

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------

SUMMARY SHEET		
Learner Previous Knowledge	Meaning of manure, fertilizers and humus Harvesting methods: threshing and winnowing Importance of soil for crops	
Target Knowledge for this topic	Crop production Agricultural practices Sowing, using manure and fertilizers, weeding, harvesting and storing of crops	
Learning Goals		
<i>More Complex Learning Goal-</i> Students will be able to infer the type of agricultural practice that will be required to be used for crops in given specific conditions.		
<i>Target Learning Goal-</i> Students will be able to describe agricultural practices and list ways in which crops can be grown best.		
<i>Simpler Learning Goal-</i> Students will be able to list agricultural practices for growing healthy crops and name the methods used for irrigation, and harvesting.		
Period No.	Lesson Objectives	Teaching Learning Materials Required
1	List agricultural practices and explain how soil is prepared for agricultural purpose.	- Board and markers - Worksheet 1
2	List the advantages of manure and differentiate between manure and fertilizer.	Worksheet 2
3	Explain sources and methods of	Board and markers

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------

	irrigation and how crops can be protected from weeds.	Worksheet 3
4	- Find out how crop is harvested and stored by gathering data. - Explain animal husbandry.	- Board and markers - Worksheet 4

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------

Period 1

Lesson Objectives

At the end of this lesson students will be able to:

- List agricultural practices and explain how soil is prepared for agricultural purpose.

Teaching Learning Materials required

- Board and markers
- Worksheet 1

Details of Teaching Learning Experience

Seating Arrangement: - In groups of 4 or 5

Lesson Beginning <u>Time:</u> 5-7min <u>Purpose:</u> • Introduce the topic	<u>Introduction to the topic</u> • Introduce the topic of crops by posing questions such as: ○ What is the meaning of agriculture? ○ Why is it important? ○ What are crops? How are they different from plants? ○ What do you understand by Rabi and Kharif crops? • Collate their responses on the board. • Now inform the students that they will understand the different agricultural practices and also learn about how soil is prepared.
Lesson Middle <u>Time:</u> 25 min <u>Purpose:</u> • Develop conceptual understanding	• Ask the students to share their experiences of farming. • Ask them to think about how a field is prepared for agriculture and what other steps are being taken for good crop. • List the basic agricultural practices i.e. preparation of soil, sowing, adding manure and fertilisers, irrigation, protection from weeds, harvesting and storage on the board. • Ask the students to describe the first two practices in their own words. • Discuss the first two practices with students. • Distribute worksheet 1 to the students. • Ask the groups to attempt questions. (They can use NCERT book if required).

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



	• Let the groups now share their responses and brainstorm for the answers. • Collect all the answers and ensure that they arrive at a common consensus.
Lesson End <u>Time:</u> 5min <u>Purpose:</u> • Finish up	<u>Finish Up</u> • Clear doubts of the students.

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Worksheet 1

Skill: Comprehension

1. Why can you grow only specific crops in different seasons?

2. Give examples of Rabi and Kharif crops.

3. List the agricultural practices that a farmer has to carry out for growing crops.

4. It is not possible to grow wheat in the Monsoons. What can be the reason?

5. How does ploughing help in preparing soil for growing crops?

6. Name the instruments used in ploughing and leveling.

7. How are the implements for ploughing and leveling useful in preparing soil?

8. What is sowing?

9. Seed drill is very useful in sowing seeds. Comment on this statement.

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Period 2

Lesson Objectives

At the end of this lesson students will be able to:

- List the advantages of manure and differentiate between manure and fertilizer.

Teaching Learning Materials required

- Worksheet 2

Details of Teaching Learning Experience

Seating Arrangement: In groups of 4-5 each in the school garden

Lesson Beginning <u>Time:</u> 5 min <u>Purpose:</u> • Activate prior knowledge.	<u>Brainstorming:</u> • Begin the class by asking following questions: ○ What are the conditions needed by crops to grow well, besides soil? ○ What are leguminous plants? ○ How does the soil gain nutrients? ○ Do you think the nutrients remain in same quantity after growing a crop in a season? • Inform the students that they will now learn about manure and fertilizers.
Lesson Middle <u>Time:</u> 25 min. <u>Purpose:</u> • Develop conceptual understanding	<u>Worksheet</u> • Distribute worksheet 2 • Discuss the information given in worksheet 2. • Let the students discuss answers within their groups first. • Now there be a whole class discussion in which the answers are discussed. • Arrive at a common consensus.

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Lesson End <u>Time:</u> 5 min <u>Purpose:</u> • Finish Up	<u>Finish Up</u> • Wrap up the class by clearing any doubts.
---	---

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Worksheet 2

Skill: Drawing Inferences

Information

1. The matter or substances added to soil to make it fertile and enrich it with nutrients are termed as **manure** or **fertilizers**.
2. Manure is natural, organic substances which are obtained from cattle dung, human waste and residues of plants. It is prepared naturally in fields and it provides lot of humus to the soil. Compared to fertilizer, it is less rich in the required nutrients.
3. Fertilizers are man- made inorganic substances which are used for growing healthy crops. They do not provide humus and are rich in minerals like nitrogen, potassium and phosphorus which help the plants grow well.
4. Manure and fertilizers aid healthy growth of plants.
5. Continuous growing of crops takes away the nutrients from the soil. Hence it is necessary for the farmer to add manure/fertilizer before and after sowing to maintain balance of the nutrients in soil.
6. Sometimes, the farmers sow different crops alternately to replenish the soil with nutrients. For example, legumes can be grown in one season and what in the next. This method is called crop rotation.
7. Manure increases the water holding capacity of plants and makes the soil porous. This helps in better exchange of gases and it also helps in increasing microorganisms which help in growth of plants. The texture of the soil improves too due to natural manure.

A. Differentiate between manure and fertilizers.

B. Sheela is of the opinion that manure will be better for growing gram daal crop in her field but her brother advises to use fertilizer. With whom do you agree and why?

C. List the advantages of manure.

D. Name the nutrients/minerals that are supplied to the soil when fertilizers are used.

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Period 3

Lesson Objectives

At the end of this lesson students will be able to:

- Explain sources and methods of irrigation and how crops can be protected from weeds.

Teaching Learning Materials required

- Board and markers
- Worksheet 3

Details of Teaching Learning Experience

Seating Arrangement: - In groups of 4 or 5

Lesson Beginning <u>Time:</u> 5 min <u>Purpose:</u> Introduce the topic	<u>Recapitulation</u> • Begin the class by asking a few students to discuss their answer for the question given in homework. • Recap the topic by posing few questions such as: ○ What do you mean by agricultural practices? ○ How is soil prepared for sowing? ○ Which implements are used for ploughing and sowing? ○ What is irrigation? • Gather answers and ensure that the whole class is on the same page. • Inform the students that they will now learn about irrigation and how to remove weeds in the class.
Lesson Middle <u>Time:</u> 25 min. <u>Purpose:</u> • Develop conceptual understanding	• Ask the students to think of different ways through which the water can reach the fields • Collate their answers on the board. • Ask them how the school garden is being irrigated. • Discuss their responses. • Explain the traditional and modern methods of irrigation with them. • Ask them to think what will happen if extra plants are not removed from the field.

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



	• Collate their responses on the board and discuss how weeds are harmful for crops. • Distribute worksheet 3 to all students. • Ask them to attempt the questions and discuss in their groups. • Let there now be a brainstorming session in which answers can be discussed. • The whole class must arrive at a common consensus with respect to the answers.
Lesson End <u>Time:</u> 5 min <u>Purpose:</u> • Finish Up	<u>Finish Up</u> • Wrap up the class by clearing any doubts that the students may have.

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Worksheet 3

Skill: Comprehension

Part 1

1. List ways by which water is useful for plants.

2. Complete the sentence.

Irrigation means _____

3. What are the traditional methods of irrigation?

4. Name the two modern methods of irrigation. Explain any one of them.

Part 2

1. What are weeds?

2. Fill in the boxes with the reasons why weeds need to be removed.

2. Ashok the gardener was weeding the flower beds. What exactly was he doing?

3. List ways to remove weeds.

4. Which of the following is used for weeding? Identify it and name it.



5. What are weedicides?

6. Given below are two pictures. Select the one which shows weedicides being sprayed correctly. Give reason for your selection.



Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Period 4

Lesson Objectives

At the end of this lesson students will be able to:

- Find out how crop is harvested and stored by the farmers
- Explain animal husbandry

Teaching Learning Materials required

- Board and markers
- Worksheet 4

Details of Teaching Learning Experience

Seating Arrangement: - In groups of 4 or 5

Lesson Beginning <u>Time:</u> 5 min. <u>Purpose:</u> Recap the previous learning	• Quickly ask a few students to recap in brief points, the agricultural practices learnt so far.
Lesson Middle <u>Time:</u> 25 min. <u>Purpose:</u> Develop conceptual understanding	<u>Worksheet</u> • Ask them what happens when the crop is mature. • Introduce the term ‘harvesting’ by taking few examples. • Ask them once the crop is harvested, how do we take care of that. • Collate their responses on the board. • Discuss why the separation of chaff is required before storing the grains. • Distribute worksheet 4 to them. • Let the students now attempt questions. • Now there can be a whole class discussion for the answers. • Arrive at a common consensus. • Explain the term ‘animal husbandry’ and discuss how animals are reared in homes and farms.

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Lesson End <u>Time:</u> 5 min <u>Purpose:</u> • Finish Up	<u>Finish Up</u> • Finish up the discussion by clarifying any doubts.
---	--

Class:8	Subject: Science	Topic: Crop Production
----------------	-------------------------	-------------------------------



Annexure 4A

Skill: Comprehension

I. Write about harvesting in the box below.

II. Write definition of threshing and winnowing below.

III. How is harvested crop stored?

IV. How is winnowing different from threshing?

V. What is the need for storing grains? What will happen if they are not stored correctly?

VI. Name three animals which are reared on a large scale.
