Vision Empower & XRCVC

Teacher Instruction KIT

Agriculture

Syllabus: Karnataka State Board Subject: Environmental Studies Grade: 5 Textbook Name: Environmental Studies- Text cum work book-English medium- Fifth standard Chapter Number & Name: 8. Agriculture

1. OVERVIEW

1.1. OBJECTIVE & PREREQUISITES

Objective

- To know the various stages of agriculture and from where we get food.
- To understand the nature of work and the problems of farm labourers, small scale farmers and large scale farmers and give solutions.
- To understand organic farming and chemical farming and to know about rain fed agricultural land and irrigated agricultural land.
- To understand drip irrigation and spray irrigation.
- To collect information about intensive farming, mixed farming and horticulture.
- To know the modern and traditional methods/systems of seed storage.

Prerequisite Concept

• Sources of food (fruits and vegetables).

Content Index

Kindly Note: Activities marked with * are mandatory

- 1. OVERVIEW
- 1.1. OBJECTIVE & PREREQUISITES
- 2. LEARN
- 2.1 KEY POINTS
- 2.2 LEARN MORE
- 3 ENGAGE
- 3.1 INTEREST GENERATION ACTIVITY
- Interest generation activity

Activity 1: Sources of fruits and vegetables

- 3.2 CONCEPT INTRODUCTION ACTIVITIES
- Stages of Agriculture

Activity 2: Stages of agriculture

Agricultural practices

Activity 3: Preparation of soil

Activity 4: Sowing

- Categories of Farmers Activity 5: Categories of farmers
- Classification of agricultural land Activity 6: Classification of agricultural land
- Sources of irrigation

Activity 7: Sources of irrigation

Types of farming

Activity 8: Types of farming

Methods of cultivation Activity 9: Methods of cultivation

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

4 EXERCISES & REINFORCEMENT

4.1 EXERCISES & REINFORCEMENT

Growing a plant

Activity 10: Growing a plant

4.2 IMPORTANT GUIDELINES* Exercise Reading

Perform Textbook Activity

Provide Homework

2. LEARN

2.1 KEY POINTS

Categories of farmers:

- Farm labourers: they do not have their own agricultural land. They work in some other person's field to earn their living.
- Small scale farmers: own a piece of land of their own. They sell the crop; they grow in their field and earn money to lead life.
- Large scale farmers own more agricultural land. In addition to family members, many others help them in agricultural practices. They purchase and use modern agricultural equipment. They utilize the monetary facilities of the banks and their income is high as they grow different crops.

Types of irrigation method:

• Drip irrigation: water is supplied to the roots of the crops drop by drop.

• Sprinkle irrigation: water is sprayed over the crops uniformly as in rainfall.

Types of farming:

- Organic farming: manure, green leaves compost, vermi-compost and organic pesticides are used to grow crops.
- Chemical farming: chemical fertilizers and pesticides are used to grow crops.

2.2 LEARN MORE None

3 ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Interest generation activity

Activity 1: Sources of fruits and vegetables Materials Required: None Prerequisites: None

Activity Flow

• Where do you think fruits and vegetables come to the market from? Do you think you can make all the vegetables needed for everyone in your building in a small garden? We will learn about how food is grown in larger quantities through Agriculture.

3.2 CONCEPT INTRODUCTION ACTIVITIES

Stages of Agriculture

Activity 2: Stages of agriculture

Materials Required: None Prerequisites: None

- Continue by discussing the following questions with the children so that they come up with the term 'farms', 'farmers', etc.
 - From where do we get our food?
 - What is the main source of food for humans?
 - Have any of you been to a farm?
- Then introduce how important agriculture is and what are crops.
- Add the stages of growing crops:
 - Ploughing the land to grow crops
 - Sowing the seeds to grow crops
 - Irrigation for the proper growth of crops.
 - Using chemicals or organic fertilizers for proper growth of the crop.

- Protecting the crop from animals, birds, insects and diseases.
- Harvesting the crop either manually or with the help of machines.

Agricultural practices

Activity 3: Preparation of soil

Materials Required: sand pit kit, tactile or model of a plough, hoe, tractor *Prerequisites: None*

Activity Flow

- Explain the theory of soil preparation as per the content. To explain the concept of loosening and turning of soil, encourage the student to use a sand pit kit to plough some ground in the nearby garden/pot. Explain the concept of soil loosening v/s firm by letting the student feel both.
- To explain the concept of a traditional plough, a hoe and the tractor plough ensure that you use appropriate tactile models to clearly show the main elements of each

Traditional plough:

- the bulls who carry the plough,
- the beam and how it rests on the shoulders of the bulls,
- the plough shaft: How it goes in-between the bulls and the angle at which it reaches the soil,
- the plough share: its shape and how it would go deep inside the soil

The Hoe

- The grip and the handle
- The bent plate
- The rod
- The beam

Cultivator driven by Tractor

- The size of the engine
- The driver seating area
- The tires, the difference in shape between front and back tires
- The cultivator, its shape and how it will plough the soil

Activity 4: Sowing

Materials Required: set of good and bad seeds, glass of water, tactile diagram or model of traditional sowing, seed drill

Prerequisites: None

- Explain the theory of sowing preparation as per the content. To tell the student how bad seeds can be differentiated from good ones, give them a set of good and bad seeds and ask them to dip in a glass of water. Letting the student feel bad seeds float up. Let the student immerse their hand in the glass to see the good seeds resting at the base. Explain the concept of hollowness of bad seeds that makes them float up.
- To explain the concept of traditional sowing method and a seed drill use appropriate tactile models that can clearly show through touch the following features:

Traditional Sowing method

- the bulls who carry the plough,
- the beam and how it rests on the shoulders of the bulls,
- the plough shaft: How it goes in-between the bulls and the angle at which it reaches the soil,
- The sowing funnel with the long pipe with sharp ends and how the sharp ends would pierce the soil that place the seeds in the soil

Seed Drill

• The shape and size of the seed drill and how seeds will be placed through it.

Categories of Farmers

Activity 5: Categories of farmers

Materials Required: None
Prerequisites: None

Activity Flow

- Introduce three categories of farmers to the student:
 - Farm labourers
 - Small scale farmers
 - Large scale farmer
- Ask the students to read aloud the story of farmers (from Karnataka state textbook) to understand three categories of farmers.

"It is a village. All the people of the village are living with love, faith and peaceful coexistence. Rangamma belongs to the same village. She doesn't have agricultural land of her own. It is her responsibility to manage her family. So she does weeding, planting and separating cotton from the plant in other farms.

Julakamma of the same village is a close friend of Rangamma. Julakamma is a farmer. She owns a piece of land. She runs her family by selling crops grown on her farm. Both these women like Manjamma very much.

Manjamma is a successful lady agriculturist. She owns about 10-15 acres of land in the village. Many women of the village like Rangamma, work in her agricultural land. Manjamma not only grows crops but also she rears fowl and cattle. She purchases

modern agricultural equipments for cultivation purposes. She also earns money through apiculture (rearing honey bees) and sericulture (silkworm breeding). So people of the village call her a large scale farmer. She always encourages and gives suggestions to the villagers to practice agriculture like her."

- After the story, let the children identify from these three women (Rangamma, Julakamma, Manjamma) which one comes under which category of farmer (Large scale farmer, Farm labourer, Small scale farmer)
- Continue the discussion by asking 'what problems these farmers face?" and what solutions can be used to avoid their problems.

Classification of agricultural land

Activity 6: Classification of agricultural land

Materials Required: None Prerequisites: None

Activity Flow

- Explain agricultural land to the students
- Agricultural land has been classified into two categories. Rain fed agricultural land 2) Irrigated agricultural land
- Rain fed agricultural land falls under less rainfall areas. Crops which require less water and are suitable for that soil, are grown there. Rain-fed cultivation is called kuski or dry land cultivation.
- Cultivating the land using water from ponds, canals, wells and borewells is called irrigated agriculture. Sugar cane, paddy, cotton, are grown depending upon the soil quality of the irrigated land. These crops are called irrigated crops.
- Ask the children to make a list of crops grown in agricultural land and in irrigated land. They can take help of their family members too.

Sources of irrigation

Activity 7: Sources of irrigation

Materials Required: Bottle with a small hope on the top, water *Prerequisites: None*

- Use a bottle with a hole on the top or a spray to show two different types of irrigation methods.
- Drip irrigation can be shown by using the same bottle inverted so that drop by drop the water will come out from the bottle.

- For spray irrigation the bottle should be pressed hard and the water will come out in the form of a sprinkle.
- And after showing both the ways, ask the students what difference they found in these two and then tell them the two types of irrigation: Drip irrigation and sprinkler irrigation.
- Ask them which one they would use for irrigation.
- As both of them have their advantages but drip irrigation should be preferred more because the water is available only at the roots of the crop so water is used at maximum level and it reduces soil erosion. Also leaching of soil is reduced.

Types of farming Activity 8: Types of farming *Materials Required:* None

Prerequisites: None

Activity Flow

- Explain to the children two types of farming: organic farming and chemical farming.
- Give the following statements to the students and ask them to identify which one is for organic farming and which one is for chemical farming
 - Chemical fertilizers are used.
 - Manure/organic-compost is used for agricultural land.
 - Vermi-compost is used to increase the fertility of the soil.
 - Pesticides are used to grow crops.
 - $\circ~$ Green leaves/dry leaves are also used in this method of cultivation.

Methods of cultivation

Activity 9: Methods of cultivation

Materials Required: model showing 3 fields –for intensive farming (2-3 crops), mixed farming (crops along with cattle/poultry), plantation farming (fruits, vegetables, coffee,) *Prerequisites: None*

- Explain methods of cultivation of crop by using the model. You can even have 3 models each showing one type of farming.
- Let the student understand the difference between these 3
- Fix the trees or animals in the model in such a way that when the student touches it, it shouldn't get removed.

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

- What did you eat today? Was it an animal source or agriculture source? Where do you think it came from?
- Storing and reserving the grain after the harvest.

4 EXERCISES & REINFORCEMENT

4.1 EXERCISES & REINFORCEMENT

Growing a plant

Activity 10: Growing a plant

Materials Required: fast growing plant (beans) *Prerequisites: stages of agriculture*

Activity Flow

- Ask the students to select a fast growing plant for example beans, and let them grow the plant in the schoolyard or at their home.
- And in this activity whatever they have covered in this chapter would be involved like what steps they would take to grow this plant, which irrigation method they want to use, and what type of farming they want it to be.
- After each step discuss with the children what they did to grow the plant and why.

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