PLANT REPRODUCTION

Reproduction in Gymnosperms

The majority of gymnosperms have reproductive structures that are known as **cones**. The cone is covered with scales for protection and to help secure the cone to the ground.

A cone is either a male or female reproductive structure of a gymnosperm. A tree will generally produce both male and female cones, but there are trees that will produce one or the other or even none at all.

The male cones produce **pollen**, which are cells that will form sperm cells. Reproduction occurs when the pollen gets onto the female cone.

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Female: A pine tree will produce female cones along its branches.
Male: A pine tree will produce male cones at the tip of a branch.
The male cones will begin to produce small grains of pollen that will eventually mature into sperm cells. The sperm cell will be carried by the wind until it finds a female cone and its egg cell. At this point the male sperm cell will join with the female egg cell.

Each of the many scales on a cone has two ovules at its base. Eventually, the ovules will mature into egg cells.

After the ovule matures, the egg cell will produce a sticky substance that allows the sperm cells to be trapped once they come into contact.

Fertilization: The pollen grains will begin to produce a tube that will eventually grow into the ovule.

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The
that we learned about in Topic 11 will also develop at this point. The wind will then take the seed away where it will develop further into a seedling and eventually into a tree.

Reproduction in Angiosperms

An angiosperm is a plant that produces seeds within a fruit. Reproduction begins when the pollen from the anther is in contact with the stigma. Eventually the egg will be fertilized in the ovule that is in the ovary and turn from a zygote to an embryo inside the seed.

As you know, there are certain species that help plants in the process of pollination. When an organism, such as a hummingbird, feeds on the nectar of a flower it picks up pollen from the anther. The hummingbird will soon feed on another flower of the same species and the pollen will get onto the stigma of the second flower.

When the seed develops the ovary will begin to turn into a fruit. A fruit is an ovary that has ripened and holds the seeds of the plant.

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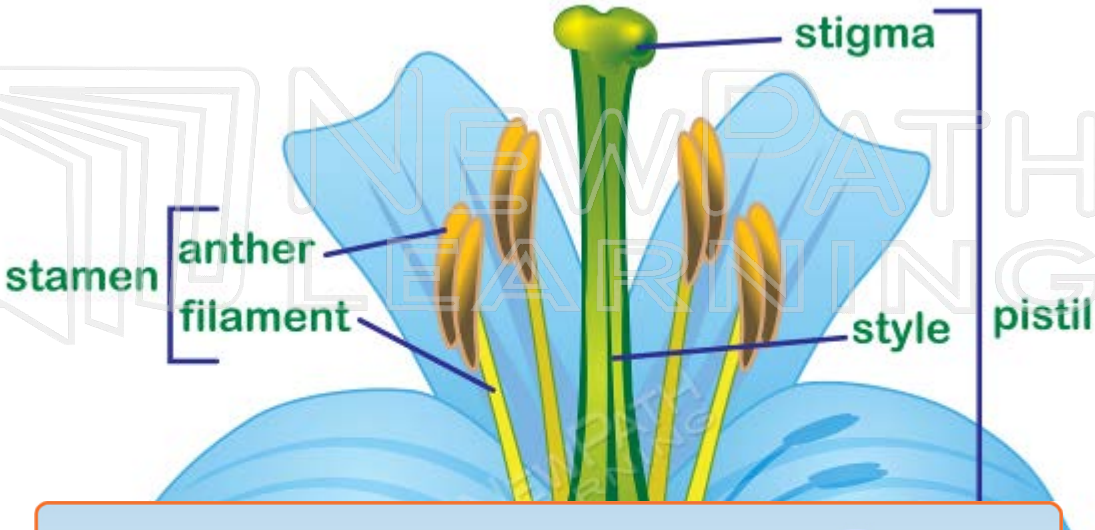
Flowers are different according to the species of angiosperm, but they generally have typical features.



The **petal** is a very visible and colorful structure of the flower. The **sepals** are a leaf-like structure that protects the flower before it blooms. Flowers have both male and female reproductive parts. The male reproductive parts are the **stamens**, which consist of the anther and filament. The female reproductive parts are the **pistils**, which consist of the stigma, style, and ovary.

Life Cycle of Angiosperms

The life cycle of angiosperms among the different species is very similar.

Pollination, fertilization, and the development of fruit are the typical steps of an angiosperm's life cycle.

Pollination: The anther contains the pollen, the male cells of an angiosperm. Pollen is carried by wind or by an organism that feeds on the nectar that the flower produces.

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Development of fruit: The ovary from the flower will begin developing into a fruit that carries the seeds. The fruit gives nutrients to the organisms that eat it and the angiosperm seeds will be dispersed. Once dispersed, the seed will grow into a new plant.