

ENVIRONMENTAL STUDIES

ENVIRONMENTAL STUDIES
CLASSES III TO V

Introduction: Teaching of Environmental Studies

The National Curriculum Committee had recommended in the 1975 policy document “The Curriculum for the Ten-year School: A Framework”, that a single subject ‘Environmental Studies’ be taught at the primary stage. It had proposed that in the first two years (Class I-II) Environmental Studies will look at both the natural and the social environment, while in Classes III-V there would be separate portions for social studies and general science termed as EVS Part I and Part II. The National Policy on Education 1986 and the National Curriculum Framework (NCF) 1988 also posited the same approach for the teaching of Environmental Studies at the primary stage. Contemporary research on how children learn to make sense of the world around them and how pedagogy in primary school can enable them to develop scientific abilities and understanding in consonance with social and environmental concerns has further supported this integrated structure. The NCF 2000 had recommended that Environmental Studies be taught as an integrated course for the entire primary stage, instead of in two distinct parts devoted to science and social studies in Classes III-V. The present NCF 2005 has called for the continuation and further strengthening of this integrated approach for Environmental Studies during the primary years.

NCF 2005 and Objectives of Environmental Studies

The present syllabus is designed to forge an integrated perspective for the primary stage of schooling that draws upon insights from Sciences, Social Sciences and Environmental Education. The National Curriculum Framework 2005 indicates some of the objectives of teaching science and Social Sciences at the primary stage as follows:

- to train children to locate and comprehend relationships between the natural, social and cultural environment;
- to develop an understanding based on observation and illustration, drawn from lived experiences and physical, biological, social and cultural aspects of life, rather than abstractions;
- to create cognitive capacity and resourcefulness to make the child curious about social phenomena, starting with the family and moving on to wider spaces;
- to nurture the curiosity and creativity of the child particularly in relation to the natural environment (including artifacts and people);
- to develop an awareness about environmental issues;
- to engage the child in exploratory and hands-on activities to acquire 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;
- to be able to critically address gender concerns and issues of marginalisation and oppression with values of equality and justice, and respect for human dignity and rights.

Integrating ‘Subjects’ or Forging a New Understanding?

What do we understand by General Science and Social Sciences? When we think of these ‘subjects’ in school we clearly have in mind some body of knowledge and also typical ways of acquiring that knowledge that we associate with each of them. These school subjects have evolved through their own complicated histories and are today quite different from the way sciences or social sciences are practiced in the real world of specialized disciplines, such as physics, zoology, chemistry, molecular biology, history, sociology, geography, economics, political science, etc. So what happens when groups of specialists sit down to discuss what should be taught at the primary level? They naturally tend to think of ‘topics’ that have traditionally served as the bases of their own different disciplines. Thus biologists (if we can use that term to somehow bring together botanists and zoologists!) would naturally propose a study of plants, animals or the human body, whereas physicists would think of sound, light, force and work, while chemists would propose studying forms of matter, properties of substances, etc. Add to this the different disciplines under the rubric of Social Sciences and we soon end up with a confounding platter of topics, which are not necessarily ‘integratable’, and are neither close to the way the child relates to her world.

Most primary school curricula working on an integrated approach therefore do not proceed with lists of ‘topics’ from different ‘subjects’ but instead propose ‘themes’ that allow for a connected and inter-related understanding to develop. This requires moving beyond traditional boundaries of disciplines and looking at priorities in a shared way. This approach has been followed for the present syllabus. Several themes were discussed to see what possibilities each of them offers, to bring together insights from different disciplines, in an interconnected manner that is basically child centered. For each theme a web of possible connections was drawn up, of concepts and skills, to explore how that may be developed over the primary years. Specialists from several different disciplines of sciences, social sciences, pedagogy, gender studies, child development, curriculum studies, etc. discussed the possibilities of the proposed themes, pointed out the gaps, and debated on the priorities for a child centered approach. It is clear that there is no single format that can offer a uniquely satisfactory elaboration of ideas for primary school and this syllabus too makes no such claim.

This is not a prescriptive but instead a suggestive format, which indicates the key themes and sub-themes along with their possible connections. It consciously begins with *key questions* rather than key concepts, which can trigger the child’s thinking in new directions and provide scaffolding to her learning process. This format is meant to help textbook writers, teachers and parents to appreciate the immense possibilities and the depth of children’s understanding. It also indicates how adults can stimulate and actively support children’s learning, rather than restrict or throttle it, as often happens when children are forced to memorise information they just cannot understand.

Themes for a Child Centered and Integrated Approach

This syllabus web has been developed within a child centered perspective of themes that provide a common interface of issues in social studies, sciences and environmental education. The syllabus for Classes III-V is woven around six common themes given below; the predominant theme on 'Family and Friends' encompasses four sub-themes:

1. Family and Friends:
 - 1.1 Relationships;
 - 1.2 Work and Play;
 - 1.3 Animals;
 - 1.4 Plants
2. Food;
3. Shelter;
4. Water;
5. Travel;
6. Things We Make and Do



The syllabus web moves outward over the three years; it gradually extends the child's understanding of her world, beginning from the immediate 'self' to include her family, the neighbourhood, the locality and also the country. Thus by the time the child reaches Class V, she is able to see her 'self' in the larger context – as part of a community, the country and also, more tacitly, as located in this world. Indeed, in some flights of fancy the syllabus even goads the young child to ride on a spacecraft and leap beyond the earth, into outer space, that may yet not be comprehensible but is certainly fascinating for her.

Thus, for instance, the theme on '**Food**' begins in Class III with '**cooking**', '**eating in the family**', about what we eat and what others eat, what animals eat, etc. It then moves on in Class IV to how food is grown, what different plants they may have seen, how food reaches us, etc. In Class V children discuss who grows it, the hardships farmers may face, while staying grounded to the reality of our own pangs of hunger or the plight of people who do not get food. In addition, '**when food gets spoilt**' explores spoilage and preservation of food, while changes in food habits and the crops grown are analysed through the experiences of elders/grandparents. Finally '**our mouth - tastes and even digests food**' sees how the saliva makes food taste sweet on chewing, while '**food for plants?**' also introduces the idea of some curious insect eating plants.

The theme on '**Travel**' was developed to help the child on this journey of ideas, of expanding social and physical spaces, into newer and unfamiliar terrains of often mind-boggling and no less fascinating diversity. In Class III the theme encourages children to look at their own journeys, if any, and to see how older people in their family may have traveled in earlier times, as they also hear of accounts of how people travel today in a desert, through forests, in the hills, or in big cities. Moreover, it also suggests a story as a 'resource', to bring into the classroom the experiences of a child of a migrating family and the problems she faces in the process of her schooling. Such narratives suggested as 'resources' are meant to provide creative opportunities of bringing in experiences of other children/people, who may be very different, but whom children can relate

to. This can be done through stories, posters, plays, films, and other media. In Class V the theme 'Travel' takes children through the '**rough and tough**' terrain of the Himalayas with, perhaps, the story of Bachhendri Pal, who hoists the national flag after a trying expedition, while they can also be encouraged to design a flag for their own school.

This theme also takes them on a '**ride on a spacecraft**' into space, from where for the first time they see the aerial view of the earth, and being no less than a Rakesh Sharma or a Kalpana Chawla, each child is asked to give an interview to the Prime Minister of India about what they see from there!. The exercise of looking at aerial views is developed through different views of school, where different perspectives get introduced. It is linked to the concept of mapping, which they begin in Class III through a basic two-dimensional representation of their classroom, and by the time they reach Class V they can read and draw simple aerial views of their locality or city.

'Plants' and 'Animals' as Part of the Theme 'Family and Friends'

'Plants' and 'Animals' have consciously been included under the theme of '**Family and Friends**' to highlight how humans share a close relationship with them and to also provide a holistic and integrated scientific and social perspective of studying them. Traditionally 'plants' or 'animals' are presented as autonomous categories, seen purely from the perspective of science. Here an attempt is made to locate them in a social and cultural context, and also to see how the lives and livelihoods of some communities, such as the gujjars, musahars or 'pattal'-makers, are closely connected with specific animals or plants. Moreover, in the universe of young children narratives of animals and plants play a significant role, and they can relate well even to the animated characters perceived as 'family and friends'.

It is a challenge to transcend conventional boundaries of scientific disciplines to try and relook at the notions of, say, 'plants', 'animals', 'food', or 'our body' from a child's perspective. In fact, some scientific categories are seen to be too formal and counter-intuitive, and perhaps even 'reductionist', for the child to understand. Conventionally biologists divide living things broadly into two categories 'plants' and 'animals'. The idea of 'plants' is considered simple enough to be presented in primary school along with 'parts of a plant', 'functions of the parts of the plant', etc. But why should this way of looking at a plant be considered more 'natural' or even desirable for a child? In fact, extensive research across the world has shown that young children find it too abstract to make a distinction between living and non-living, or to divide the living world between plants and animals. Despite considerable exposure to science teaching in several countries, children as old as 13-15 years have consistently believed that a tree is different from a plant, contradicting the conventional categories of biologists'. Children also systematically differentiate between plants and vegetables ('a carrot and cabbage are not plants'), or even between plants and weeds ('grass is not a plant'). Moreover, a majority of children do not naturally think of seeds as parts of a plant. This has led some primary school curricula to postpone these conventional categories and first allow space to children to explore their own intuitive ideas, in order to achieve a better understanding later of how science tends to classify them differently.

Taking cognisance of the way children think 'plants' are first introduced through the theme on '**Food**' – through what plants children eat, and also through the idea that we may eat the leaves, or

the stem, or seeds of different plants. In fact, this comes after a discussion on questions related to 'Which of the following is food? – red ants, birds' nest, goats' milk, etc. This is to sensitise them to the idea that what some of us take to be 'food' may not be so for others; that food is a deeply cultural notion. As discussed above, to allow for a more connected approach 'plants' is a sub-theme under the umbrella of 'Family and Friends'. Thus in Class III children look at the different '**plants around us**', at possible changes over time from when their parents were young, and also what things around them are made of plants. They are expected to talk to their parents and other elders around them, so that these discussions can act as scaffolding to their learning. This is also indicated in the activity column of the syllabus. Children in Class III also observe the shapes, colours, aroma, etc to see the diversity of '**leaves in our lives**', to talk of how plant leaves may be used to eat on, the times of the year when lots of leaves fall to the ground, which may be used to make compost, and also paint different leaf motifs they see on their pots, animals, clothes, walls, etc. In Class IV they look at '**flowers**' and flower sellers, and discuss '**whom trees belong to?**' while in Class V they move on to '**forests and forest people**', the notion of parks or sanctuaries, and also '**plants that have come from far**'. In this way they are enabled to construct a more holistically connected understanding, from a scientific, social, cultural and environmental perspective, that is enriched with an aesthetic and caring appreciation of plants around them.

Our Bodies, Ourselves: 'Family and Friends' offer Sensitivity and Sensibility

Similar to the case of 'plants' discussed above, traditionally 'our body' is also treated in a purely scientific and socially distanced manner, with units such as 'our senses', 'parts/organs of the body' and 'respiration', 'digestion', etc. However, the theme '**Family and Friends**', specially through its two sub-themes **1.1 Relationships** and **1.2 Work and Play**, allows children to look at their own body as part of their 'self' in a more contextual and connected manner. In Class III in the sub-theme on **Relationships**, they discuss their relatives, who live with them and those who have moved away, to get a basic idea of relationships and changing households. They reflect on whom they admire among their relatives and for what qualities or skills, and describe on which occasions or festivals they meet most of them. The unit '**our bodies – old and young**' helps them place their own body in relation to those of their family members, and asks them to notice differences that may occur with age. More significantly, the rubric of the family provides a sense of intimacy and empathy, to help develop sensitivity towards people having different abilities/disabilities. For instance, they look at how some of their older family members may have difficulty in hearing or seeing, and then go on to discuss how they themselves or their friends may cope with such challenges.

In Class IV, the same sub-theme 'Relationships' has a unit on '**your mother as a child**' to make children find out about who were her relatives with whom she lived then. They also think about their body in relation to their mother's; how a baby rat or kitten is related to its mother, and through a possible narrative, about children who may have been adopted/looked after by foster parents, say, after a cyclone. By '**Feeling around with eyes shut**' they explore their senses of touch, smell, etc. - not in isolation of the people or animals they care for - but by trying to identify all those living with them only by touching, hearing or smelling them. They continue the exploration

of feeling what is smooth/rough, hot/cold, wet/dry, sticky/slippery, etc. and are asked to think if there are some things (or people) they are not allowed to touch. This unit also attempts to make them sensitive to the fact that while touch can mean both a caress and a painful slap, the caress too can be a 'good' touch or a 'bad' touch.

In Class V, the unit '**Whom do I look like?**' helps them identify family resemblances, to look for any similarities in the face, voice, height, etc., and also to note particular traits such as '**who laughs the loudest?**'. It goes on to how by '**feeling to read**' on a Braille sheet, someone like Helen Keller could manage to overcome tremendous challenges, as described through accounts of her autobiography.

'Family and Friends' has another **sub-theme 1.2 'Work and Play'** through which they explore different patterns of activity when people are working and 'not-working' in their family and neighbourhood. This helps them to sensitively look at stereotyped gender roles, and to compare their own daily routine with that of a working child. It also allows them to analyse the games they play, to see how traditional games or toys have changed since the time their grandparents were young. In Class V this sub-theme looks at '**team games - your heroes**' and also martial arts or wrestlers and how they are trained. An exploration of our bodies and the process of respiration naturally falls into this context, and in '**blow hot blow cold**' they compare how much faster they breathe after a run. They also see how much they can expand their chest, how they blow on a glass to make it cloudy, and blow to warm their cold hands and also to cool something hot. As suggested this unit could make use of the beautiful story by Dr. Zakir Hussain, '**Usee Se Thanda Usee Se Garam**' as a resource. The unit '**clean work, dirty work**' sensitizes them to the dignity of labour and how different people's work provides essential services to society, possibly through a narrative/story based on Gandhi's work.

Things we Make and Do

The area of **Things we Make and Do** is visualised as an important component as well as a common thread inherent in the process of understanding all the other themes. We humans make things not only to meet our needs but also to express ourselves in a variety of ways and to transcend our limitations. We also comprehend better when we do things ourselves. Often when a young child gets a toy for a gift, she has fun dismantling and later re-assembling it in a completely novel way as much as enjoying it as it is. When she is given a new book she is eager to add 'her pictures' into it as much as appreciating the book. Formal education as well as all that goes into 'being a good child' however discourages these acts. The theme of Things we Make and Do therefore is an opportunity to recharge the variety of energies/components that make learning more fulfilling, and where cognition is not an end but a process enriched by experience, failure, observation, success, etc. There is also a need to give our rich living traditions of art and craft, of 'making and doing things', their rightful place in our curricula.

Another aspect related with this theme is to understand the significance of design and technology in relation to science and society. Technology is not merely applied science; it has an independent existence and in many cases predates



developments in science. Moreover, most of the things we make and do also depend on raw materials and interventions that impact the earth and life on earth.

This theme will also help address the issue of dignity of physical labour. A young child loves sweeping, wanting to help the mother in the household chores, loves fiddling with any electrical appliance within her reach. However, she soon begins to ascribe value to these things that she once enjoyed doing. Sweeping becomes dirty, and to be done by servants or women in the house, fiddling with implements becomes an area reserved for men and boys. In short work becomes a way to segregate people, to judge them, to ascribe it to a particular gender, class or caste. Mahatma Gandhi's vision and plan of 'Basic Education' had the potential to overcome these fractures. The present syllabus takes a small step in that direction, while encompassing contemporary concerns relating to environmental education, social relations with a vision for sustainable development and appropriate technologies

It needs to be emphasised that the syllabus has consciously included key questions that openly address issues of inequality or difference and encourage children to think critically. Whether it is about social discrimination in school or in getting water, about physically challenged people, or working children, all these issues are part of the reality of children, especially those who are disadvantaged and therefore more vulnerable to be pushed out of school. The objectives clearly stress the need to enable children to articulate and critically reflect on these lived experiences, however unpleasant, and not promote a culture of evasion or silence in school. This calls for a specially sensitive approach in textbooks as well as in the teaching learning process in classrooms, and teachers will need to review how they can do justice to these questions.

Scaffolding Children's Learning: The Question Format of the Syllabus

Since the 1970s the philosophy of primary education in different countries, including ours, has been influenced by the Chinese saying "I do, I understand". This lays emphasis on the principle of 'learning by doing', which suggests that learners actively construct their understanding while directly interacting with their environment. However, this model of learning looks at each learner as a solitary individual – it is the "I" who is trying to understand, struggling to develop each concept. This approach is associated with the 'cognitive constructivist psychology' of Piaget, and implies that teachers can only provide a stimulating environment for children to develop. This also suggests that children need to be nurtured individually like delicate plants, as they develop naturally through successive stages of intellectual development. However, in the last few decades it has been increasingly seen that children do not learn alone, through interaction with the environment, but learn more through talking and discussing with other people, both adults and other children. This psychological approach known as 'social constructivism' has been influenced by the work of Vygotsky and Bruner, who showed that adult support is crucial to children's thinking. With an appropriate question or suggestion the child's understanding can be extended far beyond the point which she could have reached alone. In fact, it has been shown that through the 'scaffolding' provided by such questions, discussions, and adult support, the child can be helped to cross what is called 'the zone of proximal development' to leap to the next level of understanding.

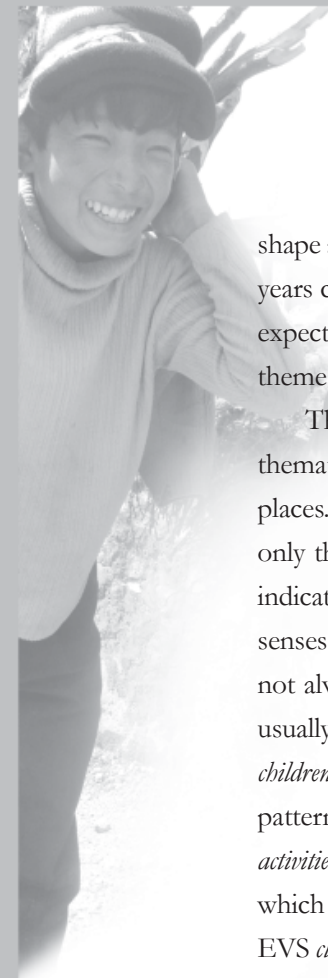
The present syllabus is framed within this social constructivist perspective of learning. It is hoped that children will be supported to construct knowledge far beyond their individual abilities

through appropriate questions and interventions, including discussions with adults, in school and also at home, as also among themselves. *Instead of listing key concepts the syllabus begins by suggesting some key questions, framed in a language appropriate to stimulate the thinking of a child that age.* These are not meant to be questions of the textbook but are suggestive of the nature of scaffolding to be provided to help children think in certain directions. This is especially important to help children articulate their own ideas, for instance, in the case of what they understand by the term ‘plants’ or ‘animals’. Textbooks written in different contexts and regions will be different and indeed must reflect their own specific concerns. However, such questions are important for textbook writers to know how to guide children to observe, compare, predict or analyse certain phenomena or processes. For instance, in the theme on Food, there is a question “Who provides us the Mid-day Meal?” This is a leading question to encourage children to begin thinking about the agencies and institutions who provide certain services, beyond the concrete observation of the particular person. Thus as they begin to think about the post office or the school or hospital as institutions, it will help them in developing the abstract concept about the notion of governance or ‘government’, which they normally encounter later usually in the form of statements or information that they are totally unable to comprehend. Thus when appropriate connections and linkages are made in the child’s mind about her own immediate experiences she is enabled to understand more abstract or sophisticated concepts and arguments later.

The matrix of each theme contains leading questions and key concepts and also suggested resources and activities. As the name indicates, these are purely suggestive for teachers and textbook writers, to give an idea of how the particular theme can be dealt with. It is clear that different textbooks based on this syllabus structure can turn out to be very diverse in terms of the elaboration of the themes. Just as every structure must have its own foundations and its own stability, similarly each child ultimately needs to construct her *own* understanding, articulation, knowledge and skills. We do know that children are not blank slates or empty vessels to be filled by ‘information’ about carefully listed key concepts, and that they cannot learn by passively listening to adults, however expressive they may be. This is the basic problem of our traditional system which relies on giving ‘information’, justified on whatever grounds, but without caring to know about the possible zone of the child’s development. Indeed there is no getting away from this: If children have to understand an idea they have to construct knowledge for themselves, which can happen when they get the right cues to connect new understanding with what they already possess. This syllabus identifies those cues that will help children connect with their varied knowledge systems. Our children do indeed know and can learn a lot; it is our responsibility to help them do it better.

What Learning Do We Expect?

How can Environmental Studies help *all* our children, all those who struggle to go to school, and even all those who still cannot do so; those for whom the main purpose in life is going to school, as well as those who aspire for a school that can support life, with meaning and dignity? This document gives a suggestive matrix of themes and sub-themes through the three years of Classes III-V. It is up to the teachers and textbook writers to translate this into books, materials and classroom activities, to



shape an enabling *learning environment* for each child, wherever she may be located. Even in the earlier years children do learn about their environment, though there is no separate subject in school. It is expected that in Classes I-II the two subjects of Language and Mathematics will incorporate some themes for the development of concepts and skills in areas broadly related to EVS.

This syllabus format consciously does not spell out any outcomes for each theme. For each thematic area related key concepts, skills and activities have been clearly indicated at appropriate places. However, schools must ensure that these activities or discussions will be conducted because only then can it be ensured that learning will happen. For instance, at several places the activities indicate that children need to conduct specific observations. We know that even young children's senses are sharp and they are able to detect small differences between fairly similar objects, though not always the similarities. However, the purpose of conducting 'observation' activities in EVS is usually not to collect random similarities or differences, but to *seek information from the object to extend children's ideas and understanding*. For instance, to look specifically at the shapes of leaves, the edges, the patterns of lines in it, etc. to know more about them. Thus *specific purposes will need to be spelt out when activities are designed*. Similarly, young children ask many questions which help in their development, but which are not all deep, and which do not allow them to understand things at that stage. However, *EVS classrooms will need to provide opportunities to children to be able to progressively ask higher order questions* that require different levels of reasoning and investigation, by planned activities and exercises to get them to phrase their questions, to answer, discuss and investigate them. These are basic to the learning process in EVS and yet, unfortunately, most classrooms are not designed to ensure this. How then can we expect all children to learn? What then does it mean to specify any outcomes at this point?

We reiterate the purpose in drafting this syllabus through the following example:


What biology do students know?

Janabai lives in a small hamlet in the Sahyadri hills. She helps her parents in their seasonal work of rice and 'tuar' farming. She sometimes accompanies her brother in taking the goats to graze. She has helped bring up her younger sister. Nowadays she walks 8 km everyday to attend the nearest secondary school.

She maintains intimate links with her natural environment. She has used different plants as sources of food, medicines, fuel wood, dyes, and building materials; she has observed parts of different plants used for household purposes, religious rituals and in celebrating festivals. She recognises minute differences between trees, and notices seasonal changes based on shape, size, distribution of leaves and flowers, smells and textures. She can identify about a hundred different types of plants around her, many times more than her biology teacher can – the same teacher who believes Janabai is a poor student; that "These students don't understand science ... they come from a deprived background!"

Can we help Janabai translate her rich understanding into formal concepts of biology? Can we convince her that school science is not about some abstract world coded in long texts and difficult language: it is about the farm she works on, the animals she knows and takes care of, the woods that she walks through everyday? (*National Curriculum Framework 2005, p. 45*)

CLASS III
ENVIRONMENTAL STUDIES

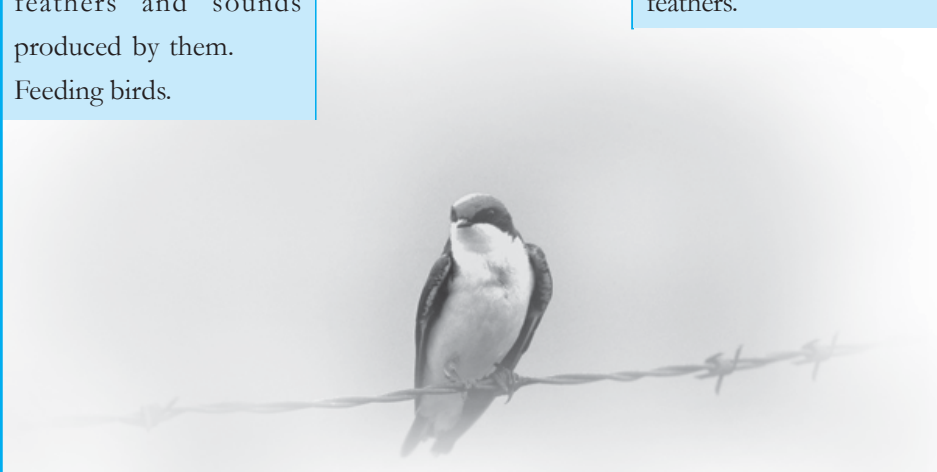
| Questions | Key Concepts/ Issues | Suggested Resources | Suggested Activities |
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| <p>1. Family and Friends</p> <p>1.1 RELATIONSHIPS</p> <p><i>My family</i></p> <p>Who all live with you at home? How are they related to each other? Do you have relatives who do not live with you? Have they always been there? How many children did your grand parents have? Who do you think will be your new relatives in future?</p> <p><i>My family and me</i></p> <p>Do you look like anybody in your family? Have you learnt anything from anybody in your family? Whom do you admire most among all your relatives? Who is the most caring and patient person? When do you meet members of your family who do not live with you?</p> <p><i>Whom do I look like?</i></p> <p>Do some of your relatives look similar? Which features are similar – eyes, ears, the voice or</p> | <p>Concept of a family; diversity in family types; Family as a support system, Ideas about relationships; Simple family tree (three generations).</p> <p>Family influences – physical characteristics, values and habits, appreciating qualities and skills of family members; family as a support system.</p> <p>Concept of similarity between relations, hereditary features.</p> | <p>Child's daily life experience; Family members.</p>  <p>Family members, local knowledge, story/poems on different festivals.</p> <p>Family photographs; Narrations by elders about family members when they were young.</p> | <p>Observation, enquiry about family relations from adults, discussion.</p> <p>Observation, exploring from elders about extended family, narrating stories/singing poems related to festivals, writing about any festival, drawing.</p> <p>Discussion About stories/ films/jokes involving twins</p> |

| Questions | Key Concepts/ Issues | Suggested Resources | Suggested Activities |
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| <p>height? Are there any two people in your family who look exactly alike?</p> <p><i>Old and the physically challenged</i></p> <p>Do you know of people who are hard of hearing? Are many of them old? Do you have any friends who cannot hear/see well? Is there any way in which you may have helped them? Are there any sounds you like but others/elders do not?</p> <p>1.2 PLANTS <i>Plants around us</i></p> <p>How many different kinds of plants do you see around you? What are the differences you notice? What things around you are made of plants? Is there a plant in your area that was not there when your grandparents were young? Do you know of some plants which do not grow around you, say things that we eat and not grown around you?</p> | <p>Sensitivity to the old and physically challenged; Introduction to the sense of hearing and sight; sensitization to the fact that the body ages, also that some children may not hear /see at all or may be partially affected. Basic idea about Braille.</p> <p>Exploring children's ideas about a 'plant'. Plant diversity; size, where they grow, shape, colour, aroma, etc.; dependence on plants for everyday life. Introduction of new plants/crops and changes observed by elders over time. Plants and the climate/environment.</p> | <p><i>"Meri baben sun nahin sakti"</i> a book by Bharat Vigyan Samiti or any other material on differently abled children.</p> <p>Child's daily life experience, observation, information from grandparents/ elders, a sample/picture of a plant which is unusual in the local surroundings.</p> | <p>Reading and discussion; Making different kinds of sounds and expressing likes and dislikes about them.; blindfold act, visiting any local institution that deals with the blind or any other institution.</p> <p>Observation of different plants around, compare and classification based on simple characters; Discussion about things made of plants, pencil prints of barks, leaf prints.</p> |



| Questions | Key Concepts/ Issues | Suggested Resources | Suggested Activities |
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| <p><i>Leaves in our lives</i></p> <p>What different kinds of leaves do you see? Do you use plant leaves to eat on? In what other ways are leaves used?</p> <p>Is there some time of the year when lots of leaves fall to the ground? Are they burnt? Have you seen a compost pit?</p> <p>What leaf motifs do you find on clothes, pots, walls, animals, etc.? Do you decorate your house with leaves on some occasions?</p> | <p>Leaf diversity – colour, shape, texture, aroma, etc.</p> <p>Seasonal shedding of leaves; compost from leaves.</p> <p>Leaf designs/motifs on different objects.</p> | <p>Child’s daily life experience, observation, a story on a compost pit.</p> | <p>Observation, collection of different leaves, smelling different plant leaves, discussion, visit to a nearby compost pit, decorating the classroom with leaf motifs.</p> <p>Applying <i>mehndi</i> on palms in different designs.</p> |
| <p>1.3 ANIMALS</p> <p><i>Animals: small and big</i></p> <p>Which are the smallest and the biggest animals you have seen? Which have you only heard about? Which animals have tails? How many legs?</p> | <p>Exploring children’s ideas of an ‘animal’.</p> | <p>Child’s daily life experience, observation, stories/ poems on animals (NBT)</p> | <p>Observation of diversity of animals around you, listing, Discussion about what they eat, where they live relative size of animals they have seen, pictures in books, animals heard about. Drawing pictures of favourite animals.</p> |
| <p><i>Some creepy crawlies – and flyers too</i></p> <p>What different kinds of small crawling animals do you know? Where and from what does each of</p> | <p>Exploring children’s ideas of crawling animals, flyers and insects.</p> | <p>Child’s daily life experience, observation, stories/ poems on insects, flyers and crawling</p> | <p>Observation, of ants, flies, spiders, crickets, cockroaches, earthworms, lizards and other animals.</p> |

| Questions | Key Concepts/ Issues | Suggested Resources | Suggested Activities |
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| <p>them hide? Which insects can crawl and also fly? Which ones bite us? Can flies make us ill? Why does a spider make a web?</p> <p>Birds</p> <p>Which are the birds you see around your area? Do they like some trees more than others? What do they eat? Can you recognize birds by their feathers? What are the different sounds they make? Are they saying something to each other? Are there some birds that come from other places? Do you feed any birds or place water for them?</p> | <p>Exploring children's ideas of birds-their living places, eating habits, common features like feathers and sounds produced by them.</p> <p>Feeding birds.</p> | <p>animals (NBT)</p> <p>Child's daily life experience, observation, stories/ poems on birds (NBT)</p> | <p>Discussion about them, where they live, what they eat, insect bites (wasp) etc. Drawing some of them.</p> <p>Drawings of birds; mimicking different neck movements and sounds of birds, collecting feathers.</p> |
| <p>1.4 WORK AND PLAY</p> <p>Work around me</p> <p>What are the different kinds of work done around me? What work does my mother/ father/ brother/ sister etc. do? What work do I do? What work do others do? When I am not working what do I do? When my father/ mother is not working what do they do?</p> | <p>Different occupations, idea of working time and leisure time; work inside and outside homes – gender, age, caste, economic, etc. aspects.</p> | <p>Poem 'Home work' by Shyam Bahadur Namra</p> <p><i>Case study:</i> time chart of the daily routine of a child who does a lot of housework</p> | <p>Draw a daily time-chart for your father, mother and yourself, discussion.</p> |



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| <p>Working children</p> <p>What kind of work was done by children when your grandparents were young? Has that changed today? Who are the children you know who work and go to school/ who work and cannot go to school?</p> | <p>Sensitize children to other children who work at home and outside - not as a result of family neglect but more as a systemic cause.</p> <p>Important that all children go to school.</p> <p>A sense of how child labour existed in other countries before all children began to go to good common schools.</p> | <p>Excerpt from story by Charles Dickens.</p> <p>Narrative describing a poor child's/child laborers experience in a common school in another country.</p> | <p>Reading and listening to the story/excerpts.</p> <p>Discussion and narratives about children making firecrackers at Shivkashi., child workers at Dhabas and auto workshops.</p> |
| <p>Games we play</p> <p>What games do I play? Did my grandparents play the same games? Are these indoor/outdoor?</p> | <p>Leisure; games in school and outside, past and present; for some play is work</p> | <p>Traditional and local games; folk toys</p> | <p>Listing, classifying indoor and outdoor games.</p> |
| <p>2. Food</p> <p>Foods from plants and animals</p> <p>Which of these is food – red ants, bird's nests, snakes, bananas, goat's milk, etc.?</p> <p>What plants do you eat - what parts of the plant? What food do we take from animals?</p> | <p>Appreciation of cultural diversity in food; basic ideas about various plant used as food; food from animals.</p> | <p>Regional narratives and stories about 'unusual' foods mentioned.</p> | <p>Listing and discussing about food we do or do not eat; tabulating food we take from different plants and animals. Observing and drawing different parts of plants eaten.</p> |
| <p>Cooking</p> <p>What do you eat that is not cooked? What is eaten</p> | <p>Food may be eaten raw or cooked - steamed,</p> | <p>Songs/poems on food or lack of food; local</p> | <p>Listing raw and cooked food; discussion on</p> |

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| <p>only when cooked? How do you cook food? What do you cook it on? What are the different kinds of vessels used for cooking? What are they made of? Is water used in all forms of cooking? Which food is cooked without using water? How?</p> <p><i>Eating in the family</i></p> <p>Do all members of the family eat the same food in your family? Who eats more? Who eats last in your family? Who buys the food and what is bought from the market? Who cooks the food in your family? What do babies have for food? When do babies start eating and what do they eat other than milk?</p> <p><i>What animals eat</i></p> <p>Do animals eat the same things? What do different animals eat? Do you feed the animals around you - what? What do they take from your house even when not fed?</p> | <p>boiled, baked, fried etc.; Different fuels, types of stoves; Types of vessels used in cooking, different shapes (regional/traditional), different materials, etc.</p> <p>Different eating practices in the family. Amount of food varying with gender, age, physical activity, etc. Cooking and gender/caste roles in the family; Food for the baby, significance of milk.</p> <p>Food of domestic and wild animals; care of domestic animals.</p> | <p>knowledge about what is edible; photographs.</p> <p>Everyday experience, local knowledge. Poems/illustrations on gender stereotyping.</p> <p>Stories, cartoons and films.</p> | <p>cooking methods/materials, etc; survey to find out the types of fuels/vessels used; drawing various utensils; historical time line tracing what in the kitchen has changed and roughly when.</p> <p>Observation and asking adults, discussion. Listing of food items bought from the market/grown at home.</p> <p>Observing and listing different animals and their feeding habits;; Discussing food given to animals; observing animals being fed, keeping food out and observing animals come and feed.</p> |

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| <p>3. Shelter</p> <p><i>Houses and houses</i></p> <p>Have you seen - a house on stilts, a tent, a flat on the tenth floor, a house on wheels or a house on a boat?</p> <p>Do you know anyone living in such houses? Why do people use such houses?</p> <p><i>Decorating and cleaning our shelter</i></p> <p>How do you decorate your shelter? Do you draw designs on your walls/ floor or decorate with leaves/flowers/other objects? How do you keep your house clean? Do you also help in cleaning? Who mops and sweeps it? Where do you throw the garbage? Do you have any problems living in your house during rains, summer or winter? Have you seen houses with sloping roofs? Why are they made sloping?</p> <p><i>My family and other animals</i></p> <p>Who all live with you? Which animals live with</p> | <p>Some unusual houses, a narrative and a discussion about why such houses are built. Different types of houses</p> <p>Need for shelter, need for living together</p> <p>My house, Houses/ shelters are decorated in different ways in different cultures; Need for shelter to provide protection from heat, cold, rain and problems faced.</p> <p>Need to share housework. Garbage disposal.</p> | <p>Pictures of different types of houses; easily available materials for model making.</p> <p>Illustrations of designs/ motifs used for decoration of the house.</p> | <p>Discussion; observation; Drawing, model making and art work. Creative writing about imagined experiences.</p> <p>Draw a picture of your house. Draw the various kinds of designs/motifs used to decorate walls/ floors of houses.</p> |
| <p>Who all live with you? Which animals live with</p> | <p>Family members; pets and other animals, insects,</p> | <p>Daily life experiences. Cartoons.</p> | <p>Discussion and sharing of experiences and</p> |



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| <p>you - which are the biggest and the smallest animals living in your house? From where do they get their food? Where in your house do these animals live? Which of them are seen only at night?</p> <p>Mapping my neighbourhood</p> <p>How big is your school? What kind of a building is it? Can you draw a picture of your school and your classroom? Do you know your way around your neighborhood? Can we explain to someone how to reach the post office or the bus stand from our house?</p> <p>4. Water</p> <p>Water for my family</p> <p>What are the main sources of water in your locality? Who fetches the water and from how far? Do all the people in your locality use the same source of water? Are some people not allowed to take water from where you take it? From where do you get water? Does it look clean enough for drinking?</p> | <p>rodents, etc. Food for the pets and other animals. Some are seen only at night.</p> <p>Neighbourhood, mapping and representation in two dimensions. Directions.</p> <p>Local sources of water; uses of water; gender roles; distance estimates; social discrimination; clean water for drinking</p> | <p>Survey of different parts of the school, survey of the neighbourhood</p> <p>Child's daily life experience, local knowledge</p> | <p>knowledge. Drawings of insects, rodents; pets and other domestic animals.</p> <p>Estimating distances, marking location of places and drawing/mapping from different perspectives, like from the top, from the front etc, Draw a map of the route from our house to the nearest shop.</p> <p>Listing the sources of water, Exploring by asking questions from elders or people around, Discussion.</p> |

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| <p><i>Do animals and plants need water?</i></p> <p>What happens if plants and animals do not get water – how do you see that a plant or animal is thirsty? Do all animals/plants need the same amount of water? Which plants/animals need the least?</p> <p><i>Water shortage</i></p> <p>When is it difficult to get water? Are there some people in your area who always face water shortage? What would happen if we had no water? Have you seen water being wasted – how? How can we avoid it? Do you reuse water?</p> <p><i>Water in our lives</i></p> <p>Which of your daily activities use water? Do you and others you know wash your hands and feet before you enter the house? Why do you think this is done?</p> <p>Can you describe the scene of a rainy day – with details about birds, animals, plants and yourself.</p> | <p>Water for plants and animals.</p> <p>Water scarcity, wastage and recycling, water harvesting.</p> <p>Use of water in different activities; cultural expressions about water/ rain/ rivers; observations related to rain and the response of plants and animals.</p> | <p>Library resource-brief information about the camel, cactus along with their pictures.</p> <p>Newspaper clippings about water shortage/ water being wasted.</p> <p>Library resources, observations related to daily life. Songs about water/river/rain?</p> | <p>Reading, Discussion; Comparison of a well watered and a wilting plant.</p> <p>Poster making/ writing activity in groups with a message of saving water.</p> <p>Enacting different activities that utilise water/ a rainy day, listing the activities in which water is used, singing rain/river/ water songs/poems together in the class.</p> |

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| <p>Storing water</p> <p>How do you store water in your home? Do you collect rainwater - how? How much water do you store every day? About how much do you use for drinking or bathing? In what kinds of containers do you store water for drinking/ washing/or for animals? What are the containers made of? If the water is at the same level in a narrow and a broad container does it mean they contain the same amount of water?</p> | <p>Measurement of volume in terms of non-standard units such as buckets, pots, etc. Estimates of quantities used for different domestic activities; safe handling of water. Containers made of different shapes and materials to store water for different purposes; Conceptual development of conservation of volume.</p> | <p>Child's daily life experience, bottles of different shapes/sizes/materials; <i>Panchtantra</i> story.</p> | <p>Drawings of different containers. Measurement activities; demonstration to help the understanding of conservation of volume. Touching different containers and discussing about their material.</p> |
| <p>5. Travel</p> <p>Going places</p> <p>Has your family traveled together to another place? Where and what for? How did you go? How long did it take? How far did your grandparents (or other elderly persons) travel when they were young? How did people travel in those times? How do people travel today in the desert, hilly areas, on sea, etc.</p> | <p>Need for travel, travel within the locality and beyond; travel to different social spaces – forest, village, city, etc.; travel for migration, sight-seeing, family occasions.</p> | <p>Story of a journey along the river, mountain, etc.</p> | <p>Reading and Discussion, Drawing a village / sea/ forest /mountain scene.</p> |

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| <p><i>Ways to travel</i></p> <p>How do we go to school? How do we travel to other places? How many different ways have we travelled? How many different ways of travel do we know of? Have you been to a railway station? What all do you seen there? Who are the people who work at the station and on the train? How did people travel in the past?</p> | <p>Different modes of transport; short distance, long distance, newer ways of traveling.</p> <p>Different kinds of workers associated with railways/station.</p> | <p>Pictures of modes of transport;</p> | <p>Collect pictures of different modes of transport; classify them into different types of transport; enact a train journey/railway station, Observations of activities at the station like loading, weighing, washing trains, signaling, selling tea, level crossing, etc</p> |
| <p><i>Talking without speaking</i></p> <p>If I cannot speak, how do I tell people what I want to say?</p> | <p>Communication without speaking, Use of sign language, dance mudra's.</p> | <p>Sign language, dance mudra's.</p> | <p>Playing dumb charades, enacting situations without speaking, learning sign language, practicing mudra's.</p> |
| <p><i>Mailing a letter</i></p> <p>What happens when I post a letter? How does it reach my friend? Who are the people who help to do this? Are there any other ways of sending a message? How was a letter sent in the past?</p> | <p>Letter as a means of communication, work and people associated with the post office; different means of communication, changes with time.</p> | <p>Local post office, different samples of letters- inland, post card, greeting card, etc. Discussion with workers at the post office.</p> | <p>Trip to local post office, Observing sorting, stamping, weighing etc.</p> |

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| <p>6. Things we Make and Do</p> <p>Pottery</p> <p>What kinds of pots do we see around us? What containers are used to store grain? What kinds of containers did people make long, long back with rings of clay- when they did not have a potter's wheel? Can you make such pots and dry them in the sun – how long do you think these will last? How does the potter bake them?</p> <p>Textiles</p> <p>In how many different ways can you wear a long cloth that is not stitched? How many kinds of <i>sarees</i> or <i>lungis</i> have you seen worn by people from different parts of the country?</p> <p>How many different colours do we know of – how many new ones can we create? What are fast colours and what problems do we face when colours run? How do we make our own vegetable block prints and tie and dye?</p> | <p>To meet basic needs human beings make things; need natural resources, creativity; have changed the way we live. An idea of the earliest pots made for storage of grain – when there was no potters wheel.</p> <p>The experience of making such pots with clay; drying and the need to bake them for greater strength.</p> <p>Diversity in types of clothing we wore; even with unstitched clothing. Colours and design are used in textiles; scope for creativity; vegetable dyes.</p> | <p>Narratives and illustrations of pots and containers made in early times – with rings of clay (e.g., Social Studies book by Eklavya).</p> <p>The idea of different styles of dress; traditional unstitched clothing and different styles of draping it.</p> <p>Some idea of mixing colours to make new ones; fast colours and colours that run; tie and dye; block printing and making our own blocks with vegetables. Samples of blocks, dyes.</p> | <p>Making pots of clay; also with rings; with different types of clay; drying in the sun; talking to potters or brick makers to find out how these are burnt/ baked in furnaces.</p> <p>Making different ornaments etc. with clay.</p> <p>Activity to wear/drape a dupatta or long cloth in different styles to emulate what different people do and also to create their own designs.</p> <p>Play with colours and colour mixing; Using dyes to dye cloth; making blocks with potato or ladies fingers for printing on paper.</p> |