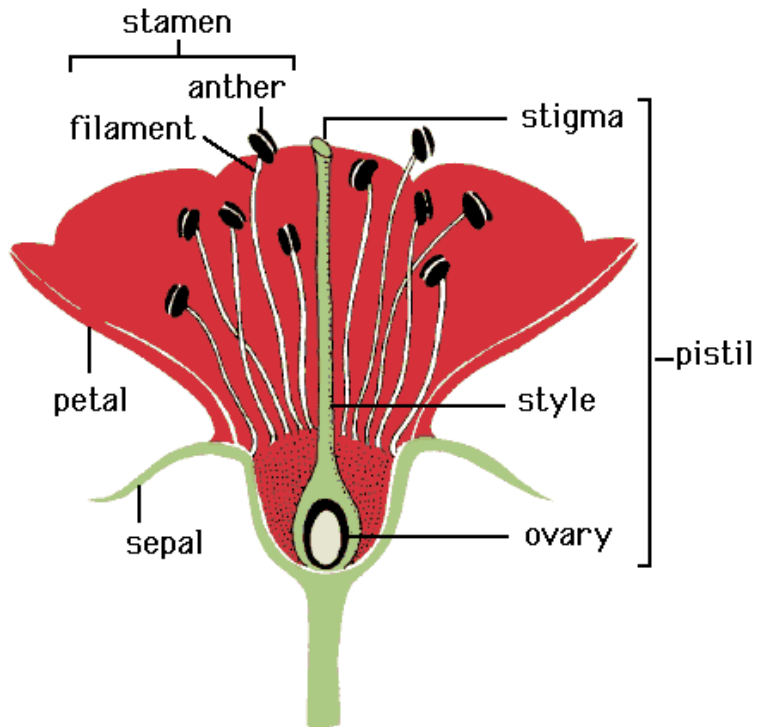


## Flowering Plant Reproduction



In order for fertilization to occur in flowering plants (angiosperms) **pollen** grains that are produced in the **anthers** of the flower, must reach the appropriate **stigma**, which is the sticky top of the female sex organ. Only the pollen grain that fits perfectly with the stigma will be able to fertilize the eggs inside the plant's ovules.

Pollen grains are fairly complicated structures. Each pollen grain contains:

- a generative nucleus that produces two sperm nuclei
- a tube nucleus that produces the pollen tube

The pollen grain remains on the stigma and grows a **pollen tube** down into the **ovules** of the **ovary**.

Contents of the pollen grain can then slide down the tube into the ovule. One sperm nucleus ( $n$ ) unites with the egg cell ( $n$ ) to form the diploid zygote ( $2n$ ). The other sperm nucleus ( $n$ ) combines with two haploid nuclei ( $n$  each) to form a triploid ( $3n$ ) tissue called **endosperm**. Endosperm is rich in stored food, which is used to nourish the developing plant embryo. Monocots, like corn, store most of the food in the endosperm. Dicots store most of the food in the two developing seed leaves.

The sperm that united with the egg to form the zygote undergoes mitosis to become the embryo. The wall of the ovule hardens and becomes a protective seed coat. The ovary swells and becomes a fruit, which is also useful in aiding in the dispersion of the seeds.

