



Colorado MASTER GARDENER

Plant Structures: Flowers

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Thought question:

- My zucchini is blooming but doesn't set any fruit. Why?

Flowers are the reproductive structure of a flowering plant. Flowers are the primary structure used in grouping plant families.

Function

- Reproduction, beginning with pollination and fertilization.
- Attract and reward pollinators.
- Horticultural uses including:
 - aesthetic qualities,
 - cut flowers and potted blooming plants,
 - edible flowers and herbs, and
 - plant identification.



Structure

Pistil – central female organ of the flower. It is generally bowling-pin shaped and is located in the center of the flower.

Stigma – receives pollen, typically flattened and sticky.

Style – connective tissues between stigma and ovary.

Ovary – contains ovules or embryo sacs.

Ovules – Unfertilized, immature seed.

Stamen – male flower organ.

Anthers – pollen producing organ.

Filament – stalk supporting anthers.

Petals – usually colorful petal-like structures making up the flower, collectively called the **corolla**. May contain perfume and nectar glands.

Sepals – protective leaf-like enclosure for the flower bud, usually green, collectively called **calyx**. Sometimes highly colored like the petal as in iris.

Receptacle – base of the flower.

Pedicel – flower stalk of an individual flower in an inflorescence.

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Putting Knowledge to Work

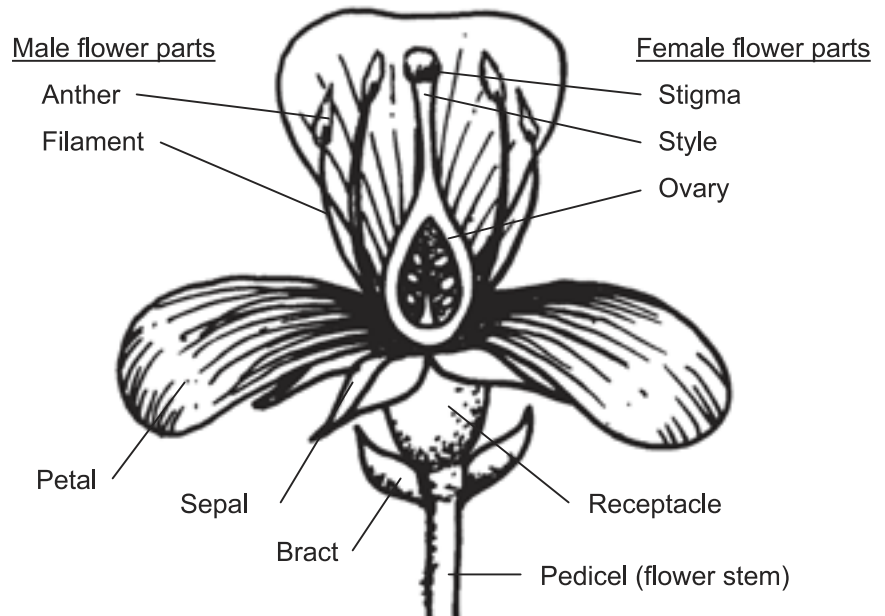


Figure 1. Diagram of a flower.

Monocot or Dicot

The number of sepals and petals is used in plant identification. Dicots typically have sepals and petals in fours, fives or multiples thereof. Monocots typically have flower parts in threes or multiples of three.



Monocot flower parts in 3s



Dicot flower parts in 4s or 5s

Figure 2. Monocot vs. Dicot sepals and petals.

Terms Defining Flower Parts

Flowers

Complete – flower containing sepals, petals, stamens and pistil.

Incomplete – flower lacking sepals, petals, stamens and/or pistils.

Perfect – flowers containing male and female parts.

Imperfect – flowers that lack either male or female parts.

Pistillate – flowers containing only female parts.

Staminate – flowers containing only male parts.

Plants

Hermaphroditic – plants with perfect flowers (apples, tulips).

Monoecious – plants with male flowers and female flowers on the same plant (corn, squash, and pine).

Dioecious – plants with male flowers and female flowers on separate plants (maple, holly).

Gynoecious – plant with only female flowers.

Andromonoecious – plants with only male flowers.

Inflorescence (flower arrangement)

Catkin (ament) – a spike with only pistillate or staminate flowers (alder, poplar, walnut and willows).

Composite – a complex flower, composed of ray flowers (usually sterile with an attractive, colored petal) and disc flowers in center that develop into seed (sunflower and aster).

Corymb – stemlets (pedicels) arrangement along main stem, gives florets display with a flat rounded top. Outer florets open first (yarrow, crabapple).

Cyme – a determinate, flat or convex flower, with inner floret opening first.

Panicle – an indeterminate flower with repeated branching, can be made up of racemes, spikes, corymbs, or umbels.

Raceme – flowers attached to a main stem (*peduncle*) by stemlets (*pedicel*) (snapdragon, bleeding heart, Canterbury bells).

Single (or solitary) – one flower per stem (tulip, crocus).

Spadix – showy part is a bract or *spathe*, partially surrounding the fertile flower (calla, caladium).

Spike – flowers attached to main stem, without stemlets, bottom florets open first (gladiolus, ajuga and gayfeather).

Umbel – florets with stalks attached to main stem from one point, forming a flat or rounded top. Outer flowers open first (dill, onion).

Symmetrical – symmetrical flowers (lily).

Asymmetrical – asymmetrical flower (snapdragon).

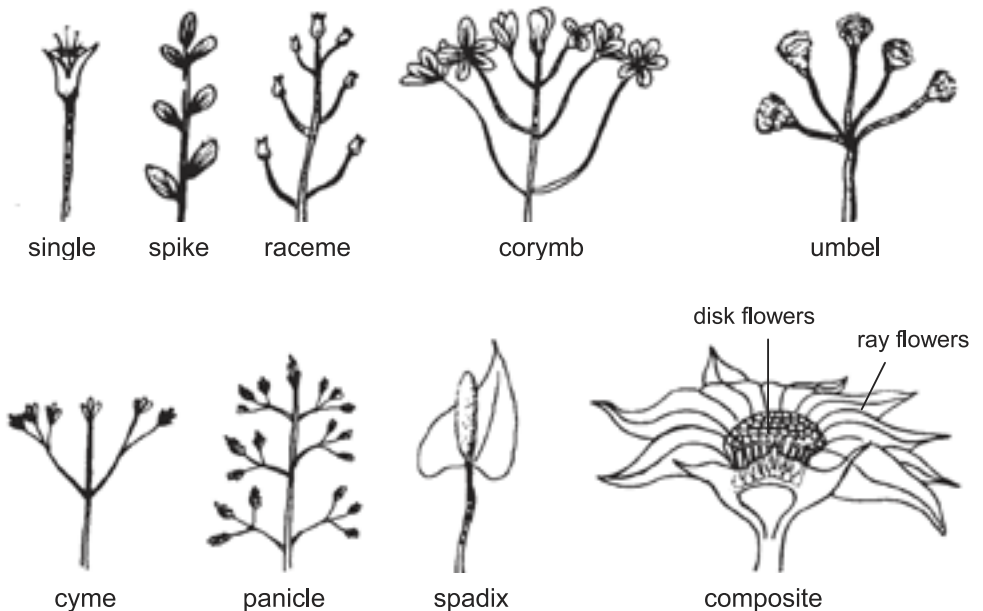


Figure 3. Types of flower arrangements.

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