

LESSON No. 10



GROWING PLANTS

One day Luikim visited her uncle's house in the village to enjoy her holidays. She was thinking about all the fun and nice home-made food that she would have with her cousins. On reaching her uncle's house, she could see different kinds of plants, some with flowers and seeds, some without flowers, potato, onion, gingers, etc. in her uncle's kitchen garden and surrounding.

Just after lunch, she asked her uncle why some plants have so beautiful flowers?

Her uncle explains.

Flowering plants produce seeds. The process by which all the living beings reproduce their own kind is called **reproduction**. Plants produce flowers in order to reproduce. The central part of a flower produces the fruit. Fruit is the seed bearing mature portion of a flower. New plants grow from the seeds.

Luikim went on asking her uncle, “ Do plants always reproduce from their seeds”?

Different plants have different modes of reproduction. Plants like ferns, mushrooms and moulds reproduce from tiny seed like structure called **spores**. We see many plants reproduced, from the vegetative parts of the parent plant. The mode of reproduction of plants in which new plants grow from any part of the parent is called **vegetative propagation**. Examples are onion ginger, potato, rose, bryophyllum, strawberry, etc.

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Luikim wanted to know more and more about the reproduction in plants. She asked, “Is there any other methods of reproduction in plants”?

We can grow some plants by stem-cutting. Rose, bougainvillea and sugarcane are some of the examples. Onion, ginger and potato are the underground stems. Take a potato and observe it. It has “eyes” from where new buds develop. New plants grow from them. Ginger is an underground rhizome. It also grows from buds. Onion is an underground bulb. New plants grow from these bulbs too.



Potatoes with eyes

Do some plants multiply and grow without seeds?

Plant can multiply by using roots. Root of some plants such as sweet potato produce new plants. Others are radish and carrot roots. You see that bryophyllum leaf has buds along its edges. New plants can arise from these buds.



Bryophyllum leaf

Plants having weak stems trail on the ground are called **runners**. Buds which are present on such stem grow into new plants e.g. oxalis, strawberry, etc.



Runner in Strawberry.

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GERMINATION OF A SEED

Straight from your heart

- * What is inside the seed?
- * How does a big plant grow from a tiny seed?

Seeds are usually found in fruits. These are the main means by which flowering plants reproduce and spread. A new plant can develop from a seed.

The seed contain an embryo from which the new plant will grow. It also contains stored food to nourish the embryo until it has developed roots and leaves.

When seeds get enough water, air and sunlight, they grow into new plants. The growth of a baby plant from a seed is called **germination**.

The outer hard covering of a seed is called the **seed coat**. For weeks, months even years, a seed may remain dormant. The seed coat protects it till the conditions are favourable for germination.

The food that keeps the embryo alive is stored in special seed leaves called **cotyledons**. Some seeds like grams, peas, beans, etc. have two cotyledons and others like rice, wheat, maize, etc. have one cotyledon.

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For germination, the seed has to get enough air, water and temperature. During the process, the seeds absorb water, the cells of the embryo increases in size as it divides. The seed coat then bursts open. Firstly, the root system or radicle sprouts and grows downwards followed by plumule or the shoot. The plumule will produce the stem and leaves.



Germination of seed.

Now the new seedlings grow producing green leaves. It grows further to become an adult plant.

Let your seeds germinate:

To know the conditions necessary for germination.

Take three bowls, Mark them 1, 2, 3, take some pea seeds.

Place some pea seeds on Bowl 1 and fill it up with water.

Place a damp piece of cloth or some moist cotton in the bowl 2, keep some pea seeds in it.

Place some pea seeds in bowl 3 on moist cotton and keep the bowl in refrigerator.

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Observe the seeds for a few days. What do you observe ? Note your observation.

Bowl	Did the plant grow	Give reason
1	No	
2	Yes	
3	No	

Now, you can conclude that the essential conditions necessary for germination are 1. Air 2. Water 3. Temperature

DISPERSAL OF SEEDS

Plants cannot move around. Once they grow, they remain in the same place. But their seeds need to be spread far and wide.

- * Think what would happen, if seeds did not spread and remain at one place only.
- * Have you ever seen any seed that can fly?

The process of spreading seeds to different places is called **dispersal of seeds**. Seeds are needed to disperse so that they do not compete for the limited supplies of water, light, minerals and space.

Dispersal takes place with the help of the following agents.

Wind

Many seeds can be carried by the wind. Seeds which are dispersed by wind have wings or tufts of hair on them e.g. seed of Terapaibi.

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Dandelion seed head have a fluffy umbrella like structure which enables them to be carried for very long distances.



Dispersal by wind.

Water

Some seeds are dispersed by water. Seeds of Thangjing, is the example you see in common. Coconut has a fibrous outer coat, hence it is also easily carried away by water.

Animals

Some seeds have hooks or spines that attach to an animals body. Man and animals eat certain fruits and throw away their seeds. e.g. mango seeds. Such seeds can grow into new plants.

Explosion

Some fruits on maturity and drying, explode. The force of explosion disperses them. Pea seeds are dispersed by explosion.



Dispersal of seeds by explosion.

- * Make a list of the different ways by which seeds are spread.