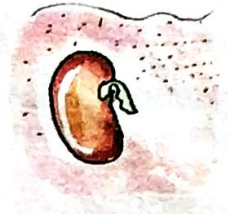


# Growing Plants



**P**lants are the most important living organisms on the earth. They give life to all. They grow everywhere. We use plants in many ways. Large number of plants are eaten or destroyed by us every day, still there is plenty of plants because plants continue to grow.

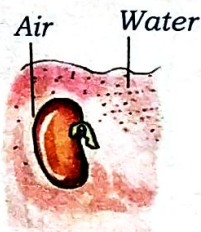
### LESSON OBJECTIVE

#### You will know

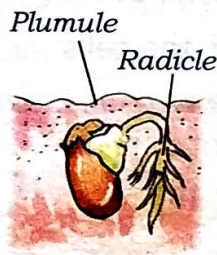
- New plants from seeds
- Other ways of growing plants
- Growth and development in plants

## NEW PLANTS FROM SEEDS

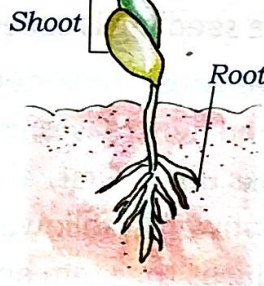
Most plants grow from the seeds. If you sow a seed in the soil, the seed germinates in few days. Within a few days a tiny plant appears that gradually develops into a big plant. This is just like a baby grows into an adult over a certain period of time. But have you ever thought how does a tiny seed convert into a big tree? To know this let us first understand about the parts of a seed.



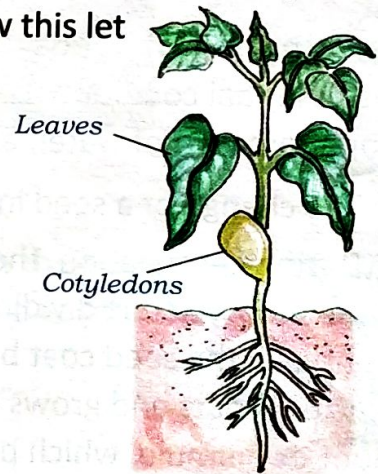
Seed is sown in the soil, where it gets air, water and warmth of the sun



The seed sprouts and a seedling appears after sometime



The seedling develops roots and a shoot



The baby plant grows and leaves appear

*Journey from a seed to plant*

## Parts of a Seed

Take a seed and observe it carefully.

The outer hard covering of the seed is called seed coat.

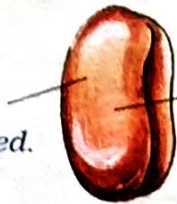
The seed coat protects the internal delicate parts of the tiny plant called embryo.

You can observe the seed parts by soaking seeds in water for overnight. The swollen seed shows its different parts more clearly.



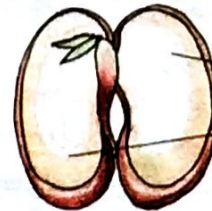
It contains fleshy seed leaves or cotyledons and the baby plant, inside the seed coat.

An outer covering called seed coat protects the baby plant inside the seed.



Outside

The seed coat has a tiny hole through which the seed gets water.



Inside

Seed leaves or cotyledons store food for the baby plant.

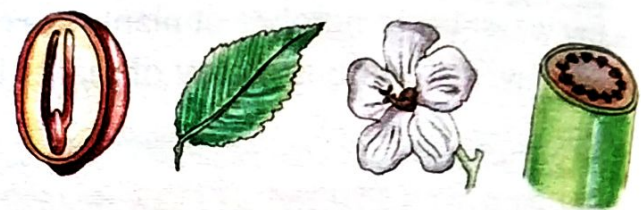
Structure of a seed

Some plants have one cotyledon and some have two.

Plants with one cotyledon are called monocot plants while plants with two cotyledons are called dicot plants.



Monocot plants



Dicot plants

Maize, wheat, rice, lily and onion are monocot plants.

Gram, pea and beans are dicot plants. (Mono-means one and Di-means two).

### Germination of Seeds

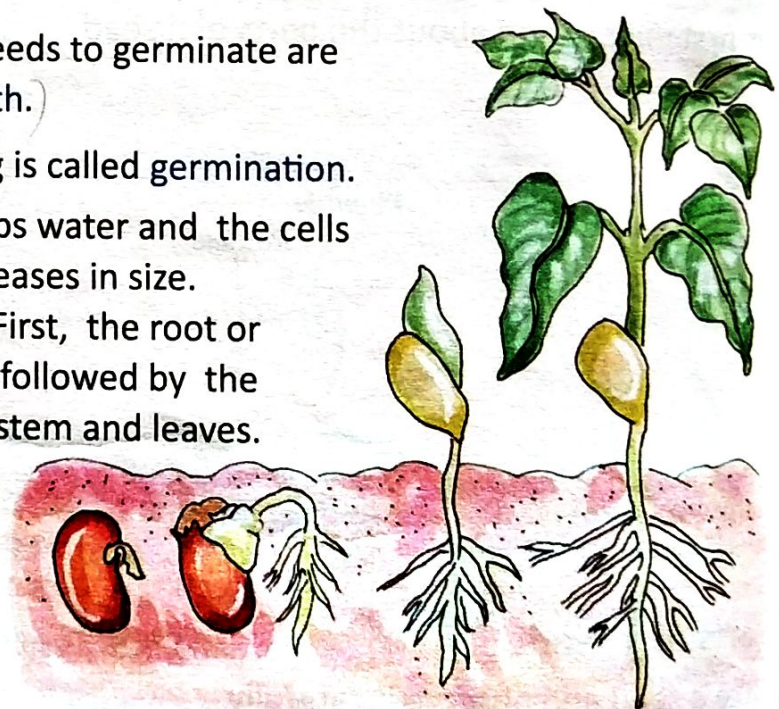
The essential conditions required for seeds to germinate are proper amount of water, air and warmth.

The change of a seed into a seedling is called germination.

During germination, the seed absorbs water and the cells of the embryo start dividing and it increases in size.

Eventually the seed coat breaks open. First, the root or radicle sprouts and grows downwards, followed by the shoot or plumule, which produces the stem and leaves.

The seedling grows green leaves and the cotyledons dry up. It soon grows into an adult plant.



Stages of germination

### Dispersal of Seeds

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

Dispersal is necessary for the better growth of a plant. If all the seeds fall near to the mother plant and start germinating there they would not get enough light, water and space to grow.



The process of dispersal is carried out by animals, birds, water and wind.

- (a) **By wind** : Light, hairy or winged seeds are dispersed by wind. Seeds of plants like cotton, madar and hiptage disperse through wind.
- (b) **By water** : Plants that grow along river or seashores disperse their seeds through water-currents. Such seeds have fibrous or spongy parts that float in water. Coconut has fibrous covering while seeds of lotus are spongy.
- (c) **By men, animals and birds** : Men also eat fruits and throw seeds at distant places. Some seeds are not digested by the animals or birds. The undigested seeds are thrown away in animals' or birds' waste.
- (d) **By explosion** : Some fruits on drying break open. Thus, the seeds pop out and get scattered. This is commonly seen in pea, beans and balsam.



*Seeds dispersed by wind*

*Seeds dispersed by water*

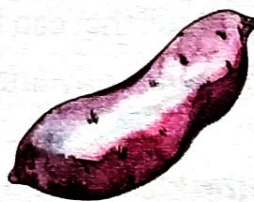
*Seeds dispersed by men, animal and birds*

## OTHER WAYS OF GROWING PLANTS

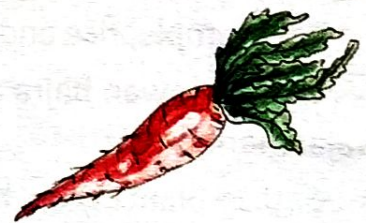
Some plants can be grown without seeds. They can grow from their body parts. Growing plants from their body parts such as root, stem or leaf is called vegetative reproduction.

### From Roots

Carrot and sweet potato can grow into new plants from their roots.



*Sweet potato*



*Carrot*



*Rose cutting*

### From Stem

Many plants like rose, money plant, sugarcane can be grown from stem cuttings.