

# Growing Plants



## Let's Learn About

- Growing plants
- Agriculture

Plants are living things. They play a very important role in our lives. They give us lots of things like food, sugar, oil, wood, fibres, rubber, gum, tea, coffee and spices. They also give us oxygen for breathing.



## Activity Time

Look at the picture below and unscramble names of things we get from plants. One has been done for you.

1. Paper

2. \_\_\_\_\_

3. L O H T C

4. S L O W R E F

5. \_\_\_\_\_

6. \_\_\_\_\_

1. R A P E P

5. D O W O

2. S U I T F R

6. D O F O

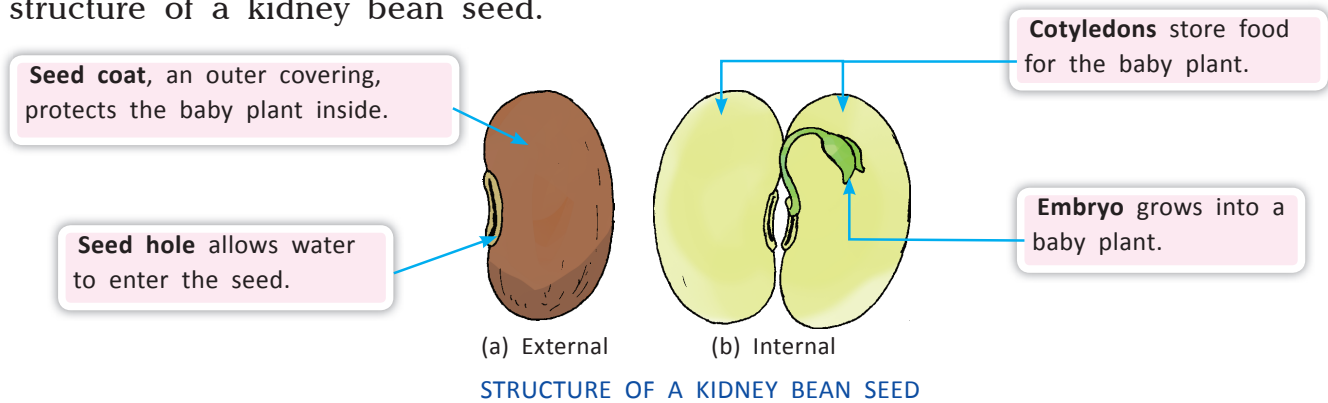
To meet our needs, we need to grow plants. Let us read how we grow plants.

## Growing Plants

We can grow plants through seeds, stems, roots and leaves.

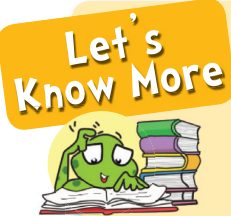
### Growing plants from seeds

Seeds are present inside fruits. New plants grow from seeds. Let us study the structure of a kidney bean seed.

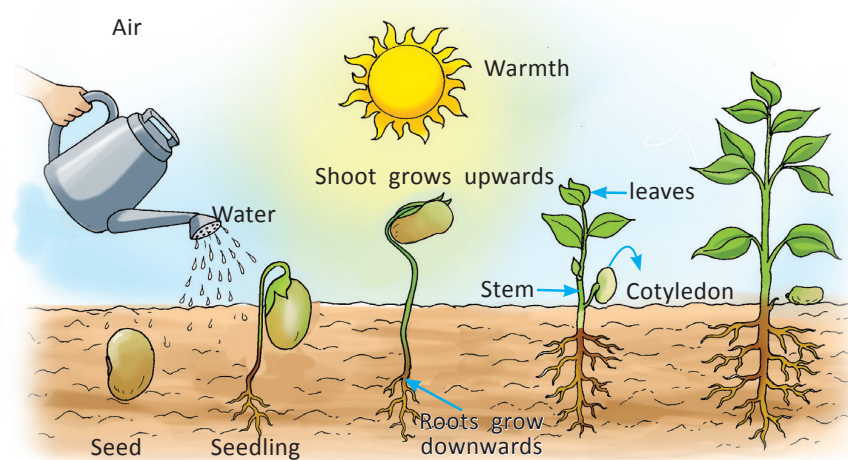


A plant produces many seeds. But all seeds do not grow into new plants. Some seeds are eaten by animals and humans. Some seeds are weak and do not grow.

Some seeds are destroyed by wind or rain. Some seeds do not get the proper conditions needed to grow. When a healthy seed gets right conditions — right amount



Some seeds have two cotyledons; they are called dicot seeds. Some seeds like maize and wheat have one cotyledon; they are called monocot seeds.



GERMINATION OF SEED

of air, water and warmth, it grows into a baby plant called **seedling**. The process by which a seed grows into a new plant is called **germination**.

During germination, the seedling gets food from the seed leaves called **cotyledons**. The seedling uses stored food until it grows its own roots and leaves. After the food stored in the cotyledons has been used, they shrink and fall off. The seedling grows in

size and develops leaves which make food for the plant through photosynthesis. The roots of the plant absorb water and minerals from the soil.

## Seed Dispersal

When many seeds are sown too close to each other, they struggle for nutrients. Even after germination, the seedlings do not get enough sunlight, air, water and space. As a result, many seedlings die.

Thus, it is important that seeds are scattered over a wide area so that each seedling gets enough sunlight, air, water and space to grow. Seeds of some plants are scattered naturally to ensure that they do not grow too close to each other. The process by which seeds are scattered away from the mother plant is called **seed dispersal**.

Some seeds have special features that allow them to disperse. Some seeds are dispersed by agents like wind, water, animals and human beings. These are called **agents of dispersal**.

### *Dispersal by wind*

Seeds that are light and have hair or wing-like structures on them are dispersed by wind. Cotton and dandelion seeds have fine hair and are easily carried away by wind.



MAPLE SEEDS HAVE WING-LIKE STRUCTURES.



DANDELION SEEDS HAVE HAIR AROUND THEM.



COCONUT SEED IS DISPERSED BY WATER.

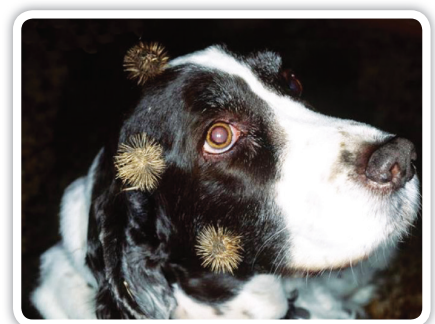
### *Dispersal by water*

Seeds of some plants can float on water and are carried away by water. Lotus plant has a spongy light fruit which can float on water. Coconut has fibrous covering that helps it to float on water. Lotus and coconut seeds are dispersed by water.

### *Dispersal by animals*

Birds and animals eat fruits. At times, undigested seeds of these fruits pass through their digestive systems unchanged. In this way seeds are dispersed from the plant.

Some seeds like cocklebur, datura and tiger claw have spines or hooks. These seeds stick to the bodies of animals or birds and are carried away.

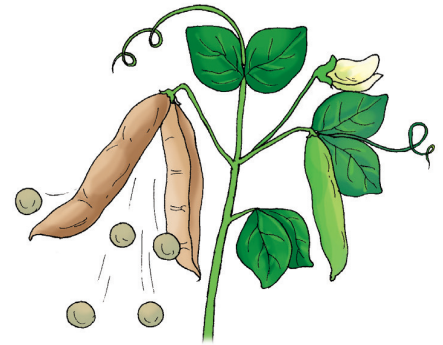


SEEDS OF COCKLEBUR ARE DISPERSED BY ANIMALS.

Human beings and animals eat fruits like mango, *jamun* and cherries and throw away their seeds resulting in their dispersal.

**Dispersal by explosion**

Some fruits like pea, poppy, balsam and bean burst open, scattering the seeds away from the plant.



SEEDS OF PEA ARE DISPERSED BY EXPLOSION.



**Let's Recall**

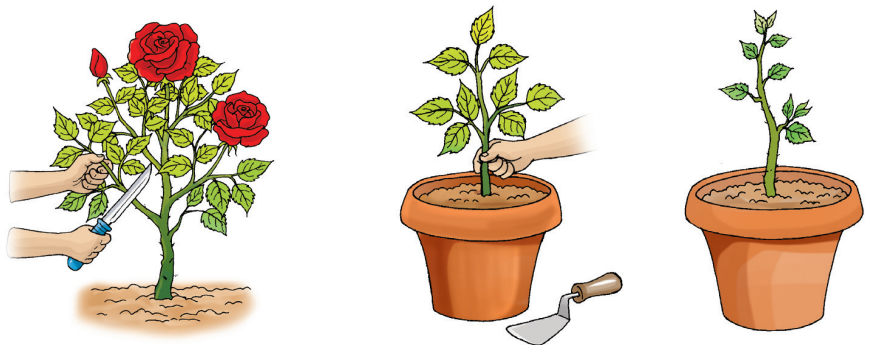
Write T for true and F for false statements.

1. Plants are non-living things.
2. Seeds are present inside flowers.
3. Roots absorb water and minerals from the soil.
4. Outer covering of a seed is called seed leaf.
5. Coconut and lotus seeds are dispersed by wind.


**Growing Plants from Stems**

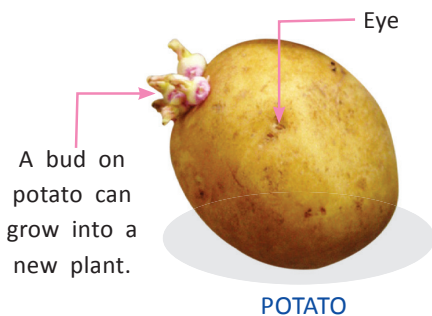
Some plants like rose, *Hibiscus* and money plant can be grown from stem-cutting. The plant from which the stem is cut is called the mother plant. Stem cutting is planted in the soil. After a few days, the stem cutting grows into a new plant.



A stem is cut from the mother plant. The stem is planted in the soil.

**GROWING PLANT FROM STEM**

Potato, onion and ginger are stems of plants which can grow into new plants. A potato has buds on it, called **eyes**. Any part of potato bearing an eye can grow into a new plant.



POTATO

## Growing Plants from Roots

Some plants like sweet potato, carrot, radish, turnip, dahlia store food in their roots. Roots of these plants can grow into new plants.

Place a sweet potato in a glass full of water with the help of some tooth picks and keep the glass in an open space. After a few days you will observe a new plant growing out of it.



SWEET POTATO CAN GROW INTO A NEW PLANT.



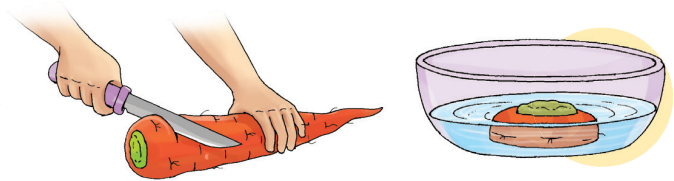
## Let's Experiment

**Aim:** To grow a plant from a carrot.

**Things needed:** A carrot, a bowl, a knife and water.

### Method:

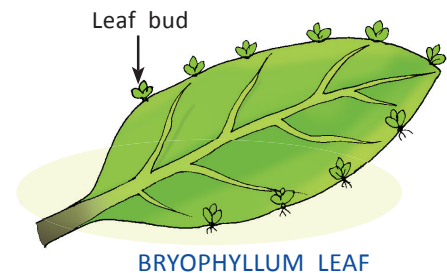
1. Cut off the top portion of the carrot.
2. Keep the cut part in the bowl with the top portion upward.
3. Pour some water in the bowl so that half the carrot is dipped in water.
4. Keep the container in the sun.
5. Observe the carrot for a few days.



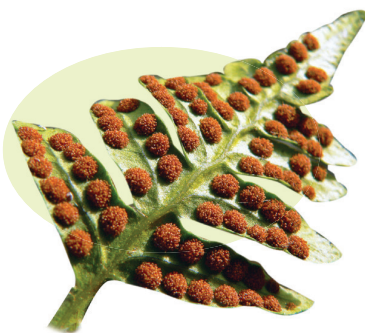
**Observation :** New leaves sprout from the top portion of the carrot.

## Growing Plants from Leaves

Leaves of *Bryophyllum* plant have buds in the notches along the margins. These buds develop, into new plantlets. When the leaf falls on soil, these plants get separated and develop into independent plants.



BRYOPHYLLUM LEAF



SPORES ON A FERN LEAF

## Growing Plants from Spores

Plants like ferns grow from spores. Spores are found on the underside of a fern leaf. Fungi like mushroom and bread mould also grow from spores.

## Agriculture

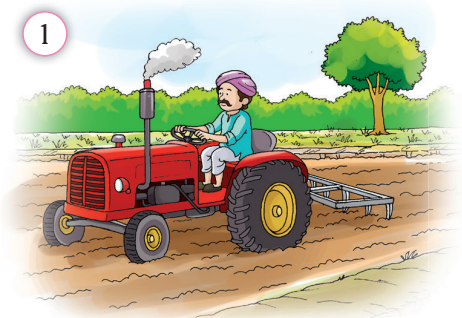
**Agriculture** is the practice of growing plants on a large scale for food and other purposes. Plants of one kind grown on a large scale in a particular area during a particular season are called **crops**. Farmers grow different crops in different seasons. Crops like rice and maize that are grown in summer season and harvested at the end of monsoon season are called **kharif crops**. Crops like wheat and gram that are grown in winter season and harvested in the spring season are called **rabi crops**.

Vegetables like cauliflower and peas are grown during winter whereas vegetables like brinjal and gourd are grown during summer.

Different plants not only grow in different seasons but they need different types of soil too. Rice and jute grow well in clayey soil which can hold plenty of water. Wheat, *jowar* and *bajra* grow in sandy soil. Cotton grows well in black soil. Tea plants grow in the soil of hill areas like Assam and Darjeeling.

## Stages of Agriculture

Various stages of agriculture are given below:



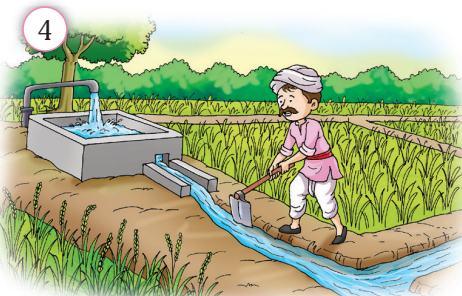
1 THE FIELD IS PLOUGHED. PLOUGH MEANS TO DIG AND TURN OVER A FIELD WITH THE HELP OF A PLOUGH SO THAT THE SOIL BECOMES LOOSE.



2 MANURES AND CHEMICAL FERTILISERS ARE ADDED TO THE SOIL. THEY ENRICH THE SOIL WITH NUTRIENTS.



3 SEEDS ARE SOWN.



4 THE CROP IS IRRIGATED. IRRIGATION MEANS TO SUPPLY WATER TO AN AREA OF LAND THROUGH PIPES OR CHANNELS SO THAT THE CROP WILL GROW.



5 THE CROP IS SPRAYED WITH CHEMICALS TO PROTECT IT FROM PESTS. SUCH CHEMICALS ARE CALLED PESTICIDES.



6 THE CROP IS HARVESTED. HARVEST MEANS TO CUT AND GATHER A CROP.

## Protecting the Crops

Crops need to be protected from animals, birds, insects, etc., before and after harvesting. Bigger animals like cows and buffaloes can be kept away by proper fencing around the fields. Scarecrows help to keep the birds away.

Pesticides are sprayed on crops to protect them from insects.

Once the crop is harvested it is stored properly to protect it from insects, small animals and moisture. Harvested grains and pulses are stored in airtight containers.



SCARECROW



## Let's Memorise

Germination

The process by which a seed grows into a new plant is called **germination**.

Seed coat

The outer covering of a seed which protects the baby plant present inside the seed is called **seed coat**.

Cotyledons

Parts of a seed that store food for the baby plant are called **cotyledons**.

Dispersal

The process of scattering the seeds away from the mother plant is called **dispersal**.

Agriculture

**Agriculture** is the practice of growing crops on a large scale for the food or other purposes.

Crops

Plants of one kind grown on a large scale in a particular area during a particular season are called **crops**.

Manures

Plant and animal wastes used for enriching the soil with nutrients are called **manures**.

Fertilisers

Chemicals or natural substances added to the soil to increase its fertility are called **fertilisers**.

Kharif crops

Crops grown from June to October are called **kharif crops**.

Rabi crops

Crops grown from November to April are called **rabi crops**.

Ploughing

To dig and turn over a field with the help of a **plough**.

Irrigation

To supply water to an area of land through pipes or channels so that crops grow well.



## Let's Revise

- T** We can grow plants from seeds, stems, roots, leaves and spores.
- T** A seed has a seed coat, seed hole, cotyledons and an embryo.
- T** Seed coat protects the baby plant and cotyledons store food for the baby plant.
- T** Seeds are dispersed away from the mother plant by wind, water, animals and explosion.
- T** Different plants grow in different seasons and different soils.
- T** Crops need to be protected from birds, animals and insects.



## Let's Answer

### A. Tick (3) the correct answer.

- Seeds are present inside
  - leaves
  - fruits
  - flowers
  - roots
- During germination the seedling gets food from
  - seed coat
  - seed hole
  - cotyledons
  - embryo
- Maple and cotton seeds are dispersed by
  - wind
  - water
  - animals
  - birds
- Which of the following seeds is dispersed by water?
  - Mango
  - Coconut
  - Cocklebur
  - Dandelion
- Which part of a *Bryophyllum* plant gives rise to new plants?
  - Stem
  - Root
  - Leaf
  - Flower

### B. Fill in the blanks with the correct words.

- Plants are \_\_\_\_\_ (living/non-living) things.
- A seedling gets water and minerals from the \_\_\_\_\_ (soil/air) through \_\_\_\_\_ (leaves/roots).
- Maple seeds have \_\_\_\_\_ (wing-like/hair like) structures.
- Lotus plant has a spongy \_\_\_\_\_ (light/heavy) fruit which can \_\_\_\_\_ (float/ sink) on water.
- Cotton grows well in \_\_\_\_\_ (black/yellow) soil.

### C. Name the following.

- Two plants that are grown from roots.



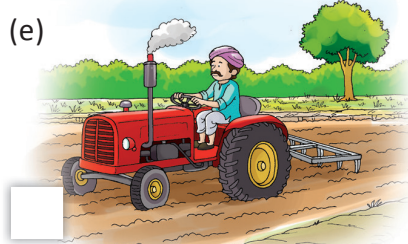
2. Two plants that are grown from stems.
3. Two seeds that are dispersed by explosion.
4. Two examples of *kharif* crops.
5. The part of seed that protects the baby plant inside a seed.

**D. Answer the following questions.**

1. What is germination?
2. What is seed dispersal?
3. What is the difference between kharif and rabi crops?
4. How do animals help in seed dispersal?
5. How are cotton and maple seeds dispersed?
6. Explain the structure of a seed with the help of a well-labelled diagram.
7. What is the importance of seed dispersal?
8. What is agriculture? Write the different stages of agriculture.

 **Let's Do**

**A. Number the stages of agriculture in correct order.**



**B. Circle the odd one.**

- |                |        |                 |              |
|----------------|--------|-----------------|--------------|
| 1. Mango       | Rose   | Wheat           | Coriander    |
| 2. Money plant | Rose   | <i>Hibiscus</i> | Lotus        |
| 3. Onion       | Ginger | Potato          | Sweet potato |
| 4. Dahlia      | Carrot | Radish          | Cotton       |
| 5. Maple       | Cotton | Mango           | Dandelion    |



**Let's Think and Answer** **HOTS**

1. Simmi scattered wheat seeds on a wide area while Jimmi threw wheat seeds at one place. Who has done right action in order to get large number of wheat plants?
2. A *Bryophyllum* leaf can give rise to new plants but not rose leaf. Why?



**Let's Acquire**

**Value Based Question**

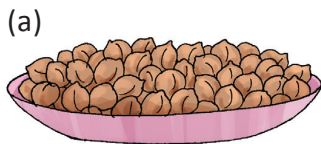
Rita wants to grow an onion plant in her garden. She planted onion leaf, onion root and an onion bulb in the soil. Which of these will give rise to a new plant?

- a. Onion leaf     b. Onion bulb     c. Onion root     d. None of these



**Let's Enhance Our Life Skills**

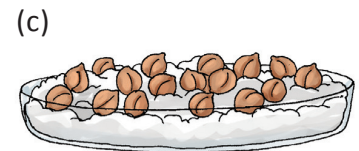
1. Bishan kept some gram seeds in the following conditions.



GRAM SEEDS IN A PLATE



GRAM SEEDS IN A REFRIGERATOR



GRAM SEEDS ON A MOIST COTTON

Which of these seeds will germinate and why? Discuss with your classmates the conditions necessary for germination.

2. Let's grow a potato plant using a potato.

**Things needed:** A potato and a knife.

**Method:** Take a potato and cut it into 2-3 pieces. Each piece should have at least one eye. Put these pieces in the soil and water them regularly. Observe the potato plants growing from the potato pieces.