



## Environmental Education and Curriculum at Primary Level

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### ABSTRACT

An effort has been made to redefine environmental education and differentiate it from environmental studies (EVS). EVS at primary level has been highlighted and the curriculum development process from classes I to V discussed. A shift in environmental education from knowledge based to issue based education is desirable in schools. Need for localisation of environmental education is imminent. A scheme has been suggested for evolution of a new revised environmental education curriculum. A survey for relevant social and biophysical parameters was carried out on samples of III, IV and V standard students and teachers of DMS, RIE, Mysore. The sample study was generalised as of Mysorean Kannadiga Hindus. Environmental and socio-cultural issues lacking in the textbooks, inclusion of which could make environmental education more effective locally, have been highlighted. It has been concluded that as social and cultural criteria are pre-eminent in the texts, therefore, environmental education should transit from knowledge based to issue based learning to be more effective at the local level.

### INTRODUCTION

The local environment is not only the physical and natural world but also the socio-cultural world. The child should be able to relate his knowledge with the world, with life, with society and its culture. Environmental studies is the planned exploration of the environment in order to understand the interrelations of various environmental factors and forces and their influence on man.

Environmental education constitutes a comprehensive life-long education, one responsive to changes in a rapidly changing world. It prepares the individual and communities for life through an understanding of the major problems of the contemporary complex world, the problems resulting from the interaction of the biological, physical, social, economic and cultural aspects of the individual and the communities. Environmental education recreates an overall perspective which acknowledges the fact that natural environment and man-made environment are profoundly interdependent; and links the acts of today to the consequences of tomorrow.

### Views on Curriculum development at Primary Level

In 1963, the NCERT published an experimental edition of a general science syllabus of classes I–VIII. The major criterion for content selection was to include those ideas and approaches of science which are essential for future citizens to live well-ordered lives in a rapidly developing technological society. The syllabus contents were organized into units like Air, Water and Weather; Rocks, Soils and Minerals, which clearly had an environmental base. A holistic approach to teaching science was favoured, rather than teaching in separate disciplines.

The Review Committee (1975) on the curriculum for the 10-year school recommended that in classes III, IV and V, there should be one textbook for language, one book for mathematics and one for environmental studies. The courses in environmental studies should include both the natural and

the social environment. The purpose is not to stuff the minds of children with facts and information, but to sharpen their senses to enable them to observe their environment and to enrich their experiences.

According to the National Curriculum Framework (2005) at the primary stage, the child should be engaged in joyfully exploring the world around and harmonizing with it. The objectives at this stage are to nurture the curiosity of the child about the world (natural environment, artifacts and people), to have the child engaged in exploratory and hands-on activities for acquiring the basic cognitive and psychomotor skills through observation, classification, inference, etc. to emphasise design and fabrication, estimation and measurement as a prelude to the development of technological and quantitative skills at later stages and to develop basic language skills; speaking, reading and writing not only for science but also through science. Science and social science should be integrated as environmental studies as at present with health as an important component.

Also the National Curriculum Framework says that for the primary grades, the natural and social environment will be explained as integral parts of languages and mathematics. Children should be engaged in activities to understand the environment through illustrations from the physical, biological, social and cultural spheres. It also says that for classes III to V, the subject environment studies will be introduced. In the study of the natural environment, emphasis will be on its preservation and the urgency of saving it from degradation. Children will also begin to be sensitized to social issues like poverty, child labour, illiteracy, caste and class inequalities in rural and urban areas.

In classes I and II concepts of environmental studies have been integrated in the areas of languages, mathematics and art of healthy and productive living. EVS has been recommended to be introduced as an independent curricular area in textbooks of classes III to V. National and global developments have a bearing on school curriculum and necessitates its review. It is interesting to note that the content of EVS has been identified in terms of the life-needs of the child and the needs of the environment thus making it more relevant and interesting for the child.

### **Need for the Present Study**

The present study has been envisaged based on the relation of school and the surrounding environment. The school has been caught up in social changes pertaining to race, class, ethnic group and migration (NCERT 1988-1992). The area of concern is the hidden curriculum, i.e., what the children learn as a direct result of the kind of social setting in the classroom as opposed to the didactic method. The hidden curriculum is important for issue based learning of environmental studies. The contentions based on which the present study was carried out are:

- Some chapters in III, IV and V standard EVS textbooks have already been demarcated as those of socio-cultural issues. Are these units or chapters sufficient for the texts concerned? Or need these undergo further elaboration?
- Will it not be more pertinent to include chapters pertaining to the immediate socio-cultural problems of a particular locality/region/state in the EVS text? Will this not enable the students to perceive/understand and solve problems in their surroundings in a better way?
- The curriculum of environmental studies contains science concepts mostly pertaining to the visible and observable, social and biophysical environment around. Have all the relevant social and biophysical parameters of the environment been reflected in the III, IV and V standard textbooks?

- What could be the criteria for content improvement in terms of the present socio-cultural set up in which the student lives ?

### CONCEPTUAL FRAMEWORK

According to Knamiller (1987), the main ideas to be developed at the school level are the complementarity of organism and environment; the selectivity of the individual to input and output; the extent of interconnections from an individual outwards; the enabling and constraining properties of energy and material resources; the significance of short-term and long-term; the consequences on individual, society and environment of human life styles; and the choice of criteria and the procedures available for guiding and managing change.

Let us discuss environmental education in terms of content at primary level, localization and issue-based learning. The opposite of issue based learning is knowledge based learning. According to Kanhaswan & Joan Webb (1987), a change to environmental education which is issue-based in the present Indian and world-scenario affected with floods, droughts, landslides, major epidemics like AIDS, etc. is not just desirable but also possible to achieve in primary schools.

**The Content:** Identifying the content of environmental education for schools is a very challenging task. The difficulty is due, as Smyth (1987) says, “to the all-embracing nature of its subject-matter and the diversity of approaches and attitudes among those who promote environmental education”. Amazingly, however, there is little disagreement among practising educators about the specific environmental knowledge to be included in particular disciplines.

**Localization:** Localization is a very important aspect of environment education at the primary level. Environmental studies at the primary level commonly begin in the classroom, the school compound and the immediate community.

Knamiller (1987) makes the point that the Third World must not make the same mistakes with environmental education as when they imported, wholesale, science and mathematics curricula from Europe and America. Curricula have to be locally influenced and improvised and cannot be borrowed from outside countries. The concern for localization of environmental education content is felt not only in the international context but also within countries.

Going a step beyond allowing individual schools to choose environmental learning units from a central store, it is to provide schools with a model template to guide local educators in writing their own curriculum.

The ECEEN (European Community Environmental Education Primary Network) aims at an improvement of the quality of environmental education in the schools involved, by means of mutual cooperation and learning from each other’s experiences; and gathering, try-out and dissemination of teaching materials on environmental education. According to ECEEN, Environmental Education should work on the lines given in Fig. 1.

Although offering curriculum models to regional educators and school teachers is another way of localizing environmental education content, the idea carries with it the assumption that not only are local educators capable of writing a curriculum but that they are free to do so. In the present project, it is the aim to suggest an environmental curriculum keeping both the national and local perspectives in mind with special emphasis on the fact that the environment curriculum may show localized variations. A tool may be designed to assess these local variations to be inserted into the curriculum at a later stage.

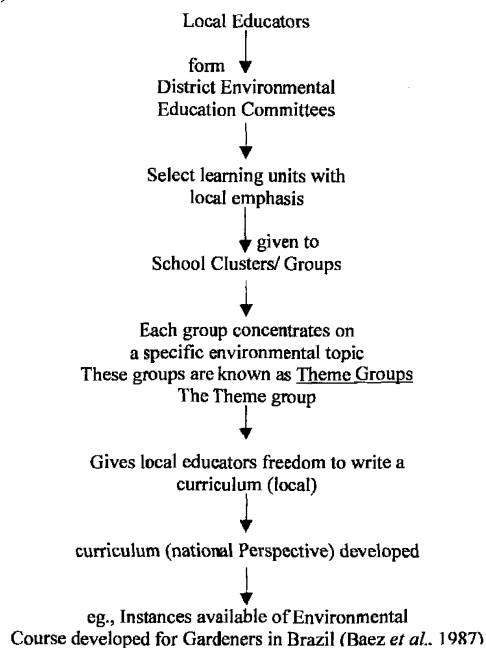


Fig. 1: Flow chart depicting lines on which environmental education should be executed.

Young & Maggs (1987) offer some wonderfully descriptive case studies of their work in Indian primary schools to help teachers make use of their local environment across the curriculum. Myriam Krasilchik (1987) gave a most interesting account of her project with student teachers in Brazil in the development of an environmental course for the gardeners who worked on the grounds of the university. The students with Krasilchik's help, organized the course, wrote the materials and taught the sessions. The environmental work with the university gardeners certainly was localization -personalized, and it gave the students skills and confidence in constructing their own local environmental education learning units.

Achieving the skills of literacy and numeracy is the central core of primary education everywhere in the world and any attempt to introduce environmental education at this level must take note of this concern. Again the requirement of common syllabi and examinations and also the reliance on textbooks, almost force a knowledge based content approach. An important factor in determining a knowledge or skills bias is how many principles and concepts are to be taught. The more the knowledge to be taught the less time there is to exercise the skills.

## ENVIRONMENTAL EDUCATION AND ISSUE-BASED LEARNING

In this sense, participation becomes school content and is closely linked with the debate over knowledge-based versus issue-based learning. Should learning be knowledge-based or issue based? What is to be practised at primary level?

The shift in environmental education is from knowledge based learning to issue based learning. Issue-based learning involves learning through participation in real environmental issues and this places the school in the political arena. It is the nature of environmental issues to be political at some

level. Such a role for school is not normally acceptable to most parents or politicians. We, working on the project feel that environmental education should be knowledge based at the primary level with a very exceptional person playing the connecting role between school and community on environmental issues.

Young & Maggs (1987) convincingly place environmental education in all areas of the primary curriculum. Elstgeest (1987) sees the primary child's interaction with his environment as the starting point for all learning. Jadhao et al. (1987) and Mishra (1986) document how Indian primary schools are emphasizing a 'teaching through the environment approach'.

Blum (1987) shows how the agriculture and environment sciences project in Israel managed to inject such topics as 'The Rise and Fall of DDT', 'Let us protect plants' and 'Fight against Hunger' into agricultural education and many examples of the integration of environmental concerns in health education were brought forward.

This was done to emphasize the point that environmental education draws on all subject disciplines and to reflect their complementary roles in producing environmentally competent citizens. Horvath (1987) offers excellent examples of 'the roots of human behaviour resulting in the ecological crisis of our time'. Badacsonyi (1987) discusses the importance of an 'emotional motivation' for studying the man-environment relation and for discovering beauty in nature and in ourselves. This stimulation through arts must be an integral part of environmental education programmes for schools at all levels. In short, integration is currently the dominant approach to getting environmental education into schools. Perhaps the reason why it has already been done in the textbooks of the NCERT. A conceptual framework showing the significance of different approaches (issued-based learning and knowledge-based learning) to environmental education is depicted in Fig. 2.

The present paper analyses the content of existing science textbooks of III, IV and V standards of the NCERT for Environmental Science (EVS) concepts and socio-cultural concepts (SC concepts); analyses the content of existing science textbooks of III, IV and V standard and circumscribes additional concepts and attitudes to be developed in the texts of III, IV and V standards of immediate relevance to the socio-cultural scene.

## METHODOLOGY

The III, IV and V standard books were purchased and following tools prepared.

1. **Evaluation Tool:** The tool was used to cross check and pick out environmental science issues, and socio-cultural issues already incorporated in the III, IV and V Std. Textbooks.
2. **Questionnaire Tool:** The questionnaire tool consisted of a series of questions prepared from an itinerary of EVS issues, EVS attitudes and socio-cultural issues prepared from III, IV and V standard EVS textbooks and through textbook references and literature review. The responses to the questions mostly were yes/no.

Three types of questionnaire tools were prepared.

1. Questionnaire for checking understanding of EVS concepts or issues from Environmental Science Textbooks-one questionnaire each for III, IV and V Stds.
2. Questionnaire for checking development of EVS attitudes through EVS texts-one questionnaire each for III, IV and V Standards.
3. Questionnaire for checking development of socio-cultural attitudes through EVS Texts – one questionnaire each for III, IV and V standards.

The questionnaires were 3 in number for 3 standards and totally 9 in all (Nair 2007) Central/State and English/Kannada media schools were selected for the present study with the only criterion for selection being teaching of EVS in the 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> standards. Different schools, their names, the teachers involved, (22 in number spread over 10 schools) the strength of students of the III, IV and V standards were as follows:

Classes	Number of students	Number of Questionnaires administered	Number of schools	Number of teachers
III	30 in DMS;	3 in DMS; 3 in others	10	22
IV	23 in DMS	3 in DMS; 3 in others	10	22
V	26 in DMS	3 in DMS; 3 in others	10	22

**Step 1:** Some bifurcation of individual chapters into EVS issues and socio-cultural issues has already been done in the textbooks (Gupta et al. 2002-04) as given below.

**Environmental Studies: Let Us Look Around and Learn, A Textbook for Class III**

Unit I	Knowing myself	Socio-cultural issue
Unit II	We need them to Live	Environmental Issue
Unit III	Our Neighbourhood	Socio cultural issue
Unit IV	Reaching Places	Environmental issue
Unit V	Too far Too Near	Environmental Issue
Unit VI	Different but Beautiful	Environmental issue

**Environmental Studies: Let us Look Around and Learn, A Textbook for Class IV**

Unit I	We and our surroundings	Environmental Issue
Unit II	Our needs	Environmental Issue
Unit III	Natural Resources and Phenomena	Environmental Issue
Unit IV	Institutions that serve us	Socio-cultural issue
Unit V	Some great people	Socio-cultural issue
Unit VI	Changes: Why and how ?	Environmental issue
Unit VII	Unity in Diversity	Environmental Issue

**Environmental Studies: Let Us Look Around and Learn, A Textbook for Class V**

Unit I	Living World: An Introduction	Environmental Issue
Unit II	How we can keep healthy?	Environmental issue
Unit III	Our Environment	Environmental Issue
Unit IV	Change: Why and How?	Environmental Issue
Unit V	Our Country India: A Glimpse	Socio-cultural issue
Unit VI	Our Glory	Socio-cultural Issue

**Step 2:** A list of important issues already incorporated in the textbooks was prepared through a detailed reading, and analysis of the three textbooks. These were later categorized using boxes and bullets into EVS and socio-cultural issues.

**Step 3:** The textbooks were analysed thoroughly using the evaluation tool; and chapterwise and unitwise checklists were prepared for environmental science and socio-cultural issues (the additional column of additional issues was filled up through discussions at the workshop level).

**Step 4:** Each of the environmental science and socio-cultural issues listed out through steps 2 and 3 were transformed into questions with Yes or No and other suitable responses. Nine questionnaires for the three standards were prepared. The time assigned for answering each question was one minute. An average of 20 minutes was set for answering each of the questionnaires. Number of questions in each questionnaire were as follows:

Questionnaire for III Std. EVS Issues	:	17 questions
Questionnaire for IV Std. EVS issues	:	21 questions
Questionnaire for V Std. EVS Issues	:	12 questions
Questionnaire for III Std. EVS attitudes	:	18 questions
Questionnaire for IV Std. EVS attitudes	:	16 questions
Questionnaire for V Std. EVS attitudes	:	15 questions
Questionnaire for III Std. Socio-cultural attitudes	:	15 questions
Questionnaire for IV Std. Socio-cultural attitudes	:	17 questions
Questionnaire for V Std. Socio-cultural attitudes	:	13 questions

Responses to questionnaires were obtained from teachers and validated at a later stage (Step 7).

**Step 5:** The environmental studies aims/attitudes/socio-cultural attitudes questionnaires of the III, IV and V standards were administered to III, IV and V standard EVS teachers respectively.

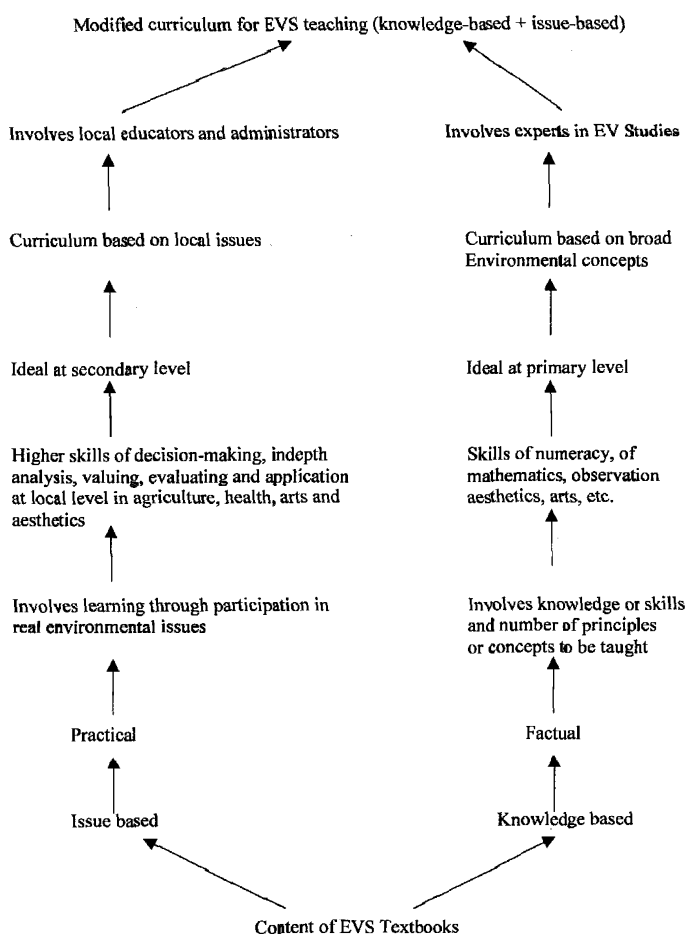


Fig. 2: Conceptual framework showing the significance of different approaches to environmental education at primary and secondary levels.

**Step 6:** The textbook analysis was subjected to further scrutiny and results discussed. The analysis/evaluation tools with the last column viz., addition/deletion/modification only filled up are presented under Results.

**Step 7:** Also a diagnostic test for arbitrary selected topics of III, IV and V standards were constructed for the validation of teacher responses on EVS issues, attitudes, and socio-cultural attitudes.

## RESULTS AND DISCUSSION

The EVS and SC concepts and attitudes were categorised and analysed (Table 1). Also, it was found that the chapters of III, IV and V standard texts showed the lack of following concepts (EVS and socio-culture) from the local (Mysore) point of view (Tables 2, 3, 4).

An analysis of the sample studied showed that the socio-cultural profile was of Mysorean Kannadiga Hindus. And an analysis of the chapter headings showed that chapters on socio-cultural parameters predominated the books.

The EVS and SC concepts and attitudes were categorised as of surroundings; of personal life; of family life and society; of cultural life; and of employment/ education. (Table 1) Only one of the five categories is pertaining to the environment (i.e. surroundings) in the real sense of the word and, therefore, is the real environmental parameter studied here. The rest of the four categories are socio-cultural parameters i.e., one out of 5 categories studied through questionnaires here pertain to surroundings which is the actual environmental parameter, the rest being socio-cultural parameters.

A straight average of all the above values (Table 1) shows that 40 percent of concepts (each of which has been converted into a questionnaire) incorporated in the text books belong to the socio-cultural category showing thereby the relationships between socio-cultural problems and environmental studies and also emphasizing it. As environmental studies show a definite link to socio-cultural problems, therefore, environmental education at primary level should proceed from knowledge based (factual) to issue based (participatory) with a local educator forming a connecting link between the classroom and the district local administrator as discussed in conceptual framework.

Table 1: Percentage analysis of different categories of EVS issues; EVS attitudes; SC attitudes in the questionnaire administered.

Questionnaire	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>
EVS issues III std	18%	17.60%	52.90%	11.70%	-
EVS issues IV std	52%	4.75	28.50%	4.70%	4.70%
EVS issues V std	42%	41.60%	8.30%	8.30%	-
EVS Attitudes III std	11%	38.80%	16.65	27.70%	5.50%
EVS Attitudes IV std	19%	18.70%	37.50%	12.50%	12.50%
EVS Attitudes V std	-	33.30%	46.60%	20%	-
Socio-cultural Attitudes III std	20%	-	60%	20%	-
Socio-cultural Attitudes IV std	-	-	52.90%	41.10%	5.80%
Socio-cultural Attitudes V std	23%	7.60%	38.40%	30.70%	-

Note:

1-21-Questionnaire; a- questions pertaining to surroundings of students; b-questions pertaining to personal life of students c-questions pertaining to family life and society; d-questions pertaining to cultural life; e-questions pertaining to employ/ education; EVS-Environmental Studies; SC-Socio-cultural



Analysis of the three text books of the III, IV, and V Std shows that a number of additional concepts ( both EVS and Socio-Cultural ) need to be incorporated in the text books. An additional number of 22 EVS concepts and 36 socio- cultural concepts have been suggested for the III std text books; 19 EVS concepts and 45 Socio-cultural concepts have been suggested for the IV std text books; and an additional number of 37 EVS concepts and 46 Socio-cultural concepts have been suggested for the Class V text books. Keeping localised environmental education in mind, the curriculum should be based on issue-based learning (socio-cultural concepts) in the form of additional units on the following topics: Local sources of food/local food habits, Water scarcity and conservation and recycling, Wetlands, Local traffic management, Local customs and festivals, Local geography (maps and routes), Linking of rivers in the vicinity, Social life, Parks, Local historical landmarks, Local languages, Local society and its practices, Water, Fire, Sanitation, Local government, Emission checks, accidents, Local population data, Locally important plants (ethnobotanical) and animals, Other local environment problems

It is suggested that these additional concepts be incorporated in the text books as colourful illustrations and pictures in the form of a compact disc in the form of photographs, pictures and diagrams, that could be incorporated in the present text book as learning materials in revised form. These pictures and photographs in the CD should reflect past, present, and future environmental concerns and problems.

It cannot be denied that visuals like movies have an important role in the attainment of concepts and attitudes in social life. It is suggested hereby that animation movies be prepared for environmental science topics of III, IV, and V stds. This could be even in the form of local documentaries which are shown to the students during or after class hours. A compact disc if prepared could be used as a ready reckoner for instilling environmental science concepts and attitudes. A suggested break up of list of topics on which CD/visuals could be prepared as follows:

### **III Standard**

- 1 Documentary on water and sources of water.
- 2 Documentary on food habits of communities in the city.
3. Documentary on means of transport.
- 4 Documentary on important places in the locality.
- 5 Documentary on ancient and modern day means of communication.
- 6 Documentary on festivals and their socio-cultural events in Mysore.
- 7 Documentary on climates in different parts of India.
- 8 Documentary on dresses to suit different climatic conditions.
- 9 Documentary on neighbourhood , how to live in society .

### **IV Standard**

- 1 Documentary on natural resources
- 2 Documentary on educational institutions.
- 3 Documentary on institutions catering to different kinds of occupations.
- 4 Documentary on geography and politics of Mysore state.
- 5 Documentary on fire.
- 6 Documentary on infrastructure of government (villages, to Panchayats, to Taluks, to districts, and to states).
- 7 Documentary on food, clothes, and shelter.
- 8 Documentary on our internal organs.

Table 2: Analysis of EVS Textbooks of III standard.

Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
I. Knowing myself	1	Who is More Important ?	<ul style="list-style-type: none"> <li>• Functions of different parts</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding among children</li> </ul>
	2	A Day in My Life		<ul style="list-style-type: none"> <li>• Plants and animals as sources of food.</li> <li>• Other products obtained from plants and animals</li> </ul>
	3	Me and My Friends	<ul style="list-style-type: none"> <li>• Living beings instead of human beings and living things.</li> </ul>	
II. We need them to live	4	Our Food		
	5	The Journey of Water	<ul style="list-style-type: none"> <li>• Transpiration, evaporation and precipitation</li> </ul>	<ul style="list-style-type: none"> <li>• Safe drinking water</li> <li>• Water conservation for future generations</li> <li>• Importance of wetlands (lakes, ponds, marshes, lagoons, estuaries, backwaters and mangrove swamps) as flood plains and natural defences against heavy rainfall.</li> <li>• Misuse of wetlands for construction of houses, industries, as cess pools for dumping of solid waste and hazardous materials to be avoided.</li> <li>• Wetlands as protected areas and the need for National Wetlands Act.</li> <li>• Importance of rivers and dams and reservoirs in water conservations.</li> <li>• Importance of linking rivers</li> <li>• Recycling and regeneration of water</li> </ul>
	6	How Essential is Water ?	<ul style="list-style-type: none"> <li>• Water is necessary for all living beings.</li> </ul>	
	7	How Clean is our Neighbourhood ?	<ul style="list-style-type: none"> <li>• Air pollution, water pollution, production of mosquitoes and flies through water pollution.</li> <li>• Vehicles produce air pollution</li> <li>• Water contamination through sewage and industries.</li> </ul>	

Table cont...

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Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
III. Our Neighbourhood	8	My Home and My Family	<ul style="list-style-type: none"> <li>Different kinds of shelters of different living beings in different parts of the world.</li> </ul>	<ul style="list-style-type: none"> <li>We need to live together for man is a gregarious animal.</li> <li>House is a shelter from the elements of nature.</li> </ul>
	9	Our Neighbours		<ul style="list-style-type: none"> <li>Parks are means of social interactions with others in our locality.</li> </ul>
	10	Working together		<ul style="list-style-type: none"> <li>Cooperation and tolerance and team work are essential for living in a society.</li> <li>Habits of hard work, cleaning, and repairing, etc.</li> </ul>
IV. Reaching Places	11	When the Garden Became a Classroom		<ul style="list-style-type: none"> <li>Teaching in an open area.</li> <li>Gardens are places where the beauty of nature is preserved.</li> </ul>
	12	Locating a place		<ul style="list-style-type: none"> <li>Landmarks of important cities in India.</li> <li>Historical landmarks</li> </ul>
	13	Road Safety Rules		<ul style="list-style-type: none"> <li>Road safety rules are followed to prevent accidents and to streamline and regulate traffic in big cities.</li> <li>Use of level crossings avoids accidents.</li> <li>Following traffic rules avoids accidents.</li> </ul>
	14	Means of Transport		<ul style="list-style-type: none"> <li>Transport helps in transferring goods from one place to another</li> <li>Transport helps us in traveling to various places.</li> </ul>

Table cont...

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Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
V. Too far Too Near	15	Story of the Wheel	<ul style="list-style-type: none"> <li>Pulley is a means of lifting heavy loads and drawing water from wells.</li> <li>Wheels are modes of transport and are used in many machines.</li> </ul>	<ul style="list-style-type: none"> <li>Wheels are necessary for vehicles.</li> <li>Wheel is a part of a vehicle.</li> <li>Wheel is used in machines.</li> <li>Wheel helps in running windmills generating electricity from water.</li> </ul>
	16	Means of communication	<ul style="list-style-type: none"> <li>Radio waves</li> <li>Morse code for telegrams.</li> <li>INSAT for TV relays and dish antennae.</li> </ul>	<ul style="list-style-type: none"> <li>Conversation over phones.</li> <li>Teleconferencing/e-mails, video-chart</li> </ul>
	17	The Earth and the Sky	<ul style="list-style-type: none"> <li>Eclipse – Solar / Lunar.</li> <li>Tides in the sea.</li> <li>Change of seasons</li> <li>Different layers of atmosphere and their importance.</li> <li>Important planets</li> <li>The Solar System</li> <li>Some important star constellations in the sky</li> </ul>	<ul style="list-style-type: none"> <li>Festivals Id-Muharram, worship of Sun.</li> <li>Map of the Earth</li> <li>Countries and continents of the world</li> <li>Physiological features</li> <li>Important mountains of the world</li> <li>Other landscape features of earth.</li> <li>Importance of Purnima in Indian festivals</li> <li>Sky watching at night.</li> </ul>
VI. Different but Beautiful	18	Our Festivals	<ul style="list-style-type: none"> <li>Composition of Gulal or holi colour</li> </ul>	<ul style="list-style-type: none"> <li>Regionwise / statewide list of important festivals on a yearly calendar to be included at the end of the text.</li> <li>Patriotic values.</li> </ul>
	19	Changing Weather and Our Dress	<ul style="list-style-type: none"> <li>Where are cotton, wool, nylon and other rubberised fabrics obtained from?</li> </ul>	<ul style="list-style-type: none"> <li>Our needs are met by nature in terms of shelter, food and clothing – therefore, the need to preserve environment.</li> </ul>

Table 3: Analysis of EVS Textbooks of IV standard.

Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
I. We and Our Surrounding	1	Living Beings and Non-living things		<ul style="list-style-type: none"> <li>How foreign bodies like germs enter the system through breathing, speaking, etc.</li> </ul>
	2	Our Internal Organs		
	3		<ul style="list-style-type: none"> <li>Sources of water</li> </ul>	
II. Our Needs	4	The Story of a Shirt	<ul style="list-style-type: none"> <li>Other types of clothes like synthetic clothes and their uses.</li> <li>Sources of different types of cloth materials.</li> </ul>	<ul style="list-style-type: none"> <li>Inter-dependence of plants and animals.</li> <li>How different types of clothes are to be washed, stored and preserved?</li> </ul>
	5	Home Sweet Home	<ul style="list-style-type: none"> <li>A list of materials used for making houses.</li> <li>The earth is our home. Different types of houses exists all over the world.</li> </ul>	<ul style="list-style-type: none"> <li>Different climates require construction of houses with different kinds of materials.</li> </ul>
	6	How wonderful is Air !	<ul style="list-style-type: none"> <li>Food and air are given to us by plants.</li> <li>Air is needed for breathing and gives energy by breaking down food.</li> <li>Air is needed for food production, digestion and other metabolic activities of living beings.</li> </ul>	<ul style="list-style-type: none"> <li>Grow more trees, keep environment clean and get more food.</li> <li>Conserve the plants to save the environment.</li> </ul>
			<ul style="list-style-type: none"> <li>Different types of sources of water.</li> <li>Soil types in India.</li> <li>Sources of fuels.</li> </ul>	<ul style="list-style-type: none"> <li>Population increase and decrease in resources.</li> <li>Different types of cooking vessels – ancient and modern. (pictures)</li> </ul>
				<ul style="list-style-type: none"> <li>Days and nights give rise to the 24-hour day of the calendar.</li> <li>Days and nights govern our lives.</li> </ul>
III. Natural Resources and Phenomena	7	Natural Resources and their Importance		
	8	How are days and nights formed ?		

Table cont...

Cont. Table...

Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
IV. Institution that serve us	9	My Village		<ul style="list-style-type: none"> <li>Cleanliness of the environment is maintained in villages.</li> <li>One should not wash clothes near a well.</li> </ul>
	10	Municipal Committee	<ul style="list-style-type: none"> <li>Concept of metropolis</li> </ul>	<ul style="list-style-type: none"> <li>Concept of tax</li> <li>Why is tax collected ?</li> <li>What purpose does tax collection serve ?</li> </ul>
	11	Our School		<ul style="list-style-type: none"> <li>Introduction of Panchsheel and stories exemplifying these values.</li> </ul>
	12	Mahatma Gandhi		<ul style="list-style-type: none"> <li>Value of equality of religions and dignity of labour.</li> </ul>
	13	Rani Gidini		<ul style="list-style-type: none"> <li>Celebration of Gandhi's birthday</li> </ul>
V. Some Great People	14	Jagdish Chandra Bose		<ul style="list-style-type: none"> <li>Concept of patriotism and concepts of sacrifice and courage.</li> </ul>
	15	Abdul Hameed		
	16	The Story of Fire	<ul style="list-style-type: none"> <li>Fire in volcanoes</li> <li>Formation and constitution of lava</li> <li>Lightening – how it occurs</li> <li>How lightening causes fire</li> </ul>	<ul style="list-style-type: none"> <li>One should not play with fire</li> <li>Fire can be put out with water</li> <li>Save yourselves from burns with blankets</li> <li>First aid for fire</li> <li>Role of fire extinguishers</li> <li>Inflammable appliances in houses</li> </ul>
VI. Changes: Why and How	17	The Shrinking World	<ul style="list-style-type: none"> <li>Subscribers' trunk dialing</li> <li>Receive and send messages through radio waves via satellites</li> <li>Satellite pictures and weather forecast</li> </ul>	<ul style="list-style-type: none"> <li>Computer, internet and satellites</li> <li>How are satellites launched ?</li> <li>How the Internet has facilitated communication?</li> <li>e-mail</li> <li>Video-chat</li> <li>Video-conferencing</li> <li>Visit to a telegraph office, radio station, newspaper office, Doordarsan Kendra, etc.</li> <li>Travel by train, bus, aeroplane, boat, car, etc.</li> <li>Space stations, space vehicles, space shuttles and landing on moon and mars</li> <li>Astronauts</li> <li>Rocket – launching</li> <li>Visit to a telegraph office, radio-station, Doordarsan Kendra, newspaper office, etc.</li> </ul>
	18	The Wright Brothers		<ul style="list-style-type: none"> <li>Birds fly because of their stream-lined bodies and wings.</li> <li>An object with stream lined body and wings can be fitted to fly.</li> </ul>
VII. Unity in Diversity	19	A Trip Around Delhi		<ul style="list-style-type: none"> <li>Trip around Delhi.</li> </ul>
	20	When I visited my Nani		<ul style="list-style-type: none"> <li>Map of the country.</li> <li>Routes by train to important metropolises and cities in India.</li> </ul>
	21	Our Country India		<ul style="list-style-type: none"> <li>Map of India with physical and economical features.</li> <li>Truth wins.</li> </ul>

Table 4: Analysis of EVS Textbooks of V standard.

Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
	1	The Organ Systems of Our Body	<ul style="list-style-type: none"> <li>Length of intestines in units of measurement is 8 mts.</li> <li>Role of calcium in teeth formation.</li> </ul>	<ul style="list-style-type: none"> <li>Amount of food that can be contained in the stomach is 3 kgs.</li> </ul>
	2	The Bones and Muscles of Our Body	<ul style="list-style-type: none"> <li>Skeletal system should be kept straight as it gives shape to the body.</li> <li>Joints help us perform activities with hands; help us run, walk, climb with legs.</li> </ul>	
	3	Parts of a Plant and their Functions	<ul style="list-style-type: none"> <li>Different parts of plants perform different functions.</li> </ul>	
	4	Deficiency of Nutrients and its Effects	<ul style="list-style-type: none"> <li>Important primary food resources for us.</li> <li>Energy is derived from primary metabolites, carbohydrates, proteins and fats.</li> <li>Healthy habits to be developed</li> <li>Important vegetables and fruit sources of minerals and vitamins.</li> <li>Junk food, fast food and simple home meals</li> <li>Calorific value and its importance in diet.</li> <li>An ideal menu for the day for different agcs.</li> </ul>	<ul style="list-style-type: none"> <li>Availability of right food/ balanced diet to all.</li> <li>Fast foods and lack of health.</li> <li>Unplanned eating &amp; obesity</li> <li>Lack of exercises because of technology.</li> </ul>
	5	Communicable Diseases and their Prevention		<ul style="list-style-type: none"> <li>Population explosion to be controlled.</li> <li>Lack of Health Education</li> <li>Education, urbanisation and the related problems.</li> </ul>
	6	First Aid	<ul style="list-style-type: none"> <li>First aid boxes should be available and are necessary in classrooms, in houses and on trips.</li> </ul>	<ul style="list-style-type: none"> <li>Awareness of our health and that of others.</li> <li>Contribution to health awareness in different ways – what ways?</li> <li>Organization of health camps in schools.</li> </ul>

Table cont...

Cont. Table...

Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
	7	Our Health Services		
	8	Interdependence in environment	<ul style="list-style-type: none"> <li>List of effects of forest cover loss.</li> <li>List of effects of modern science and technology on environment.</li> <li>Dependence on elements of nature, namely air, water, soil, fire and space.</li> <li>Destruction of these five elements through man's activities causes pollution.</li> </ul>	<ul style="list-style-type: none"> <li>Users of environment should leave the air, water, land and space and fire sources clean and in a reusable form.</li> </ul>
	9	Natural Calamities	<ul style="list-style-type: none"> <li>One important calamity to be described in detail.</li> <li>Examples of important dense forests of the country.</li> </ul>	<ul style="list-style-type: none"> <li>How to organize an emergency save-o-save camp?</li> <li>Description of major floods, typhoons and earthquakes in the history of the country.</li> <li>Illustrations and facts on droughts and floods and earthquakes in recently affected States of the country.</li> </ul>
	10	Means of Transport and Communication – their impact	<ul style="list-style-type: none"> <li>Examples of areas with high degree of pollution.</li> <li>Vehicles and blaring loudspeakers cause noise pollution.</li> </ul>	<ul style="list-style-type: none"> <li>Increased road accidents and their causes.</li> <li>Pollution by different elements can cause tremendous damage.</li> <li>Emission check test of vehicles.</li> <li>Pollution in important cities.</li> </ul>
	11	Force, Work and Energy	<ul style="list-style-type: none"> <li>Solar energy</li> <li>Wind energy</li> <li>Petroleum yielding plants.</li> <li>Origin of coal and petrol reserves</li> <li>Formation of waves in the sea and the fall of objects.</li> </ul>	<ul style="list-style-type: none"> <li>Effect of coal mining on landscape.</li> <li>Magnet inside the earth and movement of the compass needle.</li> <li>Use of magnet for navigation by road, sea and air.</li> </ul>
	12	Simple Machines	<ul style="list-style-type: none"> <li>Concept of force, weight and energy in simple machines.</li> <li>Concept of a lever.</li> <li>Working principles of simple machines at home.</li> </ul>	<ul style="list-style-type: none"> <li>What are the machines we use today ?</li> <li>List of machines in daily life (or pictures).</li> <li>Overdependence on machines and gadgets reduces man's physical skills.</li> </ul>

Table cont...



Cont. Table...

Unit No.	Lesson No.	Title	Concepts lacking	
			EVS	Socio-cultural
	13	Microscope	<ul style="list-style-type: none"> <li>Viewing through the microscope, binoculars and telescope.</li> <li>Reflection and Refraction of light.</li> <li>Formation of images in the eye through microscope.</li> </ul>	<ul style="list-style-type: none"> <li>Vision with naked eyes is limited.</li> <li>Distant planets and objects in the sky cannot be seen with naked eyes.</li> <li>Viewing a solar eclipse</li> </ul>
	14	Our country – Its Surface	<ul style="list-style-type: none"> <li>Definition of mountains and plains and rivers.</li> <li>Flora and fauna in different parts of India.</li> </ul>	<ul style="list-style-type: none"> <li>Dresses and food in mountain areas, coastal areas, plains and deserts.</li> <li>Dresses, food, housing and weather conditions in different parts of our country and the world.</li> <li>Study of maps of different countries.</li> </ul>
	15	The Story of Freedom Struggle (Part I) The Story of Freedom Struggle (Part II)	<ul style="list-style-type: none"> <li>Map of the world.</li> </ul>	<ul style="list-style-type: none"> <li>Countries under British Rule.</li> <li>The Sun never sets in the British Empire. Why?</li> <li>Datewise calendar of freedom struggle events.</li> <li>Awareness of how India became poor through foreign invasions and how we reclaimed our lost status.</li> </ul>
	16	The Story of Freedom Struggle (Part III) How do We Govern Ourselves ? – I		<ul style="list-style-type: none"> <li>How to conduct mock Parliament sessions?</li> <li>How to conduct mock government sessions in the classroom?</li> <li>How to conduct an assembly?</li> <li>How to conduct a Parliament?</li> <li>Different forms of governments in the world.</li> </ul>
	17	How do We Govern Ourselves ? – II India and the World		<ul style="list-style-type: none"> <li>List of different countries of the world.</li> <li>Location of countries on the map and their capitals.</li> </ul>
	18	Sushruta		
	19	Raja Ram Mohan Roy		
	20	M.S. Subbalakshmi	<ul style="list-style-type: none"> <li>Scientific background for beliefs ?</li> <li>Does music create vibrations in the atmosphere?</li> </ul>	<ul style="list-style-type: none"> <li>Bad practices of society.</li> <li>Beneficial effects of music for the mind, body and soul.</li> </ul>
	21	Sare Jahan Se Acha Hindustan Hamara		<ul style="list-style-type: none"> <li>We should love and preserve the beauty and culture of our country and preserve its richness in all its varied forms.</li> <li>Among all countries of the world, India is richest in all its features.</li> <li>Languages and literature of India.</li> </ul>

### V Standard

- 1 Documentary on structure of plant body and structure of human body.
- 2 Documentary on nutrients and kinds of food.
- 3 Documentary on common diseases and their prevention.
- 4 Documentary on national calamities and how to face them.
- 5 Documentary on machines
- 6 Documentary on freedom struggle (with special reference to Mysore).
- 7 Documentary on how the government runs.
- 8 Documentary on the world (important places, languages, customs, etc.)
- 9 Documentary on individuals who have enriched our culture (from the locality).

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