

KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY



TEACHING OF ENVIRONMENTAL STUDIES

Course Code - 16

DIPLOMA IN ELEMENTARY EDUCATION

Subject Experts

Prof. M. Srivastava, Distance Education Council, IGNOU, New Delhi
Prof. P.K. Biswas, STRIDE, IGNOU, New Delhi
Dr. P. Bhusan, Asso. Professor, School of Education, IGNOU, New Delhi
Dr. B. Deka, Retd. Principal, Nirmal Haloi College, Patacharkuchi, Barpeta
Mrs. P. Deka, Retd. Professor, Banikanta College of Teachers Education, Guwahati
Mr. S. Dowerah, Former Senior Academic officer, SEBA, Guwahati

Course Coordinator : Devajani Duarah, KKHSOU

SLM Preparation Team

UNITS

CONTRIBUTORS

1, 2, 3, 4, 5, 6

Dr. Tarun Chandra Bhagabati,
Nirmal Haloi College, Patacharkuchi , Barpeta

Editorial Team

Content : Prof. Daisy Bora Talukdar, KKHSOU
Language : Prof. Rabin Goswami, Retd. Professor, Deptt. of English, Cotton College
Format : Dopati Choudhury & Devajani Duarah, KKHSOU

January, 2017

© Krishna Kanta Handiqui State Open University.



This Self Learning Material (SLM) of the Krishna Kanta Handiqui State Open University is made available under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License (international): <http://creativecommons.org/licenses/by-nc-sa/4.0/>

For the avoidance of doubt, by applying this license KKHSOU does not waive any privileges or immunities from claims that it may be entitled to assert, nor does KKHSOU submit to the jurisdiction, courts, legal processes or laws of any jurisdiction.

Printed and published by Registrar on behalf of the Krishna Kanta Handiqui State Open University.

Headquarters : Patgaon, Rani Gate, Guwahati - 781017

City Office : Housefed Complex, Dispur, Guwahati-781006; Web: www.kkhsou.in

COURSE INTRODUCTION

This course “Teaching of Environmental Studies” is the sixteenth course of the D.El.Ed. Programme. There are six units in this course. The first unit discusses the concept of environment, environmental education and environmental studies along with some of the important policies adopted by the Government for implementation of EVS at the elementary stage. The second unit deals with the various aspects of understanding children’s ideas about the environment. The third unit is on “Classroom Transaction” which explains the various ways of conducting classroom transaction. The fourth unit deliberates on understanding textbook and other pedagogic methods and practices of teaching. The fifth unit deals with the topic “Planning for teaching EVS”. This unit will help you to select and use the various methods of teaching EVS. This unit will also help you in identifying and utilizing various types of resources for teaching EVS. The sixth unit will help you to form an overview on the process of classroom planning as well as on evaluation in EVS.

While going through a unit, you will notice some boxes along-side, which have been included to help you know some of the difficult, unseen terms. Some “ACTIVITY’ (s) have been included to help you apply your own thoughts. Again, we have included some relevant concepts in “LET US KNOW” along with the text. And, at the end of each section, you will get “CHECK YOUR PROGRESS” questions. These have been designed to self-check your progress of study. It will be better if you solve the given problems in these boxes immediately, after you finish reading the section in which these questions occur and then match your answers with “ANSWERS TO CHECK YOUR PROGRESS” given at the end of each unit.

CONTENTS

UNIT 1: Understanding EVS	(Marks)	Page : 5-23
Meaning, Scope and Importance of EVS, its Evolution as a Curricular Area at Primary Level; Different perspectives of EVS, NCF – 2005, Prashika Programme; EVS as an Integrated Area of Study, Understanding from Science, Social Science, Environmental Education		
UNIT 2: Understanding Children’s Ideas about the Environment	(Marks)	Page : 24-32
Children’s ideas and alternative conceptions; How children learn; Cognitive growth of children to the development of concepts.		
UNIT 3: Classroom Transaction	(Marks)	Page : 33-57
Process skills, Experiments and Observations, Classification, Providing questions, Framing hypothesis, Designing experiments, Data analysis, Recording results, Interpretation of Results, Giving examples; Map picture differentiation, map reading; Ways of conducting inquiry, Activities, Discussions, Group work, Field visits, Survey, Experimentations; Using children idea as a tool of learning; Role of teacher in classroom transaction; Integration of subjects, Language and Mathematics; Use of ICT in Classroom		
UNIT 4: Understanding of Text Books and Pedagogy	(Marks)	Page : 58-75
Guiding Principles for the Development of EVS Text books; Content Approaches and Methods of teaching EVS; Interactive and Participatory methods; Teacher as a Facilitator; Themes, Structure of the Unit nature of Exercises and its implications; Academic Standards and Indicators of leaning; Learning Resources for Effective Transaction of EVS curriculum		
UNIT 5: Planning for Teaching EVS	(Marks)	Page : 76-100
Why Planning; Good EVS class; Alternative conception: Need for change; Concept map and thematic web charts; Unit plan and use; Resource pool of materials, locally available materials, Audio visual and Electronic material, Lab/Science Kit, Library; Peer Group learning.		
UNIT 6: Classroom Planning and Evaluation	(Marks)	Page : 101-123
Teaching Readiness, Planning of Teaching EVS, Year plan, Unit plan and period plan; Evaluation of planning; Understanding reflective Teaching an learning; Concept and importance of Evaluation; Preparation and Selection of Reflective question; Different ways of Assessment and Reporting; Assessment and Evaluation Definition, need and importance; Continuous and comprehensive Evaluation feed back and reporting procedure.		

UNIT 1: UNDERSTANDING ENVIRONMENTAL STUDIES (EVS)

UNIT STRUCTURE

- 1.1 Learning Objectives
- 1.2 Introduction
- 1.3 Meaning, Scope and Importance of EVS, its Evolution as a Curricular Area at Primary Level
 - 1.3.1 Meaning of EVS
 - 1.3.2 Scope and importance of EVS
 - 1.3.3 It's Evolution as a Curricular area at Primary level
- 1.4 Different perspectives of EVS
 - 1.4.1 NCF – 2005
 - 1.4.2 Prashika Programme
- 1.5 EVS as an Integrated Area of Study
 - 1.5.1 Understanding from Science
 - 1.5.2 Social Science
 - 1.5.3 Environmental Education
- 1.6 Let us Sum up
- 1.7 Further Reading
- 1.8 Answers to Check Your Progress
- 1.9 Model questions

1.1 LEARNING OBJECTIVES

After going through this unit you will be able to

- define the meaning of Environmental Studies
- explain the importance of the study of EVS at the Primary level
- distinguish between Science and Social Science
- explain the different perspectives of EVS.

1.2 INTRODUCTION

You may be aware about the introduction of environmental studies as a subject of study at different levels of curriculum starting from the Elementary to the University level. You might have read something in the newspaper, or watched some programmes in television on environment. There are discussions, debates and so on. As a teacher of environmental studies you should have a clear idea and understanding of the subject. This is the first unit of the course. Here we shall discuss Environmental Studies and its various aspects.

1.3 MEANING, SCOPE AND IMPORTANCE OF EVS, ITS EVOLUTION AS A CURRICULAR AREA AT PRIMARY LEVEL

1.3.1 Meaning of Environmental Studies

Environmental Studies is an applied science. It is the systematic study of human interaction with their environment. Anything and everything in and around us is called environment. Environment consists of air, water, land, plants and animals. As the time changes, there will be change in the environment too. These changes occur due to the effect of the factors of the environment. The factors are both biotic and abiotic. Biotic means the living and abiotic means the non living. All the biological and non biological things surrounding an organism are thus included in environment. Thus, environment is the sum total of water, air and land, inter relationship among themselves and also with the plants and animals including human beings. The definition given by the Environment Protection Act, 1956 clearly indicates that environment includes all the physical and biological surroundings and their interactions.

- Anything and everything in and around us is the environment.
- It is the systematic study of human interaction with their

environment.

- Environment consists of air, water, land plants and animals.
- Environment includes all the physical and biological organisms.



CHECK YOUR PROGRESS

Q 1: State whether true or false

- i) All the biological and non biological things are included in environment.
- ii) Biotic means living and abiotic means non living.
- iii) Human beings are an essential component of Environment
- iv) The Environment Protection Act was passed in 1981.
- v) Environmental Studies is an applied science.

1.3.2 Scope and Importance of EVS

Environment belongs to all and is thus important for all. Whatever be the occupation or age of a person, he or she will be affected by environment and will also affect the environment by his or her deeds. Environment affects the physical, mental and social development of an individual and the society. Environmental awareness is mandatory for every citizen. At the primary level the students will be provided with the information about the environment, which they can see and understand without any difficulty. These may be plants, their categories and how they can protect the environment or the living beings like animals, birds, insects etc. and their food habits or the sources of water, its necessity for the earth, how it gets polluted etc.; or air, agriculture pollution, noise and disturbances, natural disaster and the precautions etc. Considering the mental age of the children they should learn about the environment from the environment itself. Learning takes place through hearing, seeing and doing (activity). The learning should be activity-based like drawing, making items, various experimentations etc. The main objectives at this stage are to arouse

curiosity about the world and to make the child engaged in exploratory and hands-on activities that lead to the development of basic cognitive and psychomotor skills through language, observation, recording, differentiation, classification, interface drawing, illustrations, design and fabrication, estimation and measurement. School is the formal agency of Education. Therefore, the knowledge about the environment and its importance should be disseminated through the syllabus woven around six common themes close to the child's life such as family and friends, shelter, water, travel, and things we make and do.

- Environment belongs to all and it affects all.
- The scope of the study for the children will be about the environments, which they can see and feel.
- The learning should be activity based.
- The syllabus is woven around six common themes close to the child's life.



CHECK YOUR PROGRESS

Q 2: What are the common environments children can see?

.....

.....

Q 3: What should be the teaching learning approach of Environmental Studies at the primary level?

.....

.....

1.3.3 Evolution of EVS as a Curricular Area at the Primary Level

Environmental Studies has been an integral component of school education in one form or the other for more than four decades. At present, the concept, issues and problems related to environment are either integrated with different disciplines or

introduced as a subject. For example, at the primary stage environmental education is introduced as environmental studies as a subject. The importance for providing environmental orientation to education especially to school education has been organized, recognized in India as early as 1970. The document entitled, “The Curriculum for Ten year School – A framework” developed by the National Council of Educational Research and Training (NCERT), New Delhi in 1975 identified environment education as one of the essential components of school education. The National Policy on Education, 1986 (as modified in 1992) emphasised the importance and need for inclusion of environmental education as an integral component of education. The policy states that the protection of the environment is a value which, along with certain values, must form an integral part of the curriculum at all stages of education.

- At the primary stage Environmental Education is introduced as Environmental Studies as a subject.
- The importance for providing environmental orientation to education especially to school education has been recognized in India as early as 1970.
- The subject Environmental Studies has been introduced as a compulsory subject by NCERT at primary level.
- The National Policy on Education, 1986 also laid stress for inclusion of Environmental Education in the curriculum at all stages of education for protection of the environment.



CHECK YOUR PROGRESS

Q 4: When was the importance of providing environmental orientation to education recognized in India?

.....
.....

Q 5: Which is the agency that introduced Environmental Studies (EVS) as a compulsory subject at the primary level.

.....
.....

1.4 DIFFERENT PERSPECTIVES OF EVS

Environmental studies pertain to an analysis of the natural and man-made world encompassing various scientific, economic, social and ethical aspects. The present status of Environmental Education in schools had its genesis in the National Policy of Education (NPE), 1986 (modified in 1992) in which protection of the environment is stated as a common care around which a National Curriculum Framework (NCF) would be woven. The NPE, 1986 emphasized the need to create awareness of environmental concerns by integrating in the educational process at all stages of education for all sections of the society. The significance and urgency of creating environmental awareness in school children has also been upheld by the Supreme Court of India through its directives to the central and state government authorities to make environmental education compulsory at the school and collegiate levels. The education system of India had incorporated certain aspects of environment in school curricula as early as 1930. The Kothari Commission (1964-66) also suggested that basic education had to offer environmental education and relate it to the life needs and aspirations of the people and the nation.

- The present status of Environmental Education had its genesis in the National Policy Education, 1986.
- As early as 1930 the education system of India had incorporated certain aspects of environment in school curriculum.
- The Kothari Commission, 1964-66 also suggested that basic education had to offer environmental education relating to life and need of the people and the nation.
- The Supreme Court of India through its directives to the

central and state educational authorities instructed to make environmental education compulsory at the school and collegiate education



CHECK YOUR PROGRESS

Q 6: What was the recommendation of Kothari Commission, 1964-66 relating to environmental education?

.....
.....

Q 7: Which is the policy that relates to the present status of environmental education in primary education?

.....
.....

1.4.1 National Curriculum Framework (NCF), 2005

National Policy on Education assigned a special role to NCERT in preparing and promoting National Curriculum Framework. Yash Pal Committee Report, 'Learning without Burden' (1993) observes that learning has become a source of burden and stress on children and their parents. The process of development of National Curriculum Framework was initiated in November, 2004 by setting up various structures like National Steering Committee chaired by Prof. Yash Pal and twenty one National Focus Groups on the themes of curricular areas, systematic reforms and national concerns. The draft of NCF was translated into 22 languages listed in the VIII Schedule of the Constitution. The NCF was approved by the Central Advisory Board of Education in September, 2005 endorsing that schools have a major role to play in ensuring the children to be socialized into a culture of self reliance, resourcefulness, peace oriented values and health. NCF incorporates many curricular thrusts such as education for peace, habitat and learning etc. The thrust area, "Habitat and Learning"

emphasizes the need for environmental education at the school level for moving towards sustainable development. The recommendations of the focus group, “Habitat and Learning”, highlighted the need for developing training modules, teacher empowerment/ education and development of activities and projects in order to develop skills and competencies among the students.

- National Policy on Education, 1986 assigned a special role to National council for Educational Research and Training in preparing and promoting National Curriculum Framework(NCF).
- The process of development of NCF was initiated in November, 2004.
- The National Steering Committee of NCF was chaired by Prof. Yash Pal.
- The NCF was approved by CABE in September, 2005.



CHECK YOUR PROGRESS

Q 8: When was the process of development of NCF initiated?

.....

Q 9: Who was the Chairman of the Steering Committee of NCF, 2005.

.....

1.4.2 Prashika Programme

Another important programme on primary education is the Prashika Programme. Primary education has been a traditionally neglected area of education in our country. There is no clearly formulated policy for primary education .The Socio-cultural and linguistic background of the child is of no consequence to curriculum planning and classroom interaction. There is no scope for the

teachers to grow or to develop innovative programmes. Prashika (Pronounced Praashikaa), the primary education programme of Eklavya, a voluntary organization working in Madhya Pradesh is one such experiment. Prashika is an extremely important and meaningful experiment in the area of primary education in rural schools. It is a sustained attempt to provide interesting, meaningful and constructive opportunities to children to acquire knowledge and to equip themselves with observational and analytical skills. It does not insist on any major structural changes in the school or any enhanced financial inputs. 'Prashika' is a symbol of a symbiotic collaboration between children, teachers, social activists, researchers and academics. The Prashika experience needs to be carefully documented for the benefit of all those who may be interested in primary education. A large number of teachers, children and resource persons contributed significantly to the growth and development of the programme. The funding agencies such as Ministry of Human Resource Development and the Department of Science and Technology as well as active collaboration of the Madhya Pradesh state govt. and the state council for Educational Research and Training (SCERT) made the Prashika vision a reality. The beginnings of the PRASHIKA (Prathamik Shiksha Karya Kram), the primary education programme of Eklavya, go back to the year 1983. What informs all the activities of Eklavya is the awareness that education can not be isolated from its social context and that meaningful child-central education can motivate people to change the conditions in which they live.

- The socio-economic linguistic background of the child is of no consequence to curriculum planning and classroom interaction.
- Prashika is an innovative primary education programme of Ekalavya, a voluntary organization working in Madhya Pradesh since 1983.
- It is a sustained effort to provide interesting, meaning and

constructive experiment in the area of primary education.

- The funding agencies for the Programme are Ministry of Human Resource Development and Department of Science and Technology, Madhya Pradesh State Government and State council for Educational Research and Training.



CHECK YOUR PROGRESS

Q 10: What is the concept of Prashika ?

.....

Q 11: What are the funding agencies of Prashika?

.....

1.5 EVS AS AN INTEGRATED AREA OF STUDY

Various components of nature like the plants and animals, air, water, land surround us. There is a constant interaction between man and these objects. This interaction is the subject matter of environmental studies. Human beings have been impacting their environment and in turn are being impacted by it. In fact, 'Environmental Studies' is an area closely associated with other subjects like physics, chemistry, mathematics, life science, history, economics, law, political science, education, anthropology, philosophy, sociology and computer science etc. Therefore, it may be called a multi disciplinary study. The various aspects of the study of environment can be integrated into a single course taking into consideration of the child's mental age. In order to actively engage the students in the process of learning about environment at the primary level the course is to be integrated with mathematics and language. Environmental education aims at bringing about a change or transformation in the cognitive, affective and psychomotor behaviours of children. It is an action oriented, project centred and participatory process. The activities should include drawing, making models, thinking and experimentation. There should be less description

and definition. The learning experience should be activity based, child centred and joyful. Based on the NCF, 2005, at the national level environmental education has been introduced at the elementary education level as Environmental Studies. EVS at the elementary level is an integrated subject which draws upon insights from sciences (physical, chemical and biological), social studies (history, geography, civics etc.), and environmental education (Protection and Conservation). The thematic organization of the contents in EVS cuts across the boundaries of several disciplines such as social sciences, pure sciences, languages, history, geography, civics etc. by developing in the children an interdisciplinary perspectives to enable them to understand the environment and environmental problems, EVS, thus is an interdisciplinary study about how human interaction with their environment.

- Various components of nature around us and their interaction with man is the subject matter of Environmental Studies.
- It may be called as a multidisciplinary study.
- It is an action oriented project centred and participatory process.
- EVS at the elementary level is an integrated subject which draws upon insight from sciences, social sciences and environmental education.
- EVS cuts across the boundaries of several disciplines and develops an interdisciplinary perspectives to understand environment and environmental problem.



CHECK YOUR PROGRESS

Q 12: State whether True or False

- i) Environmental study is the combination of different subjects (true / false).
- ii) It is a multi disciplinary study. (true /false)
- iii) The thematic organization of the contents in EVS cuts across the boundaries of several disciplines (true /false).


- iv) The interdisciplinary perspectives of EVS enable the students to understand the environment and environmental problems (true /false).

1.5.1 Understanding from Science

Environmental Studies is an interdisciplinary academic field that integrates physical, biological and information Sciences to the study of environment and environmental problems. There are two elements of nature. They are physical and biological. Environment consists of air, water, land, the sun, the moon, the planets, stars, rivers, streams, mountains and natural phenomena like sunlight, wind, rain etc. The biological elements depend on physical environments for their survival and at the same time they are interdependent on each other directly or indirectly. EVS, at the elementary level, is an integrated subject which draws upon insights from sciences (Physical, Chemical and Biological). Understanding the environmental problems requires an interdisciplinary approach that integrates the natural sciences, social sciences, humanities and the arts. We cannot understand an issue like water pollution through the perspectives of a single discipline. Natural phenomena like wind, rain, star can not be made understandable without some basic science knowledge. For respiration animals use the oxygen gas released by plants during photosynthesis and the carbon dioxide gas released by animals during respiration is used by plants.

The teacher will help the children to identify the various components of physical and biological environment and their activities. Students may be asked to prepare a chart to identify the physical and biological components of their surroundings. With the help of word-card a game can be played where children will understand the relationship between each other.

- EVS is an interdisciplinary academic field that integrates , physical, biological and information sciences.
- Physical elements of environment are the water land, air, river , mountain etc.
- Physical elements and biological elements are interdependent.
- Understanding the environment and environmental problems requires an interdisciplinary approach.



CHECK YOUR PROGRESS

Q 13: What are the elements of physical environment?

Q 14: What do you understand about photosynthesis?

1.5.2 Social Science

Environmental education is a process of providing learning experiences for the children to obtain knowledge, understanding, skills and awareness with desirable attitudinal change about man’s relationship with his natural and social surrounding. This includes the relation of man with such diverse issues like population, pollution, resource allocation, transportation technology, urban and rural planning all together form the total human environment. The social components of environment are population, social systems, social change and social relations, urbanization etc. Social science is, in its broadest sense, the study of society and the manner in which people behave and influence the world around them. Social Science tells us about the world beyond our immediate experience and can help to explain how our own society works, how it is impacted by issues like unemployment and economic growth, how and why

people vote or what makes people happy. Social science covers a broad range of disciplines. They also include demography and social statistics, developmental studies, human geography and environmental planning, law, economic and social history, politics and international relations, social policy and social work.

- Social Science is the study of society and the manner in which people behave and influence the world around us.
- Social components are population, social system, social change, social relations and urbanization.
- Social sciences tell us about the world beyond our immediate experience and can help how to explain our own society works.
- Social science covers a broad range of discipline.



CHECK YOUR PROGRESS

Q 15: What is the meaning of Social Science?

.....

Q 16: What are the disciplines that fall under social science?

.....

1.5.3 Environmental Education

Environmental education is a process that allows individuals to explore environmental issues to engage in problem solving and to take action to improve the environment. The components of environmental education are:-awareness and sensitively to the environment and environmental changes, knowledge and understanding of the environment and environmental changes, attitudes of concern for the environment and motivation to improve or maintain environmental quality, skills to identify and help to resolve environmental changes, participation in activities that lead to the resolution of environmental changes. Environmental

education does not advocate a particular view point or course of action. Rather, environmental education teaches individuals how to weigh various sides of an issue through critical thinking which enhances their own problem-solving and decision making skills. Environmental education is more than gathering information about the environment. Environmental education may best be defined as a process directed at creating awareness and understanding about environmental issues among the people. Environmental education is a learning process that increases people’s knowledge and awareness about the environment and the associated challenges and also develops the necessary skills and expertise to address the challenges.

- Environmental education is a learning process that increases people’s knowledge and awareness about the environment.
- It enhances the knowledge and understanding of the environment and environmental challenges.
- Environmental education does not educate a particular view point or course of action.
- It is a process directed at creating awareness and understanding about environmental issues.



CHECK YOUR PROGRESS

Q 17: What do you mean by environmental education?

.....
.....

Q 18: What are the components of environmental education?

.....
.....



1.6 LET US SUM UP

- Environmental studies can be called an applied science and a systematic study of human interaction with their environment.
- Environment means the sum-total of air, water, land, plants, and animals in our surroundings.
- It includes all the physical and biological surroundings and their interactions.
- At the lower primary stage, the lessons of environmental studies can be integrated through language and mathematics.
- At the upper primary stage, the lessons can be integrated with science, social science and environmental education.
- It is a multi disciplinary study.
- At the primary stage, environmental education is introduced as Environmental Studies as a subject.
- The NPE, 1986 laid stress on inclusion of environmental education in the curriculum at all stages of education for the protection of the environment.
- The Supreme Court of India through its directives to the Central and State educational authorities instructed to make environmental education compulsory at the school and collegiate education.
- The NCF, 2005 was approved by the Central Advisory Board of Education on 25 September, 2005.
- Prashika, a primary education programme of Eklavya, a voluntary organization working in Madhya Pradesh.
- The thematic organization of the contents in EVS cuts across the boundaries of several disciplines.
- EVS at the elementary level is an integrated subject which draws upon insights from the sciences. (Physical, Chemical and Biological)
- Social Science is the study of society and the manner in which people behave and influence the world around us.

- Environmental education is a learning process that increases people's knowledge and awareness about the environment and associated challenges.



1.7 FURTHER READING

- 1) Kaushik & Kaushik (2004) Perspectives in Environmental studies. New Delhi, New Age international.
- 2) SCERT, Assam : Our environment.
- 3) CEE, Brucha E (2004) : Text book of Environmental studies.



1.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: i) True ii) True iii) True iv) True
v) True.

Ans to Q No 2: Children can see the environment of home, neighbor and school.

Ans to Q No 3: The learning should be activity based like drawing making items, various experimentations etc.

Ans to Q No 4: Orientation to environmental education especially to school education has been organized and recognized as early as 1970.

Ans to Q No 5: National Council of Educational Research and Training (NCERT) New Delhi.

Ans to Q No 6: Basic education had to offer environmental education relating to life and need of the people and nation.

Ans to Q No 7: National Policy of Education (NPE), 1986.

Ans to Q No 8: November, 2004.

UNIT 2: UNDERSTANDING CHILDREN'S IDEAS ABOUT THE ENVIRONMENT

UNIT STRUCTURE

- 2.1 Learning objectives
- 2.2 Introduction
- 2.3 Children's ideas and alternative conceptions
- 2.4 How children learn
- 2.5 Cognitive growth of children to the development of concepts
- 2.6 Let us Sum up
- 2.7 Further Reading
- 2.8 Answers to Check your Progress
- 2.9 Model questions

2.1 LEARNING OBJECTIVES

After going through this unit you will be able to

- define the ideas of the children about the environment
- explain how the ideas are developed
- identify that their memory is not blank
- rectify their alternative ideas of misconception
- distinguish between living and non-living elements
- be familiar with their depth of knowledge.

2.2 INTRODUCTION

In the previous unit we have discussed the meaning and concept of environment, environmental education and environmental studies. We have also learnt about their importance as well as the different policies adopted by the government for implementation of EVS for the elementary stage. You may be aware that children's mind is not a blank slate when you can start writing. Children develop certain ideas from their surrounding by hearing, observing and, sometimes, through activities though it may not be in a definite form. As a teacher you should try to bring out these

ideas for proper shaping. Therefore, you should try to enquire about their knowledge about the environment, that they are familiar with. As they are not mature enough, it is likely that they may not have a broad and accurate idea and under these circumstances, you have to limit your inquiry design. You should always respect their ideas; then only can you understand them.

2.3 CHILDREN'S IDEAS AND ALTERNATIVE CONCEPTIONS

2.3.1 Children's Ideas

We have learned that at the lower primary stage the children will learn language and mathematics. They will develop the skill of writing and counting. A separate subject like Environmental Study will increase their academic burden. Hence, it has been suggested that it should be integrated with their subject of studies. It is to be remembered that the understanding of the children with regard to the concepts, anything and everything is age-specific. The children's ideas depend on what they see and experience. Children are natural researchers, they question what they see, hypothesize solution, predict outcomes, experiment, reflect on and represent their discoveries. Children are active, self-motivated learners seeking to understand the world in which they live, and learn when supported through adult-interaction. Previous knowledge or experience helps them to develop an idea. It is basically through their experience in the family environment. For example, we all have to eat food for our survival. Similarly, we all live in houses made of different structures which give us shelter. We need water for drinking, cleaning etc. There may be agricultural field within our vicinity where different crops are produced; to protect the crops from insects we use pesticides. Thus, a child develops certain ideas about the environment. However, some of these ideas do not develop among the children living in urban areas where there are no agricultural practices. The children of urban areas have better ideas on transport

system, noise and pollution. They have better ideas on man-made environment.

- At the primary stage the children develop the skill of writing and counting.
- Children are natural researchers, they question what they see, hypothesis solution, predict outcomes, experiment reflect on and represent their discoveries.
- Previous knowledge or experience helps to develop an idea.
- The experience of rural and urban child will differ.



CHECK YOUR PROGRESS

Answer the question either true or false

Q 1: i) At the primary stage children develop skill of writing and counting.

ii) Children are natural researchers.

iii) Previous knowledge is meaningless.

iv) The ideas of rural children may differ from these of the urban one.

Q 2: How can an urban child develop the idea of man-made environment?

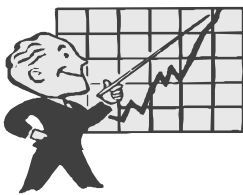
.....

2.3.2 Alternative Conception

The origin of a given alternative conception is often difficult, if not impossible, to determine, while teachers provide instruction on concepts in various subjects. They are teaching students who already have some pre instructional knowledge about the topic. Student's knowledge, however, can be erroneous, illogical or misinformed. These erroneous understandings are termed as **Alternative Conceptions** or misconceptions. Alternative conceptions are not unusual. In fact, they are a normal part of the

learning process. We quite naturally form ideas from our everyday experience, but obviously not all the ideas we develop are correct with respect to the most current evidence. In addition, things already learnt are sometimes unhelpful in learning new concepts. This occurs when the new concept is inconsistent with previously learned material. Alternative conceptions can really impede learning for several reasons. Children generally are unaware that the knowledge they have is wrong. Alternative conceptions can be a hindrance to new learning. They can also interact with new learning resulting in 'mixed' outcomes. It is not unusual to see different students draw different conclusions from the same experiences and observations.

- Erroneous understandings are termed as alternative conceptions.
- Alternative conceptions are sometimes called as misconceptions.
- All things learnt previously are sometime not helpful in new learning.
- When children do not understand as intended they develop alternative conceptions.



CHECK YOUR PROGRESS

Q 3: Fill in the blanks

- i) Alternative conceptions in also called
- ii) knowledge helps to develop new concept.
- iii) Alternative conception is to new learning.
- iv) Mixed outcome is the result of

2.4 HOW DO CHILDREN LEARN?

Learning is a continuous process. It does not begin and end either in home or in the school. You might think that once the child starts school the teachers take charge, but the child is learning nearly every minute. As a teacher you have an important role to play in the process. Children learn

in different ways; some learn by seeing, some by hearing, some by reading and some by doing. Children also learn by using objects in lots of different ways. Children are not born with social skills, they have to learn them, just as they learn to read and write. Giving your child chances to play with other children is a great way for him to develop the skills he needs to get on with others. These don't even have to be organized plays or visits. Taking your child to the park helps him to learn how to interact with and share a common space with other kids. Linking the child into the local community is a valuable learning experience. Visiting to local shops, parks, playgrounds and libraries or walking around home in the neighbourhood helps the child to understand how communities work. If the members of the family speak language/languages other than the mother tongue at home it can be a great way for the child to grow up as a bilingual learner. Although learning two or more languages can be challenging and complex for children it does not harm or hold back their development. In fact, bilingual children can develop important mental skills which might lead to great opportunities later in life. When you give your child opportunities to learn in different ways, you and your child can both work out which way he or she learns best. And once you know how your child learns best, you can use this to help him or her with other areas of learning.

- Learning is a continuous process.
- Learning takes place in different ways seeing, hearing, doing and reading.
- Children are not born with social skills.
- Linking the child with local community is a valuable learning experience.



CHECK YOUR PROGRESS

Q 4: Fill in the blanks.

- i) Learning is a process.
- ii) Learning more language does not their development.

iii) Children are not born with

iv) Play develops

Q 5: State True or False

i) Learning begins at home.

ii) Learning takes place only in school.

iii) Bilingual children can develop important mental skills.

iv) Children learn nearly every minute.

2.5 COGNITIVE GROWTH OF CHILDREN TO THE DEVELOPMENT OF CONCEPT

Cognitive growth and development in the construction of thought processes for children includes, including remembering, problem solving and decision-making from childhood through adolescence to adulthood. It was once believed that child lacked the ability to think or form complex ideas and remained without cognition until they learned language. Jean Piaget developed his cognitive developmental theory based on the idea that children actively construct knowledge as they explore and manipulate the world around them. The four stages of Piaget's theory of cognitive development corresponds with the age of the child. They include: *sensory motor*, *preoperational*, *concrete operational* and *formal operational stages*. The sensory motor stage occurs from birth to age 2 and is characterized by the idea that infants "think" by manipulating the world around them. The preoperational stage occurs from age 7 to age 11 and is characterized by the idea that children's reasoning becomes focused and logical. The formal operational stage occurs from age 11 to adulthood and is characterized by the idea that children develop the ability to think in abstract way. Children form their own concepts through experience, assimilate the existing concepts such as cultural values, norms and beliefs from adults, and further create and develop their own concepts as they mature towards adulthood. Concepts lighten the reliance on memory and enhance the child's ability to communicate. The development of language also involves concept formation. We acquire concept by learning and forming rules. For example, orange, apple and mango are included in to the concept of 'Fruit. Shirt,

pant, shoes are included in to the concept of 'dress'. Thus ,it is a guideline for deciding whether objects or events belong to a concept class.

- Cognitive growth is the construction of thought process including remembering, problem solving and decision making.
- Jean Piaget is the propagator of cognitive development theory.
- Cognitive development corresponds with the age of the child.
- Children develop their own concept, assimilate existing concept from adults and further create and develop their own concept.



CHECK YOUR PROGRESS

Q 6: Answer the following :

- i) What is the age bar of preoperational stage?
- ii) How do we acquire concept?

Q 7: Fill in the blanks:

- i) The sensory motor stage occurs from
- ii) Concepts lighten the load on
- iii) The concept of Animals includes



2.6 LET US SUM UP

- At the primary stage children develop the idea of writing and counting.
- Previous knowledge and experience help the child to develop an idea.
- The experiences of rural and urban children are different.
- Children's erroneous understandings are termed as alternative conceptions.

- All things learnt earlier do not always help in learning new things.
- Learning is a continuous process.
- Children are not born with social skills.
- Linking the child with local community is a valuable learning experience.
- Cognitive growth is the construction of thought process
- Jean Piaget is the propagator of Cognitive Development theory.
- Cognitive development corresponds with the age of the child.



2.7 FURTHER READING

- 1) Muppuswamy B Advance Educational psychology
- 2) NCERT (2005) Syllabus for Elementary classes Vol, NCERT.
- 3) DSERT (2012) Teaching-Learning of EVS at the Primary School level : A position paper, Bangaluru,
- 4) SSA. T Nadu Curricular expectations and learning indicators in EVS at the primary stage.



2.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: i) True ii) True iii) False iv) True

Ans to Q No 2: The children of urban area will see large buildings transports, industries, wastage and garbage, pollution etc. which are basically caused by men.

Ans to Q No 3: i) Misconception ii) Previous knowledge
iii) hindrance iv) Alternative conception.

Ans to Q No 4: i) continuous ii) harm or hold back
iii) Social skills iv) social skills.

UNIT 3 : CLASSROOM TRANSACTION

UNIT STRUCTURE

- 3.1 Learning Objectives
- 3.2 Introduction
- 3.3 Process skills
 - 3.3.1 Experiments and Observations
 - 3.3.2 Classification, Providing questions, Framing hypothesis
 - 3.3.3 Designing experiments, Data analysis, Recording results
 - 3.3.4 Interpretation of Results, Giving examples.
- 3.4 Map picture differentiation, map reading
- 3.5 Ways of conducting inquiry
 - 3.5.1 Activities, Discussions
 - 3.5.2 Group work, Field visits
 - 3.5.3 Survey, Experimentations
- 3.6 Using children idea as a tool of learning
- 3.7 Role of teacher in classroom transaction.
- 3.8 Integration of subjects
 - 3.8.1 Language and Mathematics
- 3.9 Use of ICT in Classroom
- 3.10 Let us Sum up
- 3.11 Further Reading
- 3.12 Answers to Check your Progress
- 3.13 Model questions

3.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- explain different processes and approaches of learning EVS in the classroom
- apply different approaches under different situations

- differentiate between map and picture
- conduct various ways of inquiry
- integrate the subjects as EVS

3.2 INTRODUCTION

You know that teaching is a challenging task. It involves two type of approaches *viz.*, teacher centred and child centred. The same is also known as transmission and transaction. Educational curriculum and teaching methods are changing. One component of the current development of all subject curricula is the change in focus of instruction from transmission curriculum to a transaction curriculum. In a traditional curriculum, a teacher transmits information to students who passively listen and acquire facts. In a transaction curriculum students are actively involved in their learning to reach new knowledge. The transactional approach helps to incorporate the ongoing experiences flexibly and creatively in the classroom and in construction of lessons with small groups and individuals where the environment is democratic, the activities are interactive and student centred and the students are empowered by a teacher as facilitator.

3.3 PROCESS SKILLS

A process can be defined as a “set of interrelated or interacting activities, which transforms input in to outputs”. These activities require allocation of resources such as people and material. The application of a system of processes within an organization, together with the identification and interactions of these processes and their management, can be referred to as the “Process approach”.

In recent years, the emphasis on teaching has been shifted from formal recitation to social population of students in the educative process. Nature of the learning process, and as such both learning and teaching, is being recognized as social activities. New techniques have been evolved and are being produced in progressive schools. These techniques enable students to learn in a socialized atmosphere and give them opportunities

to develop and practice the skills, abilities and attitudes necessary for social participation. Learning indicators in EVS are process oriented. The learning outcomes would be achieved through the sound and effective pedagogical processes. Initial attempts of children are stepping stones to learning as they provide a reference point and impetus to explore another way. In a supportive and stress free classroom, mistakes are used as opportunities. In EVS learning, the children response would not be analyzed in right/wrong manner, rather it would provide and promote to put her/his own point of view. Children make efforts to analyze 'why' or 'how'; they may make mistakes and use their own abilities to correct them.

3.3.1 Experiment and Observation

Children develop various processes/skills through the interaction with immediate surroundings. This is called learning through the environment. Experimentation improvises, makes simple things and performs simple experiment. An **experiment** is a procedure carried out to support, refute or validate a hypothesis. Experiment provides insight into cause and effect by demonstrating what outcomes occur when a particular factor is manipulated. Experiment can be performed individually or in group. Experiment with air, water can help the children to learn about the components of the environment. **Observation** is the active acquisition of information from a primary source. Listening is an observation skill that we are taught early on and is very important in the work place. However, most of us also have two eyes to see, two hands to feel, a nose to smell and a tongue to taste. We use all five senses to observe the world around us. Observation helps in widening the conceptual understanding by children of things around them and also in promoting their natural curiosity. It helps a teacher to attain maximum participation of students. Observation helps the children to learn from the environment.

- Learning indicators are process oriented.
- Children develop various process/skills through the interaction with immediate surroundings.
- An experiment is a procedure carried out to support, refute or validate a hypothesis.
- We all use five senses to observe the world around us.



CHECK YOUR PROGRESS

Q 1: State True or False

- i) Experiment cannot be performed in group.
- ii) Observation is active acquisition of information from primary source.
- iii) We use five organs to observe our world.
- iv) Observation helps children to learn from environment.

3.3.2 Classification, Providing questions, Framing hypothesis

We all realize that children learn Environmental studies when they are exposed to the real situations in their surroundings that help them to construct, be aware, appreciate and get sensitized towards the environmental issues prevailing around. The learning process begins with the child's immediate environment. However, this requires ensuring their active engagement, participation in learning by exposing them to diverse experiences through a variety of sources within and outside the classroom.

Classification identifies objects based on observable features, identifies similarities and differences in objects, sorts out or groups the objects based on observable features, compares objects and classifies them based on physical features.

After acquiring some knowledge from the immediate environment the child develops curiosity and **asks questions**, raises critical questions or frame questions. The teacher should encourage questioning and try to help the children to get the desired result.

There should not be a negative answer. Tell your students that mistakes are an opportunity to learn. Spend a few minutes each day getting to know a student one-on-one. Help your students to become good questioners. Pose a student's question back to the class to get an answer.

Hypothesis is a tentative insight into the natural world; a concept that is not yet verified but that, if true, would explain certain facts or phenomena. It is an educated guess or proposition that attempts to explain a set of facts or natural phenomena. The teacher should create situations and encourage the children to predict. For example, how many spoonful of milk required to prepare a cup of tea or why we use warm clothes in winter.

- Learning process begins with the child's immediate environment.
- Mistakes are the opportunities to learn.
- Questing develops curiosity.
- Hypothesis is a tentative insight in to the natural world.

3.3.3 Designing experiments, Data Analysis, Recording results

Classroom experiments are the activities where any number of students work in groups on carefully designed guided inquiry questions. Materials provide the students with the means of collecting data through interaction with typical laboratory materials, data stimulation tools or a decision making environment, as well as a series of questions that lead to discovery based learning. The teacher's role is to act as facilitator, asking leading questions and drawing attention to interesting result. A well designed experiment targets the common student misconceptions, focusing on major ideas that students will need to understand correctly in order to support deep learning. Children enjoy and learn more with hands on activities i.e. creating materials with locally available materials. They become happy and respond with enthusiasm when their

creative ventures are appreciated.

Data analysis is a process which defines situation/events, identifies/predicts possible causes of any event/situation, making hypothesis and inferences. Analysis refers to breaking a whole into its separate components for individual examination. It is a process for obtaining raw data and converting it into information useful for decision making by the user. Data are collected and analyzed to answer questions, test hypothesis, or disprove theories.

Recording results is the outcome of interpretation of data. Each child has an innate capacity to learn about things owing to the experiences and the information available to him/her. All the children do not learn in a uniform manner. Difference of opinions and varied perspectives enrich the learning process and add quality to what is learnt.

- Experiments are discovery based learning
- Children enjoy and learn more with hands on activities.
- Data analysis is a process of obtaining raw data and converting it into information useful for decision making.
- Recording result is the outcome of interpretation of data.



CHECK YOUR PROGRESS

Q 2: Say True or False

- i) Experiments are discovery based learning.
- ii) Experiments removes student's misconception.
- iii) Data analysis predicts any causes of an event.
- iv) All children learn in an uniform manner.

Q 3: What is the role of the teacher in designing an experiment?

.....

3.3.4 Interpretation of Result, Giving examples

Interpretation is the act of explaining, reframing, or otherwise showing your own understanding of something. A person who

translates one language into another is called an interpreter, because he is explaining what a person is saying to someone who does not understand. Interpretation requires you to first understand and then give your explanation of it. After an experiment, the child will find some result. As a teacher you need to explain how the result occurs from your own understanding as the child is to understand the same concept.

Giving examples on related theme makes the child's understanding concrete and valid. For example, living beings are the biotic factors of environment. The living examples are plants, animals including human beings fungi, bacteria etc. Further examples of this are domestic animals and wild animals etc. The teacher should give examples to motivate the child. A good teaching tool that many teachers use is to include example of a concept. However, some students may have a hard time distinguishing between an example that is given for the purpose of an illustration and the one of which they need to know the details. This often leads to a situation when a student who cannot develop a concept and spend too much time memorizing tiny details of an example without understanding what the example illustrates. If you use many examples you might tell the students explicitly what the purpose of the examples are.

- Interpretation is the act of explaining your own understanding about something.
- You need to explain from your own understanding how the result occurs.
- Teacher should give examples to motivate the children.
- Examples are to be properly illustrated.



CHECK YOUR PROGRESS

Q 4: Answer the following.

- i) Who is called an interpreter?
- ii) Write a short note on process of interpretation.
- iii) Give an example of biotic factor.
- iv) How is understanding made concrete?

3.4 MAP PICTURE DIFFERENTIATION, MAP READING

Map is a representation, usually on a flat surface, as of the features of an area of the earth or a portion of the heaven, showing them in their respective forms, sizes, and relationships according to some convention of representation. The work of a map is to illustrate specific and detailed features of a particular area, most frequently used to illustrate geography. People have produced and utilized maps as necessary tools to help themselves identify, understand and navigate their way around.

A picture is a group of coloured points on a flat surface that looks the same as something else. Picture can also be drawings, paintings or photographs. Pictures are visual aids. Sometimes people say pictures are worth a thousand words. Pictures and diagrams can be used to explain how to do things. Therefore, picture is a kind of tool for learning.

People made pictures by using paints, brushes, pencils, crayons, pen and other things. The difference between map and picture is that map is a visual representation of an area, whether real or imaginary, while picture is a representation of anything (person, landscape, building) upon paper, canvas or any other surface by drawing, painting, printing, photography etc.

Map is the diagrammatic representation of an area of land or sea showing physical features, civics, road etc. of the earth. Lots of things are represented on maps besides physical reality, climate, population density or economic production,. Map reading is the process of understanding the representation. There are conventions in cartography which allow a map to be read efficiently and quickly. A good map will have a legend or key

which will show the user what different symbols mean. Every map is a representation of a larger portion of the earth. Read the feature about scale to learn more about how to determine the distance on earth represented on the map. Without a north arrow, it is difficult to determine the orientation of a map. The north arrow helps a user to determine direction. A map's title provides important clues about the cartographer's intention and goals. The map user should look to the legend for a correct explanation of colours on a map.

- Map is a diagrammatic representation of an area of the earth.
- Picture is a representation of anything by drawing, painting printing and photography.
- Map reading is the process of understanding the representation.
- There are conventions in cartography which allow a map to be read efficiently and quickly.



CHECK YOUR PROGRESS

Q 5: State True or False

- i) Map is the representation of earth surface on paper.
- ii) Picture is a representation of anything.
- iii) Lots of things are represented on maps.
- iv) Map reading is a process of understanding and interpreting the representation.

3.5 WAYS OF CONDUCTING INQUIRY

You are aware that children come from different socio-economic backgrounds. Their knowledge and aptitude are also not equal and same. Each child is unique and has both strength and weakness. Children learn and progress at different pace and style. Some children learn best visually, some by questioning, some others by describing. Accordingly, opportunities need to be given to them so that they get exposed to various situations.


Inquiry is not just a matter of asking questions but it is a process of conducting a thorough investigation. The purpose of inquiry is to experience the process rather than to memorize the product of the process. Inquiry learning provides opportunities to the children to experience and acquire processes through which they can gather information about the world. This requires a high level of interaction among the learners, the teacher, the area of study, available resources and the learning environment. Generally, there are two types of inquiry - *guided* and *unguided*. In guided inquiry the teacher asks questions and provides clues to the answers. But in unguided inquiry the teacher asks questions again but does not provide answer. By prompting students, structuring materials and stimulations in general the teacher organizes the learning. This encourages the students to ask questions and to actively search for answers. This should include teachers' assistance in moving the students from dependence to independence and thereby teacher facilitates the progressive development of student's skills.

3.5.1 Activities, Discussion

Activities may be described as indirect instructions. It is mainly learner-centred. Indirect instruction seeks a high level of student involvement in observing, investigating drawing inferences from data or in framing hypotheses. It takes advantage of the student's interest and curiosity, often encouraging them to generate alternatives or solve problems. It is flexible and frees students to explore diverse possibilities of giving correct answers. It also fosters creativity and development of interpersonal skills and attitudes. Your role as a teacher shifts to that of facilitator, supporter and resource person. You should arrange the learning environment, provide opportunity for student's involvement and, when necessary, provide feedback to students, while they conduct the activity. The activities on some competencies related to the living beings around us will help children to get an excellent awareness of the living world. These competencies are derived from classes III to V. The children can

be introduced to the living world and can be helped to differentiate between living and non living things, by being taken to a field or garden for observation, or through activities done in the classroom. Discussion is an interactive process of inquiry. The activity can be followed by interaction/discussion with children in the classroom. It provides opportunity for interaction between the teacher and the students and among the students. It is shared conversation, discussions and exchange of ideas in class. It gives opportunity to all to sit and listen as well as talk and think, thus emphasizing the process of “coming to Know” as valuable as “Knowing the right answer”. In this strategy neither the teacher is a sole performer nor are the students passive listeners. The discussion encourages cooperative team work between the teacher and the students and amongst the students. Discussion helps the children to infer that all living things grow. Every living thing reproduces, i.e. gives birth to a young one of its own kind.

- Inquiry is not just a matter of asking questions but a process of conducting thorough investigation.
- It requires a high level interaction between teacher, learner, and area of study, available resources and the learning environment.
- Discussion is an interactive process of inquiry.
- Discussion encourages cooperative teamwork between teacher and students and amongst students.



CHECK YOUR PROGRESS

Q 6: What are the two types of inquiry?

Q 7: What is the role of a teacher in a discussion process?

3.5.2 Group Work and Field Visit

Group includes families, classrooms, workplaces, sports etc. They are everywhere. We spend much of our time of life in groups. We can learn from having some conscious experience with groups. The group process leads to a spirit of communication, cooperation, coordination and commonly understood procedures. If this is present within a group of people, then their performance will be enhanced by their mutual support. Groups are particularly good at combining talents and providing innovative solutions to possible unfamiliar problems in cases where there is no well established approach. Working with a group on a problem solving project can be a pleasure and a rewarding experience. Group work is generally considered to be superior to individual work. Good group work demands a balance between building a sense of solidarity and responsibility among the members during the problem solving process and getting the task accomplished. This demands from the members of the group not only intelligence and creativity but also social skill. People are not born with social skills; they have to learn them. The best way to learn them is by working in groups i.e. learning by doing. Students are encouraged to become active rather than passive learner by developing collaborative and co operative skills and life-long learning skills. It is a child centred approach to teaching, learning and evaluation.

Field visit is an outdoor activity to gain real and practical experience. Learning outside the classroom will be an important part of environmental studies. Providing students with high quality learning activities in relevant situations beyond the walls of the classroom is vital for helping the students appreciate their first hand experience from a variety of different perspectives. An experience outside the classroom also enhances learning by providing the child with opportunities to practice skills of enquiry, values, analysis and clarification and problem solving in everyday situations. Local area

investigations are useful, not only because they can be linked to meet the student's outcomes of environmental studies subject areas, but also because they can be most enjoyable. The great thing about any field trip is that it provides a first hand experience that is real experience. Very careful planning is required to be made by teachers to ascertain the resources available, personnel to be contacted, travel details to be arranged, field of emphasis, follow up activities and reference materials just to mention a few aspects. Field trips can be used very effectively to integrate theoretical models with real world practical examples. There is a vast range of resources available for field visits. These are: shopping centre, old and new buildings, water and sanitation plants, factories, nurseries, home gardens, hospitals, forest, rivers, agricultural field etc.

- We can learn some conscious experience from group.
- The group process leads to a spirit of communication co-operation, coordination and commonly understood procedure.
- Field visit is an outdoor learning activity to gain practical and real experience.
- There is a vast range of resources available for visiting in the field to integrate theoretical model with real world practical examples.



CHECK YOUR PROGRESS

Q 8: State True or False

- i) Group work is a social activity
- ii) Field visit is an outdoor learning activity.
- iii) Field visit provides first hand experience and we gain real experience.

3.5.3 Survey and Experimentation

Survey means an investigation of the opinions or experience of a group of people, based on a series of questions. Survey

provides a means of measuring a population's characteristics, self reported and observed behaviors, awareness of programs, attitude or opinion and needs. Repeating Surveys at regular intervals can assist in the measurement of changes over the time. Survey is an activity-based learning method. The process of organizing survey must be based on curricular aims, bringing together the needs, ideas, interests and characteristics of the children with the knowledge, skills, experience and personality of the teacher within a given environment. While conducting a survey the role of a teacher is that of a planner, an organizer and an evaluator. Teaching the students how to design a survey can be tricky because the process is deceptively easy. Students think that it is very easy. They then proceed to break every rule of good survey design that may be discussed in class. The questionnaire is to be well-designed and meaningful. Every question must bring a definite answer. It should not be biased or carrying double meaning that make no sense or may overlap. The activity is also beneficial because students get an example of what not to do when creating their own survey. Pedagogically this is a good activity where the students play an active role in their education. Theme like 'Food' and 'Shelter' in EVS can well be documented through survey.

Experimentation is a way to show the magic of environmental studies to your students. They get bored through bookish knowledge. This is a creative way of engaging the child in environmental activities. From wild life to weather the child has to see and believe. Simple science experiments and activities help to show your child the fun side of learning. Simple science experiments are a great way to introduce a child to science. It is a process of learning by doing. Classroom experiments are activities where any number of students work in groups on carefully designed guided inquiry questions. Materials provide the students with the means of collecting data through intersection with typical laboratory materials, data stimulation tools or a decision making environment as well a

series of questions that lead to discovery-based learning. A well designed experiment targets the common student misconceptions, focusing on major ideas that students will need to understand correctly in order to support deep learning. All experiments involve collecting observations or observing action to try to answer a question or to solve a problem. In the classroom, an observational experiment where students “See what happens” can also be useful.

- Survey means an investigation of the opinions or experience of a group of people based on a series of questions.
- It is an activity based learning method.
- Experimentation is a process of learning by doing.
- A well designed experiment targets common students misconceptions, focusing on major ideas, students will need to understand correctly in order to support deep learning.

3.6 USING CHILDREN IDEA AS A TOOL OF LEARNING

Children see the different patterns of livelihood such as agriculture, trade, resources, social institutions etc. They will develop their ideas about different types of plants, animals, insects roads and transport, fairs and festivals. They will learn about the life situation under different environments. Children basically develop ideas through their experience in the family environment . Children learn in different ways, some learn by seeing, some by listening ,some by reading and some by doing. And at this stage children also learn through play. Plenty of unstructured free play time helps balance formal lessons at school and also gives the kids a chance to unwind after the routines and rules of school. Each child has an innate capacity to learn about things owing to the experiences and the information available to him /her. The child constructs new meanings based on previous knowledge and builds upon his/her understanding. All the children do not learn in a uniform manner. However, children’s unique ways of thinking and learning can become an opportunity as a learning resource in a classroom. Different

children's experiences can serve as the beginning to explore multiple facets of ideas in the lesson. Sharing ideas and insights among peers provide rich opportunities for learning.

Different of opinions and varied perspectives enrich the learning process and add quality to what is learnt. Children's distant memories and past experiences also add to the process of making sense of things. To facilitate a more meaningful learning, it is essential that teachers/elders encourage the children to make critical analysis of their prior work/knowledge and then move on to the new concepts to be learnt.

- Children develop idea in a family environment through their experience,
- Children learn in different ways.
- Different children experiences can serve as the beginning to explore multiple facets of ideas in the lesson.
- Teachers and elders are to encourage the children to make critical analysis of their prior knowledge and then move on to the new concept to be learnt.



CHECK YOUR PROGRESS

Q 9: How do children develop ideas?

.....

3.7 ROLE OF THE TEACHER IN CLASSROOM TRANSACTION

In a transactional curriculum, students are actively involved in their learning to reach new knowledge. The transactional approach is able to incorporate ongoing experiences flexibly and creatively in the classroom and construct lessons with small groups and individuals where the environment is democratic, activities are interactive and child centred and the students are empowered by a teacher as facilitator. Now, you have understood that in a world which is increasingly being polarized on the basis of knowledge the role of the teacher as the mediator between the

students and the time has to undergo an inevitable reappraisal, if the teacher has to retain his continued relevance. Since the objectives of teaching learning in Environmental Studies at the Lower Primary stage is to develop learning skills, processing information, understanding the basic conceptual framework, the learners are encouraged to observe systematically, explore their environment and record their observations. Encourage the children to share their experience, news, and their observations of nature in the class and use their talk as a resource in building better classroom discussion. Allow the children to invent their own ways of using existing vocabulary to convey science and mathematical ideas. Encourage the children to express their scientific and mathematical findings, encourage them to participate in classroom activities through asking questions and framing of problems. Tolerate their learning from failures and therefore motivate the children to be creative. Encouragement for perseverance is vital. The children shall be encouraged to persevere on the tasks and not to be rewarded for the fastest correct answer. Develop culture of beyond text books and inquiry based learning.

- In a transaction curriculum students are actively involved in their learning to reach new knowledge.
- In classroom transaction students are empowered by a teacher as facilitator.
- Students are encouraged to express their scientific and mathematical findings.
- Tolerate learning from failures and therefore motivate children to be creative.



CHECK YOUR PROGRESS

Q 10: Answer True or False.

- i) In classroom transaction activities are interactive.
- ii) Students are empowered by a teacher.
- iii) Teacher's role is autocratic.
- iv) Classroom transaction develops inquiry based learning.

3.8 INTEGRATION OF SUBJECTS

Environmental studies (EVS) has been an integral component of school education in one form or the other for more than four decades. At present the concept, issues, and problems related to environment are either integrated with different disciplines or as a subject. For example, at the primary stage, environment education is introduced as Environment Studies integrated through teaching of mathematics and language. At the Upper Primary and Secondary Stages, it is incorporated into different subjects, mainly Science and Social Sciences. Various components of nature around us and their interaction with man form the subject matter of EVS. In fact, the subject is closely associated with different subjects like Physics, Chemistry, Mathematics, Life Science, History, Economics, Law, Political Science, Education, Anthropology, Philosophy, Sociology and Computer Science. Therefore, it may be called a multidisciplinary study. The various aspects of the study can be integrated and a course around it may be built up taking the consideration of the child's mental age. By making an integrated approach the academic burden of the child is reduced. Children observe and understand their surroundings in totality. Therefore, it becomes meaningful when we follow an integrated approach rather than taking up the compartmentalized or segmented form of the curricular areas. Hence, learning opportunities provided should involve the integration of different curricular areas. EVS is a synthesis of ideas, values, actions and skills from many disciplines that can be developed through all the subjects. Hence, its contents cut across the boundaries of science and social sciences and mathematics. This will be the essential perspectives of EVS content. Thus, EVS integrates "Learning in the environment, 'Learning about the environment and 'Learning for the environment".

3.8.1 Language and Mathematics

Children at I and II standards are expected to learn environmental components through language and mathematics. At the primary level, mathematics, languages (mother tongue and

English) are compulsory subjects. We cannot deny the fact that mathematics is there all around us. But we as teachers confine it to the four walls of the classroom. It is important to acquire not only knowledge but also the necessary skills of learning to learn which include literary, numeracy, reasoning logical thinking, problem solving, critical thinking etc. and be able to access relevant information to apply meaningfully. Mathematics learning enables one to acquire all these skills if its process of teaching-learning relates it to the child's immediate environment and experiences. A careful look reveals that there is such a similarity between the processes of learning EVS and mathematics that you might wonder about the characteristics which make these subject separate ones. Essentially, it is the specific contents/concepts of mathematics that make it a separate curricular area different from EVS the concerns of which are related to natural, social ,physical and cultural environment.

Many of us still believe that language is only an effective tool for communication and listening, speaking, reading and writing are its important skills. It is equally important for each one of us to understand that minute observation, classification, expression, discussion, questioning, estimation, thinking, memorization, creativity and problem solving are some of the important skills which are an important part of language learning. These skills are also equally important for Environmental Studies. Language includes all processes related to other disciplines in it. Development of knowledge and of language is simultaneous and the two are inseparable.

At the level of I and II, children do a lot of activities which make them aware of and help them to understand their immediate social, natural as well as cultural environment and surroundings. In identifying their role in it the use of language is an important tool. They become able to use complex syntactic structures through different languages accurately and appropriately. Through their

language, they structure the environment around them in a systematic manner that over a period of time approximates to its adult representation. Taking into consideration all these it is important to understand that language and mathematics teaching-learning should help project environmental concerns. Careful observation will reveal that language and mathematics are essential tools to explain the interaction and mutual relationship between natural processes and human activities.

- Integration of subjects cut across the boundaries of subjects and reduce the academic burden of the child.
- Children of primary level are expected to learn environmental components through language and mathematics.
- There is a similarity between the process of learning EVS and mathematics.
- Language is the effective foot for communication
- Language and mathematics are essential tools to explain the interaction and mutual relationship between natural processes and human activities.



CHECK YOUR PROGRESS

Q 11: Fill in the blanks.

- i) Language and mathematics integrated at
- ii) Integrated approach academic burden.
- iii) Reading, writing, listening and speaking skills developed through
- iv) Reasoning, logical thinking, problem solving skills developed through

3.9 USE OF ICT IN CLASSROOM

The pace of technological revolution and emergence of a knowledge society can change the traditional role of the teacher and the students.

Traditionally, the teacher used to be the source of knowledge for students. There is some co-operation among students to explore new knowledge. In many cases, the teachers do not possess adequate knowledge to supplement the need of the students. And the main source of knowledge remains limited to text books. The development of Information and Communication Technology (ICT) changes the epic centre of knowledge. At present, in a number of cases, the student is more informed than the teachers. In the new phase of Knowledge Revolution the Source of Knowledge has shifted from one source to different sources. In other words, we can say that there is a decentralization of the knowledge source. This has an overall impact on the development of the learner's abilities. There is a need to facilitate training on ICTs for the teachers both at the Pre-service and In-Service level. The acquisition of fundamental ICT skills among teachers and students helps knowledge sharing, thereby multiplying educational opportunities. The use of ICT can effectively enhance learning where traditional models have failed. However, all teachers are not willing to introduce new technologies to themselves first and subsequently to their students. They must be given opportunities for acquiring new knowledge. This can begin by promoting computer training programmes for teachers. It is necessary for teachers to become skilled in operating the new technologies and in exploiting them as educational tools. With the introduction of Computer Aided Education (CAE), the teachers are no longer depending on a single source of information, typically a text book, but are exposed to opportunities to use a variety of information sources. The use of computer in itself is boosting the confidence of the teachers and is leading to the creation of innovative ideas. With the use of computers as a means of self learning, the teacher has to make several decisions for facilitating the learning situation in classroom. The decision as to when to use the Compact Disks (CD)s relating to a particular content, how to associate time and space for classroom transaction and at what point to interfere while handling the CDs could be vested with far reaching consequences for the benefit of the learners. To facilitate the interactive mode of learning of students, the teachers play a critical role by providing

learning opportunities to the learners according to their level and needs.

- Development of ICT changes the epic centre of knowledge
- Acquisition of fundamental ICT skills among teachers and students helps knowledge sharing thus multiplying educational opportunities.
- Use of ICT can enhance learning where traditional models have failed.
- Promoting computer training programme for teacher is essential for using ICT in classroom.



CHECK YOUR PROGRESS

Q 12: Answer Yes or No

- i) In the traditional role of teacher the main source of knowledge is limited to text books.
- ii) ICT is an audio visual aid of learning.
- iii) The use of computer in class helps develop innovative ideas.
- iv) The use of computer is a means of self learning.



3.10 LET US SUM UP

- Learning indicators are process oriented.
- An experiment is a procedure carried out to support, refute or validate a hypothesis.
- Experiments are discovery based learning.
- Data analysis is a process for obtaining raw data and converting it into information useful for decision making.
- Interpretation is the act of explaining your own understanding about something.
- Good examples help to motivate the child.
- Examples need to be properly illustrated.
- Map is a diagrammatic representation of an area of the earth surface.
- Picture is a representation of anything by drawing painting, printing

and photography.

- Map reading is the process of interpreting and understanding the representation.
- Inquiry is not just a matter of asking questions, but a process of conducting thorough investigations.
- Discussion is an interactive process of inquiry.
- Discussion encourages cooperative teamwork between the teacher and the students and among the students themselves.
- We can learn some conscious experience from a group.
- Field visit is an outdoor learning activity to gain real and practical experience.
- Survey means an investigation of the opinions or experience of a group of people on the basis of a series of questions.
- Experimentation is a process of learning by doing.
- Children learn in different ways.
- Children develop ideas in a family environment through their experience.
- In a transactional curriculum students are actively involved in their learning to reach new knowledge.
- Integration of subjects cut across the boundaries of subjects and reduce the academic burden of the child.
- Language and mathematics are essential tools to explain the interaction and mutual relationship between natural processes and human activities.
- Development of ICT changes the epic centre of knowledge.
- Use of ICT can enhance learning where traditional models have failed.



3.11 FURTHER READINGS

- 1) Areckkuzhiyil S (2011) Instructional Approaches, Hyderabad Neel Kamal Publications
- 2) Nayak AK Classroom Teaching

- 3) Missal Kaor & Sarma Scientific Approach to Environmental studies
- 4) Kochar SK Method of Teaching Social Studies, Delhi Sterling Publisher.
- 5) NCERT (2008) Source Book on Assessment for class I-V, EVS New Delhi, NCERT.

3.12 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: i) False ii) True iii) True iv) True

Ans to Q No 2: i) True ii) True iii) True iv) False

Ans to Q No 3: As a facilitator, asking questions and drawing attention to interesting results.

Ans to Q No 4: i) A person who translates one language into another is called an interpreter.

ii) First to understand and then give your explanation.

iii) Animals

iv) Giving example on related theme.

Ans to Q No 5: i) True ii) True iii) True iv) True

Ans to Q No 6: Guided and unguided inquiry.

Ans to Q No 7: The teacher is not the sole performer in discussion process.

Ans to Q No 8: i) True ii) True iii) True iv) True

Ans to Q No 9: In a family environment through their experience.

Ans to Q No 10: i) True ii) True iii) False iv) True

Ans to Q No 11: i) Primary level ii) Reduces iii) Language
iv) Mathematics

Ans to Q No 12: i) yes ii) yes iii) yes iv) yes



3.13 MODEL QUESTIONS

A) Very Short Question

Q 1: What do you understand by process approach/skills?

Q 2: i) Where does the learning process begin?

ii) How is the classification done?

Q 3: Fill in the gaps.

i) Questioning develops

ii) Hypothesis is a tentative insight in to the

iii) Survey is a learning method.

iv) Survey is planned by the

v) Experimentation is a process of

vi) Experimentation is based learning.

Q 4: How can children idea be a tool of learning?

B) Short Questions (Answer each question in about 150 words)

Q 1: Write briefly about the following:

i) Experiment ii) Hypothesis iii) Data Analysis

Q 2: What are the salient features of a map?

Q 3: Differentiate between map and picture.

Q 4: Write in brief about two social activity.

Q 5: How you will conduct an inquiry process in classroom?

C) Long Questions (Answer each question in about 300-500 words)

Q 1: How to perform an experiment? Explain.

Q 2: Discuss the benefits of integration of subjects.

Q 3: Discuss how language and mathematics can be integrated in environmental studies.

Q 4: Discuss in detail how ICT can be used in the classroom.

*** ***** ***

Unit 4: UNDERSTANDING OF TEXT BOOKS AND PEDAGOGY

UNIT STRUCTURE

- 4.1 Learning objectives
- 4.2 Introduction
- 4.3 Guiding Principles for the Development of EVS Text books
- 4.4 Content Approaches and Methods of teaching EVS
 - 4.4.1 Interactive and Participatory methods
 - 4.4.2 Teacher as a Facilitator
- 4.5 Themes, Structure of the Unit nature of Exercises and its implications
- 4.6 Academic Standards and Indicators of leaning
- 4.7 Learning Resources for Effective Transaction of EVS curriculum
- 4.8 Let us sum up
- 4.9 Further Reading
- 4.10 Answers to check your Progress
- 4.11 Model questions

4.1 LEARNING OBJECTIVES

After going through this unit you will be able to -

- describe the basic principles for the development of EVS text book
- define a text book and describe how it helps in teaching learning
- apply the various approaches and methods of teaching
- identify the various learning resources and their application

4.2 INTRODUCTION

The present day classroom practices in almost all schools of the country are totally dominated by text books. The text book emerges as the single solution to all classroom teaching. The text book is sought to collect all the knowledge that a child is supposed to acquire at a given stage or in a class. It is planned in such a way that the child never needs to look

beyond it. Thus, 'teaching the text book' becomes the whole of education. However actual learning takes place in the child's mind and depends totally on what has been learnt earlier. Therefore, the reinterpretation of the content, methods and materials are completely within the sphere of practical decisions to be made by the teacher. In the light of this argument, what is needed is not a single text book but a package of teaching-learning materials that could be used to engage the child in active learning. At an early stage, it may contain concrete objects that help the formation of concepts (i.e. shapes, counting objects etc, equipment to help observation, and charts and cards to illustrate, play with and so on). At a later stage of school education, it could mean a variety of books on the relevant issues. The text book as a part of this package becomes one tool to engage the child in learning. The text book itself, as part of such a package, will have to change both in form and function. A text book may not necessarily cover the entire syllabus of one class/stage and it may not necessarily be for the whole year.

4.3 GUIDING PRINCIPLES FOR THE DEVELOPMENT OF EVS TEXT BOOKS

From the Introduction of the unit, we have got an idea about the need and importance of the text book. Any good text book should lead the child to interact with the environment, peers, other people, etc. rather than be self-contained. The text book should function as a guide to construct knowledge and understanding through the active engagement of the child with texts, ideas, things, environment, and people. It is, therefore, not meant to be transferring knowledge as a finished product. Environmental education is imparted as Environmental Studies, which forms a common component of the syllabus prescribed by State and Central Board of Secondary Education. The text books for environmental studies as prepared by NCERT have taken a cross curriculum approach to the teaching of environmental concepts through language, mathematics and other subjects. In class I and II there are no separate EVS text books. For classes III and IV, EVS text books are available. Environmental education has been further

reinforced under the Art of Healthy and Productive Living (AHPL) for which a single teacher's hand book has been developed. The text books should lay emphasis on raising the awareness levels and sensitizing the children about environmental concerns. To lay emphasis on the need to organize learning in specific local contexts will provide more meaningful experiences to children. References and suggestions are to be provided for conducting activities in and outside the classroom. Take a comprehensive view of the natural, physical, social and cultural environment and provide the child the necessary understanding about their immediate environment. It is essential to provide a scope for inclusion of more activities to enable the children to translate awareness into effective behavioural action.

- Actual learning takes place in the child's mind and depends totally on what has been learnt earlier.
- Text book may not necessarily be for the whole year.
- Good text book should lead the child to interact with the environment, peers, other people etc rather than be self contained
- It should be based on cross curricular approach to teaching environmental concept through language, mathematics about the environment.



CHECK YOUR PROGRESS

Q 1: Explain the salient features of an EVS text book for primary stage. (within 500 words)

.....

Q 2: What approach has been followed by NCERT for development of EVS text book? (within 150-200 words)

.....

Q 3: Answer the following (in a word/sentence)

- i) What do you mean by AHPL?
- ii) What is cross curricular approach?

4.4 CONTENT APPROACHES AND METHODS OF TEACHING EVS

Teaching and learning can take place in many ways. There are different lessons and activities in EVS text books which need different approaches for different contents. The different methods of teaching also enable the teachers to design an extensive range of teaching strategies to address the needs of the students in the classroom. The richness of learning activities made available to children is of utmost importance. How students learn is more important than what they learn. This is because different students have different abilities and learning styles and so a variety of strategies and methods are crucial to ensure that all students have opportunities to learn. Teacher oriented expository approaches such as questioning, explaining and demonstrating are effective for covering a large amount of information and if it is done well it can be very exciting and motivating for students. Alternative approaches for structuring classrooms such as small groups, individual pairs, and large groups can maximize the opportunities for the students to learn from one another by developing mutual respect and co-operation on various tasks and projects. Collaborative learning through learner centred interactive approaches such as inquiry, problem solving, storytelling involving students, using surveys and worksheets along with learning outside the classroom can help students feel responsible for their own learning, developing thinking skills and fostering independent social and group processes. There are a number of lessons and activities based on the inquiry method of learning provided in the environmental studies syllabus. There are a number of activities that are simple and easy to conduct in the schools as every day activities with the primary school students.

- Different lessons and activities in EVS text book needs different approaches and method of teaching.
- How student learn is more important than what students learn.
- Collaborative learning through learner centred interactive

approach can help students feel responsible for their own learning, developing thinking skills etc.

- There are numbers of such approaches and methods for teaching EVS in primary school.



CHECK YOUR PROGRESS

Q 4: Answer the following

- i) How does teaching learning take place?
- ii) What are the teacher oriented expository approaches?
- iii) What are the alternative approaches of structuring the classroom?
- iv) What are the collaborative learner centre approaches?

Q 5: Fill in the blanks.

- i) Different activities need different
- ii) Learning outside the classroom is approach.

4.4.1 Interactive and Participatory Method

Interactive method of teaching is not something new or mysterious. If you are a teacher and you ask questions in class, assign and check home work, or hold classes or group discussions then you are already teaching interactively. Interactive teaching is just giving students something to do, getting back what they have done and then assimilating it yourself so that you can decide what would be the best to do next. Almost all teachers do these but then he/she has to step away from teaching and think about learning. Without interacting with the students (in the simplest case by asking questions) a teacher has no way to know if his/her efforts to explain the topic were successful. There are three distinct reasons for interactive teaching:

- i) it is an attempt to see what actually exists in the brains of the students. This is the “Summative” aspect;
- ii) the second reason is “formative” where the teacher aims through the assigned task to direct students mental processing

along an appropriate push in “concept space”;

- iii) the third may be “motivation”. Learning is hard work, and an injection of motivation at the right moment can make all the difference. One motivating factor provided by the interactive teacher is the requirement of a response to a live classroom task.

Participatory approach to learning are active approach that encourage people to think for themselves. Participants actively contribute to teaching and learning rather than passively receiving information from outside experts who may not have local understanding of the issues. This approach encourages people to share information, learn from each other, and work together to solve common problems. Good problem solving requires inputs from a variety of people with many types of experience and expertise. It also includes everyone who is interested in finding the best solution. Experience states that when everyone contributes to the learning process then people feel more ownership of the problem and develop more appropriate situations for their context. Inquiry, problem solving, storytelling questioning answering are some interactive methods, whereas discussion, group work, field visit, excursion, learning outside classroom are the participatory method, Teacher can make use of both these methods in teaching learning of EVS at the primary stage.

- Interactive teaching is just giving children something to do, getting back what they have done.
- There are three distinct reasons for interactive teaching they are, formative, summative and motivational.
- Participatory approach of learning is active approach that encourage learner to think for themselves.
- Participatory approach encourages active participation share information and learn from each others.



CHECK YOUR PROGRESS

Q 6: Answer True or False

- i) Interaction means making positive relation between the teacher and the learner.
- ii) There are three distinct reasons for interactive teaching.
- iii) Inquiry is an interactive method.
- iv) Exclusion is not a participatory approach.

4.4.2 Teacher as a facilitator

Teaching and learning are being modified due to innovations in education. The word 'Teaching' is a most familiar word for teachers. They know how to perform teaching, but sometimes they do not know the difference between teaching and facilitating in learning. You have to understand the difference between "teaching" and "facilitating in learning" because both are correlated with each other. Teaching is an activity which helps the students in learning, but the teacher may not be able to measure how much a student has been able to learn. Therefore the teacher has to play the role of a facilitator and the expression facilitate the students in learning bears a very fascinating concept. It implies that the teacher must adopt innovative approach in order to make the students have a sound knowledge in the subjects taught. This calls for a change in his attitude to the teaching process. The teacher has to be a facilitator of learning rather than one teaching in the traditional way. As a facilitator of learning the teacher is to guide and assist the students in the transaction of learning. For this he/she must acquire ideas and information, constantly update his/her knowledge. A facilitator is one who provides the students with appropriate, authentic and purposeful learning experience as well as a conducive learning environment. The students are assisted by the teacher as a facilitator in the pursuit of self exploration and self learning.

- Teaching is a purposeful activity performed by a teacher.
- Facilitating learning for the students is an innovative, active and interesting concept.
- Traditionally a teacher operates under the traditional concept of teaching
- A facilitator guides and assists the students in learning for themselves through self exploration and dialogue.



CHECK YOUR PROGRESS

Q 7: Answer True or False

- i) Teaching is an activity to help the students in learning.
- ii) Facilitating is a traditional approach
- iii) Teaching operates under the traditional concept of teaching
- iv) Facilitating means guiding and assisting students in learning for themselves.

4.5 THEMES, STRUCTURE OF THE UNITS, NATURE OF EXERCISES AND ITS IMPLICATIONS

Theme is an idea, a concept or a lesson that appears repeatedly throughout a story or in a narrative or a discourse. Thematic approach is a way of teaching and learning, whereby many areas of the curriculum are connected together and integrated within a theme. The EVS syllabus has been developed within a child-centred perspectives of themes that provide common interface of issues in social studies, sciences and environmental education. The syllabus for class III-V is woven around six common themes. These are: *family and friends, food, shelter, water, travel, and the things we make and do*. The predominant theme of family and friends encompasses four sub themes: They are *relationship, work and play, animals, plants*.

- Theme of food begins in class III with cooking, eating in family and knowing about what we eat and what others eat, what animals eat.
- Theme of shelter in class III is concern with the need of a house. It

tells about why there should be common type of houses in the same region, the differences of urban and rural houses, slum and multi storied houses, and houses in different topographical regions.

- Water deals with the important issues connected with water, such as its availability and storing, its scarcity, causes of scarcity and the conservation of water.
- The theme travel incorporates the idea of travel in terms of exploring ideas and social and physical spaces. They are introduced to the world of fascinating diversity.
- There are a lot of things we make and do. This theme is important because the children are taught about them.

The nature of exercises/activities will be interactive or participatory like observation, conversation, enquiry and discussion, songs, storytelling, drawing writing etc. and encouraging the children to collect different types of objects from the surrounding and then to present them in the class is an interesting activity the teacher can undertake as facilitator. Thus, this new approach involves a major shift in our thinking of education as a process of “Learning’ and ‘teaching’ becomes a facilitation on the part of the teacher where he engages himself as an active participant in the transaction of teaching-learning along with the students.

- Theme is an idea, concept or lesson that appears repeatedly throughout a story.
- Many areas of the curriculum are connected together and integrated within a theme.
- The syllabus for class III-V is woven around six common theme.
- The nature of activities/exercises will be interactive and participatory.

Broadly, the EVS encompasses ten processes. Thus, the indicators in EVS is process-based and suggestive examples have been given alongwith each indicator.

Observing and Reporting: Explores, shares, narrates and draws, picture reading, makes pictures, information tables and maps.

Discussion: Listens, talks, expresses opinion, discovers.

Expression: Expresses through Gestures/body movements; verbally; drawing; writing; sculpting; creative writing.

Explanation: Reasoning, make local connections, describe events/situations, simple gesture, think critically, logical connections.

Classification: Identifies objects based on observable facts, similarities and differences in objects, comparing objects and classifying them based on physical teatimes.

Questioning: Expresses curiosity, asks questions, frame questions raises critical questions.

Analysis: Define situations/events, identifies/predicts possible causes of any event/situation, makes hypothesis and inferences

Experimentation: (Hands on activities) improvises, makes simple things and performs simple experiments.

Concern for justice and equality: Sensitivity towards the disabled or people with disability, shows concern for environment

Cooperation: Takes responsibilities and takes initiatives, shares and works together with empathy.

The learning indicators have been identified for class III, IV and V. In class III the EVS curriculum expects learning from the immediate surroundings while in class V, curricular expectation needs to provide learning related to natural and social environment so that by the time the child enters class VI, he/she would not face any learning gap in the curriculum transaction of social sciences and science.

- Academic standards are the bench mark of quality and excellence in education.
- Learning indicators are expected to provide evidences of learning and other changes taking place in child's behavior.

- The nature of learning indicators in EVS in process based.
- EVS encompasses ten process based learning indicators.



CHECK YOUR PROGRESS

Q 9: Answer the following

- i) How do we assess the quality and excellence in education?
- ii) How can we provide evidence of learning and other behavioural changes among the children?
- iii) How many learning indicators are marked?
- iv) Learning related to natural and social environment is expected to be provided in which class?

4.7 LEARNING RESOURCES FOR EFFECTIVE TRANSACTION OF EVS CURRICULUM

“You can teach a student a lesson for a day” but if you can teach him to learn by creating curiosity, he will continue the learning process as long as he lives” says Clay. P. Bedford.

The power of the learning environment to influence and promote learning is significant and the learning spaces and learning resources provide important opportunities for students to explore ideas and knowledge as well as to collaborate, solve problems and develop knowledge and skills.

While organizing the transaction of EVS curriculum the following pedagogical principles need to be kept in view.

- Each child is unique and has strength and weaknesses. Children learn in different pace and style. Opportunities need to be given to them to, get exposed to various situations.
- Active participation of children is crucial in constructing knowledge and in using environment as a learning resource that would provide meaningful learning as it would relate the child’s local knowledge with the school knowledge.
- Classroom processes need to encourage to tap various sources other than the text book. The teacher needs to encourage learning beyond

the four walls of the classroom and provide wider perspective of the environment around him/her.

- Visuals play a major role in EVS learning. Reading of visuals not only provides joy and ethos of writing material that develops critical thinking and analyzing skills but also supplements the text to reduce the content load. Picture-reading activities in group with peers improves social interaction and provides more opportunities for construction of knowledge. Care needs to be taken to adopt these visuals for children with visual difficulties.
- EVS learning must find suitable ways to sensitize the children to the wide differences that exist within our society relating to gender discrimination, children with marginalized groups and differently abled children, the elderly and the sick.
- Children enjoy and learn more with hands on activities i.e. creatively using the locally available materials, drawing pictures of their choice and art/craft activities. Children are very happy and respond enthusiastically when their creative ventures are appreciated rather than being rejected or left unnoticed as unimportant by the elders.
- Difference of opinion and varied perspectives enrich the learning process and add quality to what is learnt. Learning outside the classroom will be an important part of EVS. An experience outside the classroom also enhances learning by providing the students with opportunities to practise skills of enquiry, value analysis and classification and problem-solving in everyday situation.

- Learning resources provide important opportunities for students to explore ideas and knowledge solve problems and develops skills.
- Children learn different pace and styles. Opportunities need to be provided to get exposed to various situation.
- Classroom transaction need to encourage to tap various learning resources other than the text book.
- Visuals play a major role in EVS learning. Teacher need to encourage learning beyond the classroom.



CHECK YOUR PROGRESS

Q 10: Answer True or False

- i) Learning resources provide opportunities to explore knowledge
- ii) Environment can be use as a learning resource.
- iii) Each child is not unique, their strength and weaknesses are same.
- iv) Learning beyond the four walls of classroom provides wider perspectives in EVS learning.



4.8 LET US SUM UP

- Actual learning takes place in the child's mind and depends to tally on what has been learnt earlier.
- Good text book is a learning resource and it should lead the child to getting interest in environment.
- Text book should be based on cross curricular approach.
- Different lessons and activities in EVS text book needs different approaches and methods of teaching.
- How students learn is more important than what students learn.
- Learner-centred interactive approach can help students feel responsible for their own learning and developing thinking skills.
- Interactive teaching is just giving children something to do and getting back what they have done.
- There are three distinct reasons for interactive teaching; they are formative, summative and motivational.
- Participatory approach encourages active participation, sharing information and learning from each other.
- Teaching is a purposeful activity performed by a teacher.
- A teacher operates under the traditional concept of teaching.

- A facilitator guides and assists the students in learning for themselves through self exploration and dialogue
- Theme is an idea concept of lesson that operates repeatedly throughout a story.
- Many areas of curriculum are connected together and integrated with a theme.
- Academic standards are the benchmark of quality and excellence in education.
- Learning indicators are expected to provide evidences of learning and other changes taking place in child's behavior.
- The nature of learning indicators in EVS is process based.
- EVS encompasses ten process based learning indicators.



4.9 FURTHER READINGS

- 1)
- 2)
- 3)
- 4)



4.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: See para 4.3

Ans to Q No 2: See para 4.3

Ans to Q No 3: i) Art of healthy and productive living

ii) Integrating different subject together making a theme.

Ans to Q No 4: i) In different ways

- ii) Questioning, explaining and demonstrating.
- iii) Small group, individual pair and larger group
- iv) Inquiry, problem solving, story telling, learning outside class room

Ans to Q No 5: i) Approaches

- ii) Learner centred interactive

Ans to Q No 6: i) True

- ii) True
- iii) True
- iv) False

Ans to Q No 7: i) True

- ii) False
- iii) True
- iv) True

Ans to Q No 8: i) Milk

- ii) Multistoried building
- iii) Desert
- iv) Water

Ans to Q No 9: i) Academic standard

- ii) Learning indicators
- iii) Ten
- iv) Class V

Ans to Q No 10: i) True

- ii) True
- iii) False
- iv) True



4.11 MODEL QUESTIONS

A) Very Short Question

Q 1: Answer true or false

- i) Teaching and learning take place in unique way.

- ii) Collaborative learning is learner centred approach.
- iii) Inquiry is an interactive method.
- iv) Learning resources provide opportunity to explore the knowledge

Q 2: Fill in the blanks –

- i) Text book is a of learning.
- ii) AHPL stands for
- iii) Asking question in class is a method.
- iv) Generally teacher operates under the concept of teaching.

Q 3: Choose the correct answer

- i) Text book serve as a guide/master/leader/servant.
- ii) Facilitating is a traditional/old/boring/innovative concept.
- iii) Theme is interwoven idea/picture/graph/text book.
- iv) Questioning expresses curiosity/listening/describing/define.

B) Short Questions (Answer each question in about 150 words)

- Q 1:** Explain text book as a package of learning.
- Q 2:** Write a note on cross curricular approach.
- Q 3:** Write a note on teacher oriented expository methods
- Q 4:** Differentiate between teaching and facilitating.
- Q 5:** Why is thematic approach applied in teaching of EVS?
- Q 6:** How are learning outcomes measured?
- Q 7:** How will you organize learning outside class as a learning resource?

C) Long Questions (Answer each question in about 300-500 words)

- Q 1:** Describe the basic principles of an EVS text book for Primary stage.
- Q 2:** Explain the teacher centre and learner centre methods?
- Q 3:** Briefly discuss the expository, alternative and interactive approaches.
- Q 4:** Discuss briefly interactive and participatory methods of teaching EVS.
- Q 5:** Discuss the role of the teacher as a facilitator of learning.
- Q 6:** Write the main themes of EVS text book for class III to V. Explain in detail.
- Q 7:** Explain the meaning of academic standards and learning indicators.
- Q 8:** Explain the various indicators of learning in EVS.

Q 9: What is learning resource? Describe some of the learning resources for EVS class.

Q 10: Discuss briefly how learning resources can help the effective classroom transaction in EVS curriculum.

*** **

UNIT 5: PLANNING FOR TEACHING EVS

UNIT STRUCTURE

- 5.1 Learning objectives
- 5.2 Introduction
- 5.3 Why planning
- 5.4 Good EVS class
- 5.5 Alternative conception: Need for change
- 5.6 Concept map and thematic web charts.
- 5.7 Unit plan and use
- 5.8 Resource pool of materials, locally available materials
 - 5.8.1 Audio visual and Electronic material
 - 5.8.2 Lab/Science Kit
 - 5.8.3 Library
- 5.9 Peer Group learning
- 5.10 Let us Sum up
- 5.11 Further Reading
- 5.12 Answers to check your progress
- 5.13 Model questions

5.1 LEARNING OBJECTIVES

After going through this unit you will be able to –

- state the need and importance of planning
- explain the planning of a class, a unit and learning resources
- identify the learning resources available from various sources
- apply the learning resources in classroom transaction for better learning outcome.

5.2 INTRODUCTION

Planning is a primary requisite for a teacher while teaching a subject for the first time or meeting a new group of students. It is also needed to ensure that the educational objectives of the teacher are achieved. Planning

begins with thinking about how you would like your students to approach their learning in your subject.

Planning (also called forethought) is the process of thinking about and organizing the activities required to achieve a desired goal. It involves the creation and maintenance of a plan. Planning is a fundamental property of intelligent behaviour. An important aspect of planning is the relationship it holds with forecasting. Forecasting can be described as predicting what the future will look like; on the other hand planning predicts what the future should look like for multiple scenarios. Planning combines forecasting with preparation of scenarios and how to react to them.

5.3 WHY PLANNING

One of the most important principles of good teaching is the need for planning. Planning does not mean interfering with spontaneity. It, rather, provides a structure and a context for the teacher and the students as well as a framework for reflection and evaluation. We have seen that one of the advantages of small group teaching is that it provides opportunities for in depth discussion, reflection and consolidation of learning. Like a road guide for a long journey planning is vital. Planning and preparation become the personal road guide of the teacher helping him to continue on his journey as a teacher to provide education in a forward set up. As a teacher, you take time to understand the job, people, rules and organization. Make yourself aware of the potential problems and develop some strategies to deal with those situations. These preparations will make your teaching experience an exciting and challenging journey. Planning and preparation begin the moment you accept your teaching position. The importance of planning may be listed out as shown below:

- Planning increases the organization's ability to adapt to future eventualities,
- Planning helps crystallize objectives,
- Planning ensures a relatedness among decisions,
- Adequate planning reduces unnecessary pressures of immediacy,
- Planning reduces mistakes and oversight,

- Planning makes control easier,
- Planning increases the effectiveness of a manager.

Planning for the classroom is an important part of education and behavior management. Proper classroom planning will keep the teacher better organized and on the track while teaching and it allows him to teach more and manage less. An important part of classroom planning is developing an effective lesson plan. It is important for classroom planning to have set of rules. Following a daily routine is also important for classroom planning. How you set up your classroom is an intricate part of classroom planning. Kids of today are used to being entertained. So, when planning your classroom you may want to consider adding technology to your lesson plans. Guidelines for planning an effective class shall involves setting goals to shape a lesson, planning transitions, planning introductions, planning conclusions, planning classroom discussion, planning group activities, and reflecting on lessons etc.

- Planning is the process of thinking about and organizing activities required to achieve a desired goal.
- Planning provides a structure and context for both teachers and students as well as a framework for reflection and evaluation.
- Planning and preparation begins the moment you accept a teaching position.
- Planning for the classroom is an important part of education and behavior management.



CHECK YOUR PROGRESS

Q 1: Fill in the blanks

- i) Educational objectives are achieved through
- ii) Planning increases the organization's
- iii) Planning reduces
- iv) Lesson plan is a part of

5.4 GOOD EVS CLASS

The main characteristics of Environmental Studies as a subject highlight its closeness to our everyday life irrespective of political boundaries, its changing nature, the strong link between humans and the environment and how this subject is so relevant in our everyday life. When we consider these aspects we realize what people including ourselves do in our daily life to affect the environment. How does a teacher bring all these elements effectively to the classroom is a **moot** subject for debate, dispute, or uncertainty. It can, however, be pointed out that even without question, being in the classroom one may be aware of many things happening in the world through print and electronic media. But this does not deny the importance of the classroom.

Activities in the class need to be interactive and participatory. The role of a teacher should be that of a facilitator of learning instead of being merely a **purveyor** (a person who sells or deals in particular goods) of passive learning. Teaching-learning processes in each class must address the needs of all children. Thematic approach needs to be allowed in early classes with gradual transition to efforts to make the students understand concepts. Avoid giving direct information, definition and descriptions classroom processes should be directed towards encouraging to tap various sources other than the textbook. In a supportive and stress free classroom mistakes are to be used as opportunities. In EVS learning, the children's response should not be analysed in terms of being right or wrong. They should rather be encouraged to put their own point of view without hesitation.

- Main characteristics of Environmental studies is its closeness to everybody's life.
- Radio, TV, news papers and internet provide us useful information in addition to what we get in the class.
- We can make use of this for teaching EVS.
- Children learns more from visionary aids.



CHECK YOUR PROGRESS

Q 2: Answer the following

- i) What are the other sources of information that help us to know about the environment?
- ii) What approach needs to be followed in the early classes?
- iii) Which aids do help children to learn more?
- iv) What types of activities are expected in the class?

5.5 ALTERNATIVE CONCEPTION: NEED FOR CHANGE

When teachers provide instruction on the concepts in various subjects, they are teaching the students who already have some previous knowledge about the topic. Student knowledge, however, can be erroneous, illogical or misinformed. The erroneous understanding is termed as Alternative Conception or misconception. Alternative conceptions are not unusual. In fact, they are a normal part of the learning process. Things we have already learned are sometimes unhelpful in learning new concepts/theories. Normally, we form ideas from our past experience, but obviously not all the ideas we have developed are correct with respect to the most current evidence and scholarship in a given discipline. Moreover, they may be very abstract or quite complex. Hence, our understanding of them is flawed. In this way even adults or teachers can sometimes have misconceptions or alternative conceptions.

Alternative conceptions can really impede learning. Because students are generally unaware that the knowledge they have is wrong. Moreover, it can be very entrenched in the student's thinking. Students interpret new experiences through these erroneous understandings and are unable to grasp new information. Hence, conception change has to occur for proper learning to happen. This puts the teachers in a very challenging position of bringing about significant conceptual change in the knowledge of the students. Ordinary forms of instruction, such as lecture, lab, discovery-learning or simply reading the text are not very successful

at overcoming alternative conceptions. Several instructional strategies have proved to be effective in achieving conceptual change and in helping the students leave their alternative conceptions behind and learn the correct concepts.

A teacher can overcome alternative conceptions through the following instructional strategies.

- a) assess the preconceptions of the students
- b) create a bridge of examples to the new concept.
- c) present new concept in a plausible, high quality intelligible and generative way.
- d) use model-based reasoning to help students to construct new representation that vary from their intuitive theories.
- e) use diverse instructions and present a few examples
- f) help the students become aware of their own alternative conceptions.
- g) present the students with experiences that cause cognitive conflict in their minds
- h) engage in interactive conceptual instruction.
- i) develop student's epistemological thinking.
- j) use case studies as a teaching tool for understanding new materials and to reduce the student's alternative conceptions.
- k) help the students in their efforts to "self repair" their alternative conceptions.
- l) Once students have overcome their alternative conceptions engage them in argument to strengthen their newly acquired correct knowledge.

- Erroneous learning causes alternative conceptions
- Alternative conception is a normal part of the learning process.
- Alternative conceptions can impede learning in many ways.
- Teaching can help the students to overcome alternative conception through various instructional strategies.



CHECK YOUR PROGRESS

Q 3: Answer true or false

- i) Erroneous learning and understanding leads to alternative conceptions.
- ii) 'Self repair' is a strategy to overcome alternative conceptions.
- iii) Conceptual change is not necessary to remove alternative conceptions.
- iv) Case study is a teaching tool for understanding new materials and to reduce students alternative conceptions.

5.6 CONCEPT MAP AND THEMATIC WEB CHART

A concept map or conceptual diagram is a diagram that depicts suggested relationships between concepts. It is a graphical tool that instructional designers and others use to organize and structure knowledge. A concept map typically represents ideas and information as boxes and circles which it connects with labeled arrows in a downward-branching hierarchical structure. The relationship between concepts can be articulated in linking phrases such as 'causes', 'requires' or 'contributes to'. A concept map is a way of representing relationships between ideas, images or words in the same way that a sentence diagram represents the grammar of a sentence, or road map represents the locations of highways and towns. The technique of concept mapping was developed by Joseph D. Novak in 1970. Students can think about a concept in several ways. It helps children organize new information. It also helps to make meaningful connection between the main idea and other information. Teachers can use concept maps as a pre-reading strategy by inviting students to share what they already know about a particular concept. While reading teachers should ask students to help add to the map as a group, using an overhead large chart. This provides a Visual aid for building upon their prior knowledge with new information they have gathered from reading.

When implementing thematic approach teachers need to furnish guided experiences related to the chosen theme. The thematic approach is a method of instruction which teachers use to allow children to engage in activities that focus on a topic that the children, preferably, have selected to study. A web is a way to organize learning activities for the students. You might visualize it as a “spider web” that has a central point and that reaches out in many directions. The process of making a thematic web has three phases: first, the teacher and students determine the central idea or the theme of the web; second, the major branches are created by brainstorming ideas related to the theme; third, the teacher complies with activities that connect the major branches with each other while covering the EVS topics that need to be addressed. A teacher can make use of thematic web chart as visionary tool to teach the various themes of EVS in the Primary stage.

- A concept map is a diagram that depicts suggested relationship between concept/idea.
- It helps to make meaningful connection between the main idea and other information.
- A web is a way to organize learning activities for students. It is like the spider web that has a central point and that reaches out in many directions.
- Both concept map and thematic web chart are visionary learning resources for EVS learning.



CHECK YOUR PROGRESS

Q 4: Fill in the blanks.

- i) Concept maps depict between concept.
- ii) Concept mapping was developed by in
- iii) A web is a way to organize
- iv) The process of making thematic web has phrases.

5.7 UNIT PLAN FRAME WORK AND ITS USE

The term 'evolve' means to develop gradually, or to cause something or some one to develop gradually, Unit Planning may seem like a launching tank for the beginning teachers but it is an important part of the teaching and learning process. Many beginning teachers know that planning is important but they may not fully understand why?

Unit plans consist of concepts and learning goals that are taught over a period of time. They are woven together often across subject areas. A unit plan may last for 3-4 days or a week. Units for upper classes may be longer. When the unit plans are done well, learning is maximized through multiple exposures to key learning concepts and goals. As a beginning teacher, do not think that you must spend hours and hours planning so that all lessons fall underneath the umbrella of a unit plan Begin by knowing that each lesson is linked to the next and then to the ensuring lessons. In simple terms, a unit plan is simply a more short term and a more detailed view of your teaching map than your long term plan. It forces you to make difficult decisions about what to teach and how to teach. You can make three types of unit plan – theme-based, project-based and goal-based.

Thematic units, probably most familiar to you from elementary stage, also seek to reach goals, but integral standards from multiple subject areas to do so focusing on a common theme or topic. For example, teachers might develop a thematic unit about food and shelter to teach science, mathematics, language and writing skill.


Project-based units focus on producing an end product, such as a book, a play, a trip or a presentation that serves as a rallying point for the students and that motivates them to learn. Goal based unit, in a way, is a misnomer because all units are rooted in goals. When we refer to goal based units, we refer to a group of standards focused in the same content or skill area.

While developing a unit plan the teacher should include the following major components.

- a) The subject area and Grade level for which the unit is designed.

- b) The name of the unit of instruction.
- c) The goals of the unit and how does this unit help?
- d) How is the unit goal related to the team/department?
- e) The list of the needs for the students for whom the unit is intended.
- f) How will you introduce the unit and the goals to the students and list these procedures.
- g) Identifying the materials and the media needed to teach the lesson.
- h) Identifying the methods that you as a teacher will use to measure the students' learning levels and needs.
- i) To relate assessment instruments to the outcomes stated to the goals.

- Evolving unit means developing a unit plan gradually.
- Unit plan consists of concept and learning goals that are taught over a period of time.
- In unit plan each lesson is linked to the next and then to the ensuring lessons.
- There are three types of unit plan viz., theme based, project based and goal based.



CHECK YOUR PROGRESS

Q 5: What do you mean by evolving a unit plan?

Q 6: What are the three types of unit plan? Explain briefly?

5.8 RESOURCE POOL OF MATERIALS, LOCALLY AVAILABLE MATERIAL

A Resource Pool is a set of resources available for assignment to project tasks. A resource pool makes it easier to administer people, or even equipment assigned to tasks. Our aim is to make learning a more lively and meaningful experience for the children by equipping the teachers

with relevant resource materials, methods and knowledge. Class room materials should be designed to follow the basic tenets of universal design of learning (UDL) providing students with multiple means of representation, engagement and expression. It is equally important to select materials that help students retain information. Learning is not useful if students forget what they have learnt. According to Rief, students retain 10% of what they read, 20% of what they hear, 30% of what they see, 50% of what they see and hear, 70% of what they say and 90% of what they do. These statistics remind us that it is important to use multisensory materials whenever possible. It may not be possible to use multisensory materials for every lesson you teach. As you vary how you present information in your classroom, students will be more engaged in the learning process. Improved student engagement will result in improved achievement.

Now let us mention the following resources:

Print Resources : Reading instruction in the early elementary grade is focused on learning to read. As children graduate to upper primary and middle school the focus shifts to reading to learning.

Visual enhancement : Visually enhanced reading materials can contribute to students' learning experiences. Illustrations with vivid colours and details allow the students' imaginations to travel to other times and place.

Cultural Plurality : While using print resources it is to be ensured that print materials reflect a spirit of cultural plurality. It is important for supporting learning in diverse classrooms.

Dictionaries and other Aids : Electronic dictionaries are a great multimedia support for children with writing challenges.

Embedding content rich experiences : Virtual field trips and tours are great opportunities for students to have content rich experiences.

Motion sensed experiences : Meaningful manipulative tools are multisensory tools that are very beneficial for students with diverse learning styles.

Auditory Materials : Audio materials come in an increasing number of formats and can be classified in multiple ways. MP3 players are

very popular pocket sized devices that play music and other types of audio recordings.

Locally Available Materials:

Teaching and learning using locally available resources

(TALUAR) : The teacher should identify the locally available resources around the school which can be used in teaching and learning. The resource identified can be categorized as follows :

- Human resources: the people who facilitate learning apart from the class teacher.
- Animal resources: farm animals such as cattle, goat and pets such as cats and dogs.
- Wild life: such as lions, elephant, monkeys etc.
- Animal products: such as leather, milk, cheese etc.

Plants: Fruit trees, vegetables, tubers such as potatoes, beet, radish etc. Grass, indigenous trees, Exotic trees such as blue gum, cindrella and pine, medicinal plant like neem, Tulsi etc.

Material resources: This category includes objects such as chart, water soil, stone, bottle, tins cloth and plastic sheets.

Non material resources : Time, personal knowledge, skill, talents and personal qualities such as human, perseverance, language, culture, games, songs, debates, art, proverbs.

Other type of Resources : Relia – Real objects used as teaching learning resources, such as stone, a car a leaf. Some relia may be dangerous to handle like snake, bees etc. some objects are too large to handle and some are too small to see with necked eyes. In such cases, it is convenient to use a model. A model is a recognizable representation of something real.

- A resource pool is a set of resources available for assignment to project task.
- Classroom materials should be designed to follow the basic tenets of universal design of learning (UDL)
- Teaching and learning using locally available resources is abbreviated as TALUAR.

- The teacher should identify locally available resources around the school/community which can be used in teaching and learning.



CHECK YOUR PROGRESS

Q 7: Fill in the blanks :

- i) Multiple means of representation, engagement and expression are provided to students through
- ii) By reading a student may retain percent learning.
- iii) Potato, beat falls under the category of
- iv) MP3 is a material.

Q 8: Answer true or false:

- i) Learning is not useful if they forget what they learnt.
- ii) Optimum learning is learning by doing.
- iii) Relia means Real objects.
- iv) A model is a recognizable representation of something real.

5.8.1 Audio Visuals and Electronic Materials

In the previous lesson you have learnt that students can retain 50 percent of their learning from what they see and listen to. Audio visual aids are such category of learning resources which enables the students to see and listen to. The properly integrated use of audio visual equipment can be of great educational value by giving students an additional 'window of understanding' of subject content. We learn through our sense organs which help us in understanding the environment. Most of the knowledge we acquire from the school comes through our ears and eyes. Therefore, any device that can be used to make the learning experience more concrete and effective, more realistic and dynamic can be considered audio visual aids. Examples of Audio-Visual aids are: LOD projector, Film projector, Television, computer, VCD player,

virtual classroom, multi media etc. Broadly, we can categorize it in to three categories. These are: (i) projected, (ii) non-projected and (iii) electronic.

Projectors such as overhead projector, slides, film strips, film, LCD Projector Elmo, Audio and Video conferencing projector; Electronic materials like computer, internet stimulation Activities, record players and television are helpful audio visual aids for classroom teaching . Computers have become of the most important learning aids of the modern times. Today education is considered incomplete without computers. This is an electronic machine on which all other electronic medias of learning depend. These can be brought in various forms like desktop, laptop note book and simply e-readers.

Interactive electronic white boards of today also known as smart boards are the latest tools in teaching learning method. These need a computer, an overhead projector and preloaded educational software.

VCR, VCP and CD players are popular electronic aids. Now they have been overtaken by digital vide disk (DVD) players in incorporating a lot of features available in the digital technology. All these materials consume a lot of electricity (power) and the school have to bear it. CDs and DVDs with educational content are available in the market at very cheap rates. The web sites like India Study Channel offers the students the opportunity to learn and earn. The website study village offers the younger children to learn various aspects of knowledge.

- Most of the knowledge we acquire from school comes through our eyes and ears.
- Audio visual aids can make learning experience more effective and concrete.
- Audio visual aids are of three types projected, non projected and electronic.
- Electronic materials are costly and require power (electricity) to handle.



CHECK YOUR PROGRESS

Q 9: Answer true or false

- i) AV aids provide an additional 'window of understanding'
- ii) Overhead projector is a projected aid.
- iii) DVD is not a projected aid.
- iv) Computer is an electronic machine on which other electronic medias of learning depend.

5.8.2 Laboratory/Science Kit

The laboratory is an exciting place where students investigate, analyse and reflect. They test and apply theories and make abstract concept concrete. However, the process of investigation doesn't always run smoothly and students need guidance to make sense of their results. Some strategies need to be maintained for effective lab section. Laboratory projects are conducive to group learning which can take place both inside the lab and outside the class, during post-lab discussions or small group study sessions. Besides offering students the benefit of learning from one another, group work readies the students for conditions in the outside world, where most scientific or technical projects involve teams of people. All the subjects of study may have their own lab. Therefore, the proper equipment needs to be made available in the laboratories. Except the science laboratory, the subject laboratories do not have chemicals and glass apparatus, but can have models and some other equipment like science lab which are useful in learning the contents of the particular subject. The teacher in charge or the lab assistant should rehearse the procedure before the lab session and review the results afterwards. Class discussion will also enable the teacher to identify any problems with the lab process so that he/she can correct them for the next session.

Science experiment kits are innovative kits that are designed exclusively to mix and blend education and fun. These kits are mainly designed to impart knowledge because they provide detailed and subtle facts on various aspects of life and physical science. Science experiment kits help students to learn the practical aspect of science in everyday life. Students generally enjoy doing things practically because theoretical learning sometimes becomes very boring. These kits help the students to feel whatever they are performing and help them to grasp the concerned topic quickly. The kits are designed in a playful and attractive manner so that the child enjoys using them. They are a superb way for the teachers to explain different science concepts to their students. It is also a great help for parents who teach their children at home by themselves and want to make the topic interesting. There are various types of kits viz. Primary Science Lab gear, STEM Magnets Activity Set, Primary Science Kit, Primary Science Mix and measure Set, Outdoor discovery Set etc.

- Laboratory is an exciting place where students investigate, analyse, and reflect.
- Science Lab needs chemicals and glass wares while the other lab needs equipment and models.
- Science kit are designed to impart practical knowledge on various aspects of life and physical sciences.
- Science kit are a superb way for teachers to explain different Science concepts to their students.



CHECK YOUR PROGRESS

Q 10: What is a laboratory?

.....

Q 11: What is Science Experiment kit?

.....

Q 12: Name some science kits.

.....
.....

5.8.3 Library

Learning takes place not only in classroom settings, but also wherever the learners have an access to information and can use them for solving problems or constructing a new meaning. Learning can occur outside the formal institution in a workplace, a family museum, libraries, clubs and via mass media. The school library is a catalyst for literacy and reading and for teaching and scaffolding inquiry learning. School libraries make a difference to student's understanding and achievement and provide support for teaching and learning throughout the school. Your school library plays a key role in the cultural and social life of the school. It can be a central point for engagement with all kinds of reading, cultural activities, access to information, knowledge building, deep thinking and lively discussion. The school library provides a model for inquiry learning and building knowledge and confidence in seeking and processing information. It is a fundamental resource for supporting a student's learning and a key support for the teaching staff. Your school library reflects and encourages collaborative learning and sharing of ideas. Libraries serve at least three roles in learning. *First*, they serve a practical role in sharing expensive physical resources such as books and periodicals, films and videos, software and database and specialized tools such as projectors, graphics equipment and cameras which are shared by a community of users.

Second, libraries serve a cultural role in preserving and organizing artifacts and ideas. Great works of literature, art and science must be preserved and made accessible to future learners. Primary school libraries often also serve as museums and laboratories.

Third, libraries serve social and intellectual roles in bringing together people and ideas. In many respects libraries serve as centres of interdisciplinary places shared by learners from all disciplines.

- Learning takes place not only in classroom, but wherever learners have an access to information, or means and can use them for solving problems.
- School library plays a key role in the cultural and social life of the school.
- Library provides a model for inquiry learning and building knowledge and confidence.
- Library play three roles in learning viz. Practical role, cultural role, and social and intellectual role.



CHECK YOUR PROGRESS

Q 13: Answer True or False.

- i) Learning takes place only in classroom.
- ii) Library provides inquiry learning
- iii) Library is a key support for teaching staff,
- iv) Library serves social and intellectual roles.

5.9.4 Peer Group Learning

Have you ever played on a sports team (Football, basket ball) in which you are a part? If so, you have participated in a peer group. A peer group is a social group that consists of individuals of the same social status who share similar interests and are close in age. This means that a 4 year old would not be in a peer group with a 12 year old. Examples of peer groups include sport teams (Football, Volley ball, Basket ball), school organizations and clubs (Chess club, science club school band), classmates etc.

Peer learning refers to students' learning with and from each other as fellow learners without any implied authority to any individual, based on the tenet that "students learn a great deal by

explaining their ideas to others and by participating in activities in which they can learn from their peers". In peer learning students will construct their own meaning and understanding of what they need to learn. Essentially, children will be involved in searching for, collecting, analyzing, evaluating, integrating and applying information to complete an assignment or solve a problem. Thus, students will engage themselves intellectually, emotionally and socially in "Constructive Conversation" and learn by talking and questioning each other's views and reacting consensus or dissent. In addition to content knowledge acquisition, peer group learning, especially in small collaborative groups, also nurtures and fosters the development of

- Self directed learning skills and thus lays the foundation for a life long continuing self education.
- Critical thinking and problem solving skills.
- Communication, interpersonal and teamwork skills
- Learning through self, peer assessment and critical reflection

Peer learning also strongly motivates learning often attributed to the fun and joy of learning in small groups. The outcomes of peer learning ultimately depend on the design strategy, outcome objectives of the course, facilitating skills of the teacher, and the commitment of students and teachers. Peer learning is a learner centred education that transcends content knowledge acquisition. Peer learning optimizes student learning outcomes and provides a more holistic, value added and quality enhancing education that will better prepare students for the need of the workforce in this millennium

- A peer group is a social group that consists of individuals of the same social status who share similar interests and are close in age.
- Peer learning refers to students learning with and from each other as fellow learners without any implied authority.

- In peer learning, students will construct their own meaning and understanding of what they need to learn.
- Peer learning is a learner-centred education that transcends content knowledge acquisition, optimizes student learning outcomes and better prepares the students.



CHECK YOUR PROGRESS

Q 14: Answer True or false

- i) A football team is a peer group
- ii) Peer group learning takes place within the same age group
- iii) peer group learning is a self directed learning skill.
- iv) It is a learner centred approach.



5.10 LET US SUM UP

- Planning is the process of thinking about and organizing the activities required to achieve a desired goal.
- Planning combines forecasting with preparation of scenarios and how to react to them.
- One of the most important principles of good teaching is the need for planning.
- What people including us do in our home and locality can effect the whole world.
- We are constantly aware of the happenings around the world through various mass media.
- Teaching learning process in each class must address the needs of the children.
- Erronous understanding are termed as alternative conceptions or misconceptions.

- All previous learning is helpful for the new learning.
- Alternative conceptions may impede learning. The teacher should try to remove that by providing correct information through various instructional strategies.
- A concept map is a diagram that depicts suggested relationship between concepts.
- The concept of mapping was developed by Joseph. D Novase in 1970
- Thematic approach is a method of instructions that engage students to learn selected study.
- A web is a way to organize learning activities for students. It has a central point and then spread to different directions.
- Unit plan consists of concept and learning goals that are taught over a period of time and are woven together often across subject areas.
- There are three types of unit viz. Thematic, Project based and Goal based.
- A resource pool is a set of resources available for assignment to project tasks.
- Learning is not useful if students forget what they have learned.
- Teacher should identify locally available resources around the school which can enhance learning.
- Locally available resources are human resources, animal resources, plants, material resources, non material resources, relia etc.
- Students can retain 50 percent of their learning from what they see and hear.
- Most of the knowledge we acquire from school comes through our eyes and ears.
- We can classify Audio Visual aids as projected aids, non projected aids and Electronic materials.
- Computer is an electronic machine on which all other electronic medias of learning depend.
- The laboratory is an exciting place where students investigate, analyse and reflect.

- Students apply theory and make abstract concept concrete.
- Laboratory projects are conducive to group learning.
- Science kits are designed in a playful and attractive manner to enjoy the child the joy of learning.
- They are a superb way for teachers to explain different science concepts to their students.



5.11 FURTHER READINGS

- 1)
- 2)
- 3)
- 4)



5.12 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: i) Planning

- ii) ability to accept future eventualities.
- iii) Mistakes and oversight
- iv) classroom planning

Ans to Q No 2: i) Radio, TV, Newspaper, internet

- ii) Thematic approach
- iii) Audio visual aids
- iv) Interactive and participatory

Ans to Q No 3: i) True

- ii) True
- iii) False

iv) True

Ans to Q No 4: i) Suggested relationship

ii) Joseph D Novak in 1970

iii) Learning activities

iv) Three

Ans to Q No 5: Gradually developing a unit plan

Ans to Q No 6: Thematic unit plan, project based unit plan and goal based unit plan

Ans to Q No 7: i) Universal design of learning (UDL)

ii) 10 percent

iii) Tubers

iv) Audio

Ans to Q No 8: i) True

ii) True

iii) True

iv) True

Ans to Q No 9: i) True

ii) True

iii) True

iv) True

Ans to Q No 10: The laboratory is an exciting place where students investigate, analyse and reflect. They test and apply theories and make abstract concept concrete.

Ans to Q No 11: Science experiment kits innovative lots that are designed exclusively to mix and blend education and fun.

Ans to Q No 12: Primary science lab gear, STEM magnet activity set, primary science kit, mix and measure unit.

Ans to Q No 13: i) False

ii) True

iii) True

iv) True

Ans to Q No 14: i) True

ii) True

- iii) True
- iv) true

5.13 MODEL QUESTIONS

A) Very Short Questions

Q 1: True/False Test

- a) Forecasting is necessary before planning.
- b) Students of the same age form a peer group.
- c) Pine is an exotic tree.
- d) Students learn maximum by reading.

Q 2: Fill in the blanks

- a) Personal knowledge is a resource.
- b) Teaching and learning using locally available resources is abbreviated as.....
- c) LCD projector is a aid.
- d) Lesson plan is a part of

Q 3: Multiple choice test

- a) A child can retain 50%/30%/70%/10% knowledge by reading.
- b) We acquire most of the knowledge through mouth/ear/eyes/ear and eyes.
- c) Class room laboratory in a resting/exciting/dancing/dull place.
- d) Football/Drama/picnic/function is an example of peer group.

B) Short Questions (Answer in about 150-200 words)

Q 1: Why is classroom planning necessary?

Q 2: What are the requirements of a good class?

Q 3: Mention some strategies to overcome alternative conceptions.

Q 4: What is thematic web chart?

Q 5: What is the importance of visual aids?

Q 6: Give some examples of electronic materials.

Q 7: What is the difference between science laboratory and other subject

laboratories?

Q 8: Why Drama is not a Peer group activity?

Q 9: Why is peer group learning a learner centred learning?

C) Long Questions (Answer in about 300-500 words)

Q 1: What is planning? Why is it necessary to have class room planning? Explain.

Q 2: What is alternative conception? How can a teacher overcome it? Write in detail.

Q 3: Explain the importance of concept map and thematic web chart.

Q 4: What are the different types of unit plan? How will you develop a unit plan? Discuss.

Q 5: How can the locally available learning resources be utilized in learning?

Q 6: What are the types of Audio visual aids that can be used for teaching learning EVS?

Q 7: How can laboratory be utilized as learning resource?

Q 8: 'Library provides inquiry learning'- Discuss in brief.

Q 9: Write the meaning of 'peer group learning'? How can help in social and intellectual development?

Q 10: Discuss the advantages of peer group learning.

*** **

UNIT 6: CLASSROOM PLANNING AND EVALUATION

UNIT STRUCTURE

- 6.1 Learning objective
- 6.2 Introduction
- 6.3 Teaching Readiness
 - 6.3.1 Planning of Teaching EVS
 - 6.3.2 Year plan, Unit plan and period plan
- 6.4 Evaluation of Planning
- 6.5 Understanding Reflective Teaching and learning
- 6.6 Concept and importance of Evaluation.
- 6.7 Preparation and Selection of Reflective question
- 6.8 Different ways of Assessment and Reporting
- 6.9 Assessment and Evaluation: Definition, Need and Importance.
- 6.10. Continuous and Comprehensive Evaluation, Feedback and Reporting procedure.
- 6.11 Let us Sum up
- 6.12 Further Reading
- 6.13 Answers to check your progress
- 6.14 Model questions.

6.1 LEARNING OBJECTIVES

After going through this unit, you will able to-

- recognise the different levels of readiness
- use the various methods of teaching EVS
- identify various steps to develop an evaluation plan
- explain reflective teaching and learning
- select different ways of assessment and reporting
- conduct continuous and comprehensive evaluation for making proper assessment.

6.2 INTRODUCTION

It is known to us that teaching is a purposeful and complex activity that brings desirable changes in the behaviour of learners. This unit will help you to recognise the different levels of readiness. It is important for the teachers to try to identify the needs of the children before giving the same treatment in a group situation. Therefore, it requires careful planning for teaching EVS as a multidisciplinary subject. A year long plan will give an overview of the curriculum goals that you as a teacher will have to set for the year. Similar is the case of unit plan and periodic plan. After going through the unit, you will be able to develop year plan, unit plan and period plan. Evaluation forms an integral part of teaching-learning process. The evaluation of learner's achievement at the elementary stage should be integrated with teaching learning activities and done on a regular basis. In this unit we shall discuss the major aspects related to student's evaluation. There could be questions like what to evaluate? When and how to evaluate EVS and why to evaluation at all? As we go through this unit, you will get the answers to these questions and comprehend the major issues related to evaluation.

6.3 TEACHING READINESS

According to the Dictionary of Education, "the level of development at which an individual has the capacity to undertake the learning of a specified subject of study usually is the age at which the average group of individuals has the specified capacity". Any discussion of the readiness which attempts to bring about a better understanding of it in the lives of young children will be based upon certain assumptions. *Four* assumptions about readiness are presented here. The *first* assumption emphasizes the fact that educators have known about the concept of readiness for a longtime. This assumption states: Readiness for learning as a concept has been recognized as an important part of the instructional process for over a century. Although the concept of readiness was understood in the 19th century, the term readiness did not appear in print until the 1920s, and it wasn't until the later part of that period that much attention was given to it. Readiness for learning as a concept

is accepted by leading child development and learning theories. Gagne has written extensively about the place of readiness in learning. His view of readiness involves three factors. These are: 1) intentional set 2) motivation and 3) developmental status.

It must be recognized that there are different levels of readiness. This is the case because the readiness stage is influenced by many factors. These factors include **maturation or the level of physical development, intellectual ability, emotional maturity, health and nutrition, sensory motion ability, home conditions experiences**, and other factors that may influence the learner. It is important for the teachers to try to identify the needs of the children before they are all given the same treatment in a group situation. They must be treated as individual, who have certain abilities and certain limitations.

6.3.1 Planning of Teaching EVS

Teachers play a significant role in the society because of their influence on the children with whom they interact. An important challenge before us at present is to infuse into the learning process a spirit of question. In this process, environment becomes a medium for engaging the young minds in the excitement of first hand observation of nature and understanding the patterns and processes in the natural and social world. Schools play a critical role in supporting and helping children explore their environment and construct their own meaning from their interactions/experiences. By structuring and organizing learning experiences for children to explore, understand and express their experiences, the transaction of EVS in the primary stage contributes to the development of conceptual understanding, attitudes and values, skills and labels/practices relating to a range of subjects/focus areas at the primary level. Such learning experiences also introduce children to some of the hidden benefits such as the development of appreciation and respect for nature and natural resources, the diversity that exists in

the environment and the ability to express feedings and thoughts etc.

6.3.2 Year Plan

Create a teacher plan and develop an outline for the overall school year planning. Planning ahead will help you stay organized for the rest of the school year and will help to ensure that you are meeting the educational standards and common core curriculum initiative. A year long plan is intended to give you an overview of your curriculum at a place when kept in your lesson plan book. It can help you to stay on track each month in meeting the curriculum goals that you have set for the year. Yearly plan templates can also be bought, but when the form is self created, it is more likely to be easier to work with and utilize. Take year district curriculum and look at what makes sense to teach in each month. Look at the theme you would like to teach and where in the curriculum it can be covered. Once the whole curriculum has been broken down into months in this way, it will be easier to make sure that everything is covered. Check the yearly plans frequently to see if they are being followed as planned. If not, modify the plan so that it is recorded for the next school year.

Unit Plans : Unit planning begins with identifying the particular content to be taught and your goals for learning outcomes. Goals are about your purpose and aim. They relate to your rationale for thinking the particular content that your students will study.

A unit plan is developed by the teacher and serve as a long-range plan. It contains multiple lessons that are related. All the unit plans are not identical, but the major components will remain the same. A unit plan may have the following essential specifications regarding the subject and the grade level for which the unit is suggested.

- Name of the unit, what are the goals for this unit of instruction.
- Describe how the unit goals relate to the team/department

system and state frameworks.

- Characteristics of the students list the needs for the students for whom this unit is intended.
- List the procedure how you will introduce the unit and the goals to the students.
- Identify the materials needed to teach this lesson.
- Identify the methods that the teacher will use to identify the student learning levels and needs. Describe when these will be used during the unit.
- Relate assessment instruments to the outcomes stated in the goals.

Period Plan: Planning for a daily class period starts with figuring out what you want to accomplish in that class. Presumably, this days class fits into your course, and will help toward accomplishing the goals of the course. So your goals for the class period should support your course goals as to what you want the students to be able to do at the end of the hour. What skills do you want them to be developing? Another way to think about this question is from an assessment stand point- what do you expect your students to demonstrate to you, in their next exam, lab report, project presentation or other assessment? Once you have established your learning goals(s) for the day's class period, it becomes much simpler to figure out how to spend the class time. You must give your students the opportunity to practise whatever you will expect them to be able to do. It's possible to give them practice exclusively through homework assignments, but research demonstrates that practice with immediate feed back is most valuable if the skill you want your students to master is entirely new to them. You may want to demonstrate what you have in mind, first. Or you may wish to have them try it on their own, or in small groups, with detailed instructions. If it is a skill that some students already have, but is entirely new for others, carefully managed small groups can be very effective.

- readiness involves three factors according to Gagne. They are attentional, motivation and development status.
- Readiness stage is influenced by many factors.
- A year long plan will give the teacher an overview of the curriculum goals that the teacher has set for the year.
- Unit plan contains multiple lessons that one relate to the curriculum.
- Period plan starts with figuring out what the teacher wants to accomplish in that class.



CHECK YOUR PROGRESS

Answer the following

Q 1: What are the factors of readiness advocated by Gagne?

Q 2: What is a unit plan?

Q 3: Fill in the blanks:

- (i) Year plan prepared for the
- (ii) Period plan is meant for a

6.4 EVALUATION OF PLANNING


Evaluations are, in a broad sense, concerned with the effectiveness of programmes. It is a systematic process to understand what a program does and how well the programme does it. Evaluation results can be used to maintain or improve programme quality and to ensure that future planning can be more evidence based. Evaluation constitutes part of an ongoing cycle of programme planning implementation and improvement.

Evaluation is a step of planning. This step involves planning how you will evaluate your progress and what has been successfully achieved. This needs to be done at the planning stage so that it can guide implementation by ensuring a clear record of agreements about what successful achievement means. It helps to clarify the plans by making sure that everyone understands what you intend to achieve in the same way. It also ensures

that you have a clear and agreed basis for assessing what was actually achieved and your progress along the way. In this step you will use your needs analysis and overall plan to finally decide what criteria or indicators you will use to evaluate progress and achievements in relation to your goal, purpose and specific objectives; when you will monitor progress and evaluate achievements; who should be involved in monitoring progress and evaluating achievements. There are four main steps to develop an evaluation plan. These are:

- clarifying program objectives and goals;
- developing evaluation questions;
- developing evaluation methods and setting up a timeline for evaluation activities.

- clarifying program objectives and goals;
- developing evaluation questions;
- developing evaluation methods and setting up a timeline for evaluation activities.
- Evaluation is a systematic process to measure the effectiveness of the program.
- Planning is a process of deciding in advance where we want to get to (our goal) and how we will get there.
- An evaluation plan is a roadmap that identifies the goals and the ways in which you'll collect and analyse data.
- There are four major steps to develop an Evaluation plan



CHECK YOUR PROGRESS

Q 5: Fill in the blanks

(i) Evaluation is a step of

Evaluation is a process to measure the effectiveness of

Q 6: (i) What are the four steps to develop an evaluation.

.....

(ii) Why do we evaluate a plan?

.....

6.5 UNDERSTANDING REFLECTIVE TEACHING AND LEARNING

Reflective teaching is a personal tool that teachers can use to observe and evaluate the way they behave in their classroom. It can be both a private process as well as one that you discuss with your colleagues. When you collect information regarding what went on in your classroom and take the time to analyse it from a distance, you can identify more than just what worked and what didn't. You will be able to look at the underlying principles and beliefs that define the way that you work. This kind of self awareness is a powerful ally for a teacher, especially when so much of what and how they teach can change in the moment. Reflective teaching is about more than just summarizing what happened in the classroom. If you spend all your time discussing the events of the lesson, it is possible to jump to about conclusions, about why things happened as they did. Reflective teaching is a quicker and more systematic approach to looking at what happened. It requires patience, and careful observation of the entire lessons experience. You can also audio or video record your own lessons. This will give you the opportunity to reflect to a greater extent later in the day. They also will highlight how you speak to others, the language you use, and the physical behavior you engage in while teaching. Reflective teaching is a process where teachers think over their teaching practices, analyzing how something was taught and how the practice might be improved.

Reflective teaching means looking at what you do in the classroom, thinking about why you do it, and thinking about if it works as a process of self observation and self evaluation. By collecting information about what goes on in our classroom, and by analyzing and evaluating this information, we identify and explore our own practices and underlying beliefs. This may then lead to changes and improvements in our teaching. Reflective teaching involves recognizing, examining, ruminating over the way an individual teacher teaches.

- Reflective teaching means looking at what you do in the classroom.
- It can be a private process or one that you discuss with your colleagues.
- It gives an opportunity to know about performance and to make changes if needed.
- It is a process of self observation and self evaluation.



CHECK YOUR PROGRESS

Q 7: Answer True or False

- i) Reflective teaching is a personal tool of observation and self evaluation.
- ii) It develops self awareness of teaching learning.
- iii) Reflective teaching is looking at what you do in the classroom.
- iv) We identify and explore our own practices and beliefs.

6.6 CONCEPT AND IMPORTANCE OF EVALUATION

Evaluation is a process that critically examines a programme. It involves collecting and analyzing information on about a program's activities, characteristics, and outcomes. Its purpose is to make judgements about a program, to improve its effectiveness, and/or to inform programming decisions. Evaluation can help you to identify the areas for improvement and ultimately help you realize your goals more efficiently. Additionally, when you share your results about what was more and less effective you help advance environmental education.

Evaluation is not just a testing programme or an administrative technique. It is not something to be resorted to at the close of the school term as a culminating activity. In the modern school, increasing emphasis on the personal and social development of the child, as well as his academic achievement, has called for the corresponding development of a variety of techniques for apprising all the phases of child growth and development, of pupil achievement, of behavior and of the teaching leaning processes.

A large number of factors enter into teaching and learning including such instructional variables as objectives, methods and techniques, and subject matter on the one hand and such human variables as pupils, teachers and supervisors on the other. The importance of evaluation in teaching learning can be summarized as follows -

Evaluation is important to the classroom teachers, supervisors and administrators in directing as well as guiding teaching and learning. Evaluation also helps to measure the validity and reliability of instruction. Evaluation aids in devising more effective instructional materials and procedures of instruction. Evaluation helps teachers to discover the needs of the pupils and stimulates students to study. Evaluation helps parents to understand the pupil's growth, interest and potentialities. It can be used to enforce external standards upon the individual class or school. Likewise it helps to provide objective evidences for effective cooperation between parents and teachers. Finally, evaluation is helpful in securing support for the school from the government, local or national.

- Evaluation is a process that critically examines a programme
- Its purpose is to make judgment about a programme.
- Evaluation is important in directing as well as guiding teaching and learning.
- Evaluation aims in devising more effective instructional materials and procedures of instructions.



CHECK YOUR PROGRESS

Q 8: Answer True or False


- i) Evaluation is an administrative technique.
- ii) Pupils, teachers and supervisors are human variables.
- iii) Evaluation helps the teacher to discover the learning level of the students.
- iv) Evaluation is a process of assessment.

6.7 PREPARATION AND SELECTION OF REFLECTIVE QUESTIONS

A reflective question provides the respondents with an opportunity to explore their knowledge, experiences and ideas. Reflective questions are thought provoking and do not have one definite answer. Reflective questions are intended to elicit thoughtful and personal responses. Respondents give consideration to their own unique experiences and values, which might not be shared by others. A reflective question has no right or wrong answer because respondents are to make connections between personal experiences and the topic. For example, reflective questions might ask an audience to consider reasons for an event, look at the picture and describe a personal experience, interpret a situation or consider an alternate outcome. Answers differ according to individual differences in opinion, experience or skill. Reflective questioning means that you take some information you gathered previously and use it in a question.

One powerful form of reflection occurs when educators engage in professional dialogue with each other in small groups. Reflective questioning creates opportunities for an individual to reflect about to be heard by one or more colleagues, and to be prompted to expand and extend thinking through follow up questions. Reflective questioning encourages the respondent to explore his or her own thinking; it is not intended to direct the respondent to a conclusion predetermined by the questioner. For questioning to be truly reflective, the questioner must respect the respondent's statements, suspend judgment and avoid attempts to manipulate his or her thinking. Any content that calls for thoughtful and personal consideration invites reflective questioning. The processes may include considering alternative course of action, examining relations between desired and achieved out comes, clarifying beliefs or values, exploring common abilities within a group, reviewing the significance of an experience and so forth.

- A reflective question provides the respondent with an opportunity to explore their knowledge, experience, and ideas.
- A reflective question has no right or wrong answer because the respondent made connection with the personal experience and the topic
- Reflective questioning encourages the respondent to explain his/her own thinking.
- Reflective questioning means that you take some information you gathered previously and use it in a question.



CHECK YOUR PROGRESS

Q 9: What is Reflective questioning?

Q 10: What is the purpose of reflective questions?

6.8 DIFFERENT WAYS OF ASSESSMENT AND REPORTING

Assessment is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand and can do with their knowledge as a result of their educational experience. The process culminates when assessment results are used to improve subsequent learning.

Learning takes place in student’s brain where it is invisible to others. This means that learning must be assessed through performance; what students can do with their learning. Assessing students’ performance can involve assessment that are formal or informal, involving high or low stakes anonymous or public, individual or collective. There are different strategies for assessing a student’s learning and performance as well as ways to clarify your expectations and performance criteria to students. They are –

- Creating assignment
- Creating examinations
- Using classroom assessment techniques
- Using concept maps
- Assessing group works
- Creating and using rubrics.

Classroom Assessment Techniques (CAT) are a set of specific activities that instructors can use to quickly gauge students comprehension. They are generally used to assess students' knowledge and understanding of material in the current course but, with minor modifications, they can also be used to gauge a students knowledge coming in to a course of program. CATs are meant to provide immediate feedback about the level of understanding of the entire class not that of an individual student. The teacher can use this feedback to inform instruction, such as speeding up or slowing the pace of a lecture or explicitly addressing areas of confusion. We have a range of strategies that keep the parents fully informed of their child's progress in school. We encourage parents to contact the school if they have concerns about any aspect of their child's work. Parents should be given opportunity to know about the progress of their child. The celebration of the parent's day will bring the parents closure to the institution. Parents are to participate in the opportunities offered by the school to be involved in discussions regarding their child's progress. Reporting communicates comprehensive information about the student's learning and achievement in different forms to a range of audience for a variety of purposes. Comprehensive reporting covers three major areas. These are:

- Students reporting: schools report to parents/careers using student's reports.
- School reporting: schools reports to the local community via their annual report.
- System reporting: the department reports systematic improvement to the broader educational community through state wide and national reports.

- Assessment is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what the students know, understand and can do with their knowledge.
- Learning must be assessed through performance as it is not visible outside.
- Classroom assessment Techniques (CAT) are a set of specific activities that teachers can use to quickly gauge the student's comprehension.
- Reporting communicates comprehensive information about the student's learning and achievement in different form to a range of audience for a variety of purposes.



CHECK YOUR PROGRESS

Q 11: Answer true or false

- i) Assessment is a process of gathering and discussing information about the students achievement,
- ii) Students diary is a tool for reporting assessment.
- iii) Learning can be assessed through performance,
- iv) Examination is a way for assessment.

6.9 ASSESSMENT AND EVALUATION

6.9.1 Definitions

Assessment is the systematic collection of data to monitor the success of a program or course in achieving intended learning outcomes for students. Assessment is used to determine what students have learned (outcome). The way they learned the material (Process). Their approach to learning before, during or after the program or course.

Evaluation is a judgment by the teacher or educational instructors about whether the program or instruction has met its

intended learning outcomes (ILO). Evaluation is a continuous and comprehensive system of Assessment.

6.9.2 Need and Importance

Assessment and evaluation are highly concerned with qualitative judgments that are used to improve students' knowledge and learning. Assessment and evaluation also give teachers useful information about how to improve their teaching methods. Through using appropriate classroom assessment strategies and techniques, teachers can increase their students' motivation and show them how well they have learned the language. Evaluation goes beyond students' achievement and language assessment to consider all aspects of teaching and learning, and to look at how educational decisions can be informed by the results of alternative forms of assessment and evaluation. Needless to say that evaluation and assessment can focus on different aspects of teaching and learning respectively and whole programs of instructions.

Assessment and evaluation are very important parts of the constructive alignment process. Well designed assessments will allow your students to use the knowledge and skills they have learnt and indicate their level of mastery and what aspects are being assessed. Evaluation of the course or module, by students and teachers should feedback into the whole process of curriculum alignment, and reflect critically and constructively on the outcomes, the teaching and learning activities, the assessment and the experience of the course or module. Reflexivity and continuous learning and development are the key aims of successful evaluation.

- Assessment is used to determine what students have learned, the way they have learned the material and their approach to learning before, during or after the program or course.
- Evaluation is a judgment by the teacher about whether the

program or instruction has met its intended learning outcomes.

- Assessment and Evaluation are highly concerned with qualitative judgments that are used to improve students' knowledge and learning.
- Assessment and evaluation are very important parts of the constructive alignment process.



CHECK YOUR PROGRESS

Q 12: Fill in the blanks.

- i) What students have learned is called
- ii) The way students learn the material is called
- iii) Assessment and Evaluation are highly concerned with
- iv) Reflexivity and continuous learning development are the key aims of

6.10 CONTINUOUS AND COMPREHENSIVE EVALUATION

We can briefly differentiate between examination and evaluation in this context that the term examination is used only for the academic subjects whereas evaluation takes into consideration all the changes that take place in the development of an individual's personality. Evaluation forms an integral part of the teaching-learning process. The evaluation of the learner's achievement at the primary stage should be integrated with teaching-learning activities and should be done on a regular basis to judge if the learner has mastered the competency. Therefore, continuous evaluation which is diagnostic in nature is suggested at the primary level. It should aim at helping the learner to acquire the minimum level of learning in environmental studies. The process of evaluation should start with the testing of the learner at the entry level in the beginning of the session. Then, evaluation may be done on a continuous basis during an activity. This is required so that the competence

level can be developed in the students.

You have realized that the objectives of education are framed in the light of overall environment of the child, which includes social, political, national and cultural, economic etc. aspects of life. Those objectives naturally include scholastic and non scholastic areas. Evaluation is comprehensive in the sense that the overall personality of the child is assessed. A few such things one (i) physique weight-height, appearance, cleanliness (ii) habits like regularity, punctuality, company of good persons, reading good books and literature (iii) interest in music, art etc. (iv) desirable attitude, democracy, national integration secularism, socialism, attitude towards school property, school programmes (v) proficiency in co-curricular activities, indoor and outdoor. There is a need for comprehensive evaluation to achieve the competencies in both cognitive and non cognitive areas of learning. The cognitive areas include knowledge, understanding, application, skills while non cognitive areas include attitudes, personality qualities of values etc. The procedure of evaluation, which adequately measures both cognitive and non cognitive learning outcomes, is commonly known as comprehensive evaluation.

6.10.1 Formative and summative Evaluation

The purpose of formative evaluation is to gather information to understand strengths and weaknesses in order to improve teaching and learning. Summative evaluation assess achievement with an end in mind such as a grade. Formative evaluation is used during the teaching learning process to monitor the learning process. It is developmental in nature. The aim of this evaluation is to improve student's learning and teacher's teaching. Teacher made tests are used for this purpose.

The test items are prepared for limited area. It provides feed back to the teacher to modify the methods and to prescribe remedial works. Only few skills can be tested in this evaluation. It is a continuous and regular process.

Summative evaluation is used after the course completion

to assign the grades. Summative evaluation is terminal in nature. Its purpose is to evaluate a student's achievement. Generally, standardized tests are used for the purpose. The test items are prepared from the whole content area. It helps to judge the appropriateness of the instructional objectives. It conducts evaluation as a product.

6.10.2 Records and Registers

A record is a permanent written communication that documents information relevant to a client's various aspects like attendance, health, co-curricular activities, Academic calendar etc. It is both individual and institutional. It provides data that are essential for programme planning and evaluation. Records are the past information.

In order to keep the information in written forms Registers are maintained. This may be Admission Register Attendance Register, Fee collection Register, Leave register, Marks Register etc. Registers when preserved for future use become records. Teachers needs to know how to maintain the Registers of different subjects. However, records are being preserved by the school authorities.

- Continuous evaluation is diagnostic in nature and is done on a continuous basis.
- Comprehensive evaluation is to achieve the competencies in both cognitive and non cognitive areas of learning.
- Formative evaluation is used during the teaching learning process to monitor the learning process. (Assessment for learning)
- Summative evaluation is used after the completion of the course to assign the grade (Assessment of learning) to the learners.



CHECK YOUR PROGRESS

Q 13: What is continuous evaluation ?

.....
.....

Q 14: What is comprehensive evaluation?

.....
.....

Q 15: What is assessment for learning?

.....
.....

Q 16: What is assessment of learning?

.....
.....



6.11 LET US SUM UP

- Readiness involves three factors, namely, attentional, motivation, and developmental.
- A year plan is an overview of curriculum goals that the teacher has set for the year.
- Period plan figures out what the teacher wants to accomplish in that class.
- Evaluation is a systematic process of measuring the effectiveness of a program.
- Planning is a process of deciding in advance what we want to get to (our goal) and how we will get it.
- Reflective teaching means looking at what the teacher does in the classroom.
- Reflective teaching is a process of self observation and self evaluation.
- Evaluation is important in directing as well as guiding teaching and

learning.

- A reflective question provides the respondents with an opportunity to explore their knowledge, experience and ideas.
- Reflective questioning means that the teacher takes some information gathered previously and uses it in a question.
- Learning must be assessed through performance as it is not visible outside.
- Classroom Assessment Techniques (CAT) are a set of specific activities that teachers can use to gauge quickly student's comprehension.
- Assessment and Evaluation are a very important part of the constructive alignment process.
- Continuous evaluation is diagnostic in nature and is carried out continuously.
- Formative evaluation means assessment for learning.
- Summative evaluation means Assessment of learning.



6.12 FURTHER READINGS

- 1) Min of Edn & Trg School Registers and Records
- 2) Mohanty, J. (2005) *Educational Administration, Supervision and School Management*. New Delhi. DD publications.
- 3) Robert J Marzano (2006) *Classroom Assessment & Grading that work*, USA, Association of Supervision and curriculum Development.
- 4) V. Ravi (2001) *Environmental Education*.

6.13 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Gague's view of readiness involves three factors. These are attention state, motivation state and developmental state.

Ans to Q No 2: A unit plan is developed by the teacher identifying the particular content to be taught and his/her goals for learning outcomes. It serves as a long range plan.

Ans to Q No 3: Whole year

Ans to Q No 4: Particular period

Ans to Q No 5: i) Planning

ii) Programmes

Ans to Q No 6: i) Clarifying program objectives and goal; developing evaluation questions; developing evaluation methods, setting up a time line for evaluation activities.

ii) To measure the effectiveness of the program

Ans to Q No 7: i) True ii) True iii) True iv) True

Ans to Q No 8: i) False ii) True iii) True iv) True

Ans to Q No 9: Reflective questioning means that you have take some information you gathered previously and use it in a question.

Ans to Q No 10: Reflective questions are intended to elicit thoughtful and personal responses

Ans to Q No 11: i) True ii) True iii) True iv) True

Ans to Q No 12: i) Learning outcome

ii) Learning process

iii) Qualitative judgement

iv) Successful evaluation

Ans to Q No 13: It is a continuous process of evaluation of teaching learning. Its aim is to measure the competency of the child.

Ans to Q No 14: Comprehensive evaluation is meant for assessing the overall personality of the child in both scholastic and non scholastic areas.

Ans to Q No 15: Formative assessment is the assessment for learning

Ans to Q No 16: Summative assessment is the assessment of learning.



6.14 MODEL QUESTIONS

A. Very short answer questions.

Q 1: Write True or False

- i) Evaluation is an administrative technique.
- ii) Reflective teaching is a personal tool of observation.
- iii) Year plan is prepared by the teacher.
- iv) Teacher-made tests are the tools for formative assessment.

Q 2: Fill in the blanks

- i) Evaluation is a step of
- ii) Examination is a tool for
- iii) Summative evaluation is to award
- iv) Continuous evaluation is in nature.

Q 3: Multiple choice questions: (Select the correct answer)

- i) Reflective learning develops self awareness/quantify/evaluation.
- ii) Validity and reliability of instruction measured through concept/formula/evaluation/ examination.
- iii) Progress book is a tool for examination/evaluation/teaching/reporting.
- iv) Summative evaluation is done at the beginning of the year/during the year end of the year/ none of these.

B. Short Questions (Answer in about 150 words)

Q 1: Briefly describe the following:

- i) Unit plan
- ii) Period plan
- iii) Reflective teaching
- iv) Importance of Evaluation
- v) Ways of Assessment

- vi) Reporting tools
- vii) Comprehensive Evaluation
- viii) Records and Registers
- ix) Feed back
- x) Progress Report

C. Long Questions (Answer in about 300-500)

- Q 1:** What do you mean by teaching readiness? How will you prepare a year plan for EVS learning.
- Q 2:** Discuss the importance of Evaluation in planning
- Q 3:** Discuss briefly the concept Reflective teaching and leaning.
- Q 4:** Give an account of the different ways of Assessment.
- Q 5:** Bring out the salient features of Assessment and Evaluation.
- Q 6:** Discuss briefly the meaning and nature of Continuous and Comprehensive Evaluation.
- Q 7:** What are formative and summative evaluations? Explain.

*** **



REFERENCES

Unit 1

- Dhawan A (2008) A text book of Environmental studies New Delhi : S
- Kaushik & Kaushik (2004) Perspectives in Environmental studies. New Delhi, New Age international.
- SCERT, Assam : Our environment
- CEE, Brucha E (2004) : Text book of Environmental studies
- NCERT (2005) National curriculum Frame work, New Delhi
- NCERT (2005) Syllabus of Elementary classes Vol.1, New Delhi
- RK Agritiofri et. Al (1994) PRASHIKA : Eklavya innovative experiment in Primary Education, RS Prakashan
- SCERT (2012/2013) We our environment EVS textbook (3-5) AP

Unit 2

- Batra, Poonam (2010) Social science learning in schools.
- Mangal SK Advance educational psychology
- Muppuswamy B Advance Educational psychology
- NCERT (2005) Syllabus for Elemantary classes Vol, NCERT.
- DSERT (2012) Teaching-Learning of EVS at the Primary School level : A position paper, Bangaluru,
- SSA. T Nadu Curricular expectations and learning indicators in EVS at the primary stage.
- NCERT Environmental education as infused in NCERT syllabus for classes I to XII As per NCF
- UNICEF Best practice Guidelines for teaching Environmental studies in Mal divian primary schools.
- Springler (2006) Science Literacy in Primary schools and Pre schools.

Unit 3

- Areckkuzhiyil S (2011) *Instructional Approaches*, Hyderabad Neel Kmal Publications
- Nayak AK *Classroom Teaching*
- Missal Kaor & Sarma *Scientific Approach to Environmental studies*
- Kochar SK *Method of Teaching Social Studies*, Delhi Sterling Publisher.
- NCERT (2008) *Source Book on Assessment for class I-V, EVS* New Delhi, NCERT
- Rao DB (1998) *District Primary Education Programme*, Guntur A.P.
- Nayak AK & VK (2004) *Classroom Teaching*, New Delhi, AP Publishing Corporation.
- UNESCO (1990) *An Environmental Education Approach to the Training of Middle level Teachers : A prototype Programme*, UNESCO, UNEP International EE Programme.
- Rajput JS (1994) *Experience and Expectations in Elementary Education* Anamika prakashan.

Unit 4

- Kochar SK (1989) *Methods and Techniques of Teaching*. Sterling publishers, New Delhi
- Laxmi, GVS (2010) *Methods of Teaching Environmental Science*
- Rachel Carson (2001) *Silent Spring*, New York, Mariner Book.
- Jos Elstycest and Wynne Harlen (1990) *Environmental Science in the Primary Curriculum*, London.
- UNICEF (2008) *Best practice Guidelines for teaching Environmental Studies in Maldivian Primary schools* UNICEF.
- NCERT (2007) *Locking around Environmental Studies Textbooks for Class III-V*, New Delhi.
- NCERT (2005) *Syllabus for elementary classes Volume 1* NCERT, New Delhi.

Unit 5

- Singh YK (2008) Teaching Practice : Lesson Planning New Delhi, APH publishing House.
- Parkinson J (2004) Reflective Teaching of Science 11-18, London.
- J. Swarupa Rani (2004) Educational measurement and Evaluation, Guntur, New Delhi, Discovery publishing House.
- Richard J. Stiggins & others (2004) Classroom Assessment for student learning : Doing it Right using it well. USA
- Padva RN Educational Evaluation and Management.
- Blanchard John (2009) Teaching learning and Assessment. London : Tata Mcgraw Hill.
- Bill Boyle, Marie Charles (2013) Formative Assessment for Teaching and learning, London, SAGE.

Unit 6

- Joseph B. (2009) Environmental studies, New Delhi, Tata Mc Graw Hills.
- KKHSOU (2012) Teaching of Environmental Studies-I, Guwahati
- Gupta Raince & Garg Mesika Evaluation of Teaching Effectiveness – A way towards quality Education, Shikshan Anveshika Vol-6, Issue-1
- Min of Edn & Trg School Registers and Records
- J.Mohanty (2005) Educational Administration, Supervision and School Management. New Delhi. DD publications.
- Robert J Marzano (2006) Classroom Assessment & Grading that work, USA, Association of Supervision and curriculum Development.
- V. Ravi (2001) Environmental Education.

