Lesson-4: Plants – Food Preparation and Storage



10 Periods (40 minutes each)

Learn Better (Main Course Book), Stay Ahead (Workbook), Book of Holistic Teaching, Book of Project Ideas, Posters, CRM signs.



Animation, Animated Activities, Concept Map, Diagram, Dictionary, eBook, I Explain, Infographic, Quiz, Slideshow, Video.

Curricular Goals and Objectives (NCF)

To enable the students:

- to understand how plants make and store food.
- to identify and classify plants based on their characteristics.
- to explore the relationship between plants and animals in ecosystems.
- to develop awareness of environmental conservation and the importance of plants.

Methodology

Period 1



Teacher: Great. Before we dive into our lesson, let us take a moment to

relax and focus our minds with a short meditation. Ready? **Teacher:** Sit comfortably in your chair, with your back straight and feet flat on the ground. Close your eyes gently and take a deep breath through your nose. Hold it for a moment, then slowly breathe out through your mouth.

Let us do these three more times. Breathe in... and breathe out. As you breathe, imagine your mind becoming clear and ready to learn.

Open your eyes and smile at your friends. Let us start our lesson with positive energy.

Teacher: Before we start the class, let us all say together, 'I love to eat fresh fruits and vegetables.' Repeat after me: 'I love to eat fresh fruits and vegetables.'

Teacher: Alright. Today, we are going to begin a new chapter 'Plants – Food Preparation and Storage.' We use

a KWL chart to help us organize our thoughts and learning. I have made a KWL format on the blackboard. Please

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take out your notebooks and draw the same format.

К	w	L

Teacher: Let us start by filling out the 'K' and 'L' columns. Take a few minutes to think and write. If you have any questions, feel free to ask.

Teacher: Before we start the chapter, we will do a quick Re-KAP, which involves revisiting our previous knowledge through creative activities using Kinaesthetic, Auditory and Pictorial methods to make our learning interactive and engaging, starting with a kinaesthetic activity to get us ready for the new topic.



Theme 3: How Do We Adapt?



Kinaesthetic

Teacher: Today, we are going to do a Kinaesthetic activity. I want you to write the names of a few vegetables on your

paper. Once you have done that, you will ask your partner to identify which part of the plant each vegetable comes from. Is it the stem, the leaf, the root or the fruit?



Teacher: Once you have finished asking your partner, you can switch roles. Let us see who can come up with the most vegetables and identify their plant parts correctly.

(Give time to the students to perform the activity.)

Teacher: Fantastic work, everyone.

Auditory

Teacher: Let us do the auditory activity. Listen carefully as I want you to answer based on what you hear. Are you ready?



Teacher: Let me tell you a story about a little plant named Piku. Piku's roots lived deep in the soil, drinking water to help Piku grow strong. The stem was like a road, carrying water from the roots all the way to the leaves. Piku's leaves were special—they came in all kinds of shapes, like hearts and ovals and used sunlight to make food for the plant. Together, the roots, stem and leaves made sure Piku stayed healthy and happy.

Teacher: Now that you have heard the story, can anyone tell me what Piku's roots did to help him?

(Wait for students to answer)

Teacher: Great listening. Keep it up.

Pictorial

Teacher: Excellent. Now, we have a pictorial activity. Look at this picture of a plant given on page 25 of your Main Course Book. You have to label



the different parts of the plant shown in the image. Think about where each part is located.

(Wait for students to label the parts and discuss the correct answers.)

Teacher: Great work, everyone. You did a fantastic job with all these activities.

Differentiated Activities

110 km/h



What part of the plant makes food using sunlight?

80 km/h



What part of the plant carries water from the roots to the leaves?

40 km/h



What do the leaves of a plant use to make food?

Home Task

Draw a plant in your notebook. Label the different parts of the plant—roots, stem, leaves and flowers. Write a short description of what each part does to help the plant grow.

Period 2

Teacher: Good morning, students. How are you all today?



Teacher: Today, we are going to start with an activity called 'Interacting Better'. I want you to work with your partner.



Teacher: Ask your partner to name the food items that we get from plants.

Teacher: Once your partner answers, take turns and see how many food items you both can come up with.

(Wait for students to complete the activity.)

(Use CRM signs to settle the class.)

Teacher: Well done. After you have shared your answers, let us all discuss together and see what we can add to our list.

Teacher: Now, we are going to read a story about Sam and

Maria. I will give you a few moments to read the story on your own. After you finish, I will ask you some questions to see what you have learned.



(Students read the story silently.)

prepare their food and store it

Sam and Maria are returning from the library. They are going to Maria's house.



Teacher: Now that you have finished reading, let us go over it together. Can anyone tell me what Maria did when Sam praised her garden?

Teacher: Great. Maria said that plants adapt to their surroundings. What do you think she meant by that?

Teacher: Sam asked about how the plants in Maria's garden grew so well. What did Maria say was the reason?

Teacher: Exactly. Maria waters her plants daily, which helps them absorb nutrients from the soil. What do you think would happen if plants did not get enough water?

Teacher: Now, let us think about plants. How do plants prepare their food? What did you learn from the story?

Teacher: Wonderful. As we can see, plants need water and proper care to grow healthy and strong. Why do you think it is important to take care of plants in our surroundings?

Teacher: Excellent work today, everyone. You have learned a lot about how plants grow and how we can help them stay healthy. Keep thinking about how you can take care of plants at home.

You may show the **Dictionary** and **eBook** on the digital platform.

Differentiated Activities

110 km/h

What helps plants adapt?

80 km/h

What does Maria use to water plants?

40 km/h

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What do plants need to grow?

Home Task

Write down three food items that come from plants. Describe how each one is useful to humans.

Period 3

Teacher: I will give you clues about different parts of a plant and you have to guess which part I am talking about. Ready?

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Teacher: I grow deep in the soil and drink water to help the plant grow. What am I? (Roots.)

Teacher: I am like a road, carrying water from the roots to the rest of the plant. What am I? (Stem.)

Teacher: I come in different shapes, like hearts and ovals. I use sunlight to make food for the plant. What am I? (Leaves.)

Teacher: I bloom in bright colours and help in making fruits and seeds. What am I? (Flower.)

Teacher: I grow on trees and plants and can be eaten. I come in many different shapes, colours and flavours. What am I? (Fruit.)

Teacher: Fantastic job, everyone. You are doing a great job. Let us move ahead with today's lesson.



Teacher: Today, we are going to learn how plants make their food.

(The teacher will read the first three paragraphs of page 27 aloud and provide explanations to ensure that the students understand the content.)



Teacher: Can anyone tell me what the process is called when plants make food?

Teacher: That is right. It is called photosynthesis. Now, what part of the plant helps in photosynthesis?

Teacher: Yes, the leaves are the kitchen of the plant. Why do you think leaves are called the kitchen?

Teacher: Great. The leaves are where photosynthesis takes place. They are green because of a substance called chlorophyll. Can anyone tell me what chlorophyll helps the plant do?

Teacher: Excellent. Chlorophyll helps plants make food. Can anyone think of what else leaves need to make food?

Teacher: Yes, leaves need air, water and sunlight to make food.

Teacher: Now, let us look at the different parts of a leaf. Can anyone tell me what the stomata do?





Discovering better

Explain the terms mentioned in the 'Discovering better' activity mentioned on page 27 of the Main Course Book.)

Teacher: That is right. The stomata are small openings that help the leaf take in water and carbon dioxide and let out oxygen and water vapour. Can anyone tell me where the stomata are found on the leaf?

Teacher: Exactly. They are found on the underside of the leaf. Now, can anyone tell me what the midrib is?

Teacher: Correct. The midrib runs down the centre of the leaf and helps transport food and water. Can anyone tell me what other veins are present in the leaf?

Teacher: Well done. Several side veins also help transport food and water. So, we see how the parts of the leaf work together to help the plant grow and make food.

(I) You may show the Video and Diagram on the digital platform.

Differentiated Activities

110 km/h

What happens if a leaf does not have enough chlorophyll?

80 km/h



What do stomata help a leaf do?

40 km/h



What part of the plant is the kitchen?

Home Task

Draw and label the parts of a leaf in your notebook. Explain how the chlorophyll in leaves helps in the process of photosynthesis.

Period 4

Teacher: Good morning, students. How are you all today?



Teacher: Let us start with a fun game called 'Nature Movements'. Let us move like things we find in nature. If I say 'Tree,' stand tall and sway gently. If I say 'Bird,' flap your arms like wings. If I say 'River,' move your arms like flowing water.

(Use this activity to warm up the students for the lesson. Call out living things in random order to keep the students interested and enthusiastic.)

Teacher: Great. Let us give ourselves a big applause for all the energy you brought to the class.

Teacher: Today, we are going to learn about photosynthesis.

(The teacher will read the last two paragraphs of page 27 aloud and provide explanations to ensure that the students understand the content.)

Teacher: Now, tell me what photosynthesis means.



Teacher: That is correct. Photosynthesis is when plants use light, air and water to make their own

food. The word 'photo' means light and 'synthesis' means putting things together. What do plants use from the air to make their food?



Teacher: Well done. Plants use carbon dioxide from the air, along with water, sunlight and chlorophyll in the leaves. Can anyone tell me what food is produced by plants during photosynthesis?

Teacher: Excellent. The food produced is a simple sugar called glucose. This gives the plant energy. Can anyone tell me how plants use this food once they make it?

Teacher: Great. Plants use the glucose for energy and some of it is stored for growth. Now, can anyone explain where the extra food is stored?

Teacher: Correct. The extra food is stored in the stems, leaves or roots in the form of starch. Does anyone know what a vein is?

Teacher: That is right. A vein is a tube-like structure that transports substances such as water to different parts of the plant. Now, let us take a closer look at how this process helps plants grow. Can anyone think of why photosynthesis is so important for plants?

Teacher: Wonderful. Photosynthesis is essential because it helps plants grow by providing them with food and energy. You did a fantastic job today, keep thinking about how plants use sunlight to create their food.

Poster



Teacher: Let us take a moment to look at the poster on the wall.

(Display and discuss the posters prominently in the

classroom to reinforce the learning about the process of Photosynthesis. Encourage students to observe the posters and discuss about Photosynthesis.)

Teacher: Great observation everyone.

Teacher: Now, let us do the understanding better activity given on page 27 of your Main Course Book. Let us start with the first question: Which substance is responsible for the green colour of the leaves?

(Wait for the students to answer.)

Teacher: That is correct. The substance is chlorophyll. Well done. Now, for the next question:

'In what form is the extra food stored in plants?'

(Wait for the students to answer.)



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Teacher: Excellent. The extra food is stored in plants in the form of starch. Great job, everyone.

You may show the I Explain, Infographic and Animation on the digital platform.

Differentiated Activities

110 km/h

What is the role of chlorophyll in photosynthesis?

80 km/h



Where is the extra food stored in plants?

40 km/h

What do plants use to make food during photosynthesis?

Home Task

Draw a diagram of a plant showing the process of photosynthesis. Label the parts involved in photosynthesis, including the leaf, sunlight, water, carbon dioxide and glucose. Write a short explanation of what happens during photosynthesis.

Period 5



Teacher: Good morning, students. How are you all today?

Teacher: Good morning, students. Let us start with a quick challenge to test your memory. Answer these questions as quickly as you can.

Teacher: Which part of a plant carries water from the roots to the leaves? (Stem.)

Teacher: What do plants need from the sun to prepare their food? (Sunlight.)

Teacher: What do we call the process where plants prepare their own food using sunlight? (Photosynthesis.)

Teacher: Which part of the plant is usually colourful and attracts insects for pollination? (Flower.)

Teacher: Name two food items that we get from plants. (Fruits, vegetables, grains, nuts, etc.)

Teacher: Great job, everyone. Now, let us begin today's lesson.

Teacher: Today, we are going to learn about some special types of plants.

(The teacher will read the first three



paragraphs of page 28 aloud and provide explanations to ensure that the students understand the content.)

SOME SPECIAL TYPES OF PLANTS

Plants, such as cactus and agave, do not have leaves. They make food in their green stems. There are some non-green plants, such as mushrooms. These plants lack chlorophyll, and therefore, they cannot prepare their own food. They depend on dead and decaying plants and animals for their food. Some plants, such as croton, appear dark red, even though they contain

chlorophyll. In such plants, presence of other <u>plaments</u> is high which hides the green colour of the chlorophyll.

Insectivorous plants

Insectivorous plants such as the venus flytrap, feed on insects for their food requirements. The leaf of a venus flytrap is folded into two halves. When an insect comes and sits on the leaf, the two halves close and the insect gets trapped inside. Sundew, pitcher plant and cobra illy are some other insectivorous plants. Parasitic plants







plants for their food requirements. Such plants cannot perform photosynthesis as they have no chlorophyll. They grow on other plants and get the required nutrients from the host plant. For example, yellow rattle, dodder, broomrape and rafflesia.



Teacher: Let us start with non-green plants like cacti and agave. These plants do not have green leaves. Can anyone guess how they make food if they do not have leaves?

Teacher: Excellent. They make food on their green stems. Now, there are some plants, like mushrooms, that cannot make their own food because they lack chlorophyll. What do you think these plants depend on for food?

Teacher: Well done. They depend on dead and decaying plants and animals for their food. Next, talk about some plants like crotons. These plants are dark red, even though they contain chlorophyll. Can anyone guess why they appear red instead of green?

Teacher: Great. These plants have other pigments that hide the green colour of the chlorophyll.



Teacher: Now, let us talk about insectivorous plants. Can anyone tell me how they get their food?

Teacher: Yes, insectivorous plants like the Venus flytrap feed on insects. When an insect sits on the leaf, it gets trapped. Can anyone name some other insectivorous plants?

Teacher: Wonderful. Sundew, pitcher plants and cobra lilies are also insectivorous plants. Lastly, let us talk about parasitic plants. How do you think these plants get their food?

Teacher: Correct. Parasitic plants depend on other plants for food. They cannot perform photosynthesis. Can anyone name some parasitic plants?

Teacher: Excellent. Yellow rattle, dodder, broomrape and rafflesia are examples of parasitic plants. Well done

today, everyone. Keep thinking about how plants adapt to get their food.

Understanding better Understanding bet Say yes or no. 1. All plants have green leaves. 2. Cobra lilv is an insectivorous plant. (28)

Teacher: Now let us do the 'Understanding better' activity mentioned on page 28 of your Main Course Book. I will ask

you two questions. You need to answer with 'Yes' or 'No'.



Teacher: The first question is, 'Do all plants have green leaves?'

Teacher: Excellent. Now, here is the second question: 'Is Cobra lily an insectivorous plant?'

Teacher: Great job. You have all done well in understanding these special types of plants. Keep thinking about how plants are so different and adapt to their surroundings.

Differentiated Activities

110 km/h

What makes parasitic plants depend on other plants for food?

80 km/h



What do insectivorous plants feed on?

40 km/h



What is the colour of the leaves of cacti and agave?

Home Task

Draw a picture of an insectivorous plant. Write down in your notebook, how insectivorous plants catch their food.

Period 6

Teacher: I will ask you some interesting

questions about different types of SHOULD DO plants and how they adapt to their surroundings. Let us see how many you can answer correctly.



Teacher: Which plant does not have green leaves but can still make its own food using its stem? (Cactus.)

Teacher: Which plant depends on dead and decaying matter for food because it cannot make its own food? (Mushroom.)

Teacher: What is the special feature of the Venus flytrap that helps it catch its food? (It has trap-like leaves that close when an insect lands on them.)

Teacher: Why do croton plants appear red even though they contain chlorophyll? (They have other pigments that hide the green colour.)

Teacher: Which type of plant depends on other plants for food and cannot perform photosynthesis? (Parasitic plants like dodder and rafflesia.)

Teacher: Excellent work, everyone. Let us move ahead with today's lesson.

Teacher: Today, we are going to learn about how plants and animals depend on each other.

(The teacher will read the last two paragraphs of page 28 and the first paragraph of page

29 aloud and provide explanations to ensure that the students understand the content.)





Parasitic plants depend on other plants for their food requirements. Such plants cannot perform photosynthesis as they have no chlorophyll. They arow on other plants and get the required nutrients from the host plant. For example, yellow rattle, dodder, broomrape and rafflesia.



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PLANTS AND ANIMALS DEPEND ON EACH OTHER

There is interdependence between plants and animals. Animals require oxygen to breathe and food to eat. Plants need carbon dioxide for photosynthesis. Animals exhale carbon dioxide, which is then taken in by the plants. Plants provide food and oxygen for the animals.

Energy flow in living things

Human beings and animals need energy to perform various functions. This energy is supplied by the food we eat. Green

plants use sunlight to prepare food through photosynthesis. That food helps them grow. The plants are consumed by humans beings and animals. Therefore, energy is transferred from the Sun to plants and then to animals and humans beings.

Discovering better pigments: something that gives LAD colour to things interdependence: to depend on each ot exhale: to breathe out (here, gases) (28)

Teacher: Can anyone tell me what happens when animals breathe in oxygen and eat food?

Teacher: That is right. Animals breathe in oxygen and eat food to live, but plants need carbon dioxide for photosynthesis. What do plants do with the carbon dioxide they get from animals?

Teacher: Excellent. Plants take in carbon dioxide and use it to make their food. In turn, they provide food and oxygen for the animals. Now, can anyone tell me how energy flows between living things?

Teacher: Well done. Energy from the Sun helps plants grow and the food they produce is then consumed by humans and animals. How do you think plants get the energy to make food?

Teacher: Correct. Plants get energy from sunlight, which helps them prepare food through photosynthesis. Now, how does energy move through plants and animals?

Teacher: That is right. The energy is transferred from the Sun to plants and then to the animals that eat them.



Teacher: Now, let us talk about the balance in nature. Can anyone tell me why we should protect plants and animals?

Teacher: Great. Protecting both plants and animals helps keep nature balanced. What can we do to help with this balance?

Teacher: Yes. We can plant more trees, stop cutting down trees and protect wild animals in special sanctuaries and reserves. Excellent job today. Keep thinking about how plants and animals are interconnected.

() You may show the **Slideshow** on the digital platform.

Differentiated Activities

110 km/h

What is the source of energy for plants, animals and humans?

80 km/h



What do plants use to make their food?

40 km/h



What do plants provide to animals?

Home Task

Write a short paragraph about how plants and animals depend on each other. Include what happens when animals breathe in oxygen and eat food and how plants make food through photosynthesis.

Period 7



Teacher: Good morning, students. How are you all today?

Teacher: Great. I will ask you some interesting questions about how plants and animals depend on each other. Let us see how many you can answer correctly.

Teacher: Which gas do animals release that plants need for photosynthesis? (Carbon dioxide.)

Teacher: What do plants provide animals with, which is essential for breathing? (Oxygen.)

Teacher: Which source of energy helps plants make their food? (Sunlight.)

Teacher: What do animals get from plants when they eat fruits and vegetables? (Food and nutrients.)

Teacher: How do plants help in keeping the environment clean? (They absorb carbon dioxide and release oxygen.) **Teacher**: Excellent answers, everyone. let us move ahead with today's lesson.

Connecting better



Teacher: Let us start with a 'Connecting Better' activity.

Maria is telling Sam about a book she read. It was about the great king, Ashoka, who gave up war for peace. What do you think Ashoka did after the Kalinga War?



Teacher: Right. He started planting trees, building dams and helping his people. Can anyone think of other ways Ashoka might have tried to help the people?

Knowing better



Teacher: Excellent thinking. Now, let us move on to 'Knowing Better.' Do you know who was the first Indian scientist to study photosynthesis?

Teacher: Yes. It was Sir Jagdish Chandra Bose. He discovered that

chandra Bose. He discovered that plants have life and invented the 'cresograph.' Can anyone tell me



what the 'cresograph' helped scientists to do?

Teacher: Brilliant. It helped to determine how plants grow. Sir Jagdish Chandra Bose received some amazing awards for his work. Can you name any one of them?

Finding better



Teacher: Great. Now, let us talk about the 'Finding Better' activity. Do you know how a Banyan tree grows?

Teacher: Yes. The Banyan tree has an unusual root

system. It does not grow underground but grows from its branches. Can anyone think of any other plants that grow in an unusual way?



Giving better



Teacher: Now, for the 'Giving Better' activity. Do you know how you can help plants grow at home or in your community?

Teacher: That is right. You can plant saplings in your garden or nearby garden with the help of an adult. What other things can you do to help your community grow plants?



Healing better



Teacher: Fantastic ideas. Let us finish with 'Healing Better.' Who knows about the healing properties of basil, also known as Tulsi?

Teacher: Yes. Tulsi helps in boosting immunity and treating illnesses like cough, fever and colds. Can anyone tell me another use of Tulsi?

Teacher: Excellent. Tulsi is also used as a face cleanser. Well done, everyone. Keep thinking about how we can help plants and people stay healthy.



You may show the **Concept Map** and **Animated Activities** on the digital platform.

(Instruct the students to bring their workbooks in their next class.)

Differentiated Activities

110 km/h

What did Sir Jagdish Chandra Bose invent to study the growth of plants and how did it help scientists?

80 km/h



What is the root system of the Banyan tree like?

40 km/h



What is Tulsi used for?

Home Task

For your homework, think about how you can help plants grow at home. Write about three things you can do to take care of plants in your garden or home.

Period 8





Teacher: Great. Let us begin today with an engaging activity to recall what we have learned so far. Listen carefully and answer as quickly as you can. Let us see how many you can answer correctly.

Teacher: Which Indian king planted trees and built dams after a great war to help the people? (King Ashoka.) Teacher: Who was the first Indian scientist to study photosynthesis? (Sir Jagdish Chandra Bose.)

Teacher: What is the name of the instrument invented by Sir Jagdish Chandra Bose to study plant growth? (Crescograph.)

Teacher: Which large tree has roots that grow from its branches instead of underground? (Banyan tree.) **Teacher**: Fantastic answers, everyone. let us move ahead with today's lesson.

Recalling better

Recalling better

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 Chlorophyll is a substance that provides the green colour to the leaves.
- Stomata are the small openings in the leaves that allow the exchange of gases and water vapour during photosynthesis.
- Plants with green leaves prepare their own food by a process
- called photosynthesis.
- Sunlight, water, carbon dioxide and chlorophyll are essential for photosynthesis
- Plants, such as cactus, prepare their food in their green stems
 Insectivorous plants depend on insects for their food.
- Parasitic plants depend on other plants for their food requirements.
- $\circ\,$ Both plants and animals are dependent on each other.

Teacher: Let us review what we have learned so far

through the 'Recalling better' activity. Can anyone tell me what chlorophyll is and why it is important for plants?



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Teacher: Right. Chlorophyll gives plants their green colour and helps them absorb sunlight for photosynthesis. Now, does anyone remember what stomata are?

Teacher: Excellent. Stomata are small openings in the leaves that allow gases and water vapour to pass through during photosynthesis. Can someone explain how plants prepare their food?

Teacher: Yes. Plants with green leaves prepare their own food through photosynthesis. What do plants need for this process?

Teacher: Great. Plants need sunlight, water, carbon dioxide and chlorophyll to make their food. Now, let us talk about how different plants prepare their food. Can anyone tell me how cactus plants prepare their food?

Teacher: Correct. Cactus plants prepare their food in their green stems. How about insectivorous plants? What do they depend on for food?

Teacher: Yes, insectivorous plants depend on insects for their food. Now, let us move to parasitic plants. Does anyone know how parasitic plants get their food?

Teacher: Exactly. Parasitic plants depend on other plants for their food. Now, let us wrap up with how plants and animals depend on each other. How are plants and animals connected?

Teacher: Well done. Plants and animals are dependent on each other for survival.

Learning better

S Learning be	tter	CBA
A Tick (√) the correct	ct answer.	
1. Which substand	ce is responsible for the green colour of the leaves?	
a. midrib	b. stomata c. chlorophyll	
2. What is the pro	cess by which plants prepare their own food?	
a. breathing	b. respiration c. photosynthesis	
3. Which of the fo	llowing is not required for photosynthesis?	
a. water	b. oxygen c. sunlight	
4. Which of the fo	llowing is an example of a non-green plant?	
a. agave	b. cactus c. mushroom	
5. Which of the fo	llowing is not a parasitic plant?	~
a. croton	b. dodder c. rafflesia	30

Teacher: Everyone please open page number 30 of your

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book. We have an exercise called 'Learning Better.' In part 'A' of 'Learning better' you have to tick the correct answer. Are you ready to get started?

Teacher: Great. Let us begin with the first question. Which substance is responsible for the green colour of the leaves?

Teacher: The correct answer is chlorophyll. Well done.

(Similarly complete all five questions)

Worksheet - 1



MUST DO Teacher: Let us do some activities from the workbook. Everybody, please open page number 20 of your

workbook and answer the questions given in worksheet - 1.

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

(IIII) You may show the **Quiz** on the digital platform.

Differentiated Activities

110 km/h



What does chlorophyll help plants absorb?

80 km/h

What do plants need for photosynthesis?

40 km/h



What is the function of stomata?

Home Task

The Project Idea, given in the book of Project Ideas, page number 16 under the title 'Plants - Food Preparation and Storage.' This project should be assigned to the students to work on. Ensure that the students understand the project requirements and provide any necessary guidance or materials they might need.

Period 9



Teacher: Good morning, students. How are you all today?

Teacher: Great. Let us begin today with a fun 'Plant and Nature Riddle Challenge' to recall what we have learned so far. Listen carefully and try to answer each riddle as quickly as possible.

Teacher: I am a green substance in leaves that helps plants make their food. What am I? (Chlorophyll.)

Teacher: I am a plant that does not have green leaves, but I still make food using my stem. Who am I? (Cactus.)

Teacher: I am a small opening on the underside of a leaf that allows gases and water vapour to pass through. What am I? (Stomata.)

Teacher: I am a scientist who discovered that plants have life and invented an instrument to study plant growth. Who am I? (Sir Jagdish Chandra Bose.)

Teacher: I am a tree with roots that grow from my branches instead of underground. What tree am I? (Banyan tree.)

Teacher: Fantastic thinking, everyone. Now, let us move ahead with today's lesson.

Teacher: Let us start part 'B' of the 'Learning better' section, you have to match the column. Let us do a matching activity. Are you ready to get started?



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Learning better

B	Match the colum	ins.		
	1. chlorophyll	•	•	a. parasitic plant
	2. cactus	0	0	b. green substance
	3. mushroom	•	•	c. insectivorous plant
	4. sundew	•	0	d. non-green plant
	5. broomrape	•	•	e. lacks green leaves

Teacher: Great. Let us begin. Some animals are given and you have to match them with what they do. Ready?



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Teacher: What do you think chlorophyll be matched with? Teacher: Yes, that is correct. A bear is a green substance. (Similarly complete all five matches)

- (C) Write short answers in your notebook. 1. What is a stomata?
- 2. Plants require sunlight to prepare food. However, some plants also grow in rooms that
- have no sunlight. What type of plants do you think they are? (30) 3. How does energy flow in living beings?

Teacher: Great. Now, let us do some short-answer questions. Let us begin with the first question. What is a stomata?



(Similarly complete all three questions)

- (D) Write long answers in your notebook.
 - 1. Explain how plants prepare their food by photosynthesis.
 - 2. Discuss some special plants. Give two examples of each kind.

Teacher: Great. Now, let us do some long-answer questions. Let us begin with the first question. Explain the difference between herbivores, carnivores and omnivores in detail along with examples for each.

(Students have to write the answers for the given questions in about 100 to 150 words in their notebook. Wait for the students to write the answers.)

(Similarly, complete both questions)

Worksheet - 2

Α.	Rearrange the letters to make some words related to plants.
1.	OORT
2.	VEALSE
3.	COLORHPHYLL
4.	TWEAR
5.	SLIGHTNU
B.	Fill in the blanks.
1.	Leaves of a plant are generally in colour.
2.	Chlorophyll helps the of sunlight in leaves.
3.	are the small openings present on a leaf.
4.	Leaves take in and during food preparation.
5.	Leaves give out and during food preparation.
с.	Write true or false.
1.	A leaf is also called the kitchen of the plant.
2.	The leaves of a plant are present below
3.	Leaves are not always green in colour.
4.	Chlorophyll helps the absorption of the sunlight.
5.	Stomata are present on the upper side of

Teacher: Let us do some activities from the workbook.

Everybody, please open page number 21 of your workbook and answer the questions given in worksheet - 2.



(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Book of Holistic Teaching

Refer to the Book of Holistic Teaching, page number 22 under the title 'Plants - Food Preparation and Storage.' Complete the activities mentioned in this section and ensure that the students complete them. These activities are designed to enhance their holistic understanding and

engagement with the topic. Provide any necessary support and materials COULD DO to help the students successfully finish the activities.



(Instruct the students to bring their Little Book in the next class.)

Differentiated Activities

110 km/h



What is the process by which plants prepare their food using sunlight?

80 km/h



(30)

Name a plant that lacks green leaves.

40 km/h



What is the green substance in plants called?

Home Task

Draw and label the parts of a plant responsible for photosynthesis. Write about how photosynthesis works in plants. Explain the role of sunlight, water, carbon dioxide and chlorophyll in this process.

Period 10

Teacher: Good morning, students. How are you all today?



Teacher: Great. Today, we will begin with a fun activity called 'Plant and Animal Connections' to recall what we have learned so far. I will say a statement and you have to complete it with the correct answer as guickly as possible. Let us see how many you can get right.

Teacher: The scientist who discovered that plants have life and invented the crescograph was ____ _. (Sir Jagdish Chandra Bose.)

Teacher: The ____ _ is responsible for the green colour of leaves and helps in photosynthesis. (Chlorophyll.) Teacher: The Banyan tree has roots that grow from its instead of underground. (Branches.)

Teacher: The process by which plants prepare their food using sunlight, water and carbon dioxide is called _. (Photosynthesis.)

Teacher: Which plant catches and eats insects for food? (Venus flytrap, Sundew or Pitcher plant.)

Teacher: Fantastic responses, everyone. Now, let us move ahead with today's lesson.

Discuss the project assigned in the ninth period, focusing

on helping students understand

the objectives and addressing any challenges they face.



21st CS HOTS

Thinking better

Thinking better

Think and write the answer in your notebook.

Some plants, such as carrots, store food in their roots, while others such as beans, store food (31) in their seeds. How do these different storage methods help the plants survive and grow?

Teacher: Today, we are going to think about how different plants store their food. Some plants, like carrots, store

food in their roots. Others, like beans, store food in their seeds. Can anyone tell me why these different storage



methods might help the plants survive and grow?

Teacher: I want you to think about this question and write your answers in your notebooks. Remember to consider how storing food in roots or seeds might benefit the plant. Take your time and write down your thoughts.

(Give students time to write their answers.)

Choosing better

Choosing better LSV There is a new science teacher in Richa's class. The teacher uses different methods for teaching. How can Richa adapt to this change? Tick (√) the correct answer 1. Richa should stick to the methods she was using earlier 2. Richa should ask the teacher for help if she doesn't understand something 3. Richa should find more about the new method on the internet.

Teacher: Now, let us talk about adapting to new situations. Imagine there is a new science teacher in Richa's class. This teacher uses different methods for teaching. How do you think Richa can adapt to this change?

Teacher: I have three options for you to consider. Tick the correct answer:

1. Richa should stick to the methods she was using earlier.



31

- 2. Richa should ask the teacher for help if she does not understand something.
- 3. Richa should find out more about the new method on the internet.

Teacher: Think carefully and choose the best option. Why do you think your choice is the best way for Richa to adapt?

(Wait for the students to think and make their choices. Discuss the correct choice.)

Revising better

Revising better

What is your most favourite plant? Or flower? Draw and colour it in your Little Book. Write why you like the plant/flower the most.

Teacher: For our last activity, I want

you to think about your favourite plant or flower. What is it that you like the most about it?



Teacher: In your Little Book, draw and colour your favourite plant or flower. Then, write a few sentences about why you like it the most. Is it because of its colour, its smell or something else?

Teacher: Take your time and make your drawings colourful and your writing thoughtful. I cannot wait to see your beautiful work.

Worksheet - 3

						\odot	Vorksheet 3
	A marrier de - 6-	llauda a					
А.	Answer the to	bliowing.					
1.	Name two plants that do not have leaves.						
2.	How do non-green plants fulfill their food requirements?						
3.	Why does a c	roton plant appear dark re	d, ev	en	if	it contains ch	lorophyll?
4.	Why is Venus f	flytrap an insectivorous plai	nt?				
5.	Name three e	xamples of parasitic plants					
B.	Match the fol	lowing.					
1.	cactus	•	•	a		dark red plar	nt
2.	mushroom	•	•	b		non-green pl	ant
3.	croton	•	•	с		insectivorous	plant
4.	venus flytrap	•	•	d		parasitic plar	nt
5.	rafflesia	•	٠	e		no leaves	
C.	Write true or fc	alse.					
1.	Agave prepa	res its food in its green stem	I.			-	
2.	Chlorophyll is	present in mushrooms.				-	
3.	Crotons lack o	chlorophyll.				_	
4.	Cobra lily is ar	n insectivorous plant.				-	
	Demonstration of Learning						(22)

Teacher: Let us do some activities MUST DO from the workbook. Everybody, please open page number 22 of your



workbook and answer the questions given in worksheet - 3. (Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Teacher: Now, let us fill in the last column of the KWL chart. Teacher: In the 'L' column, we will write what we have learned in this chapter.

Teacher: Think about the topics, we SHOULD DO have learned and write them neatly in the 'L' column of the chart.



(Wait for students to fill in the chart.)

Differentiated Activities

110 km/h



What type of plant depends on other plants for nutrients?

80 km/h



What do plants provide to animals that is essential for breathing?

Learning Outcomes

The students will:

Physical Development	• demonstrate the ability to care for plants and engage in gardening activities, such as planting saplings and observing plant growth.
Socio-Emotional and Ethical Development	• understand the interdependence between plants and animals and appreciate the importance of protecting nature by participating in community activities like tree planting events.
Cognitive Development	• understand the process of photosynthesis, its significance in plant growth and how plants store and use food. Identify different types of plants and their food storage methods.
Language and Literacy Development	• enhance communication skills by answering questions, describing processes and participating in discussions related to plant growth and adaptation.
Aesthetic and Cultural Development	 appreciate the beauty of nature through activities like decorating plant pots and observing plant diversity, including medicinal and aesthetic plants.
Positive Learning Habits	• develop a sense of responsibility through care for plants, curiosity to explore nature and a positive attitude towards environmental conservation.

Starry Knights

Your effort in teaching the learners is appreciated. Share an incident which you enjoyed the most with your learners.

Give yourself a STAR.

40 km/h



What do plants need from the sun to make their food?

Home Task

Creating better activity (Let us add some colours to the garden), given on page 31 of the Main Course Book.

56)

Lesson-5: Plants – Adaptation and Survival



10 Periods (40 minutes each)

Learn Better (Main Course Book), Stay Ahead (Workbook), Book of Holistic Teaching, Book of Project Ideas, CRM signs



Animation, Animated Activities, Concept Map, Dictionary, eBook, I Explain, Quiz, Slideshow

Curricular Goals and Objectives (NCF)

To enable the students:

- to understand plant adaptation and related terms.
- to identify terrestrial and aquatic plants and their importance.
- to explore plant growth in different liquid mediums and make a terrarium.
- to analyse how underwater plants get nutrients and record observations.
- to reflect on plant care and sustainable practices like kitchen gardening.

Methodology

Period 1



Teacher: Good morning, students. How are you all today?

Teacher: Great. Before we dive into our lesson, let us take a moment to relax and focus our minds with a short meditation.

Teacher: Sit comfortably in your chair, with your back straight and feet flat on the ground. Close your eyes gently and take a deep breath through your nose. Hold it for a moment, then slowly breathe out through your mouth.

Let us do these three more times. Breathe in... and breathe out. As you breathe, imagine your mind becoming clear and ready to learn.

Open your eyes and smile at your friends. Let us start our day with positive energy.

Teacher: Before we start the class, let us all say together, 'I am kind and gentle just like leaves on a tree.' Repeat after me: 'I am kind and gentle just like leaves on a tree.'

Teacher: Alright. Today, we are going to begin a new chapter 'Plants – Adaptation and Survival.' We use a



KWL chart to help us organize our thoughts and learning. I have made a KWL format on the blackboard. Please take out your notebooks and draw the same format.

К	w	L

Teacher: Let us start by filling out the 'K' and 'L' columns. Take a few minutes to think and write. If you have any questions, feel free to ask.

Teacher: Before we start the chapter, we will do a quick Re-KAP, which involves revisiting our previous knowledge through creative activities using Kinaesthetic, Auditory and Pictorial methods to make our learning interactive and engaging, starting with a kinaesthetic activity to get us ready for the new topic.



Kinaesthetic

Teacher: Let us start a Kinaesthetic activity. We will learn about plants, particularly their different parts and how

Theme 3: How Do We Adapt?

Lam kind and gentle, just like the leaves on a tree. they help the plant survive. First, I would like you to pair up

with a partner. You are going to draw a stem that stores food. Once both of you have completed your drawings, you will talk about the plant you drew.



After that, you will colour each other's drawings.

(Give time to the students to perform the activity.)

Teacher: Fantastic work, everyone.

Auditory

Teacher: Let us do the auditory activity. Listen carefully as I want you to answer based on what you hear. Are you ready?



MUST DO

ID MIN.

Teacher: Let me tell you about Chotu the plant. Chotu had a strong stem that held up its bright green leaves. The leaves came in different shapes, such as round or long, which helped Chotu catch sunlight. Some leaves on other plants could even be red or yellow.

Now, I have two questions for you:

- 1. What colour were Chotu's leaves?
- 2. What shapes can leaves have?
- (Wait for students to answer)

Teacher: Great listening. Keep it up.

Pictorial

Teacher: Excellent. Now, we have a



name the leaves you see.

(Wait for students to name the leaves and discuss the correct answers.)

Teacher: Great work, everyone. You did a fantastic job with all these activities.

Differentiated Activities

110 km/h



80 km/h



Name a food item that comes from animals?

40 km/h



What shape can leaves have?

Home Task

For your home task, I would like you to draw a plant of your choice. Label the different parts of the plant, including the stem, leaves, roots and flowers. Write a short paragraph explaining how each part helps the plant survive.

Period 2

Interacting better



Teacher: Good morning, students. How are you all today?



Teacher: Great. Today, we are going to start with an activity called 'Interacting Better'. I want you to work with your partner. Discuss with them the differences between a tap root and a fibrous root. Think about how they look and how they help the plant. You have a few minutes to talk with your partner.

(Give time to the students to perform the activity.) (Use CRM signs to settle the class.)



Teacher: Now, we are going to explore how plants adapt to their surroundings. I want you to read the

animated story given on page 33 of the Main Course Book. Take your time and notice how different plants adjust to the environment they live in.

Teacher: Once you have finished reading, I will talk about what you learned. Ready? Go ahead and read the story. (Give time to the students to read the story)

Teacher: Now that you have read the story, let us discuss it together. What did you learn about how the cactus survives in the desert? What special feature does it have? **Teacher:** Correct. The story mentions that plants like water lilies and lotus have large, flat leaves. How do these leaves help the plant survive in the water?

Teacher: Correct. The story also talks about how living

beings adapt to their surroundings. Can you think of an example from your own life where you adapt to your surroundings?

Teacher: Great work, everyone.

() You may show the **dictionary** and **eBook** on the digital platform.

Differentiated Activities

110 km/h

How do water lilies and lotus leaves help them survive?

80 km/h



What helps the cactus survive in the desert?

40 km/h



What shape do water lily leaves have?

Home Task

Draw a picture of the lotus plant and label its parts. Write a short paragraph explaining how this plant adapts to its environment.

SHOULD DO

OS MIN.

Period 3

Teacher: Good morning, students. How are you all today?

(33-34)



Teacher: Cactus stores water in its leaves. (False)

Teacher: Water lilies have small, pointed leaves. (False)

Teacher: Some plants have fibrous roots instead of tap roots. (True)

Teacher: Excellent. Let us move forward in today's lesson. **Teacher:** Today, we will continue our learning about how plants adapt to different environments.



(Read the last paragraph of page 33 and the first four paragraphs of page 34 aloud and **MUSTRO**

provide explanations to ensure that the students understand the content.)



Discovering better

Discovering better	
marshes: area of low land that is wet and soft	LAD
thrive: grow	
damp: something that is slightly wet	
shed: here, to lose leaves naturally	34

Explain the terms mentioned in the 'Discovering better' activity mentioned on page 34 of the Main Course Book.

Teacher: Some parts of the Earth are covered with plains, mountains, deserts and some are covered with water, like oceans, rivers, lakes, ponds and marshes. Can you think of any differences between these regions?

Teacher: Yes, each of these regions has different climates, which affect the plants and animals that live there. The region where an animal or plant lives naturally is called its habitat. Can anyone explain what a habitat is?

Teacher: Exactly. Each plant and animal has special features that help it survive in its habitat. This is called adaptation.

Teacher: Let us now learn more about how plants adapt in different regions. Let us start with terrestrial plants. Who can tell me what 'terrestrial' means?

Teacher: That's right. Terrestrial plants are plants that grow on land, like rubber, sugarcane and cotton. Can



rubber, sugarcane and cotton. Can you think of other plants that grow on land?

Teacher: Great. These terrestrial plants grow in places like hills, mountains, plains, deserts and marshes. Let us think about trees in hilly and mountainous areas. What do you think trees in these areas look like?

Teacher: Yes, trees in these areas are usually straight and tall. They also have needle-like leaves. Can anyone guess why these trees have needle-like leaves?

Teacher: Correct. The needle-like leaves help the snow slide off the tree. Some trees in these areas are fir, pine and cedar. Can you name any other trees found in mountainous areas?

Teacher: Now, let us think about trees in the plains. These trees usually have many branches and leaves. How do you think these trees survive in hot climates?

Teacher: Yes, the leaves of these trees are flat and lose water to keep the tree cool in the summer. What do you think happens to these trees in the winter?

Teacher: Exactly. These trees shed their leaves to prevent water loss. Some trees in the plains do not shed their leaves in winter. Do you know what we call these types of trees?

Teacher: That's right. These are evergreen plants. Can you think of any evergreen plants?

Teacher: Well done, everyone. You have done a great work.

Differentiated Activities

110 km/h



What type of leaves help trees shed snow in mountainous areas?

80 km/h

What type of leaves do trees in the plains have to help them survive in hot climates?

40 km/h



What is the term for plants that do not shed their leaves in winter?

Home Task

Choose one plant from either the plains, mountains or deserts. Draw the plant and label its parts, such as the roots, stem, leaves and flowers. Write a short paragraph explaining how the plant adapts to its environment. Does it shed its leaves like trees in the plains or does it store water like plants in the desert?

Period 4

Teacher: Good morning, students. How are you all today?



Teacher: Great. Are you ready for a quick investigation?

Teacher: I have brought some real leaves and stems for us to observe. Look at the different leaves and stems placed on your desks. I want you to compare the shapes. Which ones are broad and flat? Which ones are long and thin, like needles?

Teacher: Let us think—why do you think some leaves are needle-like while others are broad? Turn to your partner and discuss for two minute.

(Give students time to observe and discuss.)

Teacher: Fantastic thinking. The needle-like leaves help trees in snowy areas because they stop snow from piling up. The broad leaves help plants in wet areas float on water. Let us continue with today's lesson.

Teacher: Today, we are going to learn about how plants in hot and damp areas survive.

(Read the last two paragraphs of page 34 and the first paragraph of page 35 aloud and provide explanations to ensure that the students understand the content.)



Teacher: Have you noticed that many of these plants have large, broad leaves? Why do you think that is?

Teacher: Yes, these big leaves help the plant catch more sunlight. But do you know why broad leaves are also helpful in humid areas?



Teacher: Exactly, they help the plant lose extra water when it is very humid. Now, some plants in these areas have a special feature to protect themselves from too much water. What do you think that might be?

Teacher: That's right, some plants have a waxy coating on their leaves to keep the right amount of water inside. Can you think of some plants that have broad leaves and waxy coatings?



Teacher: Great examples.

Teacher: Now, let us think about plants

in deserts. Have you ever wondered why some desert plants do not have leaves at all?

Teacher: Yes, that is because having no leaves helps reduce water loss. So, what do these plants have instead of leaves?

Teacher: Correct, they have spines instead of leaves. And where do you think these plants prepare their food, if not in the leaves?

Teacher: Right, the food is made in the green, fleshy stems that contain chlorophyll. The stems are also used to store water. Can anyone think of some plants that have spines instead of leaves?

Teacher: Yes, agave and cactus are perfect examples. You all did a wonderful job understanding how plants adapt to survive in different environments.



Teacher: Now, let us do the understanding better activity given on page 34 of your Main Course Book. I will read out two statements and I want you to tell me if they are true or false. Ready?

Teacher: First statement: Pine trees grow in deserts. Is this true or false?

Teacher: Second statement: Agave grows in deserts. Is this true or false?

(Appreciate correct responses and discuss the correct answers.)

Teacher: Great job, everyone. You are doing well in understanding how plants adapt to their environments.

Differentiated Activities

110 km/h



What helps desert plants store water?

80 km/h

What do plants in humid areas use to protect themselves from too much water?

40 km/h



What do desert plants use instead of leaves?

Home Tasks

For your home task, choose a plant that grows in either a hot and damp area or a desert. Draw the plant and label its parts. Write a short paragraph explaining how it adapts to its environment. Does it have broad leaves or does it have spines instead of leaves?

Period 5

Teacher: Good morning, students. How are you all today?



Teacher: Great. Today, we are going

to start with a fun mystery challenge. I have a set of plant pictures in this box. Each plant has unique features that help it survive in its environment.

Teacher: I will pick a card from the box and describe the plant without saying its name. Your task is to listen carefully and guess which plant I am describing. Are you ready?

Teacher: This plant grows in deserts. It does not have leaves, only spines. It stores water in its thick, green stem. What is it? (Cactus.)

Teacher: I live in water. My leaves are broad and flat. I have a waxy coating to protect me from too much water. What am I? (Lotus.)

Teacher: I grow in cold, snowy regions. My leaves are needle-like to prevent snow from piling up. What tree am I? (Pine tree.)

Teacher: I grow in plains where summers are hot. My leaves are broad and help me lose water to stay cool. What am I? (Mango tree.)

Teacher: Wonderful job, everyone. Let us continue with today's lesson.

Teacher: Today, we are going to learn about different types of plants that grow in wet and humid areas.



(Read the second to fifth paragraph of page 35 aloud and provide explanations to ensure that the students understand the content.)

5. Areas that are wet and humid are known as marshy areas. These areas have clayey and sticky soil. Plants that grow in such areas are called mangroves. The roots of these plants grow outside the soil for air, as air cannot penetrate the clayey soil. Examples of such plants are papyrus and cattails.



AQUATIC PLANTS Aquatic plants arow in water. Some aquatic plants float on the surface of water, whereas others grow under the water. Accordingly, they are

Teacher: Now, can anyone tell me what we call areas that are wet and humid?

Teacher: Correct. These areas are called marshy areas. Can anyone tell me what kind of soil you would find in marshy areas?

Teacher: Yes, marshy areas have clayey and sticky soil. In such areas, the plants are called mangroves. How do you think mangrove plants manage to get air, given that the soil is so sticky and clayey?

Teacher: Correct. The roots of mangrove plants grow outside the soil to get air. Some examples of mangrove plants are papyrus and cattails. Can you think of any other plants that might grow in such wet conditions?

Teacher: Now, let us talk about aquatic plants. Aquatic plants grow in water, but did you know that they are classified into three types? What are the three types of aquatic plants?

Teacher: Yes, they are floating, fixed and underwater plants.

Teacher: Let us talk about each type in more detail. Floating plants, as the name suggests, float on the water.



Why do you think these plants are so light in weight and small in size?

Teacher: Exactly, their size and light weight help them float. Floating plants protect small water animals from the direct heat of the Sun. Some examples of floating plants are water lettuce, duckweed and water hyacinth. Can anyone name another floating plant?

Teacher: Next, we have fixed plants. These plants stay fixed to the waterbed. What do you think is special about the stem of a fixed plant?

Teacher: The stems of fixed plants are hollow and light, which helps the leaves and flowers float on the surface of the water. Can anyone think of a fixed plant, like a water lily or lotus?



Teacher: Great work. The floating leaves of these plants also serve as a nesting place for small birds.

You may show the **Slideshow** on the digital platform.

Differentiated Activities

110 km/h

o

What feature helps fixed plants like water lilies float on water?

80 km/h



What type of plants are mangroves?

40 km/h



What is an example of a floating plant?

Home Task

Choose one type of aquatic plant (floating, fixed or underwater) and draw a picture of it. Label its parts, such as leaves, roots and stems. Write a short paragraph explaining how the plant survives in water. Does it float on the surface or does it stay fixed to the waterbed?

Period 6

 Teacher:
 Good morning, students.
 SHOULD DO

 How are you all today?
 DS MIN.



Teacher: Great. Let us begin with a fun

rapid-fire round. I will ask quick questions about different plant adaptations and you have to answer as fast as you can. Are you ready?

Teacher: Which plants have floating leaves with a waxy coating? (Lotus, water lilies.)

Teacher: What helps mangrove plants survive in sticky, clayey soil? (Roots that grow outside the soil.)

Teacher: Which plants float freely on water without being attached to the soil? (Water hyacinth, duckweed.)

Teacher: What do desert plants have instead of leaves to reduce water loss? (Spines.)

Teacher: Which plants have hollow stems to help them float on water? (Lotus, water lily.)

Teacher: Fantastic. You all gave quick and correct answers. Now, let us continue with today's lesson.

Teacher: Today, we will learn about underwater plants and plants of the grass family.

(Read the last paragraph of page 35 and the first paragraph of page 36 aloud and provide explanations to ensure that the students understand the content.) **Teacher:** First, let us talk about underwater plants. Can anyone tell me what kind of leaves these plants have?

Teacher: Yes, they have long, narrow, ribbon-like leaves. These plants help clean the water by removing carbon



dioxide exhaled by aquatic animals. Can you think of any plants that grow underwater?

PLANTS OF THE GRASS FAMILY

Plants such as bamboo, rice, barley and oats belong to the grass family. The plants of the grass family are useful to us in several ways.

- Some plants of this family provide food for human beings and animals, such as wheat, jowar and rice.
- Plants, such as bamboo, are used to make different things, like baskets, chairs, brooms, mats and toys.
- Some grass plants, such as bermuda grass and couch grass,
- are used to make medicines. • When grass is used in its dry form, it is used as packaging material. (36)



Teacher: That is right. Plants like tape grass, pondweed and hydrilla are all underwater plants. Now, let us move on to plants of the grass family. Do you know any plants that belong to the grass family?

Teacher: Some plants of the grass family, like wheat, rice and jowar, are used for food. Can you think of other plants in the grass family that provide food?

Teacher: Great. But the grass family is not only about food. Bamboo, for example, is used to make many things like baskets, chairs and mats. What other things do you think we could make with bamboo?

Teacher: Also, some grass plants, like bermuda grass and couch grass, are used for medicines. How do you think grass can be useful for medicines?

Teacher: Finally, did you know that dry grass can be used as packaging material? Can you think of other uses for dry grass?

Teacher: Well done, everyone. You have shared great ideas today about underwater plants and plants of the grass family.

Teacher: Now, let us check your understanding of what we just discussed. I will ask you two questions and I want you to give the answers.



Teacher: First, can anyone give me an example of a fixed plant?

Teacher: Great. Now, what about an underwater plant? Can anyone give me an example of an underwater plant?

Teacher: Well done, everyone. Let us do another 'Understanding better' activity given on page 36. I will ask you two questions and I would like you to think about your answers carefully.



Teacher: First, can anyone name a plant that grows in deserts?

Teacher: Good. Now, who can name a plant from the grass family?

Teacher: Great job, everyone. Keep thinking about how plants adapt to different environments, such as deserts and grasslands.

You may show the **Animation** and **I Explain** video on the digital platform.

Differentiated Activities

110 km/h

What is the role of underwater plants in cleaning the water?

80 km/h

What are some products that can be made from bamboo?

40 km/h



What is an example of a plant in the grass family?

Home Task

Choose one plant from the grass family. Draw the plant and label its parts, such as the leaves, stem and roots. Write a short paragraph explaining how this plant survives in its environment. How does it adapt to its surroundings?

Period 7

Teacher: Good morning, students. Today, we will begin with an exciting sorting challenge. I have picture



cards of different plants and your task is to decide which category each plant belongs to. I will randomly pick a plant card and show it to the class. One volunteer will decide whether the plant belongs to Aquatic Plants, Terrestrial Plants or the Grass Family and place it in the correct container or board section. As a class, we will discuss if the placement is correct and why the plant belongs to that category. (For example: If the teacher picks a lotus card, a student will place it under "Aquatic Plants" and explain why it floats on water.)

(Give time to the students to perform the activity and discuss the plants category)

Teacher: Excellent. This activity helps us understand howdifferent plants survive in their environments. Now, let uscontinue with today's lesson.MUST DO



Teacher: Today, we are going to learn about the Ashoka tree. Can anyone tell me if they have heard of it before? **Teacher:** Well done. After whom is the Ashoka tree named?

Teacher: Yes. The Ashoka tree is named after the Mauryan Dynasty emperor Ashoka and it is believed to symbolise peace, prosperity and harmony. Now, let us talk about what the Ashoka tree symbolises. Can anyone guess what it represents?

Teacher: Wonderful. The Ashoka tree is a symbol of peace, prosperity and harmony. The Ashoka tree grows well in moist soils. The Ashoka tree has many medicinal properties. Can anyone name any medicines or treatments we might get from trees?

Teacher: That is right. Ashoka trees are known to be good for health.

Finding better



Teacher: Let us learn something fascinating about trees. Can anyone guess how many different tree species there are on Earth?

Teacher: Yes, that is a great guess. According to a new study by the



World Economic Forum, there are about 73,000 tree species on Earth.

Teacher: Why do you think it is important to know about these tree species?

Teacher: Fantastic. The diversity of tree species is incredible and they all play a huge role in our environment. Keep thinking about how each tree adapts to its surroundings and what it provides for our planet.

Giving better



Teacher: Today, I have an interesting task for you all. How many of you have plants at home?



Teacher: For the next week, you are going to take up the responsibility of watering your house plants. But there is something important to remember. Can anyone guess what that might be?

Teacher: Yes, that's correct. You need to give your plants only as much water as they require. Not too much, not too little. How do you think we can figure out how much water a plant needs?

Teacher: Exactly. By checking the soil. If the soil feels dry, it needs water. If it feels damp, it means the plant has enough water. Why do you think overwatering can be harmful to plants?

Teacher: Great answer. Overwatering can cause the plant roots to rot. So, throughout the week, pay close attention to your plants.

Healing better



Teacher: Today, we are going to learn about the peepal tree. Can anyone tell me if they know something special about the leaves of this tree?



Teacher: That's right. The leaves of the peepal tree have medicinal properties. Do you know which health problems they can help treat?

Teacher: Yes, the leaves are used to treat fever,

constipation, jaundice and even heart diseases. How do you think they might help with these health issues?

Teacher: Well, one way the leaves help is by reducing the symptoms of jaundice. Can anyone guess how we can use the peepal leaves to treat jaundice?

Teacher: Correct. We can consume the extract of 2-3 peepal leaves with water and sugar to help reduce the symptoms of jaundice. Isn't that fascinating?

Teacher: Exactly. Plants are an important part of our environment and can help us in many ways, from treating illnesses to keeping us healthy.

(I) You may show the **Concept Map** on the digital platform.

Differentiated Activities

110 km/h



What does the Ashoka tree symbolise?

80 km/h



How many tree species are estimated to exist on Earth?

40 km/h



Which plant's leaves are used to treat jaundice?

Home Task



(Instruct the students to complete the 'Trying better' activity given on page 36 of the Main Course Book as their home task.)

Period 8



Teacher: Good morning, students. How are you all today?

Teacher: Great. Today, we will start with an exciting relay activity about the benefits of trees.

Step 1: I will place a stack of tree name cards at the front of the class.

Step 2: One student at a time will pick a card, run to the board and place it in the correct category (Medicinal Uses, Environmental Benefits or Cultural Importance).

Step 3: The student will briefly explain why they placed the tree in that category.

Examples

- Peepal Tree → Medicinal Uses (Helps treat fever, jaundice, heart diseases)
- Bamboo Tree → Environmental Benefits (Used for making furniture, provides oxygen)
- Ashoka Tree → Cultural Importance (Symbol of peace and prosperity)

(Give students time to complete the activity.)

Teacher: Excellent work, everyone. Trees provide us with so many benefits, from improving health to keeping our environment clean. Let us continue with today's lesson.

Recalling better

Recalling better

- Terrestrial plants grow on land and aquatic plants grow in water.
- $\circ\,$ Terrestrial habitats include hilly and mountainous areas, plains, hot and damp
- areas, marshy areas and deserts.
- Aquatic plants are of three types floating, fixed and underwater plants.
 Plants of the grass family are useful to us in many ways.
- o Plants of the grass family are useful to us

Teacher: Today, let us recall some important information about plants. Can anyone tell me the difference between terrestrial and aquatic plants?

Teacher: Great. Terrestrial plants grow on land and aquatic plants grow in water. Now, can anyone name a few types of terrestrial habitats?



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Teacher: Well done. Terrestrial habitats include hilly and mountainous areas, plains, hot and damp areas, marshy areas and deserts. Let us now move on to aquatic plants. How many types of aquatic plants can you name?

Teacher: Excellent. There are three types of aquatic plants: floating, fixed and underwater plants. Now, can anyone tell me how plants of the grass family are useful to us?

Teacher: Wonderful. Plants of the grass family are useful to us in many ways. They offer food, materials for various products, medicinal benefits, and packaging material. Keep thinking about the different types of plants and how they contribute to our environment.

Learning better

Teacher: Everyone please open the page number 37 of

your Main Course Book. We have an exercise called 'Learning Better.' In part 'A' of 'Learning better' you have



to tick the correct answer. Are you ready to get started? **Teacher:** Great. Let us begin with the first question. Where do terrestrial plants grow?

🕤 Learning De	tter		CBA
A Tick (√) the corre	ct answer.		
1. Where do terre a. land	strial plants grow? b. water	c. outer space	e
 Which of the for a. sal 	llowing trees grow in hilly a b. pine	reas?	
 Where do aque a. water 	atic plants live? b. deserts	c. hilly areas	
 4. Which of the for a. lotus 	llowing is an underwater pl b. hydrilla	c. duckweed	
5. Which of the fo a. tea	llowing belongs to the gras	c. coffee	37

Teacher: The correct answer is Land. Well done. (Similarly complete all five questions)

B Write true or false. 1. Lotus is an example of a terrestrial plant.

- Mango trees are grown in deserts.
 Duckweed is a floating plant.
- Underwater plants help clean the water.
- 5. Bamboo is an example of the grass family.

Teacher: Now let us start part 'B' of 'Learning better' section, you have to write 'true' or 'false'. Are you ready to get started?

Teacher: Great. Let us begin with the first question. The lotus is an example of a terrestrial plant. Think carefully



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and write true or false in the space given in front of the statement.

(Similarly complete all five questions)

You may show the **Animated Activities** on the digital platform.

Differentiated Activities

110 km/h



What is the process through which plants make their own food?

80 km/h



What do aquatic plants that float on water need to survive?

40 km/h



What do trees produce that helps us breathe?

Home Task

Observe a tree near your house and draw a picture of the same. Write down the answer to the following questions in your notebook.

What type of tree is it? What are the key features of this tree (leaves, trunk, roots)? What do you think helps it survive in its environment?

Period 9

Teacher: Good morning, students. How are you all today?



Teacher: Great. Let us start with a quick and fun game called Thumbs Up, Thumbs Down. I will read a statement about plants. If you think the statement is true, show me a thumbs up. If you think the statement is false, show me a thumbs down. After each statement, I will call on a student to explain their answer.

Teacher: Lotus leaves have a waxy coating to protect them from water. (Thumbs up)

Teacher: Mangrove trees grow in deserts. (Thumbs down) Teacher: The stem carries water and nutrients to different parts of the plant. (Thumbs up)

Teacher: Pine trees have broad leaves. (Thumbs down) Teacher: The Ashoka tree is a symbol of peace. (Thumbs up)

Teacher: Well done, everyone. You have remembered a lot about plants. Let us now move forward with today's lesson.

Learning better

(C) Write short answers in your notebook.

- 1. What are terrestrial plants?
- 2. Why do the roots of trees in marshy areas grow outside the soil?
- 3. Write two uses of the plants of the grass family

Teacher: Everyone please open page 37 of your Main Course Book. We have an exercise called 'Learning Better.' In part 'C' of 'Learning better' you have to write short answer in your notebook. Are you ready to get started?

Teacher: Great. Let us begin with the first question. What are terrestrial plants?



37

(Students have to write the answers for the given questions in about 40 to 50 words in their notebook. Wait for the students to write the answers.)

(Classil)			+1	
	riv com	niete al	Inree	al lections i
		picic ui		QUUSIIUIISI

D Write long answers in your notebook.						
 How do different terrestrial plants adapt to different habitats? Explain with a few examples. 	\frown					
2. Write about the various adaptations exhibited by aquatic plants.	(38)					

Teacher: Everyone please open the page number 38 of your Main Course Book. We have an exercise called 'Learning Better.' In part 'D' of 'Learning better' you have to write some long answer questions. Are you ready to get started?

Teacher: Great. Let us begin with the first question. How do different terrestrial plants adapt to different habitats? Explain with a few examples.

(Students have to write the answers for the given questions in about 100 to 150 words in their notebook. Wait for the students to write the answers.)

Teacher: Great. Let us begin with the second question. Write about the various adaptations exhibited by aquatic plants.

(Wait for the students to write the answers.)

Teacher: After you finish writing your answers, please exchange them with a friend beside you.

Worksheet - 1

Teacher: Let us do some activities from the workbook. Everybody,



please open page number 23 of your workbook and answer the questions given in worksheet - 1.

			0						
	5. P	Theme 3: ants – S	How Do We Ac Adapta Urvival	lapt? tion ai	nd			Workshe	et 1
À.	Fill in the	blanks.							
1.	. A is the region where an animal or a plant live naturally.								
2.	plants live on land.								
3.	is an example of a terrestrial plant.								
4.	. Fir trees are found in areas.								
5.	Mango t	rees have a	lot of		. and	d.			
B. 1. 2.	B. Write true or false. In the region where an animal is found naturally is called adaptation. Intervential plants grow under water.								
3.	3. Cotton is a terrestrial plant.								
4.	4. Pine trees grow in plains.								
5.	5. Mango trees have needle-like leaves.								
C.	Match th	ne following							
1.	pine	•			•	а.	plains		
2.	sal	•			e t	э.	desert		
3.	tea	•			•	с.	hot and do	imp areas	
4.	cactus	•			•	d.	marshy are	as	_
5.	papyrus	•				э.	hilly areas		23

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)

Holistic Teaching

Refer to the Book of Holistic Teaching, COULD DO page number 23 under the title 'Plants - Adaptation and Survival.' Complete the activities mentioned in



this section and ensure that the students complete them. These activities are designed to enhance their holistic understanding and engagement with the topic. Provide any necessary support and materials to help the students successfully finish the activities.



(💷) You may show the **Quiz** on the digital platform.

(Instruct the students to bring their Little Book in the next class.

Differentiated Activities

110 km/h •

What is the name of the plant that traps and eats insects?

80 km/h



What part of the plant absorbs water and nutrients from the soil?

40 km/h



What do you call the green part of the plant where photosynthesis occurs?

Home Task

The project Idea in the book of Project Ideas, page number 16 under the title 'Plants – Adaptation and Survival.' This project should be assigned to the students to work on. Ensure that the students understand the project requirements and provide any necessary guidance or materials they might need.

Period 10

Teacher: Good morning, students. How are you all today?





clues about a plant's special features. You have to guess the name of the plant as quickly as possible. Raise your hand if you know the answer.

Teacher: I grow in deserts. I have spines instead of leaves and I store water in my stem. Who am I? (Cactus.) Teacher: I grow in snowy regions. My leaves are needleshaped to let snow slide off. Who am I? (Pine tree.) Teacher: I grow in plains and have broad leaves that help me lose water in summer. Who am I? (Mango tree.)

Teacher: I live in marshy areas and my roots grow above the soil to get air. Who am I? (Mangrove.)

Teacher: I am used to making paper, furniture and baskets. Who am I? (Bamboo.)

Teacher: Excellent answers, everyone. You all did a great job guessing the plants. Now, let us move on with today's lesson.

Project Ideas

Discuss the project assigned in the previous period, focusing on helping students understand the objectives



and addressing any challenges they faced.

Thinking better





Teacher: Today, we are going to do some interesting activities to better understand plant adaptations. Let us begin with the 'Thinking Better' activity. Imagine a plant

that normally grows in a wet area is | moved to a dry, hot place. How do you think it will adapt to survive in this new environment?



Teacher: Write down in your notebooks how this plant would need to change. What features would it need to develop or lose?

Choosing better



Teacher: Great thinking. Now, let us move on to the 'Choosing Better' activity. While you are playing in the

park, you notice a child plucking flowers and leaves from a plant. What do you think you should do in this situation? I will give you two choices.



Teacher: Can you tell me which one is the correct answer?

- 1. Stop the child from plucking flowers and leaves.
- 2. Ignore the child.

Revising better

🗐 Revising better

DBL Find out more about terrestrial and aquatic plants. Compare the two. Write the comparison in your Little Book (38)

Teacher: Excellent. Let us finish with the 'Revising Better' activity. We have learned about terrestrial and aquatic

plants. I want you to compare the two. Think about the similarities and differences. Now, in your Little Book, write down the comparison.

Teacher: You can include things like where they grow,

how they adapt and any special features they have. Take your time to reflect on what you have learned.



MUST DO

Worksheet - 2

Α.

1.

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Ц.

5.

Β.

1.

2.

3.

4.

5.

C.

1.

2.

3.

Teacher: Let us do some activities from the workbook.

Everybody, please open page number 24 of your workbook and answer the questions given in worksheet - 2.

Jestions given in worksheet - 2.						
Worksheet 2						
Fill in the blanks.						
Trees in hilly areas have leaves.						
trees do not shed their leaves during the winter.						
Plants in deserts have in place of leaves.						
Wet and humid areas are called areas.						
The roots of grow outside the soil.						
Write true or false.						
Cedar trees are found in hilly areas.						
Banyan trees have no leaves.						
Evergreen trees shed their leaves during summers.						
Pepper is an evergreen tree.						
Cactus has spines in place of leaves.						
Rearrange the letters to form words related to different habitats.						
PAMD						
SPLANI						
RESTRETRIAL						

4. TREDES _______ 23

(Let the students answer the questions on their own. Then discuss the answer by writing the correct answer on the blackboard.)



ArtI 21st CS

Teacher: Now, let us fill in the last column of the KWL chart. **Teacher:** In the 'L' column, we will write what we have learned in this chapter.

Teacher: Think about the topics, we have learned and write them neatly in the 'L' column of the chart. (Wait for students to fill in the chart.)

Differentiated Activities

110 km/h

What is the term for plants that depend on other plants for food?

80 km/h

Name two examples of evergreen plants.

40 km/h



What is the main food for herbivores?

Home Task

The 'Creating better' activity on page 38.

() Creating better

Let us create our own terrarium! (a small glass container where you grow plants) Materials required: glass jar, some pebbles, sand, soil, green plants, shells, corals, pearl 38 Steps:

- 1. Take a glass jar and place some pebbles at the bottom of it.
- 2. Add a layer of sand over the pebbles.
- 3. Over the sand, put a layer of garden soil.
- 4. Add a plant of your choice.
- Now decorate the top layer with coloured pebbles, shells and other things of your choice.
- 6. Your homemade terrarium is ready.

(Instruct the students to complete the 'Creating better' activity given on page 38 of the Main Course Book as their home task.)



Learning Outcomes

The students will:

Physical Development	• improve observation and motor skills by exploring and identifying plant adaptations through hands-on activities like drawing, tracing, and examining plant parts.
Socio-Emotional and Ethical Development	• develop an understanding of the importance of plants and how they contribute to environmental balance, fostering respect for nature.
Cognitive Development	 enhance their cognitive skills by learning about different types of plants, their adaptations and the role they play in their habitats.
Language and Literacy Development	• improve their vocabulary by learning key terms like 'terrestrial', 'aquatic' and 'adaptation' and practice explaining plant adaptations.
Aesthetic and Cultural Development	 explore creative activities such as designing a terrarium and appreciating the diverse uses of plants in different cultures.
Positive Learning Habits	 develop responsibility and organisational skills through activities such as caring for houseplants and observing plant growth over time.

Starry Knights

You have succeeded in apprising the learners of the vast vegetation on the planet and the need to maintain it by growing their own plants.

Give yourself a STAR.