

Functional Beauty

Flowers are not simply beautiful objects; they are also the place where the reproductive organs of angiosperms are located. Many are hermaphroditic, meaning that they contain both the male reproductive apparatus (the androecium) and the female (the gynoecium). The process of pollination is carried out through external agents, such as insects, birds, wind, and water. Following fertilization, flowers produce seeds in their ovaries. The floral parts are arranged in circular or spiral patterns. ●

Classification

Plants with flowers are classified as dicotyledons or monocotyledons. The first group has seeds with two cotyledons, and the second has seeds with only one. Each represents a different evolutionary line. They are differentiated by the structure of their organs. The cotyledon contains nutrients that the embryo utilizes during its growth until its true leaves appear. When a seed germinates, the first thing that appears is the root. In monocotyledons the stem and the radicle are protected by a membrane; the dicotyledons lack this protection, and the stem pushes itself through the soil.

Dicotyledons

In this class of plants each whorl of the flower is arranged in groups of four or five parts. In dicotyledons the sepal is small and green, the petals are large and colorful, and the leaves are wide. The vascular ducts are cylindrical.

OVARY

The ovary is found in the receptacle at the base of the gynoecium, inside the carpels. The pollen tube extends into the ovary and penetrates the ovule.



LEAVES
In dicotyledons, leaves have various forms, and they can be veins that connect with a primary vein.



ROOT
In dicotyledons the main root penetrates the ground vertically as a prolongation of the stem, and secondary roots extend from it horizontally. It can be very deep and long-lived.



Monocotyledons

Each whorl of these flowers contains three parts, and their sepals and petals are generally not differentiated from one another. The majority are herbaceous plants with scattered vascular conduits. They are the most evolved species of angiosperms.

FLORAL DIAGRAM

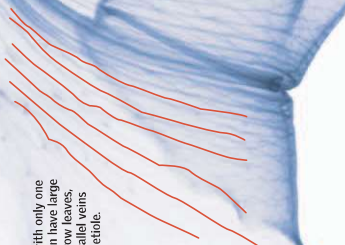


CARPEL

The carpel consists of modified leaves that together form the gynoecium. It contains a stigma, a style, and an ovary. Ovules are produced in the ovary.



LEAVES
Plants with only one cotyledon have large and narrow leaves, with parallel veins and no petiole.



ROOT
In monocotyledons all the roots branch from the same point, forming a kind of dense hair. They are generally superficial and short-lived.



Androecium

The male reproductive system. It is formed by a group of stamens, each of which consists of an anther supported by a filament. The base may contain glands that produce nectar.

ANTHER
A sac where grains of pollen (the male gametes) are produced

FILAMENT
Its function is to sustain the anther.

Gynoecium
The female reproductive system. It is formed by carpels and includes the ovary, ovules, style, and stigma.

STIGMA
It can be simple or divided. It secretes a sticky liquid that captures the pollen. Some are also covered with hair.

Whorls

Most flowers have four whorls. In a typical flower the outermost whorl is the calyx, followed by the corolla, the androecium (which can have two parts), and the gynoecium. When a flower has all four whorls, it is considered complete; it is incomplete when it lacks at least one of them. Plants that have an androecium and a gynoecium, but in separate flowers, are called monoecious. If the flower lacks a sepal and petals, it is said to be naked.

250,000

THE NUMBER OF KNOWN SPECIES OF ANGIOSPERM PLANTS, THOUGH ONLY 1,000 SPECIES HAVE ECONOMIC IMPORTANCE. ABOUT TWO THIRDS OF THESE SPECIES ARE NATIVE TO THE TROPICS.

COROLLA

A grouping of petals. If its parts are separated, they are simply called petals; if they are united, the plant is described as gamopetalous.

PETAL

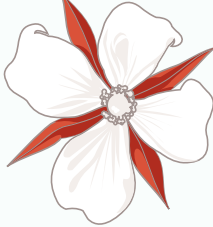
It typically has a showy color to attract pollinating insects or other animals.

CALYX

The grouping of sepals that protects the other parts of the flower. Together with the corolla it forms the perianth. The sepals may be separate or united; in the latter case the plant is called gamosepalous.

SEPAL

Each of the modified leaves that protect the flower in its first stage of development. They also prevent insects from gaining access to the nectar without completing their pollinating function. Sepals are usually green.



TEPAL

In monocotyledonous plants the petals and sepals are usually the same. In this case they are called tepals, and the group of tepals is called a perianth.

