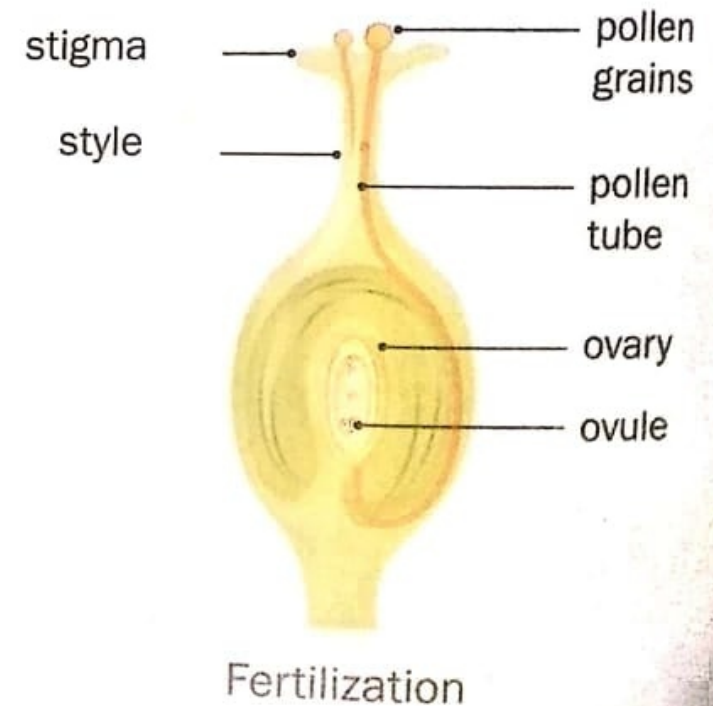


Plant Reproduction

SEXUAL REPRODUCTION IN PLANTS: FERTILIZATION

When a pollen grain from the anther of a flower falls on the stigma of the same kind of flower, it may germinate because of the presence of a sticky substance released by the stigma. The pollen grain then sends out a tiny thread-like tube called a pollen tube. It carries the male reproductive cell (or gamete) through the style of the pistil to the ovules present in the ovary. The male gamete then enters an ovule and combines with the female gamete (or egg) to form a fertilized cell called the **zygote**.

*The process in which the male and female gametes fuse together to form a zygote is called **fertilization**.*



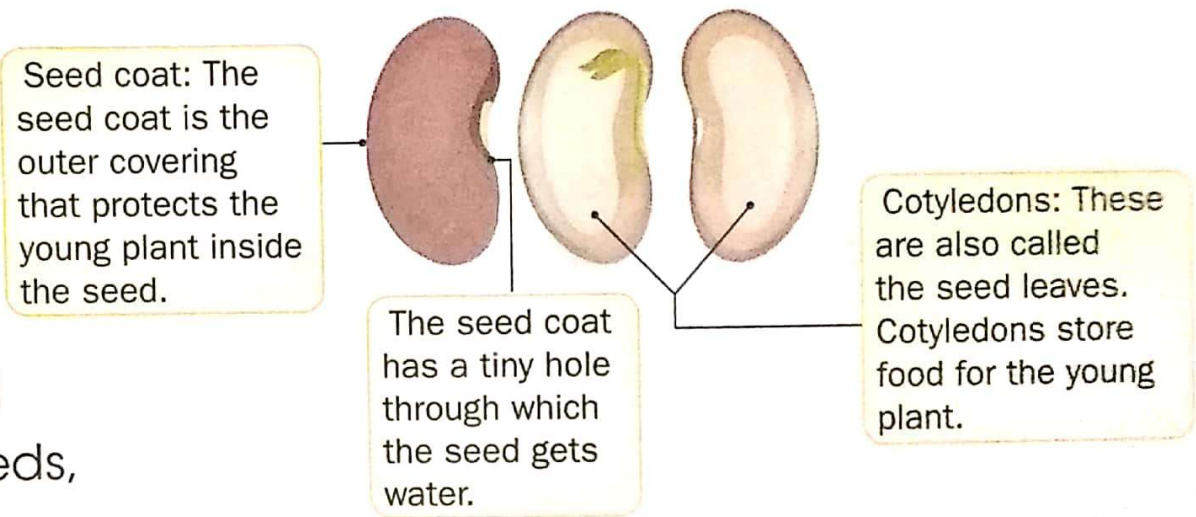
Formation of fruit and seed

After fertilization, all the parts of the flower, except the ovary, become dry and fall off. The zygote (present inside the ovule) after many divisions, develops into an embryo. The embryo further develops to form the baby plant. The fertilized ovule forms the seed, and the ovary becomes the fruit.

STRUCTURE OF A SEED

A seed has an outer covering called the seed coat. The seed coat has a tiny hole through which the seed gets water. Seeds usually have one or two seed leaves

known as **cotyledons**. When a seed has two cotyledons, they are generally thick and fleshy structures, as they store food inside them. Seeds with only one cotyledon do not store food inside the cotyledon. In such seeds, food is stored in some other part.



Structure of a bean seed

GERMINATION

The process by which a seed grows into a young plant, or seedling, is called **germination**. A seed germinates only when it gets enough light, air, water, and warmth. During the early stages of germination, the seedling uses the food stored inside the seeds for its growth.

When the seed receives adequate light, water, air, and warmth, it becomes soft and spongy.

The seed coat then breaks and the young plant comes out. The young plant develops roots and a shoot. Tiny leaves **develop** on the shoot and start making food. This young plant is called a **seedling**.

The seedling absorbs water and nutrients from the soil with the help of its roots. As the plant grows in size, it develops more leaves. The seed then shrinks and disappears. The seedling grows to become a new plant.

All seeds do not grow into new plants because some are eaten by animals, some get destroyed by rain or wind, while some get insufficient air, water, or warmth.

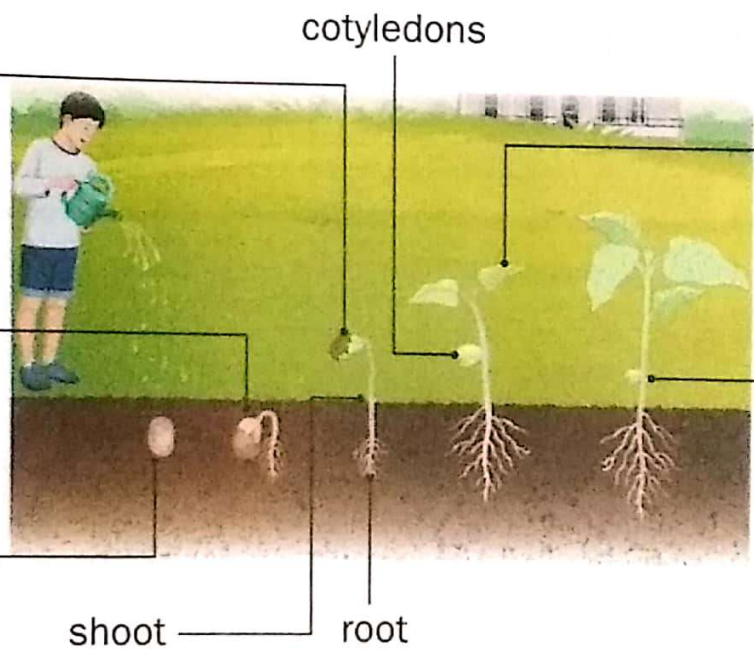
Fact File

Some seeds need cold temperatures for their seed coat to break their inactive state. This is called **stratification**.

3. The young plant develops roots and a shoot.

2. The seed coat breaks and the young plant comes out.

1. A seed gets water, light, and air.



4. As the plant grows in size, tiny leaves develop on the shoot.

5. The seed then shrinks and disappears.

Stages of germination of a bean seed