

6

Nature as Teacher

STRUCTURE

- 6.1 Introduction
- 6.2 Objectives
- 6.3 Using the Outdoors
- 6.4 Nature Trail
- 6.5 Unit-end Exercises



I sincerely believe that for the child and for the adult seeking to guide him, it is not half so important to know, as to feel. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which seeds must grow. Once the emotions have been aroused a sense of the beautiful, the excitement of the new, and the unknown, a feeling of sympathy, pity, admiration or love – then we wish for knowledge about the object of our emotional response. Once found, it has lasting meaning. (Rachel Carson: The Sense of Wonder)

6.1

There are some people who the moment they step into the great outdoors became one with it. Many of us wish we could be like that. Such easy integration with nature does not come by merely desiring it, but through practice.

For most of us, the basic problem is not knowing where to begin and how to go about enjoying nature. We feel we must have sufficient knowledge about nature to be able to proceed. Knowledge however can be gathered as we gain experience. It is not so much knowledge about various elements and components of nature but the process of self-learning which is important. The key to the process is participation. In other words, the only way we can learn about, and enjoy, nature is by being there.

In this unit you will get some practical tips on how you could plan and use outdoor experiences for effectively teaching and learning about the environment.

6.2

On completion of this unit you should be able to

- Identify opportunities to use outdoors for teaching and learning.
- Plan structured exercises for observation and recording.
- Formulate a blueprint for an effective nature trail

6.3 USING THE OUTDOORS

Outdoor activities, outings and field trips can be arranged wherever there is some pocket of natural habitat. It could be a pond or river, fields, managed or unmanaged woodlands, woodlots, barren or rocky patches, natural grasslands, forested areas, etc. A wider variety of natural elements and interactions is likely to be in less disturbed (or undisturbed) areas. One need not go to a jungle to learn about plants, insects and birds. These three 'basics' are available even in cities. But if you know where to look, and how to guide the observations, even towns and cities can be used for outdoor experience.

6.3.1 Before the Outing

Most of us think that outdoor activities take a lot of time. However, interesting outings can be conducted even in the short span of a couple of hours, and seldom need to exceed half-a-day, even when out of town programmes are arranged. Such outings provide great opportunities for students to develop skills of observation and recording. Whatever the duration, it is necessary to plan each trip carefully.

Select the site of the visit and decide upon the kinds of observation activities that would be appropriate e.g. if you plan to visit a local water body, such as a pond or lake, and then aquatic life can be observed. A city park can be used for observing plants, insects and birds. You could also plan special seasonal outings to see migratory birds. You can even plan a programme to observe the same area through all the seasons of the year. Students may find notable changes by visiting the same area at least once in two months.

Make sure to brief the students about the objectives of the outing, and that they carry notebooks for recording, and other items specific to the nature of the outing and site (e.g. binoculars, nets, etc.)

Think of three sites that you could conveniently use for organizing an outdoor experience for your students. Think of three themes/topics that you could teach about through the outings to these three sites.

6.3.2 On the Field

It is important to know how to proceed, rather than to have pre-knowledge. The secret lies in observing objectively, recording observations correctly and building upon observation to understand the processes of nature.

Outings provide an opportunity to use our otherwise neglected senses like hearing, smelling and feeling by touch.

In order to perceive the subtler aspects of nature one must concentrate on using all these senses. Tell students to avoid speaking amongst themselves as far as possible, and concentrate on detecting nature by keeping all their senses alert.

Tell students that they are not to collect specimens or damage the environment in any manner. Many a time one quite unconsciously plucks a leaf or flower or even a blade of grass which may be seeding. They should realise that the flowers and seeds that we unconsciously remove are part of the survival of that species. Another form of damage one must take care to avoid is trampling all over the place. By staying on used paths and trails one can ensure a great deal of conservation of our environment.

Remind students that they must write field notes with observations on the field sketches also add value to notes.



We go outdoors expecting to see it in its natural state. Remind students that all of us can help keep outdoor areas as we wish them to remain by depositing litter in the right place; or by carrying back the litter to deposit at an appropriate place.

6.3.3 After the Trip

Remind students that a good test for every outdoor person is that no detective should be able to find any trace of their having visited the area. So they must leave the area as it was before you came.

Observation notes can be cross-checked or confirmed by consulting field experts or library references.

Inviting an experienced field person to join the outing is a good way, to begin. However, one can also begin on one's own and refer to expert(s) later.

Observations and recordings can be more systematic if students had some structured worksheets or guidebooks. You will need develop such material to suit your site and study focus. Some basic guidelines are provided for facilitating basic observation of plants, birds and insects. These could give you ideas for creating your special need-based worksheets. You could have individual observation sheets, or a worksheet that combines several of these elements within your selected area, e.g. a park.

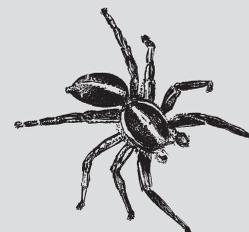
Hints for Insect Study

Place _____ Date _____ Time _____

Clear/Cloudy _____ Still/Breeze/Wind etc. _____

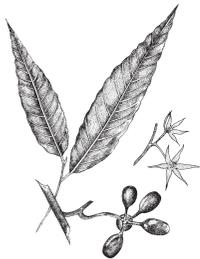
V. Sunny/Sunny/Moderate/V. Shady/Shady _____

No.	Insect types	Description (1)	Behaviour and Habitat(2)
1.	Ant and Ant-like		
2.	Beetle Types		
4.	Cricket		
3.	Grasshopper		
5.	Fly		
6.	Bee		
7.	Dragon-fly		
8.	Butterfly/Moth		
9.	Worms (Arthropods like worms scorpions, spiders, etc.)		



1. Observe and note size, outstanding characteristics, prominent colours, design, etc.

2. Behaviour - doing what - walking, hopping, flying, eating, fighting, calling (describe sound).



Hints for Plant Study

1. Study the shape: Mast/pole, umbrella, lollipop, triangle, inverted triangle (also tall/medium/short).
2. Touch and feel the bark: The texture - Rough, smooth; cracks, vertical, horizontal or both; or flakey, knobs, prickles, etc. Note and describe bark pattern also, if prominent.
3. Observe the arrangement of leaves: Alternate, opposite, whorled.
4. Look at stipules and/or type of leaves: Simple/compound; any speciality, tendrils, climbing organ, etc.
5. Feel the texture of the leaves: Rough, smooth, waxy, sandpaperish, prominent veins, etc.
6. See the shape of leaves: Associate with common objects like heart, arrowhead, spearhead, camel's foot, palm of a hand, etc., and sketch shape.
7. Estimate the size of leaves: Sketch shape and record dimensions using the metric system.
8. Observe where found: Describe habitat - in forest/farm, near stream/pond, or barren patches, high hill, slopes, ridges etc.
9. Look at type of arrangement of flowers: Single, cluster, raceme.
10. Find out when it flowers: Describe flowers—size, colour, shape, smell, nectar, etc. Number of petals, stamens and ovaries.
11. And when does it fruit?

Note seeds and method of dispersal if possible.

12. Name the plant

Ask a plant enthusiast if you don't know, or consult a reference book.

13. Find out economic uses

Edible/poisonous, medicinal, fuel, any other utility.

14. Check out life found on it

- a) Plant-epiphytes/parasites/other
- b) Animal - mainly insects and birds. Do also look out for amphibians, reptiles and even small mammals.

Hints for Bird study

A good birdwatcher keeps a regular field diary to make immediate on-the-spot notes of his observations. A delay of even fifteen minutes might distort one's memory. Field notes are most conveniently made in a pocket-size diary and should therefore be brief. Here are the important points to be jotted for identification of a bird:

1. Date, time, place, weather

Note sun, cloud and wind conditions like very sunny, sunny, moderate, shady, still, breezy, windy, etc.

2. Size

Associate sizes with known species for easier recording.

Sparrow	15 cm
Quail	10-20 cm
Bulbul	20 cm
Myna	23 cm
Pigeon	33 cm
Partridge	33 cm
Crow	43 cm
Kite	60 cm
Duck	60 cm
Village Hen	45-75 cm
Vulture	90 cm

If the bird size is between a myna and a pigeon, it may be noted as Myna (+) or Pigeon (-).

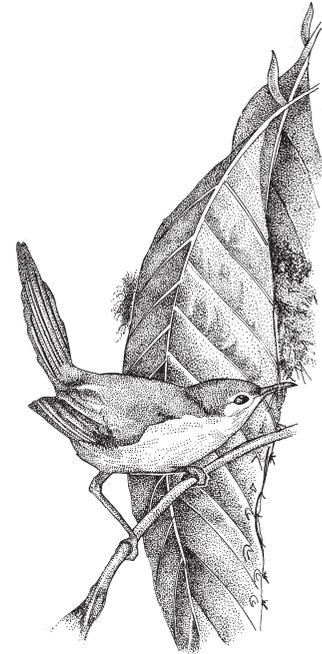
3. Shape

Comparison of shape with well-known birds also helps in identification e.g.

Kite/hawk-like	Wader-like	Crow-like	Sunbird-like
Duck-like	Sparrow-like	Bulbul-like	Partridge-like
Crane-like	Pigeon-like	Jay-like	Owl-like etc.

4. Outstanding features

Crest, long legs, beak, tail, eyebrow, eye-mask, or any other outstanding



feature that draws one's attention first.

5. Predominant colour and outstanding colour(s)

Colours of correctly named external features may be very helpful.

6. Common features

- a) Bill: hooked, straight, curving, upturned, spoon-like, long, short, thick, slender, conical, etc.
- b) Legs: long, stilt-like, short, feather covered etc.
Feet: grasping, with claws/talons, webbed, elongated toes, etc.
- c) Tail: long, short, forked, square-cut, notched, racket shape, graduated, curving, etc.
- d) Eyes: colour, ringed, etc.

7. Activity

Feeding (note and/or collect food), singing, flying (note mode of flight - e.g. swift, slow, flapping, undulating, gliding, etc.), territorial defence, courting, etc.

8. Call notes/song

Songs are easy to remember if allied with some familiar sounds, words, phrases, etc. e.g. The Lapwing's "Did-you-do-it", or the Tailorbird's "Pretty-Pretty", or the Coppersmith's "Tonk-Tonk", etc.

9. Habitat

Evergreen forest, marsh, hill slope, stream, seashore, farm, etc. Also mention the exact place frequented by the bird, e.g. tree canopy, bushes, ground, rocks, water, etc.

10. Nest and nesting details

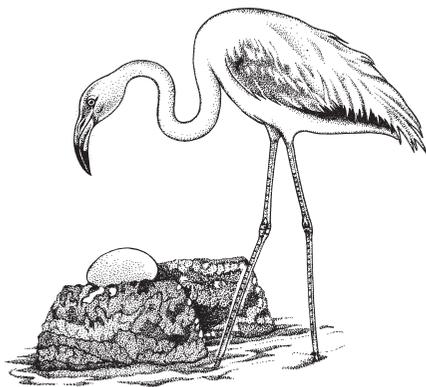
Should you be lucky to spot nests, do note the size, shape, location, outstanding, features, colour and other pertinent details from a distance and without disturbing it.

11. Other notings

Make notes of other aspects of behaviour. Birds may be found singly, in pairs, groups or in hunting parties with other species.

Draw a sketch map of the birds' territory. Notice if there is any "pecking order" or dominance among sociable birds. Birds may have camouflage patterns. Different birds of prey have separate hunting methods and their wing shape and tail are all adapted to it. Kestrel, Short-toed Eagle, Pied Kingfisher hover in the air before pouncing upon a prey. Notice how different small birds defend their nests.

There are unending joys in birdwatching.



Develop one worksheet that you will use for an outdoor session with your students.

6.4 NATURE TRAIL

6.4.1 What is a Nature Trail?

A nature trail is usually a beaten path especially through a wild region. It can be done on foot, by boat, on animal back, by bicycle, with an aqualung, or any mode of locomotion which is eco-friendly. Nature trails vary in length from as short as 50 meters to a hundred or more kilometers. The usual nature trails vary in length from 700 meters to about 8 or 10 kms.

Nature trails can be either facilitator-led or self-guided.

6.4.2 Selecting a Nature Trail

Nature trails can be especially created, or existing paths in the wilderness can be used as they are. The created ones could be planned around a theme or central purpose.

Existing nature trails must always be surveyed for their strengths and interpretation possibilities. A nature trail without a theme or clear objective is like a book put together with a page or more from many other books. It ends up without a title and is disjointed and without focus and continuity. A wide range of themes can be covered. To give a few examples 'The story of a river'; 'Animal architects' (for animal homes); 'Tracks trails and signs' a detective type of trail; 'Rocks around the trail' - for geology; 'One for the birds'; 'Lil jointed legs' (for arthropoda and insects); 'Plant pharmacy' (for medicinal plants); 'Twenty tree trail' is an ideal one for urban areas; 'Wet walk' for pond study, and so on. The same trail can also encourage the group to enjoy it through the seasons.

Not only are the physical elements important on nature trails, but also the time element must never be lost sight of. The first perspective of time must be realised from the angle of seasons. Does the nature trail offer seasonal variations like monsoon flora, or deciduous flowers, migratory birds etc.?

The second aspect of time is in terms of the participants' capabilities. Are the students capable of doing the trail in the time available? Sufficient rest and water points are essential to accommodate the variety of students and their capabilities. Where the nature trail is longish, then two options must be integrated in it. One is the need for 'rest points' set at appropriate intervals—longer in the beginning and shorter subsequently on same-day trails. The second option is for groups having difficulty continuing, to cut short the trail but to return by a different route. A good nature trail does not 'back-track' but is usually a large loop with one or more return loops, the simplest being like the figure 8.

Routes must lead the students through interesting areas without destroying the delicate balance of nature in it. The aim is not only to educate and entertain - but also to sensitize them to caring for the environment.

6.4.3 Setting the Trail

A successful nature trail requires a lot of preparation. In case of a facilitator-led trail not only must the facilitator know the history and geography of the trail, apart from its natural history, he/she must also know the art of interpretation and good communication. In addition to technical knowledge, he/she must also know first aid, what to do in an emergency etc.

Before setting out as a facilitator, check out whether any equipment is needed to make the trail more meaningful. Simple equipment like a magnifying glass or hand lens, a pair of binoculars, a thermometer and such, help a lot.

Trail Tips

Before starting out, check:

1. Is the topography—especially elevation changes—too difficult for the group?
2. Can the distance be covered in the time available? This may differ if the group is small or large.
3. What special conditions exist on the trail, e.g. wet conditions, stream crossings, insects, water supply, rest areas, dangerous plants and animals, ecologically sensitive areas, accessibility to medical aid in emergencies?
4. Does the area have enough variety to sustain the interests of your group for an extended period of time?
5. Can the trail be conducted without creating unacceptable damage to the area? How much intense use can it stand (the area's carrying capacity)?
6. Is there adequate preparation to handle:
 - Medical emergencies (broken bones, bleeding, etc.)
 - Encounters with animals.
 - Off-trail travel with map and compass
 - Fire
 - Sudden changes in the weather
 - Lost party members.
7. What equipment is relevant to the trail? Make a list of 'must have', 'should have', and 'may have'.
8. Ensure adequate food, water and shelter for each member, especially for overnight trails. Students can be involved in planning in packing, transporting, setting etc.
9. Avoid dangerous situations like walking on a steep slope which could lead to accidents.



Make sure that the students are well briefed about the theme and the objectives of the trail, and instructions about the logistics (time, rest periods, break for snacks, water, etc.) Explain the dos and don'ts to be followed while on the trail. These will include reminders to stay together, maintain order and silence, keep all senses alert, make notes of observations, any special tips.

6.4.4 On the Trail

While on the trail, show and discuss things that will support the theme chosen. Involve the group, ask questions, and in general use a variety of interpretive presentation techniques.

Involve the members in the interpretive process. Ask them to look out for things they can share with others.

Let students experience nature more, rather than being told about it all the time. Have a point or an area in which total silence is maintained for a few minutes. The visitors will enjoy using other senses of perception and also enjoy some relief from your voice!

While on the walk, practice conservation - pick up a scrap of paper or other litter occasionally and dispose it properly.

Larger groups require more time for starting, moving, reassembling and unless expertly handled, will end up giving the guide little time for interpretation. The pace must be set accordingly—not so fast as to be tiring nor so slow as to be boring. Like a good novel, there must be a story, it must have a setting (theme), and the suspense must rise, with small peaks and valleys of interspersed relief and rest.

6.4.5 After the Trail

When the trail is over bring the group together for a debriefing and sharing of experiences.

The nature trail is a subjective experience, and no two persons will take back the same memories and experiences, and of similar intensity. The interpretation must therefore be varied to suit all temperaments and individuals—no two of whom are alike in looks or mental make up.

Let us all learn and teach our students to read the book of nature with joy, reverence and an empathy for all creation.



6.5



Locate a suitable site/where you would be able to take your students. Develop a detailed plan for a 4-hour trail that you would undertake with the students. Your report should include the following:

1. A description of the location/site and the proposed trail (distance [from your school], length of travel, topography, conditions, habitat type [e.g. forest, grassy, rocky, etc.]).
2. The objectives you wish to achieve through the experience (e.g. link with textbook concepts, creating awareness, increasing sensitivity, etc.)
3. Preparations from your side.
4. Briefing to the students (to include orientation to purpose of trip, preparations required by students, what to bring on the trail, etc., dos and don'ts etc.)
5. Plan of activities/schedule on the day of the trail (before, during and immediately following the trails especially debriefing)
6. Format of at least one worksheet that you would use on the trail.
7. List of problems/challenges that you could possibly encounter during the entire process from planning to when students return to school/home after the trail.
8. List of people/institutions/reference material and other resources that you would require to make the experience a success in terms of your objectives.

(credit points: 5)

