

# PROJECT BOOK IN ENVIRONMENTAL EDUCATION FOR CLASS VII



राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्  
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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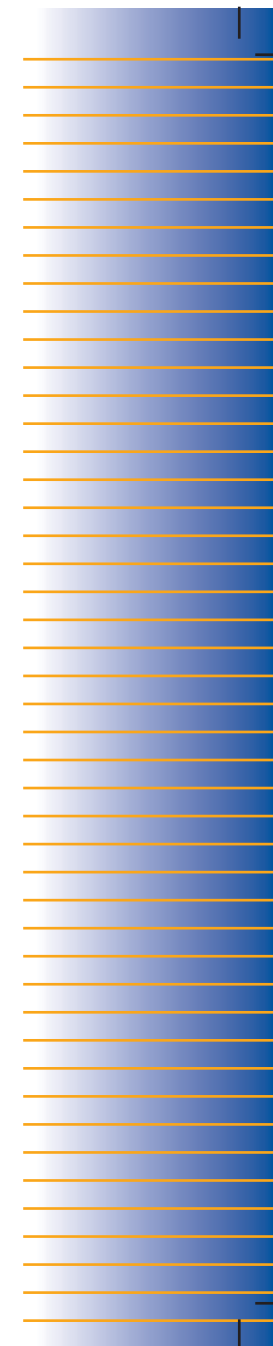
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## FOREWORD

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The National Curriculum Framework (NCF) – 2005, recommends that children's life at school must be linked to their life outside school. This recommendation has been implemented in the new textbooks published since 2006, in all major subjects. In the context of environment-related awareness, NCF-2005's vision implies an approach which cuts across the traditional boundaries separating one subject from another. According to this approach, knowledge of environmental concerns and the activities, which might deepen this knowledge and develop a positive attitude, need to be infused in the subject matter of all areas of the school curriculum at different stages. *The National Focus Group on Habitat and Learning*, which amplifies the NCF-2005, perspective, says: "The human habitat displays tremendous variability in space and time and its understanding has to be locale specific albeit in the context of a global vision. A great deal of the knowledge of the environment lies with India's barefoot ecologists, the people at the grassroots..."

NCF-2005, perceives school children as ecologists in their own right who need to be nurtured by a flexible school routine and teachers who engage with children in the construction of knowledge. In addition to the environment-related subject matter and activities incorporated in the syllabus and textbooks of all the major subjects, the National Council of Educational Research and Training (NCERT) has now decided to bring out project books for students of Classes VI to X. The books comprising this series attempt to build capacity for critical and multi-disciplinary thinking and a positive and problem-solving attitude. They aim at exposing students to the real-life world around them, both in nature and society, in order to enable them to examine, assess and interpret the problems and concerns related to the environment. The ultimate goal is to promote a socio-cultural ethos which facilitates India's attempt to pursue the path of ethically sound and sustainable development. The activities included in this series of books require extensive and continuous observation and



documentation which would enable students and teachers to notice patterns in phenomena. Uploading of the results of such projects on publicly accessible websites will gradually help the nation to create a transparent and comprehensive database on the environment.

The success of this effort crucially depends on the interest and enthusiasm that school principals, teachers, parents and civil society in general show in encouraging children to carry out the projects and activities outlined in the present series. It is extremely important that students' project work is assessed in a holistic manner, giving due regard to the motivation and enthusiasm of each student rather than through the conventional system of evaluation which ignores individuality and originality.

NCERT appreciates the hard work put in by the Project Book Development Committee in preparing this series and we are especially grateful to Professor Madhav Gadgil for guiding the work of this Committee. Several teachers contributed to the development of this book; we are grateful to their principals for making this possible. We are indebted to the institutions and organisations which have generously permitted us to draw upon their resources, material and personnel. NCERT is thankful to Professor Mrinal Miri and Professor G.P. Deshpande who co-chaired the National Monitoring Committee appointed by the Ministry of Human Resource Development to oversee the implementation of NCF-2005. We thank Dr Kiran Chhokar, Programme Director, Centre for Environmental Education, Delhi, for her invaluable inputs during the meeting of the National Monitoring Committee. As an organisation committed to systemic reforms and continuous improvement in the quality of its products, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinement of this important series.

New Delhi  
9 January 2009

*Director*  
National Council of Educational  
Research and Training

## NOTE TO THE STUDENTS

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It must have been a new experience to work on the projects in your previous class. We hope that you enjoyed doing them. As in Class VI, the project book development team has prepared another set of twenty projects. You may find that some of the methods suggested here are not exactly applicable for you. You have every freedom to modify them to make it workable for you. But remember to consult your teachers for such changes. It will not be possible for you to take up all the twenty projects in one academic session due to time constrain. But as you already have worked on some of the projects in the previous class, we expect that you will be able to take up more number of projects. However, as in Class VI, the number of projects that you take up should not be less than two.

With the experience that you had in your previous class, it should not be too difficult to take up the projects this year. But you still have to remember those important points that you followed in every step of the project. Like, when working in group projects, give maximum cooperation to your friends. In case you have to visit officials of different departments, elders, politicians, doctors, scientists, houses, etc. make sure that you obtain prior permission or take appointment or take authorisation letter from your school authorities. Be humble, soft spoken and never use force while taking interview or obtaining information and do not hurt the sentiments of others. In case of problems in the course of your study, your teachers are always there to help you. Discuss with them and work towards completing your study successfully.

Work with all sincerity on the projects that you have taken up. Remind yourself that contributions as yours, however, little it may seem, added together is all that it takes to heal our ailing physical as well as social environment. *'Each one of us can make a difference'.*

# CONSTITUTION OF INDIA

Part IV A (Article 51 A)

## Fundamental Duties

Fundamental Duties – It shall be the duty of every citizen of India —

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wildlife and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- (k) who is a parent or guardian, to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

## NOTE TO THE TEACHERS

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As in Class VI, the textbooks across different subjects have adequately infused environmental issues and concerns in all relevant places. Ample opportunities have been provided to students to actively engage themselves in activities pertaining to environmental concerns. This project book has been prepared to further students' involvement and active participation in environmental issues. This will enable them to understand the environmental problems in their vicinity, work on them to obtain first hand information, and come out with their own solution. This book also contains twenty projects with the headings — title, background, methodology, conclusion and activities that can be taken up as follow up actions. The topics have been chosen keeping in view the environmental concerns that have been discussed in various textbooks for the class. An attempt has been made to make the projects workable in different corners of the country. However, modifications in the methodology or in the title itself are expected to meet the diverse local specific environmental concerns of different regions.

Though, the students have worked on certain projects in the previous year, it is necessary that they be given the same encouragement and support and help in refining their tasks. As in the previous class, the students will execute the projects by themselves. The role of teachers as a facilitator and guide remains instrumental for the successful completion of the projects. For this, teachers would be required to assign appropriate projects to each student, modify and fine tune the methodologies, keep track of the developments and also help the students wherever necessary to complete the task smoothly. Teachers are expected to ensure that students take up as many projects as possible but with a minimum of two projects by each student.

Evaluation strategy can be prepared independently by the teacher concerned to evaluate the projects. The teacher concerned will decide whether evaluation should be done for every step of the project or on completion of each project. Whether marks or grades are to be allotted is left to the discretion of the teacher or the school authorities. Whatever pattern the teacher or school employs for evaluation, the marks or grades should be shown in the students' report card. There should be no pass or fail grading. Every student should have completed a minimum of two projects at the end of the academic session and thus should be considered pass.

Last, but not the least, this attempt of introducing the project book is to bring about an attitudinal change in the students towards environmental concerns and nurture them to become a concerned and responsible citizen.



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*Each one of us can make a difference*

# 1. Knowing some plant diseases



## Background

Flowers in the garden, crops in the field, vegetables in kitchen garden, fruits on the trees, etc., are damaged by disease causing organisms. This in many cases leads to loss in production which makes the lives of millions of families in our country miserable.

It is thus important to know the organisms that cause the diseases and learn about its control measures.

## Methodology

1. Visit a nearby crop field or an orchard or even a garden in the neighbourhood or look at potted plants in your house.
2. Observe the plants which are damaged due to disease. The damage may be the whole or part of a leaf, stem, flower or fruit of a plant. Examine each part of the plant carefully, particularly the leaves, especially their under surface.

## Objectives

- (i) To recognise and observe plants with diseases.
- (ii) To find out the organisms causing the diseases.

3. Try to find out the name of the disease and the organism causing the disease. Take the help of your elders, farmers or caretaker depending upon the place of your visit. In many cases they may not be able to identify the name of the disease and the disease causing organism. You may then consult an agriculturist/horticulturist for reliable identification.
4. Prepare a table as shown below and write the information that you have collected.

Sl. No.	Name of the plant	Part damaged Leaf/Stem/Flower, etc.	Sign of the disease	Name of the organism causing the disease
1.				
2.				
3.				
4.				
5.				

## Conclusion

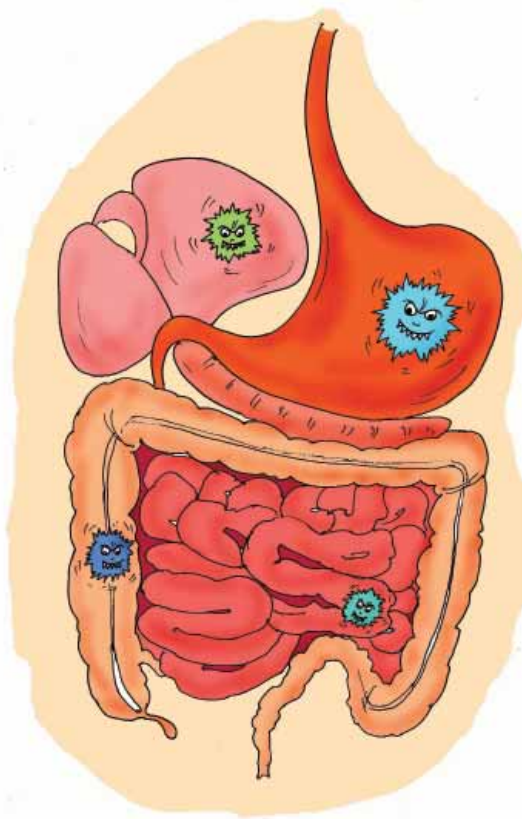
Write a paragraph about disease causing organisms in plants that you have studied and present it in your class. Describe the diseased or damaged part of the plant. Draw/sketch or illustrate using appropriate means.

## Follow-up

Find out the methods by which the diseases in plants can be controlled.



## 2. Diseases associated with the human digestive system



### Background

We suffer from many diseases associated with our digestive system, such as diarrhoea, dysentery, cholera, typhoid, etc. The organisms causing these diseases are different. These organisms reach our digestive system when we consume contaminated food and water.

### Methodology

1. Visit a doctor in your locality to gather information about the diseases related to the digestive system that occur frequently. You can also consult your family doctor or collect information from health centres.
2. Ask for the symptoms of those diseases.
3. Ask the doctor or any reliable sources about the names of the organisms that cause those diseases.
4. Find out how these organisms enter our body.

### Objectives

- (i) To know the diseases that are associated with the digestive system in human beings.
- (ii) To know about the organisms which cause the diseases.



5. Discuss with either a doctor or consult health centres to know about the measures that we can take to prevent and control such diseases.

## Conclusion

Prepare a chart with a table showing the information collected by you.

## Follow-up

1. Display the chart prepared by you in your class or on the display board of your school.
2. Survey in your locality/village the number of people who have suffered from diseases related to the digestive system in the last three months.

According to the World Health Organisation, diarrhoea alone kills almost two million children every year, 41 children every minute in India, making it the second leading killer of children worldwide. One out of every five of these children who die of diarrhoea is an Indian.

### 3. Fibres obtained from animals



#### Background

We obtain various types of fibres from different animals. These fibre-producing animals are found in different places. Some are found all over the country, while some are found only in very specific places. Usage of fibre depends upon its type.

#### Objectives

- (i) To identify animals from which we obtain fibres.
- (ii) To find out the places where these fibre producing animals are found.
- (iii) To find out how the fibres are used.

## Methodology

1. Collect as many names and pictures as possible of the animals that produce fibre.
2. Find out the states where these animals are found.
3. Also, find out what type of clothing or dresses are usually prepared from these fibres.
4. Try to find out the names of those animals from which production of fibres are banned.

## Conclusion

Enter the information that you have collected in the form of a table.

## Follow-up

1. Visit any wool-processing factory or silk reeling factory and note down the various steps that are undertaken in the factory.
2. Find out what different types of clothes you have in your house made with animal fibres.
3. Find out why manufacturing of *shahtoosh/ toosh* shawls has been banned.



## 4. Exploring sericulture

### Background

Sericulture is an occupation for many people in India. Rearing of silkworm, obtaining silk fibre and making yarns require special knowledge, skills and a specialised set up. However, in every step special care has to be taken to protect the silkworm and to maintain the quality of the silk fibre.

### Methodology

1. Visit a sericulture farm or a sericulture research institute.
2. Observe the different stages in the life cycle of a silkworm. Find out the number of days it remains in each stage.
3. Note carefully the types of leaves on which they feed.
4. Observe during which stage the silkworm spins silk.
5. Also note down other measures taken during rearing of the different stages.
6. Find out the environmental conditions required for maintaining a healthy growth of silkworms.
7. Find out the diseases and other factors that may affect silkworms.
8. Find out if there are any occupational hazards associated with sericulture.

### Objectives

- (i) To know about the different steps and skills involved in sericulture.
- (ii) To observe the rearing of silkworm and the production of silk yarn.
- (iii) To be aware of the hazards of sericulture practices.

## Conclusion

In a chart, draw the different stages in the life cycle of a silkworm. Write a report on your findings.

## Follow-up

1. Try to find out some important centres of sericulture in India and also the type of silk produce.
2. Try to find out the number of people employed in sericulture and the silk industry.

Raw silk production in India is highest in Karnataka which invariably consists of mulberry silk. The second highest producer is West Bengal followed by Bihar and Madhya Pradesh.



## 5. Drastic changes in environment disturb well adapted animals



### Background

There is a great diversity in the animal world. Amongst the land animals some are adapted to cold climate, some to hot climate (for example, hilly areas, plains, deserts) while some are adapted to wider environmental conditions. These animals adapt themselves in different ways to the climatic conditions of the place where they live. A variety of animals brought from different habitats are kept in zoological gardens or zoos. These animals are maintained for exhibition, education and research. Efforts are made to provide these animals conditions similar to their natural habitat.

### Objectives

- (i) To understand that diversity in animal world is largely due to adaptation.
- (ii) To know how changes in the environment affects the life of animals.



## Methodology

1. Visit a zoo near your area.
2. Note down the names of as many animals as possible from different climatic zones. Select any three animals for your study.
3. Find out which state or country the animal originally belonged to. You can do so from the information provided outside the enclosures of animals.
4. Find out the type of climate of the place where the animal belongs to.
5. Try to find out from zoo officials, caretakers and guides what special conditions are provided for a particular animal. You may enquire about conditions like food, temperature, humidity, surroundings, moving space, etc.
6. Also find out to what extent this artificial habitat affects their lives in terms of longevity, growth, health and reproduction.
7. Collect photographs/pictures of selected animals, if available.

## Conclusion

Prepare a report showing how artificial environment has influenced the life of animals.

## Follow-up

1. Find out the ways in which animals that you have listed adapt themselves to the climatic condition of the place.
2. Discuss in your class whether it is a good idea to keep animals in a zoo.



## 6. Study of migratory birds

### Objective

To know about the migratory birds of a place.



### Background

Migratory birds are compelled to leave their homes due to harsh climatic conditions and shortage of food. They visit a particular place regularly every year where the climate is comfortable and food is easily available. After a few months, they return to the place from where they had come.



## Methodology

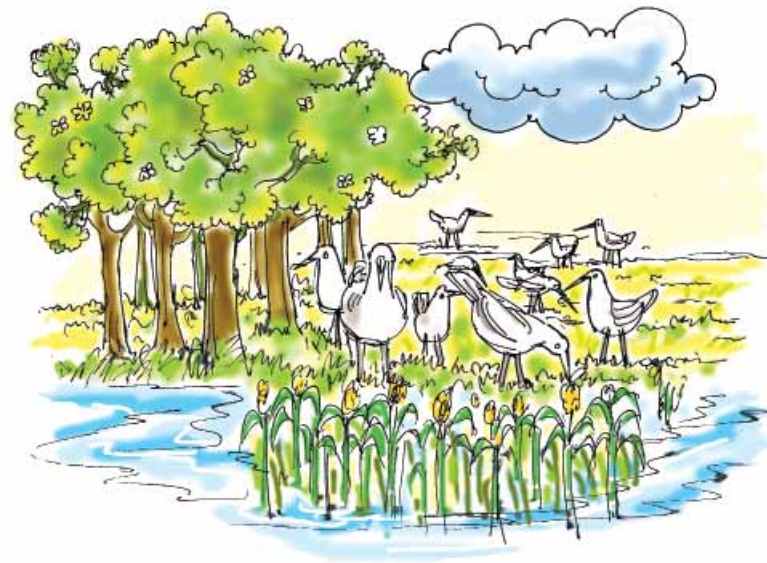
1. Visit a nearby place where migratory birds come every year.
2. Find out the following information about the migratory birds:
  - (a) Name of the migratory birds visiting that place.
  - (b) The country or region which they originally belong to.
  - (c) The month during which the migratory birds come.
  - (d) The month during which the migratory birds leave the place.
3. Draw sketches of some migratory birds that you see.

## Conclusion

Present the information collected by you along with the sketches in a chart and display it in your school.

## Follow-up

1. Find out if the number of migratory birds has been changing during the past 5 years. If the number has changed then find out reasons for that.
2. Try to find out whether human activities affect movement of the migratory birds.



## 7. Cyclone and its impact



### Background

Cyclone is a natural phenomenon, which occurs regularly in the coastal areas. The effect of cyclone is disastrous to all, which includes human beings and other animals, plants, houses, other buildings, soil, etc.

### Objectives

- (i) To find out the places prone to cyclone.
- (ii) To know about the reasons why cyclones occur.
- (iii) To find out the damage caused by cyclone.

### Methodology

1. Find out the places in India where cyclones are common and mark them in a map.
2. Find out the reasons why cyclones occur.
3. Write a paragraph each on the effect of cyclones on the following (also collect pictures):
  - (a) Human beings
  - (b) Plants
  - (c) Animals

- (d) Houses, buildings and other properties
- (e) Land and soil
- 4. If possible talk to people who have experienced a cyclone. Try to get information from them on how they went through the different situations during and after a cyclone.
- 5. Also find if there was any warning given before the cyclone struck and how they were benefited?

## Conclusion

Prepare a report on your findings, if possible in the form of a poem or a story about how destructive the effects of a cyclone could be.



## Follow-up

Try to find out the measures by which the effects of cyclones can be reduced. Share the information with your neighbours if you are living in a coastal region.

## 8. Pottery as a craft



### Background

Pottery making is very common in many parts of our country. It is not only a profession but also a form of art. Lives of many people are dependent on this profession. Pottery making involves a whole lot of labour from collection of the right kind of soil, giving shape, baking, giving a final touch, painting and polishing. Pots of different shapes and sizes, colour and quality are prepared by the potters.

### Objectives

- (i) To learn the steps involved in pottery making from clay to finished product.
- (ii) To develop appreciation of art in pottery.

## Methodology

1. Visit a household engaged in pottery work.
2. Find out information regarding the type of soil used for making pots and from where do they get the soil from?
3. Observe the different steps that a potter undertakes in the process of pottery.
4. Note down the shape of different types of earthenwares made by the potter.
5. Make a list of the ways in which earthenwares are used.
6. Find out some of the problems faced by the potters.

## Conclusion

Write down what you have observed about the steps involved in pottery making and the problems potters face. Prepare a report along with drawings/ photographs.

## Follow-up

Try your hand in making good artistic earthenware of different kinds.



## 9. Forests: Our treasure

### Objective

To know and understand the importance of forests.

### Background

Forests are useful to us in many ways. Forests are our lifeline. Many things that we use in our lives are made from materials which are obtained from forests. It is also the home/habitat for a large number of wild plants and animals.

### Methodology

1. Make a list of all the items or materials in your home or school that is made from forest produce.
2. Categorise them under the following:
  - (a) Furniture
  - (b) Construction material
  - (c) Decoration pieces/toys
  - (d) Kitchen wares
  - (e) Medicines
  - (f) Spices
  - (g) Fuel wood
  - (h) Stationery items
  - (i) Any other

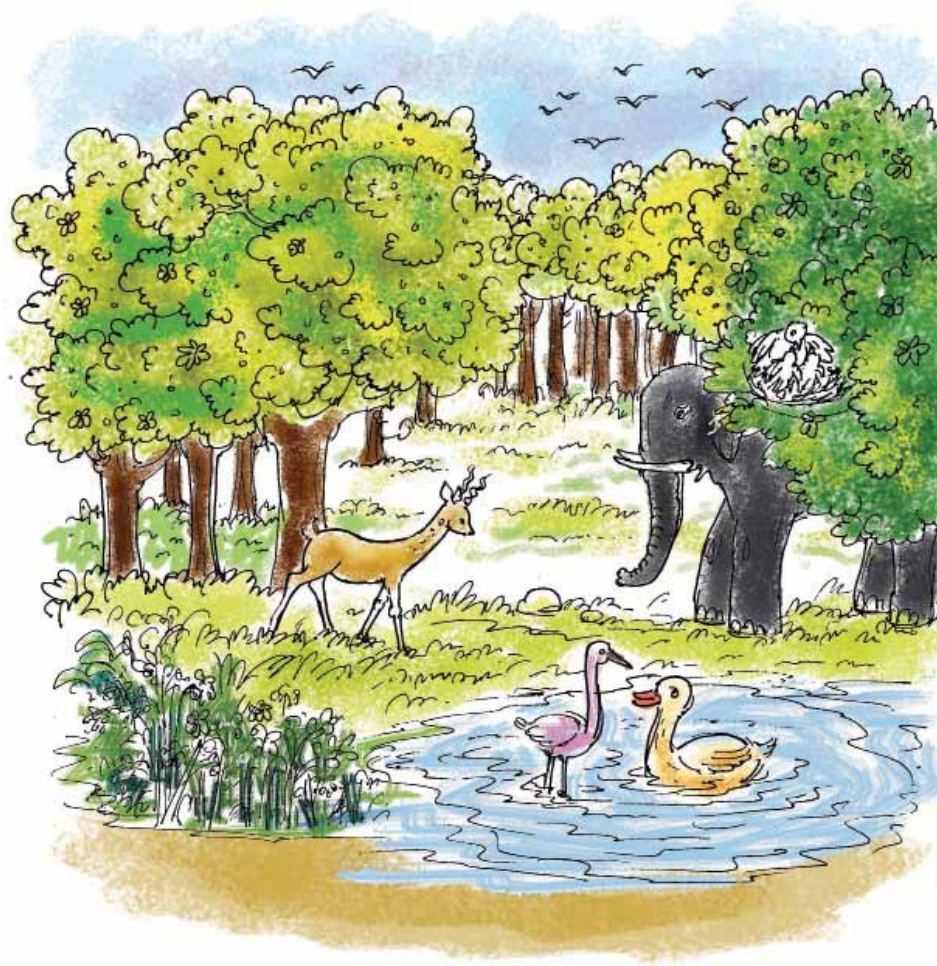
### Conclusion

1. Prepare a chart based on your findings.
2. Collect some items made of forest products and display them.



## Follow-up

1. Visit a nearby forest if possible with your elders and observe the different types of trees, small plants and animals.
2. Write slogans/posters on the importance of forests and display them at appropriate places in your school/ locality.



## 10. Preventing wastage of electricity

### Background

Electricity is a very convenient and flexible form of energy. However, it is often not used judiciously by most of us. Electricity is a scarce resource which is produced by burning coal at a thermal power station. It is also generated at nuclear power stations and hydel power plants. Irrespective of the ways in which it is produced it affects our environment. Conserving electric energy not only saves our money but also helps in increasing its availability. By proper planning and a little awareness, we can save a substantial amount of electricity in our schools, work places and homes.



### Objectives

- (i) To create awareness about the need for conservation of electricity.
- (ii) To be sensitised about avoiding excessive use of electricity.

### Methodology

1. Visit all the classrooms of your school with a few of your friends during recess time and after the school is over.



2. Observe whether all the fans and bulbs/tubelights are switched off, when no one is there.
3. Note down how many electric fans and bulbs are switched on in vacant classrooms. If you come across any such classrooms, turn off all the switches.
4. Also in a similar way try to find out whether electricity is being wasted at home.
5. Find out about energy saving devices available in the market, for example, compact fluorescent tubes (CFLs).

## Conclusion

Prepare a report citing instances of wastage of electricity. Prepare a plan for conserving electricity at your school/home.

## Follow-up

1. Talk to your school principal or teacher to get your plan implemented.
2. Keep monitoring the activity and communicating with your school mates during assembly time. Ensure that electricity is used judiciously in your house too.
3. Make a list on how you can minimise use of energy consumption in your house/school by gradually replacing worn out electrical devices and fittings with more energy efficient ones.



## 11. Creating awareness about wastage of water due to negligence

### Objectives

- (i) To bring into notice how water is being wasted in daily life activities.
- (ii) To be sensitised about judicious use of water.



### Background

"If you have water, you can think of the future". The amount of water recommended by the United Nations for drinking, washing, cooking and maintaining proper hygiene is a minimum of 50 litres per person per day, i.e., approximately 2½ large size buckets of water per person per day. Millions



of people in our country do not get enough water to meet their requirements. The problem is likely to worsen. It is therefore important that we should use it judiciously and conserve it.

## Methodology

1. Notice whether there is any leakage of taps at your home/ school. If there is any leakage put a bucket under it and collect the water leaked.
2. Also estimate the amount of water wasted due to negligence, such as leaving the tap open during washing, shaving, while collecting water, washing of vehicles.
3. Calculate approximately how much water is wasted per day/week.



## Conclusion

Conclude by writing a paragraph about your findings.

## Follow-up

1. Prepare a slogan on conservation of water.
2. Take initiative to repair leakage of water from pipes, tanks, etc., in school, home or the colony.



## 12. Water harvesting



### Background

We know that rainwater recharges the ground water and helps to maintain the flow of rivers. However, most of this water causes floods or just flows away. This is a waste of precious natural resource. The rainwater can be used to recharge the ground water especially in the urban areas. During the rainy season, rain water can be collected in large tanks, cisterns, reservoirs, etc., for future use. This is referred to as rain water harvesting. There are different ways of harvesting rainwater.

### Methodology

1. Collect information about various techniques of rainwater harvesting from books, magazines, journals, organisations, and the internet.
2. Visit different localities of your village, town or

### Objectives

- (i) To know about water harvesting.
- (ii) To learn the benefit of harvesting rain water.



city and get information about the year they started harvesting water, money being spent in maintenance and amount of water harvested in one calendar year.

## Conclusion

Prepare a report on your findings and the benefits of rainwater harvesting.

## Follow-up

If water harvesting is not practised in your locality try to launch a campaign to initiate water harvesting.

Traditionally, in Uganda and Sri Lanka, for example, rainwater is collected from trees, using banana leaves or stems as temporary gutters; up to 200 litres may be collected from a large tree in a single storm.



## 13. My tree neighbours



### Background

We obtain varieties of fruits, flowers, edible leaves from trees around us. But we often do not know much about the trees and find it difficult to identify them by their name.

### Methodology

1. Try to find names of as many trees as possible in your neighbourhood/locality.
2. Find out when they flower, shed their leaves, and bear fruits.
3. Group the trees according to what they provide – fruits, flowers, timber, fodder, shelter for animals.
4. Collect related articles, photographs from newspapers, magazines, etc.

### Objective

To be aware of the varieties of trees in our neighbourhood and their usage.

## Conclusion

Prepare a brief report on the basis of collected information.

## Follow-up

1. Prepare charts and display them on your school bulletin board.
2. On your birthday, plant saplings of similar trees. Also encourage your friends to do the same on their birthdays or special occasions.

There are over 150 species of trees used for timber in India. These include Teak, Mahogany, Sal and Rosewood. There are 130 species of wild and cultivated bamboo that have been recorded in India.



## 14. Changes in the surroundings and their effect



### Background

Everyday we hear about the changes taking place in our environment. This may not be very obvious to us if we compare two consecutive years since in most cases environmental changes take place slowly. But we can understand it better by comparing the environment a few decades ago and with the present scenario.

### Methodology

1. Observe your surroundings and notice if any change is taking place or has taken place during the last five years or so. For example, construction of houses, buildings, construction, widening of roads, filling of ponds, reduction in agricultural land, felling/plantation of trees, electrification, irrigation facilities, etc.

### Objective

To learn about the changes taking place in the physical environment/ landscape and their effect.



2. Collect information from your parents, grandparents and elders in the locality to find out the changes which have taken place over the years.
3. Also find out how these changes have affected availability of water, playgrounds, electricity, fuel and fodder, hygiene and sanitation, transport and communication, crop production (including fruits and vegetables) or any other.
4. Collect articles, photographs, news items from local newspapers on changes in the locality and the life of the people.

## Conclusion

Prepare a report on the basis of your findings.

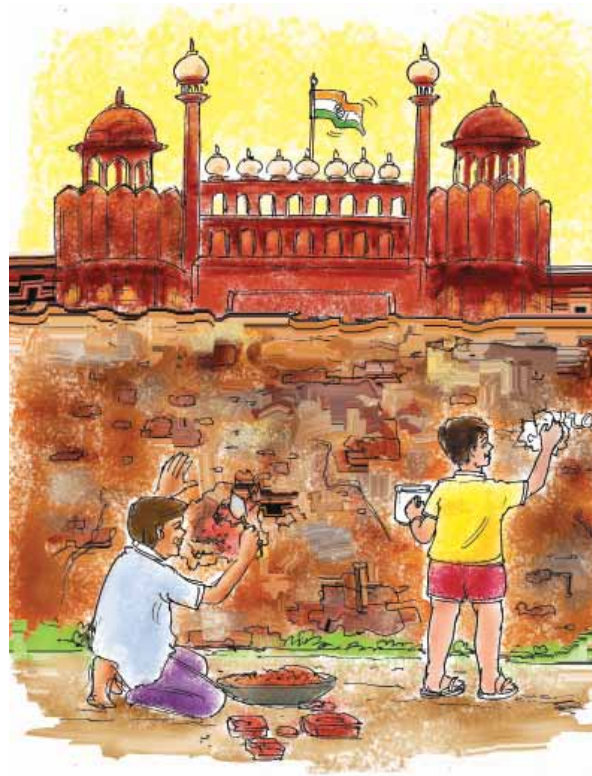
## Follow-up

1. Prepare charts of the gradual changes taking place in your surroundings and display them in your school bulletin board.
2. Find out the effects of developmental activities taking place in your locality on the environment.

Over 1,00,000 people will have to be relocated due to the Sardar Sarovar Dam and about 1,70,000 people due to the Narmada Sagar Dam project.

## 15. Preservation of historical structures

### Our responsibility



#### Background

Historical structures are evidence of art, architecture and other parameters of civilisation of the past. It also is linked with our roots of culture. Architectural conservation deals with issues of prolonging the life and integrity of architectural materials, such as stone, brick, glass, metal and wood whereas monumental preservation is a tool to save older buildings. It is the act of maintaining and repairing existing historic materials and the retention of a property's form as it has evolved over time.

#### Methodology

Select any structure in your neighbourhood, such as temple, mosque, church, gurudwara, mausoleum, palace, fort, library building of historic or administrative importance, etc., and try to find out —

#### Objective

To understand the importance of preserving structures with historical importance.

1. When was it built and who built it?
2. Is it properly maintained or is it dilapidated?
3. If it is dilapidated, what according to you are the reasons for the changes – seepage, railway line nearby, birds and insects destroying it or due to children playing and defacing the monument, or human vandalism?
4. Find out how further deterioration can be prevented.
5. Find out whom to approach to prevent deterioration.
6. Try to procure a picture/photograph of the structure.

To collect the above information one may seek help from elders, caretakers, state libraries and archaeological departments.

## Conclusion

Based on the information collected, prepare a report and suggest measures to conserve and preserve the monument.

## Follow-up

Report your study to the authorities taking care of the monument.

It is estimated that about 10,000 heritage structures of the state were either destroyed or extensively damaged during the 2001 Bhuj Earthquake in Gujarat.

## 16. Save paper, save tree and save environment



### Background

Paper is prepared from wood. Every year large numbers of trees are cut in order to produce paper. As the cutting of trees leads to various environmental hazards, so we should try to reduce its wastage. For that paper must be used judiciously. It can be reused and recycled in various ways – handmade paper, art objects from paper pulp, paper bags.

### Methodology

1. Count the number of copies and notebooks in your bag.
2. Note whether you are using the full page, half page, both sides or only single side of your copy/notebook/writing sheets. Count the number of pages unused or partly used.

### Objectives

- (i) To learn about the importance of conserving paper.
- (ii) To develop awareness on wastage of paper and its implication.



3. What do you do with the empty pages left in your notebook after the session is over? Do you use them for rough work?
4. What do you do with your used notebooks/copies, textbooks, magazines, newspaper? Do you burn them, throw them, give it to the *kabadiwallah* or use it for some other purpose?
5. Find out from the *kabadiwallah* what he does with the paper that he takes from you. Is it being recycled or reused?

### Conclusion

Prepare a report of your findings suggesting the reuse of unused portions of paper for rough work.

### Follow-up

Suggest measures to show how the consumption of paper can be reduced. With the guidance of your teacher or craftsman try to make items from waste paper or hand made paper.





## 17. Waste in the market: Where does it go?



### Background

Garbage or waste is the natural by-product of human activity. Many types of garbage modern society produce cannot be burnt and are thrown off indiscriminately. However, for many, especially the urban poor, these wastes are a source of livelihood. In India over a million people find livelihood opportunities in the area of waste collection (popularly known as rag picking) and recycling through well-organised systems. It is important to understand issues of waste disposal in this context. The informal sector dealing with waste is engaged in various types of work like waste picking, sorting, recycling and at the organised level, door-to-door collection, composting and recycling or recovery. The municipalities do not do much of recycling or recovery on their own. Recycling of only some types of material like plastics, paper and metals is not enough. Besides, there are serious issues of poor occupational safety provisions for the waste pickers as well as workers.

### Objectives

- (i) To identify the different kinds of waste generated in a market.
- (ii) To understand through observation the impact of waste on the environment.

## Methodology

1. Go to a nearby market and observe the types and amount of wastes that are generated in different shops. Trace where these wastes are finally dumped.
2. Find out what amongst the wastes can be recycled or reused.
3. Find out if anybody is picking the wastes and why do they pick.

## Conclusion

Classify the data, organise, tabulate and analyse it and write a report.

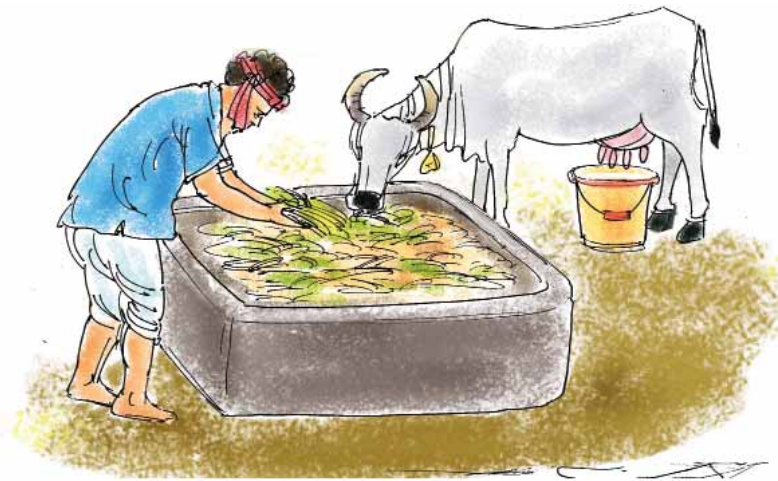
## Follow-up

1. Talk to the people who run the market about recycling and reuse of wastes.
2. Find out the possible health hazards that can be caused due to improper dumping of wastes.

On an average, each individual produces 500g of waste every day. Urban India produces 1,20,000 tonnes of waste each day, Delhi = 7,405 tonnes, Mumbai = 7,025 tonnes, Chennai = 3,500 tonnes, Kolkata = 3,200 tonnes.



## 18. Every animal has a positive role in the environment



### Background

Each species — animal, insect, human — has a unique shape and appearance. Do we like and appreciate most of them? Some we dislike with or without a good reason. Some we treat as bad omens, such as owls, black cats; others are not considered so bad. Such beliefs are not rational. We care for some animals, some we love and respect and some we attack out of fear without reason (snakes, lizards, tigers, etc.).

### Objectives

- (i) To understand that special features of animals and birds reflect their adaptation to the environment.
- (ii) To appreciate the role and relationships of animals and birds in the environment.
- (iii) To develop love and respect for all life forms.



However, each animal has a crucial role to play in the environment. For example, snakes and lizards keep the population of some rats, frogs and insects under control. Only 4% of snakes are poisonous. It would be interesting to explore the shapes and colourations of animals and describe their appearances, qualities, and their importance in the ecosystem (i.e., their functions as food, as scavengers or workers, etc). They also satisfy our aesthetic sensibility.

## Methodology

1. Observe and collect information about two selected animals or birds (other than domestic animals and pets) in your immediate surroundings.
2. Observe the animals for a week or so and note down their features, movements, food habits and relations with others.
3. Collect pictures and stories about the life of these animals and the way they are perceived by people in the area.

## Conclusion

Write down your observations and information collected in the form of a report.

## Follow-up

Read about Salim Ali and his work on birds of India especially *Fall of a Sparrow*. Try to find out why he is called the 'Father of Ornithology'.



## 19. Pets! To have or not to have



### Objectives

- (i) To develop love and respect for animals and pets.
- (ii) To know the practices involved in care of pets.

### Background

Keeping a pet is a pleasure for some, but not so for others. Children generally want to have a pet to play with. Parents and many people sometimes feel that it is a problem to have a pet.

## Methodology

1. Design an interview schedule for collection of information from the neighbourhood about the following:
  - (a) How people choose pets and how they keep them.
  - (b) What kind of animals do people want to keep as their pets, whether they have knowledge about the animals, their food preferences, shelter and health problems, etc.
  - (c) The practices of keeping a pet and problems in keeping a pet.
2. Find out from the concerned government department, such as forest department which animals/birds are allowed to be kept as pets. Also find out the conditions prescribed for their maintenance and upkeep.

## Conclusion

Write a report based on observations and information collected by you.

## Follow-up

1. Organise an awareness campaign in your locality for keeping pets healthy.
2. Find out which organisations to approach to help a pet.

Vaccination of dogs for Rabies is given twice annually, first when the puppy is three months old, followed by another shot after three months. Vaccination should be continued twice every year.

## 20. Industrialisation, globalisation and indigenous crafts



### Background

Small artisans are facing problems with the advent of commercialisation, new market forces, globalisation and cut throat competition that has transformed art into business. Often craftpersons and artists pursuing indigenous crafts and arts find it difficult to compete with mass production, packaging and marketing. Students may take up a project on how the commercialisation of indigenous art forms is affecting the life of people and the art or the product itself.

### Objectives

- (i) To understand the impact of globalisation on the local artists and craftpersons, and their livelihood.
- (ii) To understand the need of promoting and conserving the local and indigenous arts and crafts.
- (iii) To appreciate the need for upgradation of tools and skills.



## Methodology

1. Discuss in your class the issue of indigenous arts, vocation getting degenerated due to marketisation, commercialisation, globalisation, and other forces.
2. Design a schedule for meeting and collecting information on the life and works of such indigenous artisans in the neighbourhood.
3. Try to find out the difficulties being faced by craftpersons and artisans in procuring raw materials, production process, marketing and the like. Also find how new forces are affecting their trade.
4. Write a report of their problems and how they face problems of marketisation in their vocation or job.



## Conclusion

Prepare a report on your findings highlighting the problems being faced by artisans and craftpersons.

## Follow-up

1. Find out the impact of commercialisation on the life and environment of artisans and craftpersons in the rural areas, or on the decline of indigenous toy making, and its causes.
2. Find out how industrialisation or globalisation affects the local artists or craftsmen in your state?

[illegible]



## Notes

## This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is no handwriting or other markings on the paper.