UNIT 6 METHODS OF TEACHING-LEARNING EVS

STRUCUTRE

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6.0 INTRODUCTION

In the previous Unit you have learnt about the activity-based learning and cooperative learning strategies and their suitability for realizing some of the objectives of EVS.

A teaching method may be visualised as a structural representation of the content or concepts. Its role in any teaching – learning situation is critical, as the achievement of the stated teaching-learning objectives depend largely on the teaching methods employed. To this extent, teaching methods are nothing but the mechanisms of classroom transactions. Each of these methods has its own merits and challenges.

In EVS, methods such as surveys, projects, field trips, games, brainstorming, discussion, experimental investigations, etc., have been found more effective in maximising learner’s participation in the teaching – learning process (directly or indirectly). This Unit deals with seven such methods in detail, demonstrating how they could be utilized for creating effective learning situations in EVS.

6.1 LEARNING OBJECTIVES

On completion of this Unit, you will be able to:

- explain a variety of methods available for teaching-learning of EVS
- use the following teaching-learning methods for dealing with EVS, as appropriate:
  a) Observation
  b) Creative Expression
  c) Field visit
  d) Project
  e) Small group discussion
  f) Experiments and
  g) Problem-Solving
6.2 SELECTING AN APPROPRIATE TEACHING-LEARNING METHOD

It is said that an effective teacher, to be able to communicate well, should use a mixed approach, i.e. a combination of teaching-learning methods. Selecting an appropriate method depends on two key factors:

- The nature of content being transacted and dealt with in the class: As a practicing teacher, you would appreciate that based on the nature of topic being discussed in the classroom; the teacher needs to find a suitable teaching-learning method. Some topics, like defining certain scientific terms, may require elaborate explanations only, in such cases a lecture may be found very effective, while others, like ‘inter-conversion among the 3 states of water’ may require that you take your students to the science laboratory and demonstrate the same. Similarly a number of social science concepts, say ‘seasons and food choices’ may require that children are taken to a vegetable/fruit market and that they engage themselves in observation, surveying, etc.

- The second important factor which you should consider while deciding on a teaching-learning method is the preferred learning styles of your students. All students have different intellectual abilities. They think and learn differently. There are various ways of classifying differences in learning styles. Some learning styles classifications include:
  - Left and right brain thinkers
  - Auditory, visual and kinesthetic learners
  - Activists, reflectors, theorists and pragmatists

Each learner will have a preferred way in which to process information. The key consideration for you as a teacher is not only to rely on one teaching strategy. It is important to remember that some students don’t learn very well by just listening and taking notes. Some may have a more limited attention span than others and may like activity in class. Understanding the many ways in which people learn is crucial when selecting an appropriate teaching-learning method.

In the next section of this Unit, we will discuss some of the methods which are suitable for teaching-learning of EVS, i.e. they are based on the nature and characteristics of EVS as a composite area of studies—science, social science and environmental education.
6.3 THE OBSERVATION METHOD

Human beings constantly observe physical or social events occurring around them. It was the process of observation which gave some of the great scientists to the world. Einstein propounded the theory of relativity by observing the clocks of a church and sitting in tram at his work place. Observation made James watt realise the strength of steam encouraging him to invent the steam engine. Thus observations are the basis of learning and understanding.

 Appropriately, the series of NCERT published EVS text books is titled as ‘Looking Around’. This indicates that EVS is about observing, exploring and discovering the world around.

It is said that one of the ways in which an infant learns is by ‘observation’. Observing things around, analysing them and drawing learnings from such observations is at the core of ‘constructing and re-constructing knowledge’ based on ones experiences. And in Block 1 you have read about this being the basic theory of learning that underlies the NCF 2005.

Let us look at some examples of using Observation Methods of EVS:

**My Bird Book**

i) Let the students go out and observe different birds and note the variations in Colour, size and other external features and record them.

ii) Let them identify the different basic features of a bird, such as,

- Size
- Colour
- Beak
- Body
- Neck
- Head
- Feet
- Wings
- Tail
- Features
- Eyes

iii) Teach the students how they can draw these different features using simple form diagrams.
iv) The students should now draw the diagrams of the birds observed using the form patterns.

v) The students should Colour the diagrams using crayons (as close to the colour of the bird as possible)

vi) The student should stick all the drawings in a scrapbook.

### Tree of life

**Objectives:** To make students aware that trees harbour a rich and complex variety of life.

**Procedure:** Ask each student to select a tree for him/herself and observe it carefully. The students should draw an outline of the shape of the tree. They should note down whatever life they are able to see on or around that tree and the details like: what types of birds, insects and other animals and other plants did they see on the tree and where? How many of these life forms were there? Did they notice any nest? What were the birds, animals, insects and other plants doing? The students may go for observation more than once to notice the patterns of life on and around the trees. They should then return and present their drawings to the class. Which trees have a greater variety of life on them and why? The students may be encouraged to observe an identified tree throughout the year (during different seasons) and to take notes, photographs of the same.

### Clouds

**Objectives:** To observe cloud patterns in the sky

**Procedure:** Take the students out on a cloudy day, and ask them to watch the sky and the clouds. They must observe the clouds for their patterns, shapes and sizes, and the direction in which they are moving. Each student may choose a cloud and make a sketch of it. Students may do several such sketches, and make an album of these. Encourage students if they can tell rain-bearing clouds from other clouds. Which seasons do they see clouds in? With senior students, you could talk about the various types of clouds. Ask students to predict rain? Keep a record of the predictions which may be shared with others in the school.

### 6.3.1 Using Observation Method

- **Planning and preparation for observation:** What types of settings, activities or environmental traits are to be assessed through observation?
- **Actual Observation**: The better methods and techniques should be used for the observation depending upon the purpose and availability of the resources and environmental situations.

- **Analysis and Interpretation**: What has been observed and recorded is subjected to a close analysis for deriving the necessary interpretation.

- **Generalisation of the Results**: The interpretation made and results arrived at are then used for establishing generalised opinion, facts or principles.

The tools used for observation are worksheets, schedules, checklists, rating scales and score cards.

### 6.3.2 Advantages

- Encourage children to explore their environment
- Develops observation skills.
- Encourage students to see, think, and establish connections.
- The students are able to infer similarities and the differences.
- The acquired knowledge is from real and concrete situations and objects.
- Satisfies and develops curiosity of the students.

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<th>Check Your Progress-1</th>
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<tr>
<td><em>a</em>) <strong>describe two advantages of using ‘observation’ as a method for teaching-learning EVS.</strong></td>
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<td><em>b</em>) <strong>State what key steps would the teacher/facilitator require to take if she/he plans to use ‘observation’ method with her/his children.</strong></td>
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6.4 CREATIVE EXPRESSIONS

Whether it is drawing, painting, cutting, pasting or model making, all children love to be creative if they are given a chance, and the act of being creative brings with it so many benefits. Any expression by children with some novelty is creative expression.

It is important to help nurture young children’s creativity through a rich learning environment of visual and performance arts. Such techniques can help you to engage your students in art and craft, music, dance and drama. Thus you may plan lessons with activities that aim to nurture expressiveness, creativity and imagination among the young learners in your class.

In this section you will explore ways to enrich your classroom learning experience by making Creative Writing, Creative Expressions, Dances etc. an integral part of the EVS teaching and learning. Creative expressions can take a variety of forms:

- **Writing:** students can be asked to create poetry, songs, dramas, stories or essays and compile collections of relevant materials from other sources.

- **Graphic Arts:** It includes drawing and painting, making collages or sculptures, taking photographs, designing posters, banners etc.

- **Music:** Children respond to songs that inspire, energise and link them to environmental messages. Feelings can be expressed effectively via music.

- **Movement and Dance:** Non-verbal art often encourages students to express those thoughts and feelings which they do not like to say.

- **Puppetry:** Environmental messages can be transformed with the help of puppetry. For this, training and specific skills are required.

### Some Ideas for Creative Expressions

- Poetry reading and writing
- Making posters, collages, advertisements etc.
- Performing Arts: Dramas, plays and skits etc.
- Model making
- Puppetry

6.4.1 Creative Expressions in EVS

**Creativity Stimulates Learning:** You have already learnt that social constructivist theory is the premise of the NCF 2005 and of the EVS Curriculum, and when children are encouraged to think independently and creatively, they become more
interested in discovering things for themselves, more open to new ideas, and keen to work with others to explore ideas. Thus if you are a teacher who practices a good mix of creative expressions with other approaches, you are encouraging children to have divergent thinking. The process of divergent thinking encourage creativity to crop into the mind of the learners

**Creativity in response to social, cultural and environmental issues:** Individuals can transform society if they learn to act together and generate new ideas. Younger citizens of a democratic world need to be groomed and supported to become citizens with problem solving and critical thinking skills. As a teacher, your role is to unlock the creative potential of your young learners by creating different types of learning situations before the learners.

**Creativity enhances ability to manage change:** In Block 1 of this Course, you have learnt that the world is increasingly becoming complex and uncertain. It is thus important that the children of today are prepared so that as decision makers of tomorrow, in the future, they are not only able to take risks but are also able to make prudent decisions by exercising choices and responding positively to opportunities, challenges and responsibilities. Children need creativity to manage risk and cope with change and adversity, and as a teacher your role is to provide them such opportunities by using techniques of creative expressions in your classroom.

**Creative expressions can be very useful in developing the affective domain** of the children. A society where diversity is respected and plurality of thoughts and opinions is encouraged can be created only by citizens who are able to respond to new interactions, fresh connections, and collaborations. Thus the implications for education are significant.

As a teacher it is important that you go beyond simplistic understandings of creativity as self-expression. Creativity must be understood in the classroom beyond children’s responses to open-ended tasks. This will require teachers to re-consider creativity as a rich and disciplined inquiry vital for the effective communication of ideas.

Similarly, the tools and materials that support creative expressions should go beyond the creative arts (paint, paper, markers, glue and brushes) to include clay, natural objects, fabrics, dramatic play, musical instruments, real-life cases and scenarios, and so on.

Some example of using creative expression for EVS are provided below:

**Slipper stamp**

Many things which we consider as beyond use, e.g. worn out slippers, socks, plastic boxes etc. could still be useful to make different craft items. Based on children’s creativity for example, children use even old slippers to create ‘rubber stamp’ through the following steps.
Students will be surprised to find out that even used slippers can be transformed!

- Collect waste rubber slippers.
- Cut out the bottom of the slipper in the shape of a square or rectangle.
- Wash this piece thoroughly with detergent and water.
- Draw the outline of the mirror image of the letters or design you want.
- Use a blade or knife to first cut a groove along the outline. Then cut away the part outside the outline in such a way that the design outlined is slightly raised above the rest of the piece. Only the part to be used as the stamp should be raised. The rest should be cut out.
- Apply some coloured ink to this raised part and stamp on the required place.

6.4.2 Tips for Facilitating Creative Expressions

- Promote Creative Expression in small groups, this will help children overcome their inhibitions.
- Provide choices of creative expression medium such as Visual Arts, Creative Dramatics, Music or Movement according to students’ skills and interests.
- Encourage teamwork, yet give individual attention to each child.
- Helpful in building self-confidence and creative thinking skills.
- Create a non-stressed, non-competitive atmosphere in the class.
- Create a fun-filled learning environment for the children.

Check your Progress-2

a) State the relevance of using creative expressions for teaching-learning of EVS.

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6.5 SMALL GROUP DISCUSSIONS

In Unit 5, you learnt about cooperative learning strategies. Group discussion is one of the techniques that can facilitate cooperative learning among children.
Group discussions provide learning opportunities to students in developing analytical and communication skills. As the name says, small group discussions are group exercise used as a teaching strategy to influence learning through engagement of peer groups.

Learners in small groups discuss among themselves several aspects of an environmental issue or a problem. As a teacher you should facilitate this process by encouraging them to discuss their views, share ideas, and solve problems on a particular theme or environmental issue. Each learner presents her own ideas as well as considers ideas put forth by other learners. In this way, they can be exposed to a variety of viewpoints on a given subject. This enables children to appreciate others view points and also enhances their listening abilities. Learners thus exchange ideas, and reflect on suggested solutions.

Small group discussions are also enjoyed by most children because it is peer-based communication; is interactive; and it encourages active participation of learners. The discussion format encourages learners to analyse alternative ways of thinking. It also enables learners to explore their own experiences, review these and think critically.

To enable children work in small groups effectively you, as a teacher, need to be conscious of your dual roles as subject matter experts and as group managers, and to plan the group’s work both in terms of the content to be covered and the strategies which will be used to achieve the learning aims of the group.

Some themes on which small group discussions can be arranged:

- Is circus a cruelty to animals?
- Should fast food be sold in school canteen?
- Roads or Parks: What does our city need the most?

**Buzz Groups**

A buzz group is a small group, consisting of three to six persons who are given a definite issue/problem to discuss and an associated task to complete in a short period of time. Generally, each buzz group records their output then reports to the larger group.

### 6.5.1 Steps to Organising Small Group Discussions

- Teacher organises the class into small groups of about 4-6 members each
- The teacher announces a problem/statement/question to the groups
- Groups are provided 10-15 minutes for discussion
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- Each individual in the group shares his/her view on the topic, followed by all group members discussing the concern, creating arguments, changing opinions, etc.

- Each group spends a few minutes reviewing, consolidating and recording the opinions, points and ideas generated.

- Each group reports to the entire class.

As a teacher, it is important for you to ensure that:

- Every discussion is goal oriented, i.e. it has educational purposes linked to the subject

- Topic is relevant for the class—age, interest and syllabus, etc.

- Children have sufficient information about the topic in order to participate actively in the discussion

- Children are able to express their thoughts in a language that they feel comfortable with

- No viewpoint or opinion is disrespected or laughed at

You consolidate the various groups’ work in the end and make connections with what children read in their text-books.

6.5.2 Appropriateness for EVS

- EVS is a multidisciplinary area of study. Group discussions are effective in breaking ‘subject boundaries’ related to a problem or a concern. For example even when the topic of discussion may appear to be a scientific/technical one, like pollution of soil, water and air, the discussion will provide opportunity to bring in social aspects, economic aspects or even political aspects related to the topic. Thus group discussions are suitable for EVS

- In complex socio-economic and environmental scenarios, no single answer seems to satisfy all stakeholder groups. On needs to generate multiple possibilities and think for ‘out-of-the-box’ solutions. Groups discussions make it possible

- Different viewpoints to the same concern, based on different beliefs, priorities, culture and context, get generated. Children learn to respect and appreciate diversity

- Such learning processes develop divergent thinking, reflective thinking, listening abilities and inter-personnel skills among children
• Helps to bring real-life situations in the classroom
• Helps to inculcate positive inter-relationships
• Children do not have rigidity of subject in their mind. Gradually they will develop subject boundaries from a broad platform of Environmental Studies. Group discussion provides their scope to express their views from a subject free area and gradually get familiarised with the existence of different subject boundaries.

6.5.3 Facilitating Effective Group Discussions

• Remember you are in the role of a facilitator.
• Provide an opportunity for each student of the group to become a leader.
• While creating groups try to ensure that composition of the group is balanced (each group may have different personalities)
• Act as a consultant to the groups and help, guide, and orient student thinking and facilitate the exchange of ideas.
• Ask “why” or “how” questions and for short answers ask students to elaborate.
• Do not fear silence. This may be the most difficult thing to do but it is absolutely essential.
• Provide positive feedback for participation. Thank the students for their contribution.
• Manage both process and content. Good discussion is as much about process as it is about content.
• Consolidate the discussion at the end of each session.
• Remember non-verbal communication—nodding, smiling—are positive messages for children. Do watch for non-verbal cues from the children as well.
• Discussions could be more effective when used in combination with other teaching methods.

Limitations of Group Discussion

Group discussions do not take place accidentally. The expert teacher has to plan to various forms of discussions with much care. The students have to make thorough preparations and work hard to make discussion a success. It is time consuming and requires high level of attention and concentration.
Check your Progress-3

a) **What are some of the advantages of using small group discussions as teaching-learning method.**

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b) **State 3 important tips for effectively facilitating small group discussions**

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### 6.6 PROJECTS FOR EVS

As you have learnt in Unit 5 that collaborative learning is the process of getting two or more students to work together to learn. Project is also a team work and an act related to real-life activities undertaken to solve an emerging or felt problem or to realize some useful and purposeful objectives. It involves a series and a variety of activities and is executed in the real life context—social environment and natural settings.

According to Kilpatrick, “A project is a whole-hearted purposeful activity proceeding in a social environment.” Some advantages of using Project Method of learning for transacting EVS include:

- It is a powerful way of learning about their environment. The Project method of learning also provides an opportunity to the children to apply and practice what they have learnt, thus Projects help link theory with practice
- It is a method that helps children to discover the interdisciplinary linkages, which is so important in the case of EVS—a composite area of study
- This enables teachers to enhance a number of competency and skills among the learners—research, observation, analysis, interpretation, extrapolation, inter-personnel skills, problem solving, resource management and most importantly skills in planning and execution
Projects are very good for getting children work closely together in their common real-life setting

6.6.1 Steps of Project Method

A project includes both field work and desk work. The strategy depends on the objectives to be achieved. A well planned project as a systematic process involves three stages:

Pre-activity stage
- Stating the problem and objectives of the project work
- Determining and planning for the various aspects of the identified project-resources, tasks, risks/challenges, outputs and documentation and reporting
- Initiating the ‘project team’—rapport, roles and tasks

Activity stage
- Identification of sources and tools for the project.
- Planning and working out the organisational details of the project development and preparation of tools for data collection, questionnaire, interview schedules, check-lists, etc.,
- Various activities and tasks executed in the right sequence
- Identification of the area of action/localities, target groups, administering the tools, instruction for data collection.

Post-activity stage
- Compilation, analysis and interpretation of the data and dissemination of the results or findings.
- Formulation and implementation of the action plan—leading to resolving of the problem
- Reflecting on the experience—documenting learnings

The role of the teacher shifts to that of a facilitator. It provides students with practical experience and a sense of accomplishment. Teachers may have to provide guidance to the students in selecting, planning, executing and evaluating the project in order to make it a purposeful and meaningful learning experience.

6.6.2 An Example of Project

Clean-Up Campaigns

Your children can take up a campaign to clean up the school. You will need to guide them in planning effective and appropriate strategy for this action project.
Groups of students may inspect the different areas every day for one week, observing and listing the types of garbage/litter they find, the quantity and also where it was found. For example:

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Paper, and wrappers and plastic may be counted by the number of sheets or pieces. At the end of the week, students can compile their notes and discuss the findings.

Once the students have become aware of different kinds of waste they can then start a project to encourage proper disposal and segregation of wastes. For dry waste, such as paper or plastic, they should take the permission of the Principal to store the segregated waste, until the time of disposal. Depending on the storage space available, they could plan the intervals of disposal.

Students could make different dustbins from used cardboard boxes for the various kinds of wastes. Each bin should be labelled for the kind of waste that should be put in to it: used notebook paper, chart paper, used polythene bags, etc. such boxes should be placed in each classroom and office, or in a common area. In the canteen, students could also place different containers for leftover food, plastic containers and bags, paper trays, etc.

For the success of such project, it is important that the student’s actions are encouraged by the school management and noticed by the rest of the school. The groups’ performance should motivate other students to join the campaign. Such a project is sustainable only when all are involved and keeping the surroundings clean becomes a habit.

Make a Compost pit
- Let the students dig a pit about one half meter wide, one meter deep and as long as possible, preferably at the far end of the garden.
- Line it with straw or dried leaves and grass
- Organise the disposal of organic waste into the pit as and when generated.
- Give a group of students the responsibility to ensure that the contents are covered with a sprinkling of dried leaves and soil everyday.
- Water the pit once or twice a week to keep it moist.
- Turn the contents of the pit every 15 days.
- Compost manure will be ready in three to four months.
6.6.3 Merits of Project Method

- The principles of learning as regards learning readiness, involvement in exercises, its effect and factor of motivation etc. are properly employed in this method.
- The experience is real-life based and hence lasts longer with the learners
- It is effective in developing insight towards real-life problems
- Children enjoy freedom to work in a social environment, and also develop cooperative feeling and power of group interaction and team work
- This method provides challenging yet encouraging learning environment
- Provides an opportunity for work experience, divergent thinking, self confidence and self discipline
- It is democratic and scientific in nature. Helps to develop ‘discovery attitude’

6.6.4 Limitations of Project Method

- Teachers need high order of preparation. They are required to work as guide and facilitator during planning, executing, evaluating and recording the project.
- It is time consuming and may need some resources as well
- Children may be overwhelmed with the ‘doing and the action’ part of project, and if not supported by teachers in consolidating the various learnings, children may fail to comprehend the work and learnings derived. It is so because unlike lectures, in this case the knowledge may not be acquired in a sequential manner and also the linkages with the curriculum/text books may not be very obvious

6.6.5 Role of the Teacher

While using the Project Method of learning with your students, you:
- will be required to have a very clear time plan, matched to the school timetable
- must ensure linkages to syllabus and curriculum
- should have good knowledge and insight in the subject of research and action
- will need to constantly change your roles between that of an expert, a guide, a mentor as well as a learner
- will need to arouse inquisitiveness and interest among learners and be a self-motivated guide
- will need to ensure a positive and democratic learning environment
- provoke shy and introvert children to come forward and participate actively
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- will need to appropriately engage physically challenged children
- will need to monitor and guide timely progress of the project

As EVS is linked to life skills, project method of learning is very relevant. While meeting up the objectives of EVS, Projects help systematically lead students from awareness to action, and increase understanding skills, and develop sensitivity and responsibility.

6.7 VISITS FOR LEARNING

A field trip or excursion is a journey by a group of people to a place away from their normal environment. Visits to zoos, gardens, parks and museums are part of school life. Yet often such visits are just picnics. Recognising the educational opportunities offered by such visits, you, as a teacher, can make these ‘picnics’ into joyful learning outings.

A wealth of learning objects and settings are available everywhere—A walk around the school ground or neighbourhood; a few hours in a city park; a visit to a local historical monument; a trip to a museum, a factory, a public office and so on. Any of these can provide rich opportunities for first-hand exposure and experiences. The challenge is to transform these into exciting, thought-provoking and educational opportunities. Properly planned, out-of-class experiences can help to enrich, vitalise and complement what is thought in the classroom. They can provide the space for the development of several skills including observation, investigation, monitoring, mapping, collecting data and analysing it, critical thinking and problem solving.

As a teacher, your goal should be to take your students to visit these facilities with specific educational objectives of EVS. The key of making visits successful is planning a variety of appropriate activities which will be both enjoyable and educational. It is also important not to over-stress on the educational part and maintain an informal atmosphere.

6.7.1 Example : Organising a Field Trip for Plant Study

Objectives of the field trip

By undertaking this field trip, the students will be able to:
- identify a few of the familiar plants by their names.
- observe and record the differences in their external features.
- Broadly classify them on the basis of size and appreciate the diversity seen.
- observe the differences in shape, size and patterns of leaves
Plants constitute a major part of the environment. Plants are classified into three major categories considering the structure of the stems. They are the herbs, shrubs and trees. Keeping in view the objectives of the field trip, various aspects to be observed are:

- Dew seen on the grass and plants in the park.
- Different plants
- Barks of the trees
- Size of the plant and tree
- Variety in shapes, sizes, number, and texture of leaves
- Differences seen in the size and shapes of seeds and fruits
- Differences seen in the flowers of plants

After the visit, next day in the class, discuss about the diversity in the plant world, its significance and future concerns. Emphasise on the types of plants, differences in leaves, fruits, seeds and their habitat. The following questions may also be discussed:

- How are two plants different from one another?
- In what ways do these two plants relate to one another?
- Expand the title or name of this plant into a detailed caption (sentence or paragraph) in your Field book.
- Describe the setting in which you might have found this plant etc.

In addition, summarise with the utility of each one. Mutual learning during field visits is an excellent way to develop a positive relationship between students and the teacher.

Complete a “Teacher Journal” regarding the field trip. This will provide a good reference for future trips.

- What was of unique educational value in this field trip?
- Did the students meet the objectives/expectations?
- Was there adequate time?
- Was there adequate staff and adult supervision?
- What might be done differently to make this an even better experience in the future?
- What special points should be emphasised next time?
- What special problems should be addressed in the future?
- What would improve a visit to this site in the future?
6.7.2 Steps to a Successful Visit for Learning

Here are the steps you can follow while planning the visit, and also some tips that could help you achieve the goals of joyful learning.

(a) Setting Goals for the visit:

You, as a teacher, would first need to set explicit educational goals for the visit linked to the EVS text books. A preliminary visit by you to the site is desirable so that you can find out about the facilities available and whether these would be sufficient to help you meet the educational goals you have set. Some sites and facilities have special programmes for school groups. In case the facility has the provision for making available the services of an Education Officer, it might be good to discuss the visit beforehand with him or her, and also have this person accompany the group. The preliminary visit will also give you an idea about several practical aspects including the time that will be taken in seeing all the enclosures, the route to be taken and the availability of space to conduct activities, what kind of activities are best suited to reinforce the learning of the visit, you may feel the need to revise or modify your goals for the visit.

(b) Planning the Programme

If adaptations are to be the focus, spending time at the bird enclosures to observe different kinds of beaks and claws can help to illustrate the variety. But remember, you should not try to accomplish too much in just one visit. You may also select and plan the activities according to the educational goals.

Worksheets

Worksheets can help to guide participants to observe more keenly. They can be used for any kind of visit – to a part, a zoo, a monument, etc. You may, during your pre-visit to the site, design a few worksheets. The worksheets must be about what students will actually see at the site or facility. Worksheets help to give a purpose to the visit as students become involved and give their unique observations, responses and perspectives. Worksheets also allow you to break the whole class into smaller groups which can work independently. Depending on the theme of the visit, the worksheet-activities may be developed as nature detective, a treasure hunt, a cat and mouse game, a safari and so on.
(c) Briefing the Students

Before setting out for the visit, it is important to brief students on where they are going, what they can expect to see, what the objectives of the visit are, what the plan is, etc. ‘Do’s and don’ts’ for the visit need to be clearly spelt out of the students. It is important that they be given reasons for what they are being asked to do or not do, as this will help them to accept and internalise the behaviour. These may include safety tips, their actions at the place, e.g., not physically touching the artifacts in the museum, not plucking leaves and flowers in a park, not feeding animals at the zoo, maintaining discipline, etc. This briefing should be done the day before the visit and reiterate before going into the facility.

At the site, children need to be given enough opportunity and time to make observations and explore the facility, as well as ‘complete’ the programme you have planned. It is important to encourage them to discover and question everything they see. If the educational goals of your visit relate directly to any textbook lesson, try to relate the visit to that lesson. There may also be many unplanned ‘lessons’ in the visit and it is necessary to explicitly point these out of the children and reinforce them.

(d) After the Visit

After the visit is over, the students should be assembled back in one place. A brief oral feedback may be taken on the spot or after the group has returned to the school. A classroom period may be needed to consolidate the learnings of the visit. Such a session may include discussions, question-answer sessions, quiz, writing or drawing about the trip, making a trip report, etc. The experience of the visit could also be discussed in the context of particular lessons e.g. food habits of animals.

(e) Evaluating the performance

As a teacher, you need to evaluate whether the educational goals you sought to achieve through the visit have been achieved or not, and whether you were able to relate them to the textbook lessons wherever intended/possible. It may possible that the objectives with which you planned the visit were not met. Would you consider that visit a failure? Much depends on the reasons why those objectives were not achieved, and whether these reasons were within your control or outside your control. Was the situation at the facility very different than what you had seen on your pre-visit? Did the group behave unexpectedly? Was the visit affected by rational phenomenon like rain etc.?
ACTIVITY-1

1. Provide time for students to observe, ask questions, and record key words, ideas and phrases as journal entries in their Field book
2. Take inventory of food, specific equipment, and other supplies pertinent to the field trip
3. Have the class compose and send thank-you letters to the field trip site host, school administrators and other persons that supported the field trip. Include favourite objects or special information learned during the field trip.
4. Pass out name tags
5. Field notebooks for recording answers to prepared questions
6. Identify the EVS concepts that could be taught through the field trip.
7. Assign each student a partner
8. Provide time for students to share general observations and reactions to field trip experiences.
9. Prepare any observation sheets / Activity sheets.
10. Provide necessary instructions on the aspects to be studied, information to be recorded, activities to be carried out and the materials to be carried.
11. Keep some medicines for first aid.
12. Create a classroom bulletin board displaying materials developed or collected.
13. Prepare the field trip schedule.
14. Take along an emergency kit
15. Identify the location for the field trip and the time duration.
16. Send a letter to parents, communicate assigned duties/responsibilities.
17. Decide the objectives of the field trip and the different aspects to be studied.
18. Create a list of all student names and home phone numbers for use in an emergency.
19. Create a short news report about what happened on the field trip. Publicise the trip via an article in your local newspaper, school bulletin board, trip presentation for parent’s day, or class Web page.
20. Plan activities that will occur during the trip
21. Share specific assignments students completed while on the field trip.
22. Link field trip activities to multiple curricular areas. Record field trip observations in a classroom journal.
Reorganise the above listed activities for a field visit in three stages as Planning, Conducting the Trip and Post-Field Trip stage.

Field trips are helpful in linking the real world to the classroom, visits to places of environmental concerns provide opportunities to the learners as a means of observing and experiencing the real environment. It has enough scope for building environmental awareness, stimulating participation and developing investigative skills in learners.

6.8 EXPERIMENTS FOR TEACHING-LEARNING OF EVS

The word experiment comes from a Latin word meaning ‘to try’ or ‘to put to test’. An experiment usually helps to establish a cause-effect relationship. It includes enquiry, observation, inferring and testing of a hypothesis. It is not difficult to device experiments that can generally be fitted within the time allocated to teach a particular topic.

6.8.1 Appropriateness for EVS

Experiments can be helpful:

- In enabling children understand abstract concepts
- In helping develop scientific temper, being able to hypothesise and discover and explore
- In enhancing the skills of observation and analytical thinking
- In providing practical knowledge
- In enabling children apply the theoretical knowledge gained

6.8.2 Challenges

- The teacher may need to do preparations in advance
- You may not be able to have every child do the experiment, you may need to involve many children as observers
- While several experiments can be done by children in the classroom/at home, some experiments may require equipments and/or laboratory facilities

Some experiments may require constant adult supervision and guidance and may require that certain important safety procedures are followed. As a teacher, you must follow the same.
6.8.3 An Example of Experiments

Soil Conservation (Protective cover)

For example you may conduct the following experiment to help children to understand how roots of plants protect the Top soil.

Take two cardboard or wooden boxes or trays approximately 90cm X 50cm X 15cm. Line them with a plastic sheet to make them leak proof. These sheets can be made by cutting open old plastic bags and fusing the edges together with the help of a candle. At one end of each box cut a ‘V’ notch 10 cm deep to draw the runoff water into a glass jar.

Fill each box with 3-4 cm layer of brick pieces and pebbles, followed by 3-4 cm layer of manured soil.

Sow mustard seeds or any other quick growing plant seeds in one box. Leave the other box bare. Sprinkle water on Box 1 regularly till the plants are 8-10 cm high.

Now set the boxes on a table towards the edge. Place a brick or a stick under the other end to give them slope. Place empty glass jars on stools beneath the notch. (as shown in the figure) Now, gently pour equal amounts of water over the boxes.

Check the rate of flow and collect the water that flows out from the two boxes in the glass jars. Note the difference in the quantity and quality of water collected in the two jars.

Now, you can certainly tell why the amount of water that flows out from the vegetated box is less than that from the bare box and why water from the bare box is muddier. Vegetation helps percolation of water through soil to collect as water table and also protects top soil.

![Fig-1: Soil conservation](image-url)
6.9 PROBLEM SOLVING

- Problem solving or problem based learning is a method aimed to help the students in arriving at a solution or alternative solutions for a given problem.

Problem solving as an approach is most effective in adult groups, however, if children are given these experiences as well, it prepares them better to participate in democratic, group process to solving open-ended problems.

6.9.1 Steps to Problem Solving

Problem-based learning, as the name indicates, focuses on an identified environmental issue or a problem and usually involved several steps:

- Identify, understand and describe the problem
- Define the problem: For this the children may need to research/gather information which is related to the identified problem
- Fact finding: If required, undertake the necessary field work, survey, experiment, discussion or even a project
- Analyse the Problem: Gather data, interpret it and discuss to arrive at a solution/alternative solution/s. Through a group consensus mode, arrive at the most plausible solution
- Discuss possible strategy for action: The next step is to develop an action plan to solve the problem. The approach used may vary depending upon the situation and the groups/teams.
- Evaluate the Results: After a solution has been reached, it is important to evaluate the results to determine if it is effective in solving the given problem.

6.9.2 Appropriateness for EVS

Problem solving techniques are effective in:

- Developing an insight into environmental problems
- Facilitating divergent thinking among children
- Helping children appreciate multiple views on the same issue
- Enabling children participate in group processes
- Bringing real-life issues in the classroom
- Making children deal with open-ended, complex environment-development scenarios
6.10 LET US SUM UP

Individuals have preferred learning styles. There is no one method and material for making learning process successful and effective. As a teacher, your understanding of various learning methods for use in different learning situations will enable you to facilitate your class in a varied and interesting manner. A teacher can thus create good learning environment for her children by using appropriately mixed learning methods and techniques based on the concepts being learnt, the learners and the classroom resources.

Further, since EVS is a composite area of study; is EVS multi-disciplinary; and that teaching-learning of EVS is as much about attitudes and values as about knowledge and information, it is important that teaching methods used for EVS allow children to work together, to examine multiple viewpoints, to link concepts of the text-books to their real lives and to take positive action. In this Unit we discussed some of these methods in detail, with examples of using them for teaching-learning EVS at the primary stage.

6.11 MODEL ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-1

a) Two advantages of using ‘observation’ as a method for teaching-learning EVS—
   - Encourage children to explore their environment
   - Develops observation skills.
   - Encourage students to see, think, and establish connections.
   - The students are able to infer similarities and the differences.
   - The acquired knowledge is from real and concrete situations and objects.
   - Satisfies and develops curiosity of the students.

b) Key steps are (any two)
   - Planning and preparation for observation
   - Actual Observation
   - Analysis and Interpretation
   - Generalisation of the Results
Check your Progress-2

For promoting creating expression in small groups, proving choices of creative expression, encouraging team work, helping in building self-confidence, creating a non-stressed, non-competitive atmosphere, creating a joyful learning environment.

Check your Progress-3

a) Suggested advantages are-
   - Every student gets a scope to participate actively in the discussion.
   - This method can be used in combination with other teaching methods
   - It provides scope for the pupils to ask questions
   - It enhances self-confidence and leadership quality in pupils

b) 3 important tips for effectively facilitating small group discussions (it may be as given below but it is not mandatory. Depending on the situation importance will vary)
   - Provide an opportunity for each student of the group to become a leader.
   - Act as a consultant to the groups and help, guide, and orient student thinking and facilitate the exchange of ideas.
   - Consolidate the discussion at the end of each session

6.12 SUGGESTED READINGS AND REFERENCES

- Pandya, Mamata(2005); Environmental Education in Schools (Module III); CEE and COL; India
- Raghunathan, Meena and Pandya Mamata (Eds.)( 1997); The Green Teacher: Ideas, Experiences and Learnings in Educating for the Environment; CEE; India
- Ravindranath, M.J(2007); Environmental Education: A Resource Book for Teacher Educators (Level 2); CEE and NCTE; India
- Resources and Opportunities for EE (Module IV)( 2005); CEE and COL; India
- Joy of learning, Handbook of Environmental Education, (standards 3 to 5 ) (1986) ; CEE,VASCSC,VIKSAT, Darpana Academy of performing Arts; India
- www.learningguide.org; accessed on 20 March 2012
6.13 UNIT-END EXERCISES

i. Share your experience of using project method or small group discussions for teaching-learning of EVS in primary classes. The description must include your reflections, as a teacher, on what did not work well and how do you plan to improve it in the future?

ii. Create a plan of using ‘creative expressions’ for transacting an identified EVS topic with your children. Also share a possible assessment strategy for the same.