

Section – II

Pedagogy Concerns

Module 8 — Pedagogy of Environmental Studies
(Primary Stage)

Module 9 — Pedagogy of Mathematics

Module 10 — Pedagogy of Languages

Module 11 — Pedagogy of Science
(Upper Primary Stage)

Module 12 — Pedagogy of Social Sciences
(Upper Primary Stage)

True education must correspond to the surrounding circumstances or it is not a healthy growth. What is really needed to make democracy function is not knowledge of facts, but right education.

— *Mahatma Gandhi*

PEDAGOGY OF ENVIRONMENTAL STUDIES (PRIMARY STAGE)

1. OVERVIEW

This module presents the various aspects necessary to be taken into consideration in the teaching learning of Environmental Studies (EVS) at the primary stage. It elaborates upon the following points—

- Learning objectives of the module
- Nature, status and curricular expectations at primary stage
- Learning outcomes and pedagogical approaches
- A theme “Water” has been taken as an example to illustrate the pedagogical approaches.
- Attempts have been made to take care of concerns such as diversity, gender, art and aesthetic, values, etc. wherever appropriate and possible.
- Activities for the participants in the training programme which can help them develop deeper insights on different themes of EVS along with their pedagogical dimensions.
- The module includes how assessment can be integrated with teaching learning process and cannot be considered as an activity in isolation.

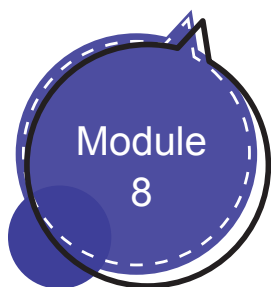
2. LEARNING OBJECTIVES

After going through this module you will be able to

- appreciate EVS as an integrated curricular area at the Primary Stage
- relate its objectives with the concepts and issues included in the syllabus
- locate the concepts and issues in textbooks and be aware of different approaches to their transaction in classroom
- plan and design context and need specific learning experiences for children
- organise learning opportunities to engage all learners meaningfully.
- use varied assessment strategies to map the learning progress against learning outcomes in EVS

3. ENVIRONMENTAL STUDIES AS A CURRICULAR AREA

The National Curriculum Framework (2005) views EVS in classes III to V as a subject, which integrates the concepts and issues of science (natural and physical), social studies (natural,



physical, socio-cultural) and environment education. In order to reduce the curriculum load on young learners, it has not been recommend as a separate curricular area in classes I and II. Instead the issues and concerns related to it are meant to be part of language and mathematics.

EVS at the primary stage envisages exposing children to the real situations in their surroundings to help them connect, be aware of, appreciate and be sensitized towards the prevailing environmental issues. Beginning with the child's immediate surroundings (including natural, physical, social and cultural settings) related to self, home, family and school in the early grades and gradually moving on to the wider environment (neighbourhood and community at large. Creating learning situations in the context of children is very crucial to learning EVS. Efforts need to be made to avoid giving direct information, definitions and descriptions and instead create situation for children to construct their own knowledge by interacting first hand with their surroundings. During this process they would access various sources of knowledge besides the textbook and explore various learning sites other than the classroom.

Exposure to real world would give opportunities to children to encounter various social issues such as those of gender bias, marginalisation, child labour, illiteracy, caste and class inequalities in rural and urban areas, challenges of the differently abled or those of the elderly and the sick. Care may be taken to ensure that besides the resource materials, the classroom environment and pedagogical processes are inclusive, that is, they cater to the diversity of learners in terms of their abilities (including differently abled), pace, style, etc. Exposure to real world problems related to the environment (such as those of protection, preservation, conservation of natural resources, environmental justice and other environmental issues) is also crucial. Initiative has to be taken to establish a strong bond between children and their environment. It is envisaged that teaching learning of EVS, as a subject will enable children to realize how their decisions and actions affect the environment. It will also help in building knowledge and certain skills necessary to address the challenges they face around them. This will enable children to become advocates and stewards of the environment. Ultimately this will contribute towards building a sustainable future.

Let us reflect

- As per this understanding of EVS, what do you think children at the primary stage are expected to learn?

- How can these expectations be accomplished?
- Which strategies can be employed to do so?

The sections 4 and 5 will throw some light on how we can establish the linkage in the expected, transacted and accomplished curriculum. Given below are the curricular expectations and learning outcomes in EVS. Can you think of how these are related?

4. CURRICULAR EXPECTATIONS AND LEARNING OUTCOMES IN EVS

Curricular expectations are prospects, which are broad and which aim caters to a stage of learning whereas learning outcomes provide the criteria to map these expectations. The curricular expectations in EVS for the primary stage are given below.

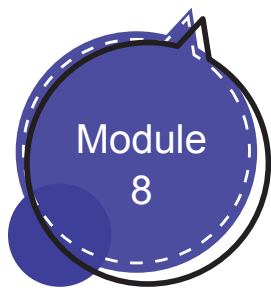
4.1 Curricular Expectations

As per the EVS curriculum, children at the Primary Stage are expected to—

- acquire awareness about immediate/wider surroundings through lived experiences on various themes related to daily life e.g., family, plants, animals, food, water, travel and shelter.
- nurture natural curiosity and creativity for the immediate surroundings.
- develop various processes/skills e.g., observation, discussion, explanation, experimentation, logical reasoning through interaction with immediate surroundings.
- develop sensitivity for the natural, physical and human resources in the immediate environment.
- point out and raise issues related to equality, justice and respect for human dignity and rights.

4.2 Learning Outcomes in EVS

In order to facilitate learning and development of a child vis-à-vis the curricular expectations enlisted above, it is important that the teachers are clear about the criteria against which they can map their progress time to time so as to keep their efforts in the right direction and also help the children to do so. Therefore, the learning outcomes need to be clearly spelled out and different stakeholders especially teachers, parents and if possible even the children need to be aware of them. Learning outcomes as the criteria in EVS can be used to assess



Module 8

the learning and development of a child in both qualitative and quantitative manner against the expected learning of this curricular area.

In National Achievement Survey 2017 which was based on Learning Outcomes, percentage of correct responses (on an Average) for classes III and V in Environmental Studies (EVS) has found as follows—

Class III — 65%

Class V — 57%

Do we know about state average achievement and district average achievement? Details are available on <http://www.ncert.nic.in/programmes/NAS/SRC.html>. We need to reflect on how to improve learning outcomes of our students in EVS.

For example, what do you think of the following?

The Children

- differentiate between objects and activities or past and present
- estimate spatial quantities and time in simple standard units and verifies using simple tools/set ups
- record observations, experiences, information on objects/ activities/places visited in different ways and predicts patterns
- create drawings, designs, models, maps, poems and slogans
- show sensitivity for plants, animals and other organisms in surroundings

These are some learning outcomes in EVS at class III. Can you relate these with the curricular expectations? What kind of pedagogical processes can be adopted using your EVS textbooks to accomplish these learning outcomes?

Note—Please refer to the document ‘Learning Outcomes at Elementary stage (2017).

Let us reflect

- In order to accomplish the above curricular expectations what kind of curricular material; textbooks, supplementary material, resources are required?
- What kind of teaching learning strategies need to be adopted?

- What kind of textbooks and resources do you envisage in view of such an understanding of EVS as a curricular area?
- In order to accomplish the above curricular expectations what kind of teaching learning is required?

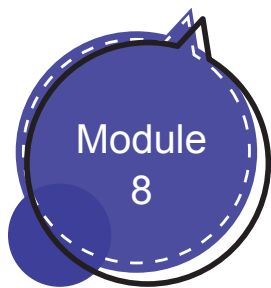
5. RESOURCES AND STRATEGIES FOR TEACHING-LEARNING OF EVS

Children are curious by nature which is expressed in their urge to explore, question and as to why things happen the way they do. Contemporary research on how learning occurs emphasizes the fact that they are not passive recipients of knowledge but all children are capable of learning things on their own. With the shift in the perception of learning and children, there is a need to look at the role of teachers, which requires them to facilitate instead of being mere transmitters of information.

A conventional approach till now followed by most teachers is to introduce the lessons followed by explanation and some examples. Instead, the teachers can plan some challenging situations that lead children to explore, enquire for the problem-situation. They need to be encouraged to get engaged with the problem and feel motivated to find a solution or probe the issue further. This may be done keeping in view the teaching points or concepts, which can be converted into questions or inquiries, which would act as the basis for constructing knowledge.

We all know that the process of learning is continuous and the teachers need to make it meaningful by providing experiences that employ essential process-skills such as – observing, discussing expressing explaining classifying, communicating, experimenting, predicting etc., without labeling any response as right or wrong, children need to be encouraged to explore alternatives with appropriate support of the teachers. This will help the children to construct new knowledge and connect the new knowledge with their existing one.

In order to engage children meaningfully, teachers need to plan the different learning experiences to develop required skills, and concerns for social and critical issues, which are one of the prioritised objectives of EVS. The variety of learning experiences used to facilitate learning of the surroundings help to develop essential cognitive processes, attitudes and values. The learning contexts in the form of narratives, case studies, and media reports can be used to sensitise children about social discriminations, environmental issues, and other critical concerns. Some of them are discussed here using examples.



Module 8

5.1 Strategies for Teaching-learning in EVS

i. Projects

Projects constitute an important learning mode, which can be assigned to an individual or a group of students. A teacher may identify the projects theme wise or chapter wise and students' involvement in planning and designing the projects may also be sought. For project work children may be required to work in school hours or at home as well.

Some of the examples are

- Find out about the availability of water at the time of your grandparents and parents and compare them with the present situation.
- If there is a lake, well or step well near your house or school, visit it and find out more about it.

There could be projects on pollution of water, water availability and its reuse or recycling. You may divide children into groups and each group may plan and design activities on such themes. Children may be supported to conduct survey, experimentation, go to libraries or field visits. Children may prepare reports of the projects in groups and present reports in the class. The assessment may be done using criteria in the form of rubrics, which can be prepared with the help of children.

ii. Discussion

Discussion helps in learning through social interaction in group settings. Knowledge is constructed meaningfully when ideas and experiences are shared with others through discussions. In many EVS lessons, there is ample scope for children to discuss in the class with their peer groups and teachers. The questions such as- How do you feel when you are hungry?; What would happen if you do not get water for two days?; Why some people do not have water and others have it in plenty?; can be used by the teachers to facilitate the discussion where each child is free to express his/her opinion and each response is recognised without demeaning anyone. You may use newspaper reports/TV reports or certain case studies to substantiate your discussions on the issues and concerns of contemporary relevance.

Let us reflect

- What are the roles expected from a teacher in this context?
- How would she organise discussions in the classroom? Enlist some tips for a teacher.

- Identify some exercises in the NCERT, EVS textbooks where teachers are asked to discuss with children some of the critical concerns in order to develop awareness and sensitise them towards the issues.

iii. Experiments and Explorations

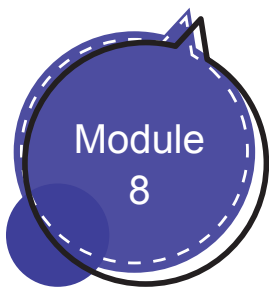
Experimentations and explorations encourage children to investigate, observe, create, discuss, critically think, categorise, analyse, reason out and draw conclusions. The EVS textbooks deal with much experimentation where children can do the activities on their own and learn from their observations. In Class V textbook, under the lesson titled “Experiments with water” we find activities related to i) what floats and what sinks? ii) what dissolved, what did not? iii) where did the water go? You may facilitate children to do the activities by providing resources or suggesting how to arrange them. Also it is important that they need to be familiarised with the purpose of doing such activities. It is possible that at times children go beyond of what is expected of them and come out with very interesting observations that create the scope for further investigations. You only need to draw their attention towards it and encourage them to explore further scaffolding wherever it is required.

iv. Surveys and Interviews

Surveys help to involve children to seek, collect and use information to draw meaningful insights. In most of the exploration and survey activities children seek information from people using interviews. Children may be encouraged to talk to people in their surroundings and collect data related to the problem or the task given. This helps them acquire first hand experience of the problems around and learn more about the problems around them. Children may be encouraged to frame questions on their own for interviewing and use the data gathered to prepare a report. Interacting with people and interviewing them helps in developing skills of communication, framing and asking questions, recording the responses, preparing reports, etc.

Some examples of survey exercises are given below

- A survey of the school and the neighbourhood to find out wastage and conservation of water.
- Children can collect information on leaking taps, pipes, overflow, overuse of water in school and society and share the reports with the class.



v. Sharing of Experiences

An important aspect of EVS classrooms is to help children express freely. The teacher may create situations where each child feels like sharing without any hesitation. The opportunities for expression could be oral, written, drawing or any other. For example, when discussing about water availability, children may be asked how they get water in their homes. They may also be encouraged to share about the usage of water in different festivals in their families. They may do so by writing a few lines, narrate or draw the same. This creates an awareness about the socio- cultural environment prevailing across people from diverse backgrounds.

vi. Role play

Children in primary grades love any hands on and performing activities. Theatre helps children enact certain real life and imaginary characters which facilitates in not only building up their confidence besides helping them gain insights into the values, attitudes and roles of such characters. Putting children in certain roles helps them learn better and internalize the contexts, which allows them to not only explore the subject matter in varied ways, but also imbibe appropriate dispositions. There are many situations, which can be created for role-play situations.

A teacher asked children to enact the following situations

- A girl child who has to stay at home to do all household chores.
- A family, which fetches only two buckets of water from a water tanker every day.

Let us reflect

- Which process skills and values can be addressed through these situations?
- How do these activities align with the curricular expectations and learning outcomes given above?
- How will you involve visually challenged children in such activities?

vii. Field Visits

Visits are often considered as activities for joy and fun but until we plan and organise them in a manner that help children learn the concepts and be sensitised for the social and environmental issues, the visits will not help to accomplish any objectives of the EVS curriculum.

Visiting a dying/revived water body (well, lake, pond) in the neighbourhood and exploring about it from the people can be one such example.

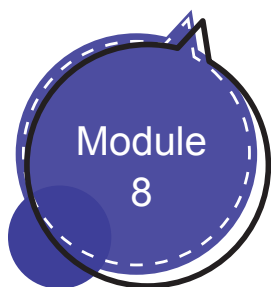
These are some of the modes, however the teachers can employ many more as per the contexts and need of students wherein children can be engaged in individual or group activities. The group activities may take many forms like jigsaws, discussions, projects, role-play, discovery, etc. Teacher may group the children according to the tasks to be carried out. While grouping, it is important that the group needs to be heterogeneous in nature, with children from different backgrounds and abilities.

5.2 Learning Resources

Children learn in different ways. Hence it is important to provide them with various learning opportunities using different learning resources. Several kinds of learning resources can be used in the teaching learning of EVS. For example, printed textbooks and other supplementary and complementary books, e-resources which could be in the form of audio, video, text, picture, table, cartoon, etc., the natural and built environment, information from persons and personalities, etc.

Identifying a good learning resource is crucial. For example, it is important that EVS textbooks for the primary stage are centered around the child's immediate surroundings which include the natural, physical, social and cultural settings. The textbooks should not be the only source of knowledge, but should support both teachers and children to construct knowledge through different sources around them. It should incorporate scope for children to explore and connect with their real lives. Textbooks that emphasise on formal definitions and mere information may be avoided since it will only lead to rote learning. In addition, the language needs to be simple for all children to comprehend at a particular level.

The NCERT textbooks in EVS revolve around six themes namely; (1) Family and friends, which consists of four subthemes – (1.1) relationships (1.2) work and play, (1.3) animals and (1.4) plants. Others are – (2) Food (3) Water (4) Shelter (5) Travel and (6) Things we make and do. Each theme begins with key questions in a language suitable for children. The complete syllabus is available on the NCERT website (<http://www.ncert.nic.in/rightside/links/syllabus.html>). The chapters include real life incidents, every day challenges of life and contemporary issues such as those related to food, water, forests, protection of animals, pollution, etc. Every idea and



Module

8

concept has been given through activities and discourses to attract their curiosity and generate interest. There are ample opportunities for children to freely debate, engage with and develop a sensitive understanding about these.

In order to establish a link between curricular expectations, pedagogical dimensions and the learning outcomes in EVS, an attempt has been made in the section 6 wherein theme “Water” has been taken up. Before we understand its pedagogical dimensions let us have a look at how this theme can be used to take up different concepts and issues in science, social science reflecting integration with other subject areas like mathematics, language, art education and health and physical education at the primary level.

6. SCOPE AND PEDAGOGICAL DIMENSIONS OF THE THEME ‘WATER’

6.1 Scope of the Theme ‘Water’

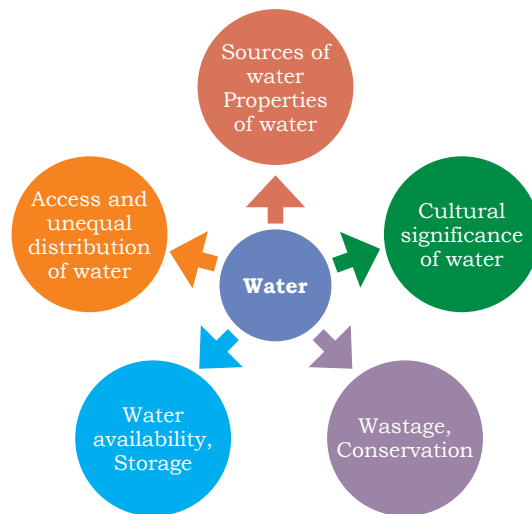
Water is an important resource for the sustenance of all life forms on the earth. EVS being an interdisciplinary area seeks establishing linkages between the natural, and socio-cultural environment of the child. Concepts and issues related to ‘water’ are universal irrespective of any class, region or terrain so it can help understand various environmental concepts and issues in a holistic manner. Therefore, ‘water’ can be a theme for EVS curriculum at the Primary level. It has a wider scope to provide many learning opportunities to develop an integrated perspective in EVS. As a theme, it encapsulates a range of concepts through Grade III to Grade V that gradually extends the child’s understanding of their surrounding world, beginning from the immediate “self” and immediate family (water for me and family, understanding the importance and use and storage of water in our homes), the neighbourhood and locality (mapping water sources in the neighbourhood, gender and other discriminatory practices, water conflicts in neighbourhood) to the larger context (who has a right to the natural resources?, impact of water pollution on other species, tracing historical sources of water, traditional and modern ways of water conservation). Besides, it includes scope for development of many process skills like observation, experimentation, measurement, estimation and mapping, which cut across disciplines. This section will help you to reflect on the issues and relate to the students’ lives and capacitate them with understanding of concerns and issues around the theme of water. Further, the interdisciplinary linkages elaborated

through this theme will help you understand and promote various process skills of EVS learning and cutting across other curricular areas.

Let us reflect

- Which concepts and issues can be taken up to forge an integrated perspective in EVS if 'water' is a theme?
- Try enlisting the concepts and issues that relate to water. Represent these in the form of a mind map.

One such mind map is given below.



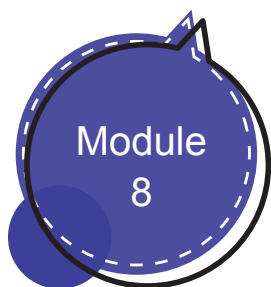
Try adding some more to this

- Which other subject areas these entail from?
- Can you establish the linkages across other themes in EVS?
- Do you see the integrated perspective in EVS? How?

Now, let us take up a few concepts/ issues to understand how teachers can create meaningful learning opportunities to help children imbibe the necessary knowledge, skills, and values.

6.2 Planning and Creating Learning Experiences

Children have their own understanding about the sources of water as they relate these to the obvious places that they get to see/use for taking water and some children may harbor some alternative frameworks and alternative conceptions regarding the sources of water. To help children overcome these, it is important to gather their past experiences regarding sources of water and facilitate them to construct this concept.



6.2.1 Water: Availability, Access and Distribution

Activity 1

Ask children from where do they get water at home? Let them answer one by one and their responses can be written on the board. There can be a variety of responses that the children may give, such as river, stream, well, rain, tap, hand pump, etc. Some children may even say can, pitcher, bucket, etc. Accept all the responses and write those on the board.

Note—No attempt should be made to label their responses as right or wrong.

You may see the responses and identify the students with alternate frameworks with respect of source of water they have framed. The teacher can challenge their thought process by asking questions and facilitate the reconstruction process. The teacher may choose any odd response and encourage a discussion amongst children by asking some questions, such as,

- From where did you/they take the water in a pitcher?
- From where did water come in tap?

Analysing any odd response and enabling children attain the desired learning through further questioning helps in addressing many alternative frameworks which arise in learners' minds. Continue questioning to create opportunities to challenge the alternative frameworks.

Keep on recording the responses on board and facilitate discussion till the children are able to trace the sources of water.

Now help them to categorise their first responses as follows.

I. Things in which we store water	II. Things in which water comes itself
1. Can	1. Stream
2. Bucket	2. Pond

What will you do if some children write 'hand pump' and a 'well' in the first column?

Hint—The teacher may facilitate further discussion with appropriate questions.

For example —

- Has anyone seen a well? Where?

Note—children may respond about well/ tube well.

Now the teacher may ask;

- Where does the water in a hand pump/ well/ tube well come from?
- Where do you think the underground water come from?
- Where does the water after rain go?

This will help the children to differentiate the sources of water from ways of storing water.

Let us reflect

If some children still have any alternative conceptions about sources of water, how will you help them?

Hint—if possible the teacher may take children out to show how water gets available in their home/school

Activity 2

Take children to the spot from where they get drinking water in their school, such as, a tap and then a few more questions can be asked about it.

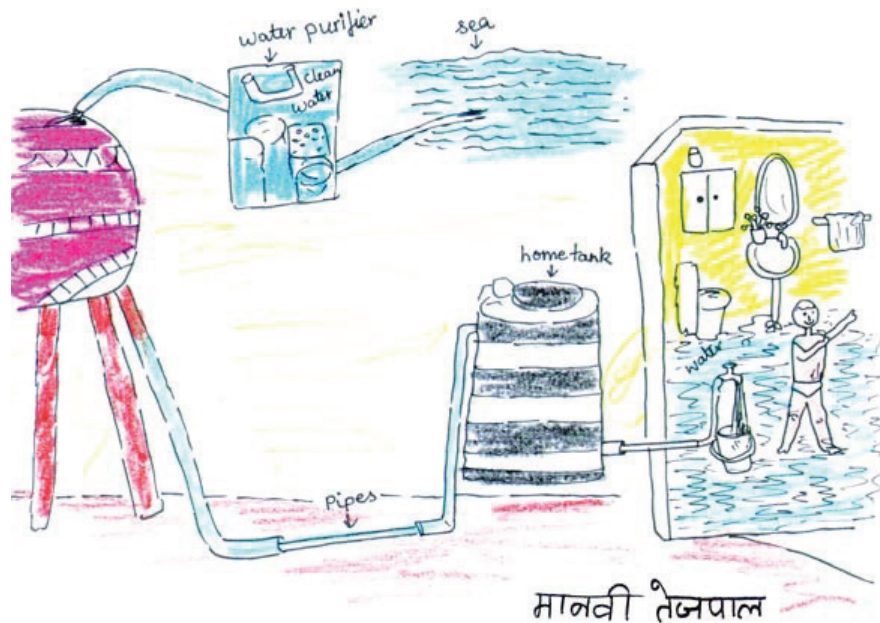
- Where does the water in this water tap come from?
- To answer this, children can be taken to the big tank and how the water goes to the tap.
- Children may ask questions like -How is water filled in the tank?

Children may not be able to respond immediately to such questions. The teacher may facilitate them to understand according to the local contexts of the area. They, if possible, may be helped to explore whether it is a bigger tank of the area, or a river, lake or even an underground source of water, etc. with the help of teachers or their elders.

Activity 3

Ask children to draw how they get water in their home? Some class III children, when encouraged to do so enjoyed this activity created beautiful drawings. A sample is given below.

Remember when children get opportunities to express creatively through art and craft activities, these should not be treated only as fun-based activities but these offer you opportunities to analyse the responses of children to facilitate them towards the desired learning.



The teacher can use these drawings to understand the children's contexts and discuss to enable children provide deeper insights for the issues. Some questions for discussion can be;

- Why do you think Manvi has put a water tank?
- Why has Salil added a motor in his drawing?

Try adding more questions to this.

Such questions may be challenging for children however, the teacher needs to facilitate them to understand using appropriate modes like discussion, videos, interaction with elders, visit to the big tank of neighborhood, Jal board office, etc.

The teacher can raise some more questions in local context and ask children to share their experiences and discuss about the inequalities in regard to water availability and distribution and access in their contexts and sensitise children towards these issues.

Activity 4

Please see the poster given below. Teachers can use it to discuss the unequal distribution of water and the problems faced by people. Let us see how.

Some points of discussion can be—

- Water is essential for survival of all and it is available on this earth for one and all.

- What are the ways by which people get water in their house?
- What kind of problems these people might face?
- Does everyone get adequate water to drink and meet other needs?
- Why do some people have it more and others not?
- Do you think some people draw more water by putting motor or bore well?
- Can it cause problems for others?
- Have you ever experienced such situations?
- Who fetches the water in your house and from how far?
- Do all people use the same source of water?
- Are there some people who are restricted from coming near to these water sources?
- Do such people have some separate sources of water?
- Who are those people? What kind of work do they do?



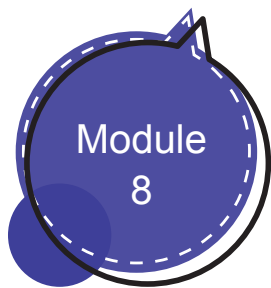
Note—Please note that the issues of caste, class, if any, need to be discussed very sensitively from children's perspective.

Let us reflect

- Can you design some more activities?
- Which strategies has the teacher in activities 1 to 4 used?
- Which process skills are emphasised in the above activities?
- Do you think EVS offers any opportunities to integrate Art education? How?
- Do you think any social issues were addressed? Which ones and how?

6.2.2 Water: Scientific Principles and Processes

Water being universal and unique in terms of its characteristics like state, colour, taste, and polarity due to its distinctive chemical composition provides excellent opportunities to explore different scientific phenomena and principles. Children from a very early age have experiences such as floating, sinking, and mixing with water from their day-to-day life. Help them to reflect upon their experiences by providing them hands on opportunities.



Activity 5

Encourage children to name and draw containers of different shapes and sizes, which are used for carrying/keeping water. They may then be provided opportunity to look at each others drawings and have discussion over

- What are the containers made up of?
- What works are carried out by using water contained in them?
- For how long can the water last in them after doing all the work?
- How much water can be stored in them?
- If the water is at the same level in a narrow and a broad container, does it mean that they contain the same amount of water?

Activity 6

The children may collect substances, such as, sand, sugar, chalk, turmeric powder, and try to dissolve these substances in water. Guide them to stir those mixtures for some time and observe what happens and record their observations. They may also collect some liquids and check if they mix with water or not, e.g. ink, milk, honey, oil, etc.

Activity 7

Let the children collect a variety of objects, such as, wooden pencil, metal pen, inflated or deflated balloon, brick piece, steel spoon, plastic spoon, ice cream cup, needle, wax candle, butter, oil, cardboard, match stick, eraser, steel plate, leaf, stone, empty water bottle, filled water bottle. Now encourage them to guess which among these would sink/ float in water. The children may then verify by putting various objects in a bucket of water one by one and record their observations in a tabular form.

Table

Object	Float	Sink

Now discuss,

- Which objects float in water?
- Which objects sink in water?

The children may be encouraged to discuss, why some objects float on water while others sinks, in their own words. They may

also be motivated to observe if objects of same materials but different shapes display different behaviour regarding floating or sinking.

Activity 8

Float a rubber ball in a bucket of water. Encourage children to think of and try different ways of making this ball sink. Did they work? Encourage children to look for other situations in which a floating object can be made to sink or vice-versa and share their observation in class.

Children may be asked to draw what they have observed. This would help the children to observe closely to see things that the fraction submerged differed among objects.

Activity 9

Children may take some water in an ordinary kitchen tumbler and gently put an egg into it. They observe whether it sinks or floats. Suggest them to add some sugar to the water and observe again. They may keep adding sugar to it (about 10-12 tea spoons in a glass of water). What happens? Let them repeat this activity with salt and observe what happens.

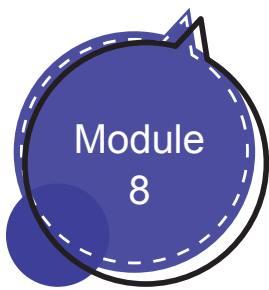
Note—Allow each child to perform the activity, observe, record and make meaning of his/her observations. Accept an answer that children may give in their own language e.g. water is “heavy” or “thick”. Children at the primary stage are not expected to learn about density, viscosity, etc. and their definitions. Since Science is not about memorizing facts and principles but it is a process when children hypothesise, test this and make generalisations.

Let us reflect

- Which concepts have been dealt with in activities 5 to 9?
- Which process skills can be enhanced through these activities?
- How can the teacher assess children?
- How can you emphasise assessment as learning through the above?

Hint—Assessment as Learning emphasises providing opportunities of self-reflection/self learning and peer learning/ assessment

- Which learning outcomes you may hope to realise through these activities? Enlist them.
- Which other concepts can be taken up at the primary level? Design some more activities based on them?



Module

8

6.2.3 Water: The Cultural Aspect

Revering water bodies, rivers and role of water in various rituals and practices across different regions, religions, has been integral part of our culture since ancient times. This provides ample opportunities to connect children's socio-cultural world with that of natural and sensitise them to protect the natural resources.

Activity 10

The children may be encouraged to recite/ sing any folk song that they know, related to water in class. They may then be asked

- Where did they learn this song?
- What was the occasion when people sang it?
- Name some festivals where water has cultural significance? (e.g. *Chhat Pooja* in Bihar, *Durga Pooja* in West Bengal, *Ganesh Chaturthi* in Maharashtra, *Behdienkhlam* in Meghalaya, etc.)
- What are the festivals in your area where water plays an important role?
- How is water helpful in celebrating that particular festival?
- Besides festivals, what are some other occasions/ cultural practices (e.g., at the time of birth /death/ marriage, etc.) where water is very significant/ worshipped?
- Do people sing some special songs related to water on such occasions? Mention a few lines.
- Are there some specific dances related to water? Name those.
- Do people offer some statues/eatables, etc. to the water?
- Name some other things which people offer/ throw in water? Do people also take a holy dip in water?

Let us reflect

- EVS calls for providing experiences that help in holistic learning and overall development of children. How do you think the above activity helps in this direction?

Hint—Addressing the socio-emotional dimensions along with the cognitive aspect.

6.2.4 Water Conservation: An environmental concern

Water occupies a significant place in our lives. It sustains all lives and is also required for our day-to-day functioning. However, being a scarce and valuable resource children not

just need to be sensitised but also need to be equipped with appropriate skills and attitudes to enable them to take action to conserve it.

To do so mere preaching or telling them to avoid wastage, re-use or conserve water will not help. Thus, you may have to think of situations embedded in their real life contexts where they get opportunities to look for problems and take action at their levels for the addressal.

Activity 11

You may show newspaper cuttings, pictures or video clips regarding water supply shortages.

Water supply to be disrupted across Delhi due to maintenance work

NEW DELHI: Water supply will be hit in major parts of the city, including NDMC areas, this evening due to ongoing interconnection of pipes, Delhi Jal Board has said.

Areas where water shall not be available or available at low pressure include Civil Lines, Hindu Rao Hospital and adjoining areas, Kamla Nagar, Shakti Nagar and Karol Bagh. The situation arose due to the complete shutdown of Chandrawal WW (water works) for interconnection of main pipe in a water supply system with pipe lines at DCM chowk, Rani Jhansi Road, DJB said.

Source — <https://www.ndtv.com/delhi-news/water-supply-to-be-disrupted-across-delhi-due-to-maintenance-work-1475615>; retrieved on 27 April 2019.



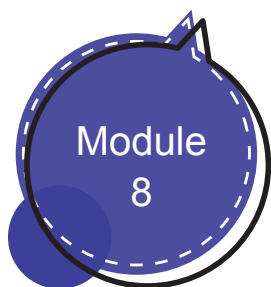
Discuss with them about the problems to be faced due to no water supply. Then raise some questions, such as,

- Have they ever come across such a situation of water scarcity?
- When? How did they manage at that time?
- If their families receive only two buckets of water a day, enlist the works they would do in an order of priority.

More such situations can be created to allow children to analyse, critically think and reflect to enable them to appreciate the importance of water and check wastage and pollution of water. To do so, it is important to expose them to real life situations around them.

Activity 12

Children may do a survey in groups in their school, house, neighbourhood or locality to find out whether the wastage/ overuse of water is taking place. The teacher may provide the



following table to record their observations. They put a tick mark in the different columns according to their observations.

Table

S.No.	Source of wastage of water	School	House	Locality
1.	Leaking tap			
2.	Leaking pipe			
3.	Overflowing of water from the tank/vessel			
4.	Any other			

The children may also be encouraged to find reasons behind leakages/overflowing of water by probing the concerned people. They may record the responses of the people and draw their own conclusions. The findings of the survey are presented and discussed by the groups in the classroom wherein the teacher may assess them based on the criteria (given below), a rubric has been developed with the help of children.

Criteria	Level 1	Level 2	Level 3
Framing questions	The teacher framed all questions for the group	Framed questions with the support of teacher and peers	Framed most questions within group with the help of peers
Collecting Responses	Asked questions with no effort to probe	Asked questions with probing sometimes	Probed deeply and even added new questions during interaction
Recording information and report making	Responses were not organised and verbally shared some information	Systematically recorded the information and presented written report	Systematically recorded the information and presented the report before class both orally and in writing
Drawing Conclusion	Made some sense of the information without giving any suggestions	Drawn appropriate meaning and gave some relevant suggestions	Made meaning and explained logically Practical suggestions were given
Cooperation	Some members contributed and others were not involved at all	Some members have contributed and others were aware/informed	All the members have equally contributed in the work

The teacher may use the descriptions of the rubric in identifying the areas that need improvement. With appropriate feedback and scaffolding she creates opportunities for self-reflection and self-improvement.

Activity 13

Encourage children to reflect and come out with some strategies to combat the situation of water scarcity. The teacher needs to analyse the responses of the students keeping their context in mind. The students need to be given opportunity to realise how important is water and understand the various ways the people manage water crisis.

Activity 14

Pose the question 'In what ways do they reuse water in their daily life?' and the children may enlist some of the tasks, which can be done by re-using the water. For example, water left after washing of vegetables, fruits, water may be used for mopping the floor and watering of plants. The variety of responses may be recorded either on the board or on slips and pasted on a chart. They may read out those responses and discuss. You may take up some of the responses of children, which are advisable to create more situations to enable children to build further knowledge, e.g.

- Can we offer water left after washing the clothes to the animals?
- If no, why?
- If yes, how?
- Can we drink water after washing clothes?

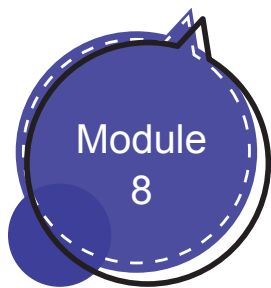
Further you may ask,

- Will it harm plants? How?
- Can we reuse this water?
- How? Suggest few ways?

In this way, different responses can be used to build the knowledge about proper reuse of water.

Did you know

Jal Shakti Abhiyan (JSA) is a time-bound, mission-mode water conservation campaign. The campaign will run through citizen participation during the monsoon season, from 1st July, 2019 to 15th September, 2019. An additional Phase 2 will be run from 1st October, 2019 to 30th November, 2019 for States receiving the North East retreating monsoons. The focus of the campaign will be on water stressed districts and blocks. It encourages Citizens to join hands for water conservation and create a Jan-andolan along the lines of the Swachh Bharat Mission, to save water and secure the future. It emphasises on the water conservation and



rainwater harvesting, renovation of traditional and other water bodies/tanks, reuse, bore well recharge structures, watershed development and intensive afforestation. Jal shakti abhiyan can be brought to the classroom through the environment studies by the collaborative efforts of teachers and schools. Students can be made aware of water conservation and rainwater harvesting, renovation of traditional and other water bodies/tanks, reuse, bore well recharge structures, watershed development and intensive afforestation through not only the textbooks but by real life experiences. Field trips, visit to agricultural fields and hand on experiences can help in the successful implementation of the abhiyan in the context of the school curriculum.

Activity 15

You may take up the need for water harvesting in their contexts and some water harvesting practices relevant in their surroundings can be dealt with, e.g. rain water harvesting in Meghalaya. For what purposes that water is used? You may encourage them to draw pictures that how the rainwater is being harvested there. Let children make presentations of their finding. Let them share certain unique experiences that they might observe.

Activity 16

Children may divide themselves into four groups and let each group brainstorm to design projects on the themes given above like—

- Re-use of water – Suggest different ways in which water can be reused at home/school
- Water Harvesting – Find out how to harvest rain water in the neighbourhood
- Wastage of water - Estimate the quantity of water loss through a leaking/dripping tap
- Pollution of water - Collect news of water pollution of a month and enlist the causes of pollution

They may be encouraged to tap different resources, visit library and speak to the elders. Each group may also write a story/poem or enact through a play/puppet show on the given topic. Through these activities children may voice opinion on wastage of water in family and school; create slogans and poems and suggests different ways of reduce, reuse and recycle water.

Note—Allow children to prepare the scripts and material and divide the roles among themselves. They may perform in class/school assembly or on some event in school.

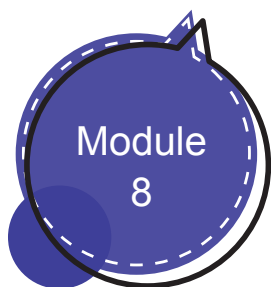
The children through these activities would be learning different ways of collecting and recording data, drawing conclusions, sharing the findings with others. When children are encouraged to observe the prevailing situations of water scarcity, wastages, etc. in their surroundings, they are not only able to analyse the problems but also come up with some ways of addressing them.

Let us reflect

- Which concepts and issues have been addressed through the activities given in the module? Try to locate them in the EVS syllabus and textbooks of the NCERT?
- Are these concepts and issues given in the activities above dealt in the syllabi and textbooks of your State/UT? How?
- How will you assess children? Design some criteria for the project activities given above (a to d).
- Which learning outcomes are targeted in the activities given above? What do you think of the following?

Learning Outcomes

- Identify sources of water and objects for storing water.
- Describe need, availability of water and use of water at home and surroundings.
- Describe roles of family members in fetching and storing water
- Records observations/experiences/information for objects/activities in different ways and predicts patterns in activities
- Groups objects/substances which float or sink, soluble and insoluble according to differences/similarities using different senses.
- Differentiate between objects and activities.
- Guesses (properties, conditions of phenomena and verifies using simple tools/set ups (e.g., floating and sinking/mixing).
- Record observations, experiences, information on objects/activities/ places visited in different ways and predicts patterns.
- Creates drawings, designs, models, maps, poems and slogans.
- Voice opinion on social discriminatory practices in using water.



7. SUGGESTED ACTIVITIES FOR SRGs IN EVS

This section contains some activities to help you acquire a deeper understanding of the theme, and issues and their pedagogical aspects. You will be able to design age appropriate, context specific and need based activities for children in your classrooms.

The activities may be conducted by forming groups and facilitating discussions on the given topics. Each group may carry out in groups followed by presentations by each group.

1. Draw a mind map for any other theme and reflect on the integrated nature of EVS.
2. Develop a unit plan on the selected theme.
3. Design some group projects for the theme food, travel and shelter in the EVS textbooks. Also design their plan of assessment.
4. Analyse the EVS textbook of NCERT or that of your State/UT. How are the gender concerns addressed in them?
5. How can the teaching of EVS be made inclusive? Select chapters/topics from EVS textbooks of primary classes and give suggestions for improvement.
6. Select chapters/themes from EVS textbooks and suggest ways and means of contextualisation with respect to children of your State/UT.
7. Design some age-appropriate situations where children get opportunities to explore scientific understandings.
8. Children enjoy use of art and craft. How can the art education be integrated with the teaching learning of EVS? How is this addressed in the NCERT, EVS textbooks?
9. Find out the audio/video/other e-contents for different themes in EVS for primary classes and map them with textbooks. Full urls /web links should be mentioned.
10. Select a chapter in an EVS textbook and suggest how you will you help a visually challenged and a hearing impaired child understand different concepts included in it?

8. FEEDBACK ABOUT TEACHING AND LEARNING OF EVS BY PARTICIPANTS

Appropriate number of groups may be formed among the teachers with each group being as diverse as the entire assembly of teachers is. Each group should discuss and record their respective experiences of teaching learning of EVS in classrooms in the following format.

Sl. No	Class in which teachers teach	Topics that they cover	Pedagogy that they follow in teaching the topics	Challenges that they face in adopting a particular pedagogy	Challenges that teachers face in general in teaching EVS	How do they go about assessing and evaluating learners?	What strategies teachers adopt in making their classroom inclusive? Experiences?	Remarks, if any different from already discussed so far.
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Teachers in groups may discuss and record their experiences and present in front of all. The idea of this feedback is to understand teachers' perspectives on teaching and learning of EVS and set the tone for training on EVS.

9. SUGGESTED READINGS

NCERT. *Environmental Studies*. Textbooks (Class III-V).

—. 2015. *Exemplar package on CCE for the primary stage*.

—. 2017. *Learning Outcomes at Elementary stage*.

—. 2006. Syllabus of Environment Studies for Elementary Classes.

Source books on Assessment in EVS. NCERT

Supplementary material in EVS. *Pustkon Se pare Hamara Paryavaran*.