

Annexure

Respected Teachers we should add some other activities which are related to nature and environment along with given projects. Here are some activities mentioned in the annexue. We should utilize these activities where ever neccessary. These activities are flexible, we have an oppartunity to add and delete things

1. BIRDS AROUND US

Objectives

- 1. To increase students' skills of observation.
- 2. To enable them to learn the behavioural and feeding patterns of birds.

Activity

Take the students to a park or any secured area where it is quite, where trees and water are present. Divide the class into groups of four or five and let them settle down in different places.

They should close their eyes and sit quietly for five minutes and concentrate on various bird sounds they may hear.

They should then attempt to trace each call to the bird making it and with the help of a bird guide, the bird should be identified.

Having located the birds and identified them, each group should then carefully observe the habits of one particular type of bird which should be assigned to the group by the teacher.

On return to the class room each group should provide their observations to the rest of the class.

Variation / extension

Having got to know particular types of birds, the students should be asked to maintain a diary of regular observations throughout the year.

2. OIL AND WATER NEVER MIX

Objectives

To explain how feathers keep birds dry.

Activity

Ask the students to take two small pieces of brown paper and rub oil on one of them. Let them sprinkle water on both the pieces and observe.

Which piece of paper gets soaked by water and which does not? Discuss the reasons.

Now ask them to sprinkle water over a feather. Discuss the possible reasons as to why

the feather does not get wet. Water and oil do not mix. Make the students observe pigeons or sparrows preening and explain that birds have oil glands and they keep applying oil on their feathers with the help of their beak. Tell them where the oil gland is situated. You may also mention that water-birds such as Cormorants and Darters, which do not have oil glands, have to dry their wings by holding them outstretched when wet, while ducks which have plenty of oil do not need to dry their feathers.

Discuss this phenomenon is helpful to birds when it rains, or to water-birds such as ducks.

Variation / extension

- Pour oil and water in a transparent glass and see that they do not mix.
- If you go on an outing to a lake see if you can find a Cormorant or a Darter drying its wings.

3. WATER DROPS ON LEAVES

Objectives

To compare what happens to water drops which fall on different types of leaves.

Activity

Take the students to a place where they will come across various plants including water plants. Carry some water with you. Ask the students to take a leaf from each plant and sprinkle few drops of water on the upper surface of the leaf.

Move the leaf gently. See what happens to the water. Students should observe the shape of the drops and hear they move on the leaf.

The water may either stay as a drop (like a mercury globule) or spread over the surface.

Repeat this with different leaves. Note what plant the leaf comes from and what happens to the water on its surface.

Does the water drop on the leaves of the water plants behave differently from the drop on the leaves of other plants?

Does the presence of dust on the leaves make a difference?

Variations-extension

Observe how a drop of water behaves on a piece of ordinary paper and a piece of waxed paper.

Evaluation

Ask the students why the drops of water move freely on the surface of some leaves.

Explain that the leaf has an upper waxy surface. The stomata (openings for breathing) are on the lower surface which is not waxy.

Lotus leaves are often used to pack fresh flowers. As the moisture does not escape

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from the waxy surface, the flowers remain fresh. This is a traditional practice but has a scientific basis.

4. MY TREE

Objectives

- 1. To enable students to identify the different parts of a tree.
- 2. To help students understand that the different parts of a tree contribute to its shape.
- 3. To develop in students the skills of observation/recording and illustrating.

Activity

Let the students observe a few trees and recognise the main parts of a tree. Let the students practise drawing/sketching the main parts of a tree separately. After the students have finished drawing the main parts, let them look at different types of trees, e.g. trees which are tall or short trees with maximum and with minimum branches trees with many leaves or few leaves trees with large leaves or with small leaves, etc. and observe the variations.

The students can be encouraged to discuss among themselves how the different parts of a tree contribute to its shape.

The students can be asked to sketch the shapes of the trees highlighting the positions of the different parts.

Paste the sketches in a scrap-book.

Students should cut colour pictures of different types of birds and insects from old magazines, and stick these at appropriate places on the sketches of trees they have made.

Variation / extension

The trees the students have observed should be checked by them at different times of the year, and notes kept of the changes observed.

The students should be encouraged to reason out the various factors that may have contributed to these changes.

5. TREE AS A HABITAT

Objectives

To make students aware that trees harbour a rich and complex variety of life.

Activity

Ask each student to select a tree for himself and observe it carefully.

The students should draw an outline of the shape of the tree to mark what they see on it. They should note down whatever life they are able to see on or around that tree. They should note down the details like: what types of birds, insects and other animals did they see on the tree and where? How many were there? Did they notice any nest? What were the birds, animals, insects doing?

The students may go for observation more than once to notice the patterns of life on and around the trees.

They should then return and present their drawings to the class.

What kinds of trees have a greater variety of life on them and why?

Variation / extension

Discuss the possible relationships these life forms have with one another and with the tree. Draw lines connecting the things which are inter-related.

6. FLOATING ON WATER

Objectives

To find out how insects float on water.

Activity

Take students to a pond or still water body and show them floating insects.

Ask the students the following questions:

- How do these insects float on water?
- Why do they not sink?

Then ask them to do the following:

Fill a glass or tumbler with water. Take a blade and put it in the water vertically. Note what happens. Now remove the blade and dry it thoroughly. Take a small piece of blotting paper or newspaper smaller than the mouth of the glass. Place the blade on it horizontally. Then place the paper and the blade very gently on the surface of the water. Observe what happens. When does the paper sink? What happens to the blade?

Variation / extension

The same experiment can also be done with a needle instead of a blade.

Evaluation

Through this experiment students understand the role of surface tension which enables some animals and objects to float on water.

7. SUN DIAL

Objectives

To understand how the lengths and directions of shadows vary according to the position of the sun.

Activity

A few days prior to carrying out this activity the teacher should ask the students to observe the shadows cast by them at different times of day when walking to and from school, when playing outdoors etc. They will quickly register that shadows are long when the sun is low and short when it is high.

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Now ask them to select an erected stick or pole or any similar object which is possible to observe at frequent intervals throughout the day.

Let them mark the length and the direction of the shadow before the first period of the day, and again after every period. Any one student at a time can go out and do this so that the schedule of classes is not disrupted.

At the end of the day take out the whole class to see the result of the day's work. At the end of each shadow mark you may put down the time at which that reading was taken, i.e. the time at which each period began or ended.

Now ask the students:

- What was the time when the shadow was the longest?
- At what time was the shadow shortest?
- What time was noon?

The students may repeat this activity over the next two or three days to find out if the positions and the lengths of the shadows vary at the given points of time.

Variation / extension

- By doing this exercise four times in the year, i.e. on or around the 23rd of March, June, September, and December, the students can begin to understand how the apparent track of the sun across the sky varies around the year.
- Let the students build their own sun-dial by driving a stick into the ground and marking its shadows by the hour. This can be used for three to four weeks to tell the time. After that correction factors will have to be applied.

8. DIFFERENCES IN TEMPERATURE

Objectives

- 1. To make students understand the effect of water on the surrounding temperature.
- 2. To make them sensitive to micro-climate changes around them.

Activity

Take students to a pond. Ask them to approach the pond slowly. Do they feel a difference in temperature as they move towards the pond?

If there is a breeze, let them stand in different directions around the pond and see if they can sense temperature differences. Ask the students to gauge differences in temperatures at other places. They can stand under a tree, crawl under a bush, climb onto a tree. They can put their hand into the water at the surface and deeper down. They can put their hands under a stone and on the stone's surface. Dig a small hole in the soil and compare it to the surface layer of soil. Are there differences in temperature? Caution: There may be scorpions or snakes under the stones.

Variation / extension

Introduce the concept of microclimate, the climate in a very limited space explored by the students. Ask them to relate each of these spaces with the insects, birds or other animals that inhabit that space.

9. IMPORTANCE OF FINGURES

Objectives

Familiarising the students with the various uses of the human hands in life, in arts and in understanding.

Activity

The hands, which may include the arms, are the most important and expressive limbs of the body. The teaching of the use of the hands should be through Movement, Expression.

The students can be asked to use only their hands in the activity.

Ask them to think of the various activities the hands can do picking. flicking, clapping, etc. with one finger and then with all the fingers. Let each student act out one use and the others to guess what the activity is.

Then go on to expression with the hands questions like what? (open hands), numbers one, two...., etc. how? No! etc. can be equally well expressed with hands.

Counting with the fingers is almost like having a calculator in your hand. Cupping of the hands for drinking water is like having a cup.

Go on to the wrist, its flexibility. The thumb. Ask students to write without using their thumb. Let them realize how each part is vital.

Tell the students about thumb and fingerprints. How criminals are often found out by their fingerprints. Make an exciting story. Use an ink pad and ask students to make thumb and fingerprints. Can they recognize their own?

Variation / extension

- Continue into arm movements. History of the hands in Indian dance. What is a mudra? Teach them mudras for animals, birds. trees, etc. Mudras for worship are used in all civilizations.
- In which sports are hands essential and in which sports are they not so important?
- How do animals use their hands and limbs?

Certain mudras are good for health. Teachers can read and show the children how to perform these mudras. Make them enjoy creating new images. Shadow play of hands could also be of interest.

10. SOUND AND NOISE

Objectives

To make students aware of the concepts of sound and noise and realise that these are relative terms.

Activity

Ask students to make a list of sounds they hear. These may be sounds from nature like falling water, a wind blowing or thunder; they may be sounds made by animals like a dog barking, a bird chirping or a donkey braying; or sounds of man like singing, shouting, scolding etc. Ask them to sort out these in terms of pleasant sounds and unpleasant sounds. Are the sounds classified perceived the same way by all the students?

Ask each student to make some sound. You can tell them to make animal sounds, or any other sounds even an unusual one which is not generally heard. They may also make sounds using another object, like rubbing two things or banging one against another. Let the other students say whether they felt the sound was pleasant or unpleasant.

Ask students to indicate what functions sounds made by animals perform. Do they think these sounds are pleasant or unpleasant to the animals?

Variation / extension

- What are different animal sounds called?
- Can you make a sound that a cat would not like, or a dog would like?

11. SWOOP-IN

Objectives

To appreciate how difficult it is to catch things while moving.

Activity

It is easy to pick up things or catch objects when one is stationary but much more difficult if one is moving fast and even more difficult if the object is also moving.

Yet this is the standard way in which many birds catch their prey. Kites and birds of prey swoop down on small animals or birds. Bee- eaters and drongos manoeuvre their flight to catch moving insects in the air.For the activity, ask students to pick up a small pebble. They can do this easily. Now get them to come running from a distance, as fast as they can, pick up the same pebble without stopping, and run on. It is not so easy.

One can take a ball and roll it on the ground or throw it up in the air and the student should catch it while running. This is a standard practice exercise for cricket, and children should have fun doing it.



Variation / extension

Now try and locate some birds like the bee-eater or drongo and let the students observe how skillfully the bird catches its prey.

12. BUILD A PYRAMID

Objectives

To understand the concept of hierarchies.

Activity

Ask the students to do the following: Take the empty matchboxes and build with them a pyramid. This can be done in many different ways (which the students may explore for themselves). When the pyramid is built, ask the students to note -

- How many rows of boxes are there?
- How many boxes are there in each row?

Each row is a level, each box is a unit or component of its level. The structure you have built has a single component at the highest level and increasing numbers of units as you go lower. Each unit has connections with the level above and below it (except of course the top and bottom levels). Any structure with such qualities is called a hierarchy. Carefully remove a box from your structure, without disturbing the other boxes around it. The structure from that level up collapses. Rebuild the structure and remove another box.Repeat this a number of times. Observe what happens each time. Observe how the breadth of the base affects how much damage is done each time you remove a box.

Variation / extension

During your P.T. class, get together in a group of ten and form a human pyramid. What happens if one of you moves?

From these two experiments, can you say which is the most important component in a hierarchy and why?

On Janmashtami day organize a "Utti" game at school as is done in some parts of the country. Can you see how hierarchies work?

Evaluation

- Can you think of hierarchical structures other than a pyramid?
- Can you think of examples of hierarchies in nature?

13. NOTHING IS USELESS

Objectives

To understand how even small parts of the body (in this case, our fingers), perform an important function.

Activity

- Ask a student to pick up one object at a time, like a pen, a tea-cup, a knife, a ball etc.
- The other students should observe closely which fingers are being used in holding and picking up each of these objects, and in what manner (i.e.gripping, propping up, manipulating, propelling etc.)
- Through this observation they should be able to identify which fingers are used for which specific activity.
- Once the use of particular fingers for holding a particular object is identified, students should be asked to try to hold that object without using one of the fingers normally used. For example, try to hold a pen and write without using the thumb. Students will discover how difficult it is to do this and in this way learn that each finger has a specific function to perform. This will also sensitize them to the difficulties that handicapped persons face. Efforts and skills needed to train other parts of the body to substitute for the missing parts would now be appreciated.

Variation / extension

- Ask students to imagine what it would be like to have a different type of hand. Take some card paper and make 5 tubes of 15 cms each to fit each finger. Now ask the students to use these extended fingers for various purposes and compare with their earlier experiences.
- While eating students should observe in how many different ways fingers are used with different food items.

14. USING THE WASTE MATERIAL

Objectives

To encourage students to learn to use waste material for craft activities.

Activity

Ask each student to bring an empty dropper bottle with a nozzle (as in eye or ear drops) to the class.

The plastic lid with nozzle should be turned into the bird's head and beak. For eyes, two bits of coloured paper should be stuck on either side of the nozzle. The nozzle should be covered with coloured paper to resemble a bird's beak. The bottle itself should be made into the bird's body by wrapping it with coloured cloth, coloured cotton wool, etc. Let each student use her imagination in creating a beautiful bird. The wings can be made out of stiff paper and stuck to the body.

The bird is ready to fly!

Different colours could be used to make different birds.



Variation / extension

Discuss the major types of wastes generated in a home. The wastes could be segregated into biodegradable, reusable and recyclable wastes. Collect the reusable wastes like plastics, paper, bottles, bottle caps, toothbrushes, etc., and try to use these as craft materials to make birds, animals, etc.

15. MOSQUITO MEAL

Objectives

To demonstrate the role of fish in controlling mosquitoes.

Activity

Set up two aquarium tanks. Fill both with clean water. Set up one of the aquaria with a few fish, e.g., guppies. Leave both the tanks undisturbed outdoors in the shade. Mosquitoes will lay their eggs in the tanks and these can be seen on the surface. Once the eggs are laid, these will hatch into larvae in about 2 days. Ask the students to observe the two tanks at regular intervals. When the larvae are seen, students should cover both the tanks with a mosquito net to trap the adult mosquitoes so that they can be observed later. Discuss with the students the role fish play in controlling mosquito populations and how this can be applied. Explain how polluted water (where fish cannot easily exist) enables mosquitoes to breed freely.

Variation / extension

Let students walk around the school to make a list of large as well as small water bodies which seem to be breeding mosquitoes and those which do not. In the school where students come from different parts of the city, ask whether students have observed mosquitoes in their residential areas. From those students whose areas have many mosquitoes, find out whether there are ponds of stagnant water nearby.

16. DRIP IRRIGATION

Objectives

To demonstrate the effectiveness of dry farming techniques through pitcher irrigation.

Activity

Divide the class into three or four groups. Contact the nearest forest department office and get 6-8 saplings of a fast growing tree species such as *Subabul, munaga* (drumstick) or *Neem.* The saplings should be 60-90 cm high. Give each group two saplings. Ask each group to dig two pits measuring 45 cm x 45 cm x 45 cm. These pits should be at least one metre apart.

Let them fill half of each pit with the dug-up soil, hold a sapling in the middle of the pit and fill the pit with the remaining soil, pressing it down to hold the sapling firmly.



Students should take care not to damage the roots while planting the sapling.

About 25-30 cm from the base of one of the two saplings planted, ask each group to dig a pit large enough to hold a pitcher. Let them punch a few holes in the base and one side of the pitcher by gently tapping a nail into it.

Now ask them to bury the pitcher so that only its mouth remains above the ground. The punched side of the pitcher should face the plant. The pitcher should be filled with water and its mouth covered with a lid.

Of the two saplings planted by each group, the one with the pitcher should be watered only by filling the pitcher once a week. The other one should be watered directly once a week. Let each group measure and note the amount of water used for watering the first sapling once a week. They should also note the amount of water needed to fill the pitcher to its rim every week. Let the students monitor the growth of the two sets of trees for at least four months.

Variation / extension

Ask the students to locate a tree in the neighbourhood which seems to be drying up. Let them bury a pitcher or drum with small holes next to it. Let them pour water into the container at regular intervals and observe what happens to the tree.

Evaluation

Which of the saplings is growing the best?

If there are differences in the rates of growth of the saplings grown by different groups, what could be the reasons for these differences?

How does the pitcher provide water to the plant?

Why is the pitcher buried in the root zone of the plant?

17. TREE KEEPS US COOL

Objectives

To understand how evaporative cooling works in different ways to create comfortable conditions.

Activity

Ask the students to blow their breath on the back of their hand. Now ask them to wet the back of their hand with water and then blow on it. Ask them to describe the difference between the two sensations.

Now discuss the following in the class:

- How does a pot cool water?
- How does a wet vattivellu curtain cool the room?
- Why does one feel refreshed after taking a cold bath on a hot day?





- Why does the breeze that has come across a river or a lake feel cooler than the breeze that has come from land?
- When a pre-monsoon thunderstorm approaches at the end of summer, why does the temperature suddenly drop before the beginning of rain?
- If you walk or cycle past a dense growth of trees on a hot day, that stretch of road feels cooler even when you are not in the shade. Why does this happen?

Ask students to suggest how buildings, neighbourhoods and cities can be made more comfortable by having lots of trees.

Variation / extension

If there is a wooded area or a forest easily accessible from the school, the class may be taken there on a hot afternoon on a picnic-cum-learning session. In addition to the cooling effect of trees, their role in hydrological cycle and in controlling climate may also be explained.

Take two identical mud pots with lids. Fill both with an equal quantity of water. Wrap a wet cloth around one. The cloth should preferably be folded in layers. Leave the two pots standing in an open place for 3-4 hours. Keep the cloth wet by sprinking some water on it periodically. In which pot is the water cooler?

Evaluation

Ask the students:

Our elders often grumble that the climate has become warmer from the time they were young. Is this mere nostalgia or is there some truth in it? If you think they are right, what could be the reasons?

18. ENERGY FLOW

Objectives

To demonstrate that with every energy transfer, a loss occurs.

Activity

The students should be divided into two equal groups. Each group should form a row, standing one behind the other. The rows should be parallel to each other. Each student should stand two paces away from the next student.

Give a cup full of water and a teaspoon to the first student in each row and a similar empty cup to the last student in each row. All the other students should be given a spoon each. The first student with her cup of water stands facing her row. The second student moves to the cup bearer who takes a teaspoonful of water and transfers it to the spoon of the second student.

The second student then takes the spoonful of water and transfers the water to the spoon of the third student. Then the second student goes back to the first student for another



spoon of water. In the meanwhile, the third student carries the teaspoonful of water to the fourth student and transfers it to his spoon. The fourth student takes it in his spoon and transfers it into the spoon of the fifth student and so on, till the water reaches the last student. The last student receives the water in his empty cup.

When the leader's cup is empty, let the students see how much water there is in the tail-ender's cup.

You could generate a discussion on what happens to the missing spoons of water. Tell the students that each spoonful of water represents a quantity of energy and that loss of energy takes place at every transfer.

Variation / extension

The students can play the same game again, taking care to minimize the loss of water (energy) in transfer.

19. POWER FROM DUNG

Objectives

- To demonstrate that energy can be generated from waste material.
- To demonstrate that animal dung can be used for making biogas.

Activity

Arrange for a tin / can of 10-15 litres capacity to be placed in the school compound or laboratory. The tin should not have any holes except the opening. Also arrange for a rubber cork which fits this opening. This should have one hole just large enough to take a tube with a hypodermic needle attached at one end (the tube used for blood transfusion would do).

Ask students to collect and bring 3 to 5 kg of wet cowdung. Put this in a container, pour 3 litres of water and stir well with a stick.

Pour the mixture into the tin can with the help of the funnel. Fit the tube into the opening of the one-holed rubber cork and close the can with this cork. The outer end of the tube has a hypodermic needle attached to it.

Tie the tube with a string to prevent the escape of biogas through the hypodermic needle. Allow the tin can to stand for 24 hours.

Keep the windows of the room open during this time so that if there is a leak of biogas, this can escape. The next day, loosen the string on the tube. The students should be able to smell the gas. Tell a student to bring a lighted matchstick near the opening of the needle.

The gas will burn with a tiny flame.

This activity should be done with extreme caution.

Variation / extension

Biogas can be prepared from the dung of other animals. In several rural areas, biogas is made from animal dung and human excreta.



X X X X X X X X X X X X X X X The gas production in the tin can be slowed down by immersing it in cold water for

some time. This shows that gas production is lower at lower temperature and higher at higher temperatures.

Evaluation

Discuss how biogas is an important renewable energy source and what kind of uses it can be put to, e.g. for heating, lighting or running engines.

20. CREATING A WHIRLWIND

Objectives

To demonstrate how a whirlwind is created by unequal heating of ground by sunlight.

Activity

Ask the students to place the smaller black sheet at the centre of the white one. These should then be placed in full sunlight.

After a few minutes, it will be noticed that the air over the black surface is shimmering the teacher should suggest that the air is rising because it has been heated. The incense sticks should then be lighted and placed on all sides.

The movement of the smoke should be observed. The drawing in of the smoke towards the black surface should be noted and the reasons explained.

Students should also be asked to notice that the smoke spirals upwards over the black area from where the air is rising.

Students should also be made to see that the column of smoke becomes wider as it goes up.

Note: Care should be taken that there is no draft of air.

Variation / extension

Observe smoke from chimneys during the heat of the day.

Near the seashore, observe the winds blowing during the heat of the day and during the cool of the early morning. Explain the causes of land and sea breezes.

Observe clouds forming on a still, hot day and watch vultures and kites spiraling up under the clouds. Discuss why they glide in spirals.

Observe whirlwinds (sudigali) as many times as you get the opportunity. Note that they always turn in the sane direction.

21. SOLAR WATER PURIFIER

Objectives

To show how pure water can be obtained from impure water by using solar energy.

Activity

Put some water in a glass or metal dish and place it in the sunlight. Add a few drops of black ink to the water. Cover the dish with a transparent glass or polythene sheet. Leave it in the sunlight for 15-20 minutes. You will see droplets of water condensing on the inner surface of the glass or sheet. Ask the students to note the colour of the condensed water drops. They may taste these water drops. Repeat the experiment using salt water. Does the condensed water taste salty?

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Variation / extension

Ask students how they will obtain drinking water from sea water. How do evaporation and condensation take place in this activity? Is the formation of droplets of water on the glass sheet related to formation of clouds?

22. WEB OF BIOSPHERE

Objectives

To demonstrate the interconnectedness of various elements in the environment.

Activity

Based on the list provided alongside, make a set of cards with the names of the animal or bird or plant or resource, etc. The children can illustrate these cards. There should be as many cards as there are children. Cards can be made of chart paper cut into rectangular pieces of about 5 x 8 cm. A safety pin can be put through the top of each card.

Make the students sit in a circle. Make sure to include and distribute cards depicting the four main elements of nature, 'Sun', 'Soil', 'Air' and 'Water'. Take a ball of string about 250 m long and give it to the Sun. It is appropriate to begin with the Sun because all life is made possible by it. Let the Sun, wind one end of the string around her finger and throw the ball to any aspect of nature she feels is related to her. For example, the 'Sun' may pass it on to 'Tree' because the 'Sun' gives energy to plants or trees. Let the student state the reason why she feels related to, this element. The 'Tree' then winds the string once or twice around his finger after ensuring that it is not loose between the 'Sun' and him. He then passes it to another aspect he feels related to, e.g., 'Fruit'. So the line of relationships continues as the string unwinds and begins to form a pattern which the students hold together. The ball of string is thus completely used.

Ask the students to see the web-like effect of the string. Then ask them to raise the web chest high. Let them hold it tightly so that if the web is pressed down it does not sag and touch the ground.

Ask the students to note this.

Ask the students what would happen if some of these elements were destroyed. Let the student representing these elements drop the string. Notice the visual effect. More elements may be dropped to dramatize the effect. Now press the web down. It would probably touch



the ground because it is loose.

Ask the students what would happen if the Sun or the other three major elements of nature were disturbed. Conclude the game by explaining to the students how inter-relationships exist and why they are important.

Sun	Air	Water	Soil	Tree
Rat	Mongoose	Butterfly	Kingfisher	Ant
Parrot	Student	Woodcutter	Fruit	Grass
Buffalo	Washerman	Dead leaf	Honey	Algae
Earthworm	Honeybee	Fish	Root	Squirrel
Leaf	Snake	Eagle	Shrub	Moss
Turtle	Seed	Grasshopper	Insect	Fungus
Plastic bag	Frog	Dragonfly	Dead wood	Mosquito
Monkey	Paper	Lizard	Spider	Crocodile

23. BARK AUTOGRAPHS

Objectives

- To learn that different trees have distinctive bark characteristics.
- To use the senses of smell, touch, as well as observation, to study trees.

Activity

Take the students to a place where a variety of trees is growing. Let each student select a different tree.

Ask the students to feel the barks of different trees with their hands and note the differences. Barks of certain trees have characteristic smells and these may also help to differentiate between them. Ask the students to describe the smell of each bark, if any. It is not necessary to know the names of the trees in the beginning.

Now tell the students to place a sheet of blank paper on the bark, hold it with one hand and rub a soft pencil or a crayon on it with the other. The pattern of the bark will emerge clearly on the paper.

Ask the students to compare two or more prints prepared by them and note the differences. Let them find out the names of the trees.

Let them observe prints made by their friends to find out if they can name the trees.

24. SEED BANK

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Objectives

To familiarize students with the large variety of seeds.

Activity

Ask the students to collect different types of seeds (fruits, flowers, vegetables as well as cereals, pulses, etc.). These could be collected from home gardens, nurseries or plantations. Ask the students to observe, study and classify the seeds according to shape, size, colour and the location from where the seeds were collected.Initiate a discussion on the ways in which the classification can be done.Students could create a "display corner" of the seeds after they properly classify and catalogue them.You could ask the students to exchange seeds or give them to people who want to raise plants/trees from them.

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Vriation/ Extension

Ask the students to collect few seeds of each variety and divide them into two parts. Drop one part into a container with clean, cool water. This should be kept undisturbed for four hours. The soaked seeds should be compared with the dry seeds. Observe that the seeds will be bigger and the seed coat may be wrinkled or broken. Discuss the reasons. Ask the students to sow some of the seeds in small suitable containers with soil in the classroom itself. Observe the seed germination. Compare how different seeds germinate (e.g. time taken by different varieties of seeds to germinate), how the leaves and the roots develop, etc.

25. USE OF LAND

Objectives

To enable students to identify how land is used in their surroundings.

Activity

Discuss with the students different purposes for which land is used: for agriculture, for building houses, for building factories, offices, etc; for building roads, for forests, as a habitat for animals, etc. Take the students for a walk in the neighbourhood areas around the school. Ask them to carefully observe how the land is used in that particular area. Ask them to record their observations.

After the observations, ask the students to classify their observations in terms of rough percentage in different categories, e.g.:

- Land utilized for human habitation
- Land utilized for agriculture
- Land used for transportation
- Land utilized for commercial purposes (shops, offices, etc.)
- Land not utilized for any purpose by humans.

Ask the students to visit the area again and interview some elders living in the area. You may help them to put together a list of questions to be asked. For example:





How long has a particular piece of land been under this use? Do they know why the use changed?

Do they feel the change is for better or worse?

Groups of five students can perform the task of interviewing one elder and recording the answers.

Evaluation

You could generate a discussion on changing land use patterns based on the interviews.

26. HOME FOR EVERY BIRD

Objectives

- To encourage students to attract birds to nest where they can be observed.
- To observe how birds make their nests and how they rear their young Subject Science, Craft

Activity

Let the students experiment with different types of nest-boxes to try and attract sparrows to nest in them. A pot could be used by covering the mouth so that large birds or cats cannot enter, and making a small hole on one side. The hole could be 5 - 6 cm in diameter. If a box is being used, only one small opening should be kept. The potor the box should be hung in one corner of a room near an open window or a door. Once the sparrow is attracted to the pot or box, and begins building the nest, students should observe carefully and make notes. They should note the following:

- Does the male or the female make the nest?
- What materials does the bird use to make the nest?
- Where does it bring these materials from?
- How many times in an hour does the bird come to the nest?
- How much time does the bird take to complete its nest?
- Can each one guess on which day the bird laid its eggs?
- How many days after the completion of the nest was the chirping of the baby birds heard?
- What is the difference between the baby bird's chirp and the parent bird's call?
- Who takes more care of the babies-the mother or the father?
- What do the parents feed the babies with?
- How many times in an hour do they feed the babies?
- Where do they get this food from?
- After how many days do the babies start flying?
- How do they learn to fly?

- Once they leave the nest, do the parents and the babies come back to the nest?
- How long does it take, from the time the bird started building the nest till the babies fly out of it?

27. THE POET IN US

Objectives

To enable students to identify themselves with a natural object and to express themselves in writing.

Activity

Ask each student to choose an element in nature (such as sun, soil, air, cloud, tree, grass, butterfly, sparrow, tiger, water, river, fish, etc.) which she feels close to, because it reflects her own personality or qualities.

Students may then be asked to speak on how the chosen object reflects their personality. Let the students then take up their papers and pencils and:

- in the first line, write the name of the chosen element (subject / noun)
- in the second line, write two words describing its qualities (adjectives)
- in the third line, write three words of action about the element i.e. what that object does (verbs)
- in the fourth line, write four words describing how they feel about the element (phrase, sentence, expression)
- in the fifth and last line, write a word to replace the first noun (synonym).

Now let each student read out what she has written like a poem or song. Here is an example.

Butterfly

Delicate, graceful

Flutters, finds, sips

Seems weak but isn't

Beauty

This exercise can be done in any language.

