) The role of school is to replace chance activity by activities that lead to genuine knowledge and fruitful understanding.

Instructional strategy to develop problem solving abilities

Problem solving can be used to develop conceptual understanding and the ability to transfer and apply this understanding to new situations. It gives opportunity to think rationally and to see relationships and disciplinary structures. Thinking is the basic skill required in problem solving by which students make sense out of experiences. Problem solving requires the ability to identify and describe the problem, suggest and design the possible solutions, test trial solutions, evaluate the outcome and revise these steps where necessary.

Developing thinking skills among students

Thinking skills are divided into cognitive and metacognitive skills. **Cognitive skills** include inductive and deductive reasoning, ability to distinguish between relevant and irrelevant information, recognition and categorization of problems, analogous reasoning, generalization and evaluation, etc.

Metacognitive skills refer to knowledge about one's own thought process and the ability to monitor what one is doing, why one is doing and how one is doing. Metacognitive activities can be developed with the help of specific activities and through co-operative group work.

Steps in Problem Solving:

Problem solving method using cognitive and metacognitive skills has four main steps as follows:



- 1) **Identifying the problem:** Students must understand the problem and define it. To teach the skill of problem identification to the students, problems that are new and meaningful to the students may be selected.
- 2) **Planning and designing the methods:** Next step after selection of the problem is to plan and design the process of problem solving. In this heuristic

approach (problem is broken down into number of smaller steps and then the way to solve each of these steps is worked out) or analogical approach (searching for solutions that one has earlier used to solve similar problems) may be used.

- 3) **Executing the plan:** The execution of the plan may require collecting data, organizing data, analyzing data, interpretation, drawing generalizations and conclusions, etc.
- 4) **Evaluating the solution:** In some cases, just checking the solution may give students some ideas whether the solution is correct or not. Also the other way of doing it is to apply the solution to new a situation, that is, application of the solution to new situation may give some idea about the correctness and validity of the solution.

Problem solving in Geography:

In geography, problem solving can be used to develop abilities such as analytical thinking, critical thinking, reasoning, and judgment, etc.

Decision Making: It helps us deal constructively with decisions about our lives. Decision making is an important life skill at all stages in life; it involves logical steps comprising determining the problem, considering multiple alternatives and choosing the best alternative based on the particular situation. Abstract thinking is an important skill for decision making. Learners need to move from being absolute thinkers (who believe that there is only one right or wrong answer) to abstract thinkers (who consider more than one right or wrong answer). The other skills required to arrive at a decision would include gathering information, analysis and evaluation.



Figure 8.1: The Process of Decision Making

8.5.7 Experiential Learning

Experiential learning means learning based on learners' acquired experiences; it is also called nature's way of learning. It is learning that occurs as a direct participation in the events of life. It includes learning that comes through reflection on everyday experiences. Experiential learning is also known as 'informal education' and includes learning that is organised by learners themselves. An experiential educator's role is to organize and facilitate direct experiences of phenomenon under the assumption that this will lead to meaningful learning. This often also requires preparatory and reflective exercises.

Primacy of the Learner: In experiential learning, student becomes more actively involved in the learning process than in traditional didactic education. For example, visit to wildlife sanctuary and national park, learning through observation and interaction with the natural environment are experiential in nature in contrast to reading and talking about animals and their habitats in a classroom. The main emphasis here, from a pedagogical point of view, is that teacher who takes his/her students to wildlife sanctuaries values direct experience more than abstract knowledge.

8.5.8 Field visits and Engagements in the Field

Field visit or field work provides opportunities for the first-hand investigation of people in their environment and as such awakens students to a diversity of environments and cultures, in their local areas. It teaches students to collect, analyse and present data, sharpen their observations, measure, record and evaluate the findings. As such, fieldwork has important contributions to make geography real and enjoyable and as a result every geography student should be entitled to have a reasonable amount of exposure to fieldwork experience through the geography course. Fieldwork should not be limited to visits and guided tours, whereby students are involved only in passive activities such as listening, observing and note-taking. Fieldwork should be enquiry-based in line with the aims and objectives of the school curriculum. It should involve students in identification of an issue or problem in a specific area, collect, present and analyse data and finally identify possible solutions or strategies.

Teaching Geography through Field Trips

- 1) **Local Trips:** The local trips will be valuable to the students of primary and upper primary stages. The students should be led to explore and study their surroundings for first hand information with regard to various crops grown, types of animals found, local markets or factories, rivers or lakes. Local trips are usually taken when the teacher has got two or three vacant periods at her/his disposal.
- 2) **Community Trips:** These trips take a longer period of time than local trips- may take the whole day or two days and involve more extensive preparation by the students. Community trips may include important industries, natural resources, mineral resources, museums, zoos, irrigation projects and other means of irrigation which are located not very far from the institution. The children should be taken to be the centres of industry and commerce. Geography includes social and economic factors.

In the workshops and mills, pupils will see how raw material is turned into finished products and they will also be curious to know where the raw material comes from, where the finished products are consumed, etc. From commercial centres whether those are village shops or town markets, they will learn how commercial transactions are going on. They will learn what **Import and Export** means. The study of agriculture and the facts connected with this pursuit is also possible only through excursions. Children can be taught the nature of soil, different seasons, and the means of irrigation and the influence of pests in this way. For the study of concrete Geographical facts, the students should tour the countryside as often as possible.

Tips and Techniques:

- Set up the field trip as a research project that includes data collection.
- Conduct a theoretical examination of the issue in class long before going into the field. Students should have a sense of what the field trip is going to be about before they go.
- At least two weeks before heading into the field, develop the rudiments of basic hypotheses. At this point you should give details about the field site so that students know what to expect.

- In the field, focus on the things that you've agreed to and let the other stuff be icing on the cake.
- Take a backpack full of extra warm/dry clothes and snickers to pass out to students as the need arises.
- For a large class, select group leaders to manage smaller groups of the class.
- Ask students to take appropriate clothes, and materials required for the field.

Issues to Consider/Prepare For:

- Transportation
- Identifying group leaders with previous experience
- Weather
- Coordination with external personnel
- Effective use of team leaders (management of group dynamics)
- Student concerns and safety measures.

Check Your Progress 2

Note: a) Write your answers in the space given below.

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

3) How can questioning be used as a pedagogical tool?

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4) Mention the steps followed in problem solving.

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5) Explain the concept of experiential learning.

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8.6 TEACHING -LEARNING RESOURCES

Resource, in ordinary parlance, is a commodity which has utility and value. In teaching-learning process of geography, we tend to use various objects, materials, people, and buildings to transact the contents. These are called learning resources. Sometimes these learning resources are also referred to as Instructional Aids/ Instructional Media. There is a wealth of learning resources in geography. You are familiar with common learning resources such as maps, globes, blackboard (chalkboard), charts, models, video film, radio, etc.

The resources may be used by teachers, students or both during instruction so as to maximise the attainment of learning objectives. In this section, we will be acquainting you with some specific learning resources for geography. We will also facilitate you with their conceptual understanding, how to use these learning resources and why to use these learning resources.

The importance of Learning Resources is stressed in Focus Group Paper of Teaching of Social Sciences. (NCF 2005.)

‘Teaching should utilize greater resources of audio-visual materials, including photographs, charts and maps and replicas of archaeological materials’

Source: NCF -2005

If so much is said about the importance of learning resources, you may raise a question, what is the need for using these learning resources when teaching learning can happen without that also. You can observe the difference between your teaching with and without using learning resources. Let us we discuss the need and importance of learning resources.

- Application of these learning resources makes teaching and learning effective.
- Learning resources help learners achieve the learning objectives more effectively and efficiently.
- Learning resources help in clarifying, interpreting and appreciating concepts; establishing and correlating accuracy. They provide clarity, precision and accuracy in processing information
- They help students learn faster, remember for longer time, and gain more accurate information.
- Some of these resources are used to create readiness in learners for learning experiences.
- They create visual images which help retention of the learnt concepts. Some of them also provide stimulation to more senses than one (e.g. video film or television).
- They also have the capacity to provide real (direct) or almost real experiences.
- Some resources provide the learner opportunity to learn individually at his/ her own pace (e.g. computer-assisted instructional programme) or in a small group (models, assignments, newspaper cuttings for discussion, etc.) or multimedia.

Learning through the use of resources

A good geographical enquiry usually involves the use and analysis of a rich variety of resources including worksheets, textbooks, maps, models, computer softwares, interactive games, internet, newspaper resources, weather instruments, specific items (rock samples and tools) and many others. Very often such resources arouse students' motivation and engage them in active learning situations that meet their varied needs. Besides this, such an extensive range of resources enhance students' learning experiences and are seen by many as a key attraction of the subject. Ideally geography should be taught in a special room allotted for the purpose which includes:

- adequate space for students preferably equipped with desks having flat surfaces for practical work especially cartography;
- spacious environment for the storage and effective use of resources including maps, books, charts, apparatus, posters, handouts and computers;
- various kinds of thematic maps, physical maps and topographical sheets;
- globes, including political, relief and activity globes that can be marked and cleaned;
- meteorological and fieldwork instruments;
- aerial photographs and satellite imageries;
- computers with internet access;
- interactive whiteboard; and
- water supply for use in model and map making.

Students should be encouraged to handle and use such resources during breaks or when geography related extra-curricular activities are being organised in school

8.6.1 Textbook

You are well aware of the concept and importance of textbook in our classroom situations. A textbook is a book designed for classroom use, carefully prepared by experts in the field and equipped with the usual teaching devices. Teachers use textbook in different manners in classrooms. Some are totally dependent on textbook as textbook is the only source of transacting instructional process, on the other hand, there are teachers who use textbook as supporting material. In our country textbooks are developed by different specialized agencies. At the national level, National Council of Educational Research and Training (NCERT) develops textbooks for all the stages of school education in all the curricular areas in Hindi, Urdu and English Medium. In states, the work of textbook development is entrusted upon either SCERT or State Textbook Bureau. Apart from that there are several private publishers who develop textbooks for school education. Textbooks in geography, based on NCF-2005, encourage students to engage in questioning and enquiry. In- text questions, content enrichment through information given in boxes, visual based questions and fun activities like puzzles, etc. engage students in several types of activities. These activities are helpful in enhancing their learning capabilities and in generating interest in the subject.

How to use Textbook in Classrooms: We have discussed about the use of textbook in Unit II of this course.

8.6.2 Atlas

Large number of maps bounded in a volume is termed as atlas. It contains several maps related to world, different continents, countries and regions. It also contains several thematic maps of different regions. Atlases also include additional information in the form of illustrations, tables, diagrams and graphs. An atlas is not only useful when trying to find places, but also when obtaining and comparing information on different areas around the world.

Atlases have a similar role to play in enriching the child's understanding of the earth, both as a natural and as a human habitat. Atlases of stars, flora and fauna, people and life patterns, history and culture, etc. can greatly enlarge the scope of geography, history and economics at all levels.

As our textbooks are not the only source of knowledge and there is limited number of maps in every textbook, so it is desired that the teachers must have extensive use of atlas for teaching-learning of geography.

Page 90 NCF-2005

Using an atlas

Atlas may be in the digital form or a hardcopy in print form. An (hardcopy) atlas is generally structured like most other reference books. At the front of the atlas there is usually a contents page, which lists all of the maps that are featured in the book and their pages. The main content of the atlas is essentially different types of maps that feature anything from the entire continent to small towns and cities. At the back of the atlas there is usually an index page(s). The index page lists all the countries, cities and towns which can be found in the atlas. Beside the listings, there is usually a page reference, a **grid reference** (comprising a letter and a number) and a **latitudinal** and **longitudinal** reference. Atlas is very conveniently used as supplementary material by geography teachers.

8.6.2 Map

The word 'map' has been derived from a Latin word 'Mappa' which in classical Latin means table cloth or a cloth cover. It indicates that the earlier maps were drawn on cloth or on tree leaves and the use of drawing paper came at a later stage.

A map is a selective, symbolized and generalized representation of the whole or part of the earth at a reduced scale.

Maps has six essentials that includes; title, scale, map projection, direction, conventional signs and index/legend. **Maps are classified on the basis of scale, content and purpose.**

- 1) **Maps according to scale:** Maps are drawn on different scales depending on the area covered by the map and the size of the map. Based on scale, maps have been categorized as large scale and small scale. Large scale maps are drawn on a large scale and include cadastral map and topographical maps. On the other hand small scale maps are drawn on a small scale and include wall maps and atlas maps.
- 2) **Maps according to content and purpose:** Based on content and purpose, maps can be divided into two broad categories:

- i) **Physical or Natural Maps:** They show natural phenomena such as relief, climate, natural vegetation, soils, etc. Maps showing natural features of the earth such as mountains, plateaus, plains, rivers, oceans, etc. are called physical or relief maps.
- ii) **Cultural Maps:** They show cultural landscape such as demographic, socio-cultural, political, historical, economic, commercial, agricultural information, etc. Maps showing cities, towns and villages and different countries and states of the world with their boundaries are called political maps.

Some maps focus on specific information such as showing distribution of temperature, rainfall, forests, minerals, industries, population, transportation, etc. These are known as thematic maps.

Maps provide more information than a globe. Maps are useful pedagogical tool. They help students learn concepts, synthesise and integrate ideas, and draw reasonable inferences and observations.

You must ensure that you carry right kind of map to your classroom. Learning of geography must take place with the help of maps. Maps can facilitate learning of concepts if learners are made to observe, compare, correlate and analyse maps. They must be made to understand cause and effect relationship through maps. For example, while teaching types of natural vegetation make students understand the contents through physiographic, climatic and soil maps. You can design several activities to assess learners' ability to read maps and draw inferences. Teacher can see if they are able to correlate the information given in two or more than two maps. These activities can be conducted in the classroom in groups or individually with the students.

You may note that tactile maps may be used for visually challenged students to understand and compare the maps. Care should be taken that tactile maps do not have too much information. Some organizations like the *National Atlas and Thematic Mapping Organisation* have developed atlases for visually challenged students. In case of unavailability of such maps/atlasses tactile maps may be prepared with the help of wool, thread, grains etc. At the national level, NCERT has also taken initiative to develop tactile maps.

Learning through maps

Maps in the form of paper, digital images and globes are an important tool for geographers and enable us to record, display and analyse information about people and environments. Teachers should ensure that their students are able to master a reasonable level of mapping skills and integrate such skills into the learning and teaching of geographical issues in the curriculum. Understanding and using maps involve the simultaneous use of a number of concepts and skills including aerial perspective, proportion, map language and arrangement. Students should be given the opportunity to develop their map literacy so that they can use maps to find out about and interpret the world around them in a critical informed way. In an enquiry based approach students should have access to a wide range of maps including large wall maps, atlases, globes, maps on CD-ROMs and other electronic media, including Google Map and Google Earth as well as a wide range of Ordnance Survey maps at various scales.

Globe

A globe is a spherical representation of the earth's surface. The globe is the nearest approximation of the earth. This is one of the essential instructional media for a geography teacher. Without its use, the teacher cannot explain the shape of the earth. The teacher can use the globe to explain about the axis of the earth, its end points - the North Pole and the South Pole, the Equator and the grid of latitude and longitude, and how the intersection of the two helps in locating any place on the earth with precision. It is with the help of the globe that one can form correct idea of location, size and shape of ocean and continents. The globe alone gives the idea of rotation and revolution of the earth causing day and night and seasons. It also shows how the equator divides the earth into two equal hemispheres.

8.6.3 Pictures

In today's world people are using technology to a large extent. Smart phones with camera facility are very common these days. Geography teachers can utilize these gadgets and develop their material assets in the form of images. As we are aware that pictures and photographs are indispensable tools for illustrating geographical facts. A picture is a painting, drawing or sketch of feature or geographical phenomenon. Many geographical features can be illustrated through pictures. A photograph is a type of picture obtained by using a camera and a light sensitive material i.e., the film. These days even films are not used and people are generating images through digital mode.

While using pictures, geography teachers must ensure that pictures are accurate and relevant. They must be attractive and natural to arouse interest among student and must be selected in such a way that there is scope for questioning the learners on the basis of their observations. Geography teacher cannot ignore the significance of pictures and photographs as these make the study of Geography real and bring reality to the learners. Learners may develop skills of observation, analysis and interpretation. Pictures and photographs attract and sustain the learners' attention when they are used to illustrate things that are unfamiliar to learners. For example, while teaching landscapes, teacher makes use of pictures to teach sand dunes.

Considering the objectives of teaching geography and the number of students present in the classroom, the teacher can select the appropriate photographs and pictures. The teacher may find situations where pictures and photographs are to be viewed by individuals; these pictures/photographs may be there in the textbooks. These pictures are viewed by learners individually - viewing can also be done in pair of students if the pictures are in limited number. Then there are situations when pictures and photographs can be viewed in groups. In this case the photographs with the same features are shown to all the groups and if the features are different, then the groups can exchange these photographs. This is done when the pictures/photographs are not adequate for every student in the class. Still there are other situations where pictures and photographs are viewed by the whole class with the help of projector/media. Teacher does ask questions about these pictures/photographs.

How to Use Pictures/Images in Classroom

You may note that selecting a good picture and planning to use it in teaching will not be meaningful unless it is utilized effectively. Here are certain suggestions for use of pictures in classrooms.

- i) Provide introduction to the picture like, this is a picture about..... or related to.....
- ii) Learners should be directed to the most significant features in the photographs. Learners should make a list of features observed in the photographs.
- iii) Provide learners with sufficient time to comprehend the picture.
- iv) Learners should be asked to describe and explain the features on photographs. The pattern and distribution of features on photographs should be observed.
- v) Learners should be encouraged to examine relationships among phenomena and guided to infer on the basis of their observations.

How to Procure Pictures and Images

You will agree to the point that pictures and images play an important role in transacting the curriculum. A textbook, which is the prime source for teaching in classrooms, has limited photographs and images. Even if the textbook has images, sometimes quality of the images does not attract attention of the students, may be because of its colour or poor printing. In such a situation, you may face a challenge of procuring these pictures and images. In order to facilitate you, we are suggesting several sources from where pictures can be obtained.

- i) **Magazines:** Educational magazines, geographical magazines, national geographic magazines.
- ii) **Official publications:** Publications of govt. offices like Indian Council of Agricultural Research (ICAR), Survey of India, Department of Science and Technology for meteorological and weather reports, Reports of Census of India.
- iii) **Newspapers and periodicals**
- iv) **Advertising brochures:** Issued by railways, shipping companies, airlines, travel agents, etc.
- v) **Old books and magazines**
- vi) **Postage stamps**
- vii) **National Repository of Open Educational Resources (NROER) of National Council of Educational Research and Training(NCERT)**

8.6.4 Satellite Imageries and Aerial Photographs

You are familiar with photographs taken with normal cameras. These photographs provide us with a view of object similar to the way we see them with our own eyes. In other words, we get a horizontal perspective of the objects photographed. In order to take a bird's eye view of similar feature we have to place ourselves in air, the perspective which we get is aerial perspective. The photographs taken from an aircraft or helicopter using a precision camera are termed as aerial photographs. In other words, aerial photograph can be defined as a photograph

taken from an airborne platform using a precision camera. The photographs obtained through aerial photography are indispensable tools in topographical mapping and interpretation of the images of the objects. Aerial photographs are used for two main specialized related sciences.

Photogrammetry: The science and technology of taking reliable measurements from aerial photographs.

Image Interpretation: An act of identifying the images of the objects and judging their relative significance.

Aerial photographs are classified on the basis of the position of the camera axis, scale, angular extent of coverage and the film used.

8.6.5 Audio-Video Programmes

In the beginning of the unit we have expressed that geography is a spatial science. It studies about areas and areal differentiations. These facets of the discipline can be better transacted with the help of audio-visual aids. You can recall that audio visual aids were devices by which learning process is encouraged and carried out through the sense of hearing as well as sense of sight. Television (Doordarshan) is a valuable instructional aid in the teaching of geography. Students can see and hear about the various natural and human phenomena taking place at the local, national and international levels. The television enables the teacher to bring the current events into the classroom and if the students are encouraged to observe and analyze and generalize the television can be a valuable resource.

How to Use Television in Classrooms

To derive maximum benefit from the broadcast the teacher must plan each stage cautiously

i) **The Preparation stage**

The teacher should select the program before hand. Procure and study in advance the related printing materials of all broadcasting stations. Students should be given an outline of what to observe and focus upon. The physical environment should be comfortable i.e. adequate ventilation, comfortable seating, appropriate distance to be maintained between the learner and the screen.

ii) **The Presentation stage**

The television has to be switched on at the right time. The screen should be clearly visible to all and the volume has to be adjusted so that the students concentrate. Conducive learning environment has to be ensured throughout the telecast of the programme.

iii) **The Follow-up stage**

The teacher should review the important points and conduct a culminating activity such as debate, discussion, etc. Each student should be given an opportunity to clarify doubts and fill the missing links.

8.6.6 CDs

Instructional material stored in Compact Discs (CDs) can be procured from Central Institute of Educational Technology (CIET-NCERT), New Delhi. There are several other private companies which produce instructional materials. These materials must be used in a systematic manner.

8.6.7 Multimedia

Multimedia is a term frequently heard and discussed among educational technologists today. Unless clearly defined, the term can alternately mean a judicious mix of various mass media such as print, audio and video or it may mean the development of computer-based hardware and software packages produced on a mass scale and yet allow individualized use and learning. In essence, multimedia merges multiple levels of learning into an educational tool that allows for diversity in curricula presentation.

Multimedia package is defined as a computer based package that includes the integration of different media such as, text, sound, video, images of two dimensional forms, simulations and animations to offer information with impact. In Geography teaching, usage of multimedia technology helps to stimulate students' interest in learning.

Education has always acknowledged versatility and efficiency of multi-media communications. Multimedia does not necessarily require computers. For example, geography teachers often combine the use of slides, overheads, chalkboards, movies, videos, and sound recordings in their lectures and academic presentations. Further, atlases have a long tradition of integrating text, images, maps, diagrams, and graphs. Thus the concept of multimedia is not completely new to geographers. Now the time has come to make use of computer based multimedia packages in the field of education to make teaching-learning process more effective and meaningful. Multimedia is regarded as more than mere technology by researchers. The typical design of multimedia is an array of representational forms (e.g. image, map, diagram, sound, and video). Multimedia is getting equipped with an array of computers, software, network connections, and projection equipment. Geography is one curricular area that has really gained from computer technology. Sound, movement, colour and lots of ways to present the facts come alive with computers and make geography teaching meaningful. In order to improve the effectiveness and efficiency of teaching in Geography, application of computer based multimedia technology is inevitable.

Geography provides a rich and varied context for the use of new technologies to enhance both learning in the subject and reinforce existing ICT skills. It can help students investigate, organize, edit and present geographical information in many different ways.

In Geography, ICT can help students in various ways

- To enhance geographical knowledge and improve geographical enquiry skills.
- To develop skills of graphical, statistical and spatial analysis.
- To develop mapping skills.

- To experience alternative images of people, places and environments and how environments change.
- To simulate or model geographical systems and environments.
- To communicate with other students in other localities by email, webcams and video conferencing.
- To improve the skill of presentation.

Multimedia is particularly appropriate for geographic education since geographic concepts should be learned through text, maps, pictures and sound to acquire new learning experience. The CD-ROMs can be prepared by subject experts and multimedia professionals. The textbook can be accompanied with the CD-ROM that can be written in crisp, elegant and simple language to facilitate the learning process. Readily available CD may not suffice the purpose of teaching learning. Tailor made packages according to the need of syllabus can prove to be more worthy. Though Indian Schools have started the involvement of such packages in schools but are insufficient according to the requirement. There is scope for teachers to initiate the development of such multimedia packages.

8.6.8 Internet

Internet is an important computer based learning resource. This is highly advanced source of learning geography. E-learning is an instruction delivered on computer by the use of CD-ROM, Internet or Intranet. It is simply learning with the help of computer and internet technology. E-Learning is web based training with inputs of techniques such as animations, visualizations, simulation and games, text, audio, video and lots of creativity. The biggest challenge of e-learning is provision of infrastructure-physical, financial and experienced human resources. Though the government is striving hard to provide these resources to all the schools of the country but it will take some time. The NCERT textbooks based on NCF-2005 had also listed various websites which can be of great help to the teachers and students in learning effectively.

For teaching the chapter on Indian Monsoon, additional information can be obtained from different sources. One of the most dependable and authentic source is Indian Meteorological Department (IMD). One can access the site www.imd.ernet.in/main_new.htm and download daily weather map, satellite images of every date. Besides this the site also provides information on seismological data, seasonal or annual rainfall maps etc. The site for encyclopaedia Britannica is given below. This also provides additional reading materials that teachers should refer to.

<http://www.britannica.com/EBchecked/topic/121560/climate/53296/TheIndianmonsoon#ab=active~checked%2Citems~checked&title=climate%20%3A%3A%20The%20Indian%20monsoon%20--%20Britannica%20Online%20Encyclopedia>

Other site of interest that can be recommended is the site for Indian Ocean Monsoon <http://www.crseo.ucsb.edu/esrg/IOM2>. This site provides good information on mechanism of monsoon. Teachers should visit this site and also encourage students to do so.

Learning through Information Technology

Information and Communication Technology (ICT) influences how students make sense of their world today and at the same time offers a range of tools to support their geographical understanding. Specific programs such as Google Earth can improve spatial thinking. The internet enables, students to gain up-to-date information and access to a vast range of images, videos, data and other sources which can greatly enrich geographical understanding. By the use of IT teachers have the power to make lessons livelier and enjoyable thus enhancing students' learning motivation. Geography teachers should provide students adequate opportunities to apply ICT in their enquiry-based approach to the teaching of the subject. This is because ICT:

- provides a range of information sources to enhance geographical understanding and supports the development of a body of geographical knowledge.
- provides images of people, places and environments.
- helps students develop their ideas using ICT tools to amend and refine their work and enhance its quality and accuracy.
- helps students exchange and share information, both directly and through electronic media.
- provides students with the ability to review, modify and evaluate their works, reflecting critically on their quality as they progress.
- contributes to students' awareness of the impact of information systems on the changing world.
- contributes substantially to the development of a range of ICT capabilities, especially in regard to data handling, use of communication technologies and information sources and modelling.
- develops the students' skills in the following ICT toolkit namely word processor; spreadsheet; presentation software; desktop publishing (DTP) software; internet browser/e-mail; electronic atlas; electronic encyclopaedia; geographic information system (GIS); automatic data logging weather station; digital camera.

Check Your Progress 3

Note: a) Write your answers in the space given below.

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

6) Define 'learning resources'.

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7) What is cultural map?
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8) What is e-learning? How can it be used in teaching geography contents?
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8.7 LET US SUM UP

In this unit we discussed the nature and scope of geography. We focused on objectives of teaching geography at secondary school level. We also presented several classroom strategies based on constructivist approach for teaching-learning of geography. We described several learning resources which can be used by geography teacher in order to make his/her teaching effective. While discussing learning resources, we emphasized on the use of learning resources. The unit has made an attempt to enhance your professional skills to become effective geography teacher.

8.8 REFERENCES AND SUGGESTED READINGS

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8.9 ANSWER TO CHECK YOUR PROGRESS

- 1) Human geography is concerned with the spatial organization of society. In the beginning, the focus was on the description of the places where people lived. More recently, economic activities receive more attention with some emphasis on the regional distribution of resources, and economic activities. Environmental issues also receive attention, but the focus is more on how landscape affects people than the reverse. The interface between the physical geography and human geography has led to the development of Biogeography.
- 2)
 - i) To understand the process of economic and social change and development in their own surrounding and relate it with the contemporary India.
 - ii) To understand the process of change and development in India in relation to the world economy and polity.
 - iii) To understand the need for judicious utilisation of resources as well as the need for conservation of the natural environment.
- 3) Questioning as a pedagogical tool in classroom should be used not only for checking whether students have learnt the contents but also to motivate them to think on various aspects.
- 4)
 - a) Identifying the problem
 - b) Planning and designing the methods
 - c) Executing the plan
 - d) Evaluating the solution.
- 5) Experiential learning means learning based on learner's acquired experiences; it is also called as nature's way of learning. It is learning that occurs as a direct participation in the events of life. It includes learning that comes about through reflection of everyday experiences. Experiential learning is also known as 'informal education' and includes learning that is organised by learners themselves.
- 6) Learning resources refer to objects, materials, people, buildings etc. used to transact the contents in teaching-learning process of geography.
- 7) Cultural maps show cultural landscape such as demographic, socio-cultural, political, historical, economic, commercial, agricultural information, etc.
- 8) E-Learning is web based training with inputs of techniques such as animations, visualizations, simulation and games, text, audio, video and lots of creativity. It can be used to teach different geography contents like climate, rainfall, mountain ranges, ocean currents, monsoon, etc.