CHAPTER: Crop Production and Management

Grade: **8**
Board: **CBSE**
Book: **NCERT**

1.

Chapter Summary and Placement

<Read through the following to understand how this chapter is connected with the previous and next grades and also the important concepts covered in it.>

1. In the previous classes, you have taught students how we get food from various plants. To feed a large of population of humans, this chapter extends the learning to the fact that how are crops grown on a large scale.
2. In this chapter the student shall be introduced to the crops, its types, the basic practices of growing crops like preparation of soil, sowing, adding manures and fertilizers, irrigation, protection from weeds and harvesting. After production of food on a large scale, it is also important to know its storage, which is also included in this chapter.
3. Since the chapter is focussed on the production of crops and its storage, potted plants and different types of crops can be used as resource for teaching the students.

2.

LEARNING OUTCOMES

<On completion of the chapter, students will be able to:>

1. Define crops and Its Types
2. Describe basic practices of Crop Production
3. How to prepare soil using Agricultural Implements.
4. Understand sowing of good quality seeds.
5. Explain the need of adding manure and fertilizers.
6. Define irrigation and Its Sources
7. Explain protection of plants from weeds.
8. Describe harvesting of crops
9. Understand the importance and technique of storing crops
10. List the food obtained from animals

3. KEYWORDS

Definitions of some terms used in the chapter:

Crop: Same kind of plants grown and cultivated at a place
Granary: Used in large scale storage of grains

Irrigation: Supply of water to crops at regular intervals

Harvesting: Cutting of the mature crop manually or by machines

Weeds: Undesirable plants

Animal Husbandry: Rearing of animals

3. TEACHING PLAN

Follow this section for getting ideas on teaching the content covered in the chapter. The subtopic given in the first column with the matching learning outcome can be explained using instructions and resources listed subsequently

Subtopic and Learning Objective #1

Subtopic: Position of a point
Describe a position of a point geometrically
1.To make the student understand how a point's position in a plane can be determined

Teacher Activity

1. Tell the students about importance of food for all human beings and that to feed large population, the food needs to be grown regularly with its proper management and distribution.
2. Introduce them the term “crop” by showing the plant/twig you have got.
3. Make them understand that every plant/crop requires certain climatic conditions to grow.
4. Brief the students about two types of cropping pattern (Kharif and Rabi crops) by showing **Resource 1**.
5. Perform **Activity 1**.
6. Now show students the pot with mud and few plant seeds you have got and ask them what all would they do to plant the seeds (dig the soil, sow seeds, giving them water, adding nutrients to soil, protecting them from insects etc.) Thus, you can summarize these various basic practices of crop production by showing **Resource 1** on the blackboard.
7. ***Check your Understanding***

a. GIve some examples of Kharif crops
b. When are Rabi crops sown?
c. Why is there a need to grow crops on a large scale?

Resources Suggested

Blackboard, chalk, a small twig of certain plants grown as crop like wheat, rice etc. (You can show the crop of the running season and the picture of other crops of other season.), a pot with mud, few seeds to plant.

Resource 1

Resource 1:



TABLE: Differences between Kharif and Rabi crops

Kharif crops	Rabi crops
1. They are monsoon or rainy season crops.	1. They are non-monsoon season crops.
2. These crops are grown in hot and wet conditions.	2. These crops are grown in cold and nearly dry conditions.
3. These crops are sown in the beginning of rainy season in June – July.	3. These crops are sown in October – November when monsoon is retreated.
4. These crops are harvested during September - October at the end of Monsoon.	4. These crops are harvested in March - April before the advent of hot season.
5. **Examples:** Rice, Maize, Groundnut, Soybean, Green gram, Cotton, Black gram.	5. **Examples:** Wheat, Barley, Gram, Mustard, Linseed, Pea.

Activity 1

Activity 1:

Name of the activity – What is the type of crop?
Type of activity – Group
Use it for – Describing Kharif and Rabi crops
Materials – Paper chits with names of different months (corresponding to the two types of crops) written on them, paper, pen.

OR

Pen and paper

Procedure –

1. Depending on the class size, divide the students in groups of three or four.
2. Ask the representative of the group to write the birthday months of any two members of that group which falls in the growing season of Kharif and Rabi crop.
3. After this the representative of each group is required to fill the observation table.

Group	Birthday Month of 2 members of each group	Type of crop	Growing season	Two examples of crop
1				
2				
3				
4				

Subtopic and Learning Objective #2

Preparation of Soil and Sowing:

1. How to prepare soil using Agricultural Implements.
2. Understand the sowing of good quality seeds.

Teacher Activity

Recall that soil provides nutrients in the growth of the soil.

1. Show them the potted plant. Earthworms and microbes in soil helps in loosening of soil. (Earthworms and microbes are farmer's friend).
2. Recall that dead plants and animals help the soil regain its nourishment, as taught in previous class
3. Describe tilling or ploughing of soil by showing the picture of a plough, hoe and cultivator.
4. Explain the use of these agricultural implements.
5. Also describe that depending upon the soil's condition, it is watered before the sowing of seeds.
6. Explain to students, that after the soil is prepared for sowing of seeds, good quality seeds are selected by farmers.
7. Perform **Activity 2** to select the good quality seeds.
8. Explain the method of sowing by traditional methods (funnel) and modern method (seed drill) as shown in Resource 2.
9. Perform **Activity 3** to give students an idea of sowing seeds.
10. ***Check your Understanding***

a. Name two agricultural implements.
b. Describe the tilling of soil.

Resources Suggested

Blackboard, chalk, Potted plant, **Resource 2** or show students the toy tools - plough, hoe and cultivator.

Resource 2:



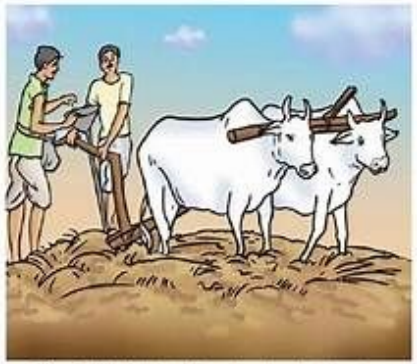


Fig. 1.2 (a) : Traditional method of sowing





Activity 2

Name of the activity – Let's select healthy seeds.
Type of activity – Group/Demonstration
Use it for – Selecting good quality seeds
Materials – Wheat seeds, A beaker full of water (Procure wheat seeds from any grocery store)

Procedure –

1. Depending on the class size, divide the students in groups of three or four.
2. Put the wheat seeds inside water and stir well. Wait for sometime and observe.
3. Let the students observe the experiment and understand the observation.

Conclude the fact that damaged seeds become hollow and are thus lighter. Thus they float on water.

Good quality seeds sink in water.

Activity 3

Name of the activity – Fun activity of sowing seeds.
Type of activity – Group/Demonstration
Use it for – Sowing seeds
Materials – Seeds of a plant, 4 to 5 pots with soil in it, spoons

Procedure –

1. Depending on the class size, divide the students in groups of three or four.
2. Ask one group to sow the seeds but leave the seeds uncovered in the pot, second group to sow some seeds deep in a pot without water, third group to sow seeds lightly covered with soil in a pot with water.
3. Each group should be asked to monitor the growth of plants or see any change for a few days.

You can ask the students to observe the growth of plants from seeds after a few days and also get an idea of how plants grow. Stress upon the importance of sowing at optimum depth and role of water in germination. Also discuss why the seeds did not grow in first two cases? What might have gone wrong?

Subtopic and Learning Objective #3

Adding Manure and Fertilizers

1. Explain the need of adding manure and fertilizers.

Teacher Activity

Plants take nutrition from soil to grow. After sometime soil becomes poor in its nutrient content.

1. Brief the students about the need of adding manure and fertilizers, and then introduce the process of manuring. (Fertilizers added - urea, ammonium sulphate, super phosphate; Manure.)
2. Recall about vermicomposting which they have studied in class VI.
3. Compare a fertiliser and manure.
4. DIscuss that manure is better than fertiliser.

5. ***Check your Understanding***

a. How is manure better than a fertiliser?
b. What are the benefits of a fertiliser to a soil?

Resources Suggested

Blackboard, chalk

Subtopic and Learning Objective #4

Irrigation and Protection of Crops from Weeds

1. Define irrigation and Its Sources
2. Explain protection of plants from weeds.

Teacher Activity

Every organism requires water, so do crops.

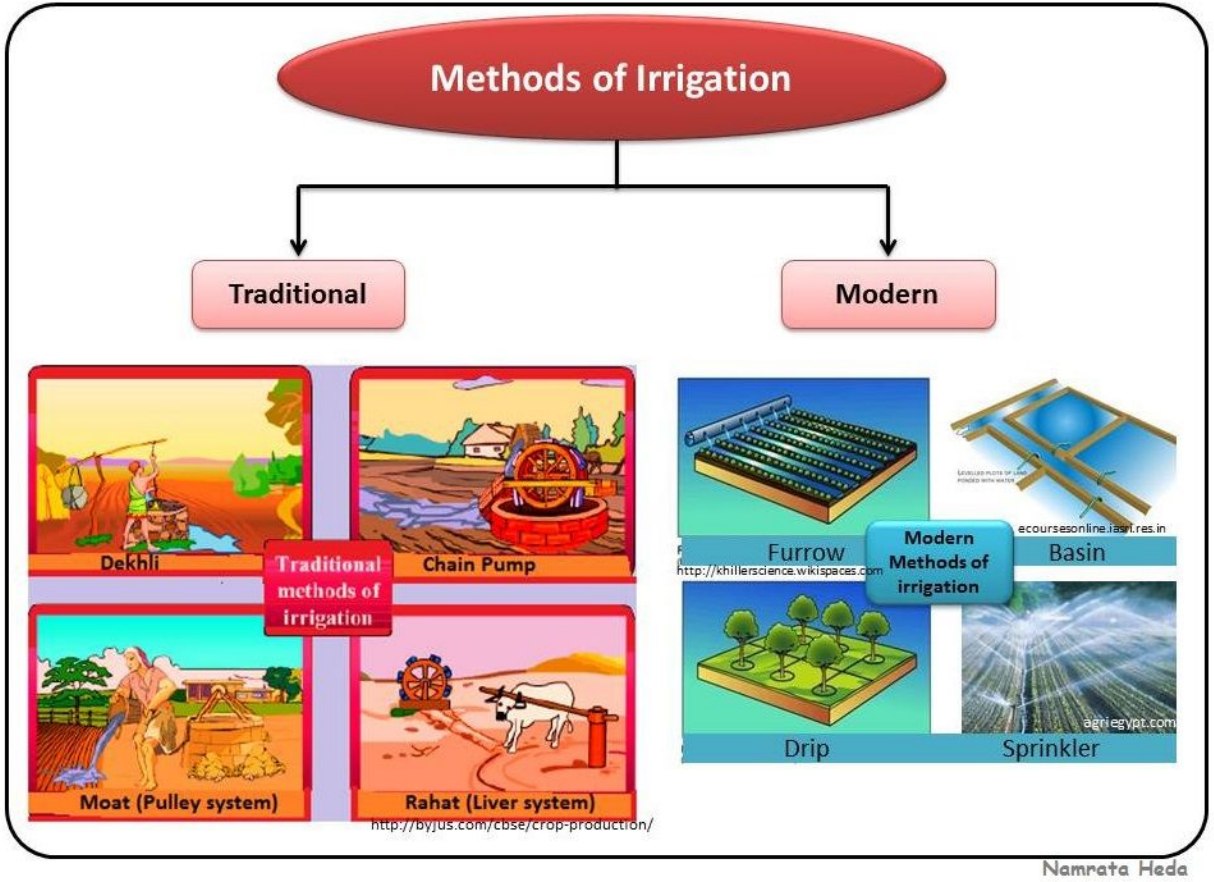
1. Ask the students to recall activity 3 and understand how plants require water to grow. Introduce the concept of irrigation to students and also tell them why is it required?
2. Mention them different sources of irrigation by showing Resource 4.
3. Discuss about traditional and modern methods of irrigation with the students. (Traditional - moat, chain pump, rahat, dhekli, Modern - Sprinkler system, Drip system)
4. DIscuss how modern methods of irrigation use water economically. You can ask students to do activity for this as mentioned in the extended activity section.
5. You can take the students out in the school garden or an open field and Introduce them weeds and weeding. Identify weeds growing along with plants and ways to remove them. Also discuss how they are harmful to the main crops in the field.
6. Discuss the process of weeding done by farmers and the best time to do it.
7. Mention the use of weedicides by farmers and the precautions they should follow while using them.
8. ***Check your Understanding***

a. Name any two sources of irrigation.
b. What is the need of irrigation of soil?

Resources Suggested

Blackboard, chalk, Resource 3

Resource 3:


Methods of Irrigation
Traditional
Modern
Dekhli
Chain Pump
Traditional methods of irrigation
Moat (Pulley system)
Rahat (Liver system)
http://byjus.com/cbse/crop-production/
Furrow
http://khillerscience.wikispaces.com
Basin
ecoursesonline.iasri.res.in
Modern Methods of irrigation
Drip
Sprinkler
agriegypt.com
Namrata Heda

Subtopic and Learning Objective #5

Harvesting and Storage of Crops

1. Describe harvesting of crops
2. Understand storage of crops

Teacher Activity

As the crops mature, they are ready to be pulled out or cut.

1. Introduce the students, the concept of harvesting with the help of sickle or by machine called harvester.
2. Tell them about threshing, which is done by combine.
3. Show Resource 5 to them for clarity.
4. Introduce them “Harvest festivals” and discuss the reason for its celebration after performing Activity 4.
5. After harvesting, comes the task of storage of large produce of crops.
6. Discuss with students the need of storing the crops by showing Resource 5. (Crops if not stored may get damaged by moisture, insects, rats or microbes.)
7. ***Check your Understanding***

a. What do you mean by harvesting of crops?
b. Why is there a need of storing crops?

Resources Suggested

Blackboard, chalk, Resource 4

Resource 4:



Sickle



Combine harvester



Silos



Granaries

Activity 3

Name of the activity – It's time to celebrate!!
Type of activity – Group
Use it for – Clearing the concept of harvesting.
Materials – paper and pen / picture cards of various festivals / Blackboard
Procedure –

1. Divide the students of a class into groups of four or five according to the size of the class.
2. Distribute the picture cards of various harvest festivals among the groups.
3. Ask the students to identify the festival and the representative of each group has to write the state/region in which it is celebrated.
4. Hence the following table needs to be filled by representative of each group on the blackboard.

Name of the Festival	State/Region in which it is celebrated
Pongal	
Baisakhi	
Holi	
Diwali	
Nabanya	
Bihu	

(Teacher may add more harvest festivals as required)

Subtopic and Learning Objective #6

Harvesting and Storage of Crops

1. List the food obtained from animals

Teacher Activity

Let the students recall that we obtain food from both plants and animals, as studied by them in grade VI.

1. Ask the students to list down what all food they eat which are obtained from animals.
2. Also ask them to write down their nutritional value.
3. Perform **Activity 5** and conclude that as animals are source of our many food items so, animals also need to be reared carefully.
4. Introduce the term “Animal Husbandry” by showing Resource 6.
5. ***Check your Understanding***

a. Why are animals reared?
b. Give two food items that we get from animals.

Resources Suggested

Blackboard, chalk, Resource 4

Resource 5:





Activity 4

Name of the activity – What do we get to eat from animals?
Type of activity – Individual / Group
Use it for – Clearing the need of animal husbandry
Materials – paper and pen / picture cards of various animals (cow, buffalo, hen, lamb, etc.) which provide us food / Blackboard
Procedure –

1. Ask the each student or each group of student to choose a picture card.
2. List various food items from the animal shown in the picture card.
3. Debate about each other's answers and compare which animal is more useful than another.

4. WORKSHEETS

Print or copy the worksheet questions on the blackboard and ask the students to attempt them. They can be given as homework or a class test as well.

Worksheet 1

Use it like: test after the chapter is complete, homework

Answer the following questions in brief:

1. What do you mean by weeding and weedicides?
2. Name agricultural practices taken up by farmers for cultivation of crops.
3. Give brief description of an agricultural tool used for tilling the soil since ancient times.
4. Give two points of difference between manure and fertilisers.
5. What do you mean by harvesting? How is it done?

Worksheet 2

Use it like: checking students understanding in class, oral test

Multiple choice questions:

1. Which one of the following is a kharif crop?

a) Maize
b) Wheat
c) Gram
d) Pea

2. Which of the following is a process of separating grain from chaff?

a) Winnowing
b) Threshing
c) Weeding
d) Harvesting

3. For which of the following actions is seed drill used?

a) Ploughing
b) Winnowing
c) Harvesting
d) Sowing

4. Which of the following is the first step of growing crops?

a) Sowing
b) Harvesting
c) Preparation of soil
d) Irrigation

5. Which of the following is true for a fertiliser?

a) It is a natural substance obtained by the decomposition of cattle dung, human waste and plant residues.
b) It is an inorganic salt.
c) It provides a lot of humus in the soil.
d) It is less rich in plant nutrients than manure.

6. Which of the following is NOT a traditional method of irrigation?

a) Dhekli
b) Chain pump
c) Rahat
d) Drip system

7. What is the process of cutting of mature crops called?

a) Weeding
b) Sowing
c) Harvesting
d) Tilling

8. Which of the following processes is involved in the following task?

Putting dried neem leaves in an iron drum.

a) Irrigation
b) Storage
c) Harvesting
d) Ploughing

9. What is the removal of unwanted and uncultivated plants called?

a) Irrigation
b) Weeding
c) Harvesting
d) Ploughing

10. Identify the group which helps in breaking the soil or making it loose.

a) Plough, Hoe, Cultivator
b) Chain pump, Seed drill, Moat
c) Plough, Hoe, Dhekli
d) Cultivator, Hoe, Rahat

Worksheet 3

Use it like: Fun activity for students

Arrange the following steps in correct sequence in the given boxes that can be followed by a farmer for any crop production.

Harvesting

Sowing

Irrigation

Manuring

Ploughing the field

Harvesting

Sending crop to factory

5. SOLUTIONS

This section gives you sample answers for activities and questions listed above.

Worksheet 1

1. The removal of unwanted and uncultivated plants (weeds) is called as weeding. Certain chemicals that are used by farmers to control the growth of weeds are called as weedicides.

2. These are the agricultural practices taken up by farmers for cultivation of crops:

a. Preparation of soil
b. Sowing
c. Adding manures and fertilizers
d. Irrigation
e. Protection from weeds
f. Harvesting
g. Storage

3. Plough is used since ancient times for tilling soil, adding fertilisers to the crops, removing the weeds etc. It is made of wood and is drawn by a pair of animals like bull. This tool consists of a strong triangular iron strip called ploughshare and a long log of wood called ploughshaft. One end of the plough shaft has a handle and its other hand is attached to a beam which is placed on the bulls' neck. One pair of bulls and a man can easily operate the plough. .

4.

Fertiliser	Manure
It is an inorganic salt prepared in factories.	It is a natural substance obtained by the decomposition of cattle dung, human waste and plant residues which can be prepared in fields.
It does not provide any humus to the soil.	It provides a lot of humus to the soil.

5. The cutting of crop after it is mature is called as harvesting. In this, the crops are pulled out or cut close to the ground. It is either done by sickle or by a machine called harvester.

Worksheet 2

1. (a) - Maize
2. (b) - Threshing
3. (d) - Sowing
4. (c) - Preparation of soil
5. (b) - It is an inorganic salt.
6. (d) - Drip system
7. (c) - Harvesting
8. (b) - Storage
9. (b) - Weeding
10. (a) - Plough, Hoe, Cultivator

Worksheet 3

6. EXTRA RESOURCES

Carry out the following suggested activities/ tasks if you have the time and resources to do them

Video Links:

1. Show the following videos to the students on computer/ tablet/ screen:

a) Crop production
https://www.youtube.com/watch?v=VaDccWJJ864

b) Types of irrigation
https://www.youtube.com/watch?v=7DM2c5mei7o

2. Extension Activity:

Purpose: Understand the methods of irrigation.

Students can be asked to make a model showing any modern method of irrigation. Students can discuss among themselves their projects and also discuss each of its advantages and disadvantages. Drip and sprinkler system can be demonstrated by using plastic pipes/ straws and small motors