Vision Empower & XRCVC

Teacher Instruction KIT

Living World

Syllabus: Karnataka State Board
Subject: Environmental Studies
Grade: 5
Textbook Name: Environmental Studies- Text cum work book-English medium- Fifth standard
Chapter Number & Name: 1. Living World

1. OVERVIEW

1.1. OBJECTIVE & PREREQUISITES

Objective

- To identify living beings and nonliving things.
- To know the important characteristics of living beings.
- To introduce yourself to the method of food production in plants, life cycle and different types of plants.
- To classify animals based on their feeding habits.
- To know the importance of protection of plants and animals.

Prerequisite Concept

- Food habits of animals, EVS-Grade 4, chapter 1: Animal Kingdom
- Roots, EVS- Grade 4, chapter 4: Roots - Support of the plant

Content Index

*Kindly Note: Activities marked with * are mandatory*

2. LEARN

2.1 KEY POINTS

Environment: Environment is everything that is around us. It can be living or non-living things. It includes physical, chemical and other natural forces. Living things live in their environment. They constantly interact with it and adapt themselves to conditions in their environment.

Living component: There are living beings which have the living characteristics and non-living beings which do not have the living characteristics.

Characteristics of living being:

- Eating food
- Growth
- Movement
- Respiration
- Excretion
- Response to stimulus
- Reproduction

Respiration is a process in living organisms in which living beings take in air, use oxygen and give out carbon dioxide.

Green plants produce their own food and they are called Autotrophs.

Photosynthesis: Plants use solar energy, carbon dioxide in the air, absorb water, minerals and salts from soil through roots and prepare food with the help of chlorophyll in leaves. In the preparation of food by the plants, glucose is produced and oxygen is released.
Insectivorous plant: There are plants which do not prepare food and these are called insectivorous plants. Example: Drosera, Nepenthes, Utricularia plants depend on insects for their food.

Classification of plants based on life span:

- Annual plants: which bear flowers, produce fruits and die in a year or a season. Example: Jowar, wheat, paddy, pumpkin, vegetables, etc.
- Biennial plants: which live upto two years or two seasons produce flowers, fruit and seeds and die. Example: carrot, ginger, cabbage, sugarcane, etc.
- Perennial plants: which live for many years and keep producing flowers, fruit and seeds. Example: mango, lemon, coconut, neem, jackfruit, etc

2.2 LEARN MORE
None

3 ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Living beings and non living things

Activity 1: Living beings and non living things
Materials Required: None
Prerequisites: None

Activity Flow

- Take the students for a walk outside the classroom and stop to explore everything that's there. For example; ask the child to notice the sound of birds chirping, cars and bikes moving, etc.
- Have them touch and explore the doors, windows, etc. of the school building, the plants outside, the pots in which the plants are planted, the cars/bikes/bus parked outside etc.
- Guide their hand to explore the plants rooted in the soil and growing upwards. Guide them to touch and observe the different shapes and sizes of pots they are planted in, touch the concrete walls of the school building, its doors, windows etc.

- After returning to the class, ask the students to list the different things they observed outside.
- For each thing the student states guide them with questions to determine whether those things grow, move on their own, breathe, eat, feel, reproduce, etc. and through questions guide them to conclude if each thing listed is a living or non-living thing.
- Ask them to list all living things and non-living things from their surroundings. Tell them that in this chapter they would learn about characteristics of living organisms.

3.2 CONCEPT INTRODUCTION ACTIVITIES

Characteristics of Living Beings – part 1

Activity 2: Living beings are made up of cells.
Materials Required: Tactile diagram of plant and animal cells.
Prerequisites: None

Activity Flow

- Give them the tactile diagram of plant and animal cells.
- They are of plant and animal cells. Explain to them that they must have observed how a house is being constructed. When several things such as bricks, cement, water, steel, wood are arranged in an order a house gets ready. Similarly the body of living beings is made up of cells.

Activity 3: Living beings respire
Materials required: Tactile diagram of lungs
Prerequisites: None

Activity Flow

- Ask the children to be quiet for a minute and observe and feel their breath (inhale and exhale), then further explain to them that we inhale oxygen and we exhale carbon dioxide which is very important for our survival.
- Ask the children what they understand by the term 'Respiration' and then explain to them by building on their answers.
- Give them the tactile diagram of lungs (Respiration system) and describe to them that lungs are the primary organ for respiration in humans.
- Further continue the discussion by telling them about animals, that they have special organs to respire. For example: fish respire through gills.
- Similarly, plants respire through stomata which are present on the lower surface of leaves.
- With the help of oxygen the energy in the food is made available to the living body.

Activity 4: Living beings eat food

Materials required: tactile diagram showing photosynthesis

Prerequisites: classification of animals on the basis of food they eat- herbivore, carnivore and omnivore.

Activity Flow

- Living being needs energy to perform their work and this energy comes from food.
- Ask the children what work does living beings do? And how do other living beings help us in our work?

For example: humans go for wood cutting, hunting, etc.

Bullock helps in carrying the load.

Food in plants:

- Ask the students, do plants need food? And if yes, then how do they obtain their food?
- Green plants produce their own food and they are called Autotrophs.

<u>Preparation of food in plants:</u>

- Explain the tactile of 'food preparation by plant' (photosynthesis) to the children.
- There are roots, soil, leaves, sunlight and atmosphere.
- Let the children touch and explore the diagram.
- Ask the children to match the following having numbers with their counterpart.

Which	from what
1. Solar energy	a. Green leaf
2. Water, minerals, salt	b. Atmosphere
3. Carbon dioxide	c. Sun
4. Chlorophyll	d. Soil

Answers: 1c, 2d, 3b, 4a

- All the above mentioned (solar energy, carbon dioxide, water, minerals, salts, chlorophyll) are required by the plant to prepare food and then explain the process of photosynthesis.

Food of animals:

- Ask the children, what do animals eat? And do they prepare their own food just like us?
- Animals do not prepare their own food. They depend on plants and other animals for food, therefore animals are called heterotrophs.
- Ask the children, do they remember classification of animals on the basis of food they eat- Herbivore, Carnivore and Omnivore.

- From the following list of animals ask the students to classify them as herbivore, carnivore and omnivore. Tiger, lion, Elephant, Fox, Bear, Bird, Dog, Parrot, Rabbit, Cat.

Activity 5: Living beings grow
Materials required: tactile diagram showing growth, seed of jowar (fast growing plant)
Prerequisites: None

Activity Flow
- Describe the tactile diagram picture to the students.
- In every picture there is an increase in height and size, this is called growth.
- The teacher can also explain this by giving our own example of how we as humans grow, from infant to old age.
- Have the children plant something (maybe jowar) in some soil and water it daily. Guide them to touch and notice it grow over a few days, from one leaf to many leaves or from short grass to taller grass and such. Thus observing that living things grow.
- Ask the students to identify which statement is true or false.
    - All organisms are small at the time of birth, later acquire definite height and size.(True)
    - Growth takes place rapidly in one or two days.(False)
    - Plant growth is observed at its stem tip or the size of the stem.(True)

Activity 6: Living beings move
Materials required: potted plant
Prerequisites: None

Activity Flow
- Describe some pictures to the students which show movement. Such as fish swimming in the water, a flying bird, jumping frog, running horse, crawling snake, children walking.
- Ask the students which organ do we use to move from one place to another?

Movement of animals:
- Animals have special organs to move from one place to another. For example: birds –Wings, etc.
- Ask the children, In the following list write their organs of movement
    - Man (Legs)
    - Kangaroo (Legs)
    - Eagle (Wings and legs)

    - bat (wings and legs)
- Discuss with the children why animals move? Example: To collect food, for survival, etc.

Movements of plants:

- Ask the children whether plants move or not? Do they show any movement?
- Explain the movements of plants- Plants do not have organs for movement as in animals. As soil holds the root of plants they cannot move from one place to another. Still we can observe the following movements in plants.
    - Roots growing towards water in the soil.
    - Sunflower plant turning towards the sun.
- Keep a potted plant in a room. Let light pass in through a window. Observe it after some days. Observe the direction towards which the leaves have bent and discuss. Children can touch the plant to see which direction leaves have bent.
- Observation: Leaves would be facing towards the sun, because plants need sunlight for the process of photosynthesis so they start moving in the direction of sunlight.

Characteristics of Living Beings – part 2

Activity 7: Living beings excrete

Materials required: Potted plant, plastic sheet, rubber band/thread
Prerequisites: None

Activity Flow

- Explain that many activities take place in the body of organisms. As a result, things which are unwanted for the body are also generated. These have to be thrown out of the body. If nobody gets affected.
- Animals throw out unwanted things from the body in the form of carbon dioxide, sweat, faeces and urine. They have special organs for this purpose.
- Plants also give out carbon dioxide during respiration. Dry leaf, stem, rotting parts - all these separate from the plants. They release excess water to the atmosphere through leaves.
- Take a potted plant. Cover the plant with a plastic cover and tie it tightly at the stem portion. Keep it in the sunlight for 1-2 hours. Observe the plastic cover closely. Children can touch the inside part of the plastic cover or the leaves of the plant, they will feel the water droplets inside the plastic.
- Observation: Water vapour/droplets inside the cover which releases excess water from the leaves.

Activity 8: Living beings reproduce

Materials Required: bean seeds, container, water
Prerequisites: None

Activity Flow

Reproduction in animals:

- Discuss young ones of different animals.
- Discuss young ones of animals when talking about reproduction. If possible have the child meet a pup or a kitten or a baby. If the child is not open to touching the puppy or kitten at least have him observe the sounds.
- Explain to the students that some animals carry out reproduction by laying eggs and some others by directly giving birth to young ones.
- List out the animals that lay eggs and those which directly give birth to young ones.
    - Some of the examples of animals that lay eggs: Ducks, birds, Hen, snake, etc.
    - Some of the examples of animals that give birth to young ones: Human, cow, dogs, cat, lion, etc.

Reproduction in plants:

- Discuss about how you can grow a new plant with the seeds from an old plant.
- Let the students put some seeds of beans, grams in a container having water and after a day or two, ask them to observe and feel the difference in the seed as it would start sprouting. By this activity of sprouting, new plants emerge from seed.
- Similarly there are other ways of plant reproduction.
- List out the plants that reproduce through seeds and stems.
- Some of the examples are given below,

Through seeds: pea, tomato, papaya, maize, oranges, etc.
Through stems: rose, hibiscus, jasmine, sugarcane, potato, bamboo, etc.

Activity 9: Life cycle of a plant

Materials Required: tactile diagram showing life cycle of a plant.
Real seed stem bud, plant, flower, unripe fruit, fruit.
Prerequisites: None

Activity Flow

- Explain the life cycle of a plant by giving them the tactile diagram showing the same, one transforming into another:
- It starts from seed/ stem bud, then plants, then flower, then unripe fruits, then fruit and then again it starts with seed.
- The teacher can also explain this through an activity, by collecting all the materials first i.e. seed, stem bud, plant, flower, unripe fruit, fruit. And then allowing the children to touch each of them and then describe the plant's life cycle.

Activity 10: Living beings respond to stimulus
Materials Required: paper model of a mimosa plant
Prerequisites: None

Activity Flow

- When thorns prick our feet we feel pain. We have observed our body shivering in the cold.
- Discuss with the children that just like us, animals and plants also have the sense of touch. Snake hissing in self defense and buffaloes getting into water to cool off during excessive heat. Some insects bite us when we touch them. Animals shout. Like this, organisms respond in their own way.
- All these are the responses given by organisms to the surrounding stimulus. Living beings respond to the changes in their surrounding environment. Usually they respond to touch, heat, cold, sound and smell. They have special organs for these.
- One good example of a plant is the 'touch me not'/'mimosa' plant. Make a paper model of a branch with leaves that looks like the mimosa plant and while guiding the children to touch the leaves demonstrate how the leaves fold or close immediately after being touched.
- Have the children touch a real mimosa plant and see how the leaves close after being touched. Tell them that even though they touch just one branch of the plant or one leaf all the leaves close immediately after being touched.

Activity 11: Living beings have life span
Materials Required: None
Prerequisites: None

Activity Flow

- Explain to the children that organisms take birth, become adults, reproduce, become old and die at last. The period between birth and death of an organism is called lifespan.
- Average life span of some animals: turtle- 150 years, elephant-70years, cow-20.
- Based on the life span, plants are classified into annuals, biennials and perennials. Explain each of these by giving examples.

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

- Plant a seed and observe how it grows.
- Plants as a source of food
- Plants replenish oxygen in the environment

- Sizes of sapling v/s sizes of full grown plants
- Importance of animal and plant protection.

4 EXERCISES & REINFORCEMENT

4.1 EXERCISE AND REINFORCEMENT

Activity 12: Living and non living beings

Materials Required: cards with braille stickers on them with a list of different things like fish, car, spider, crow, burger, boat, tree.

Prerequisites: Living beings and non living things

Activity Flow

- Present a bunch of cards to the student with braille stickers on them with a list of different things like fish, car, spider, crow, burger, boat, tree etc. and ask the child to sort the cards to separate the living things from the non-living things. Maybe give the child two bowls (one could be a square bowl and one could be round) (or one could be placed to his left and one to the right) in which he can separate the cards.
- After this ask the children to list each characteristic of living & non-living things giving examples for each characteristic.

4.2 IMPORTANT GUIDELINES*

Exercise Reading

It is very important that the children practice their learnings as well as their reading. Hence have the children read out the newly learned concepts from their textbooks or other available resources.

Perform Textbook Activity

It is good practice to have the children perform the textbook activities. Your textbook activities might not be accessible hence go through this resource to learn how to make textbook content accessible

Provide Homework

To evaluate their understanding and to help the student revise and implement the new learnt concept ensure to provide them with homework. Students should perform one or two of the questions mentioned above or from the textbook exercises with the teacher in Class and the remaining may be given for homework. Also, ensure that the student knows their special skills linked to independently using their accessible books as it will be critical to doing homework independently

End of Document