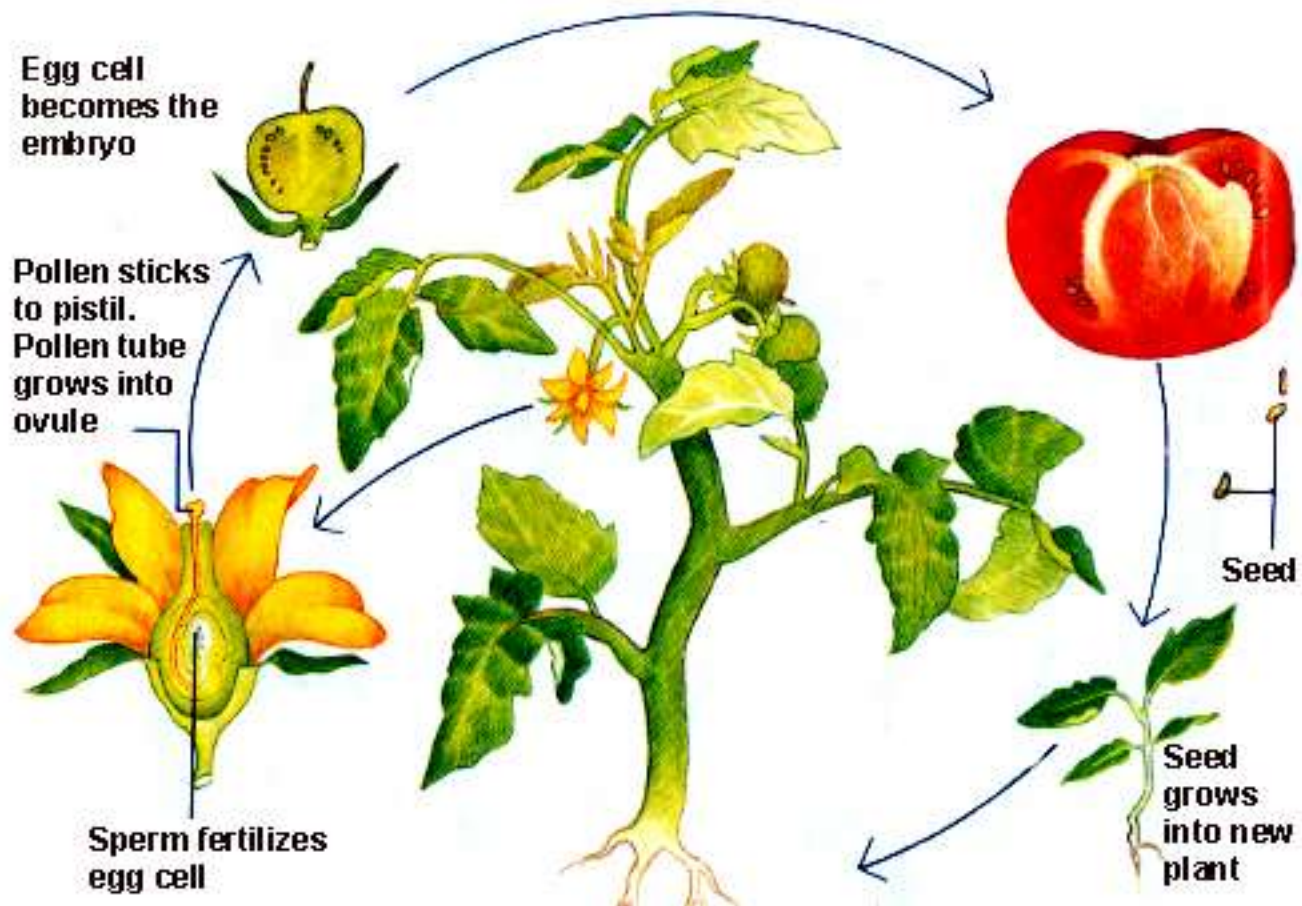


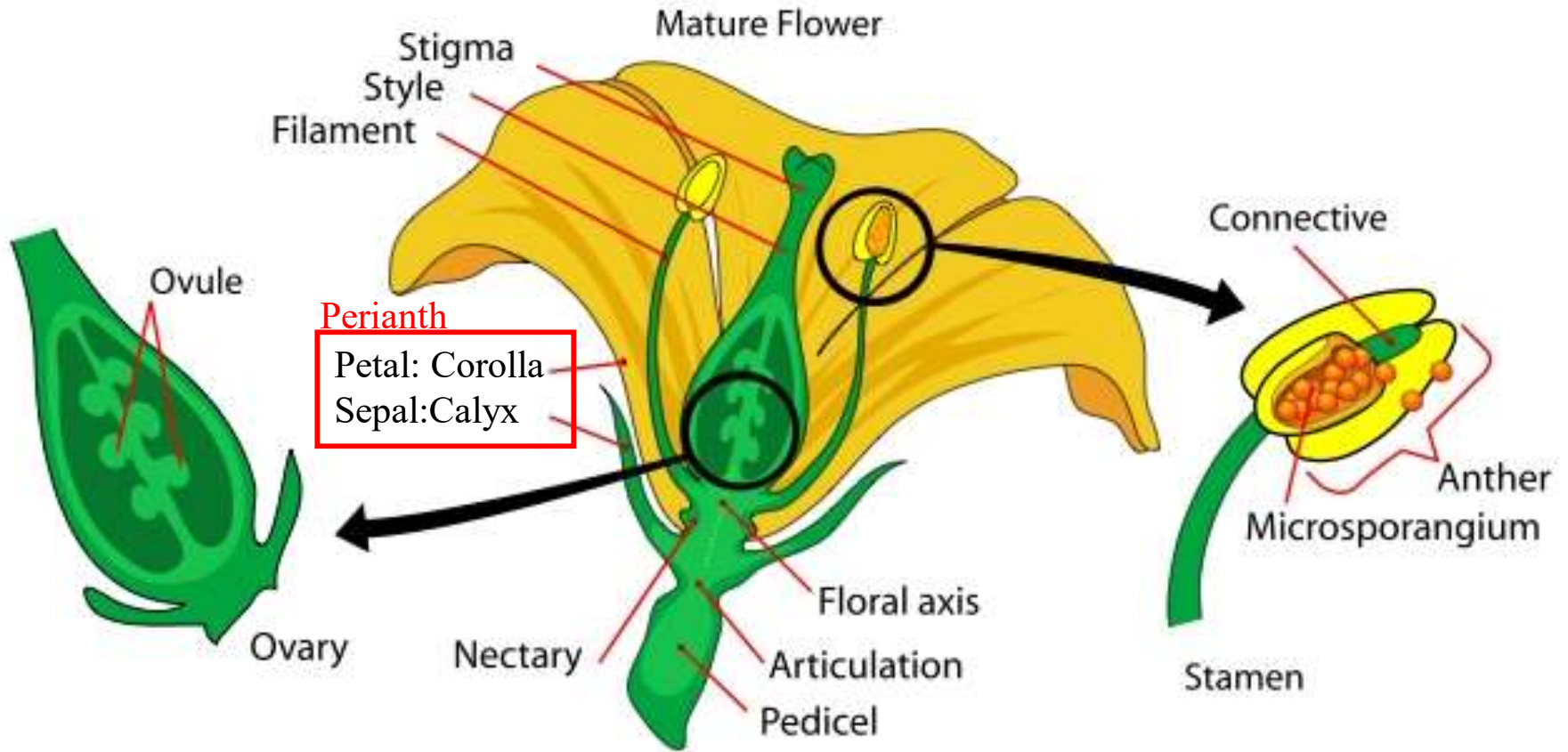
Structure of Flower

Botany Department,
B.N.D. College, Kanpur

Flower



The Reproductive Structure of Flowering Plants:



Flower Anatomy

Calyx: the outer whorl of **sepals**; typically these are green, but are petal-like in some species.



Flower Anatomy

Corolla: the whorl of **petals**, which are usually thin, soft and colored to attract animals that help the process of pollination.

The coloration may extend into the ultraviolet, which is visible to the compound eyes of insects, but not to the eyes of birds.



Flower Anatomy

Androecium (from Greek *andros oikia*: man's house): one or more **stamens**, each with a **filament** topped by an **anther** where pollen is produced.

Pollen contains the male gametes.



Flower Anatomy

Gynoecium (from Greek *gynaikos oikia*: woman's house): all the female parts—the **pistil(s)** with **ovule(s)** inside.



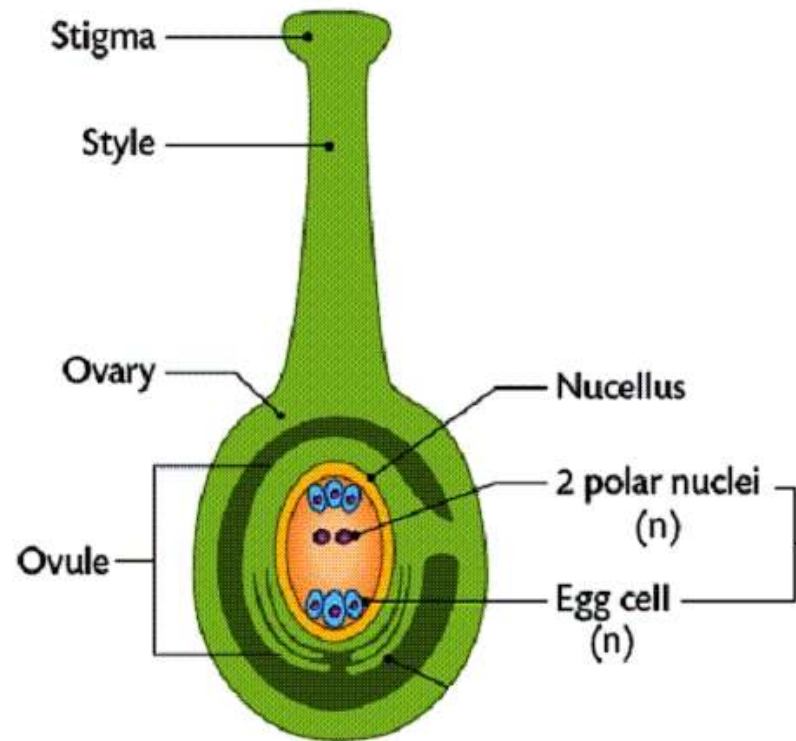
Flower Anatomy

The basic unit of the female reproductive structure is the **carpel**. Each physical body is called a **pistil**.

A flower may have a single carpel, which is a *simple pistil* (**unicarpellate**), or several carpels united in one compound pistil (**syncarpous**), or a cluster of un-united carpels/pistils (**apocarpous**)

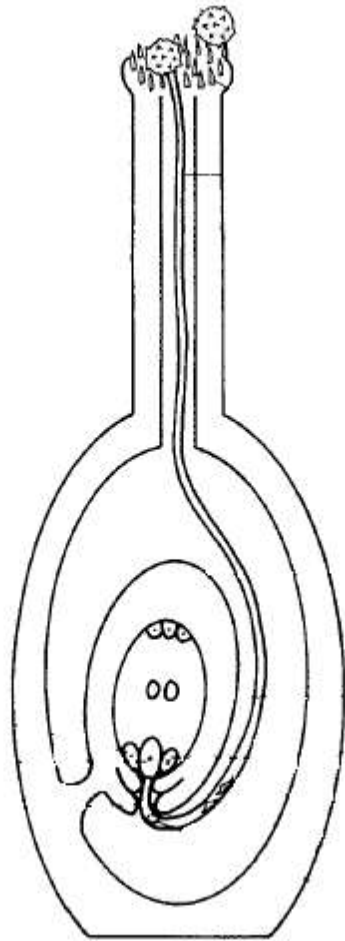
The sticky tip of the pistil, the **stigma**, is the receptor of pollen.

The supportive stalk, the **style**, becomes the pathway for pollen tubes to grow from pollen grains adhering to the stigma, to the **ovules**, containing the gametes, housed inside the **ovary**.

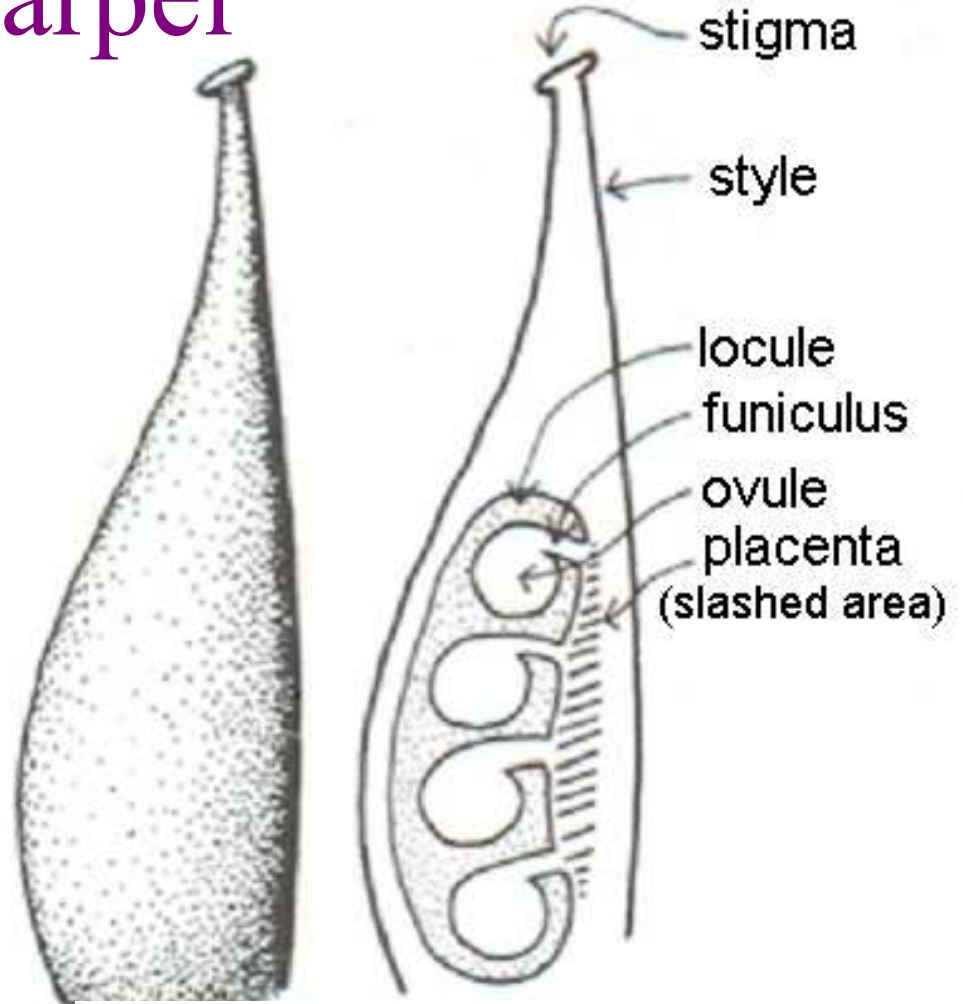


Flower Anatomy

carpel

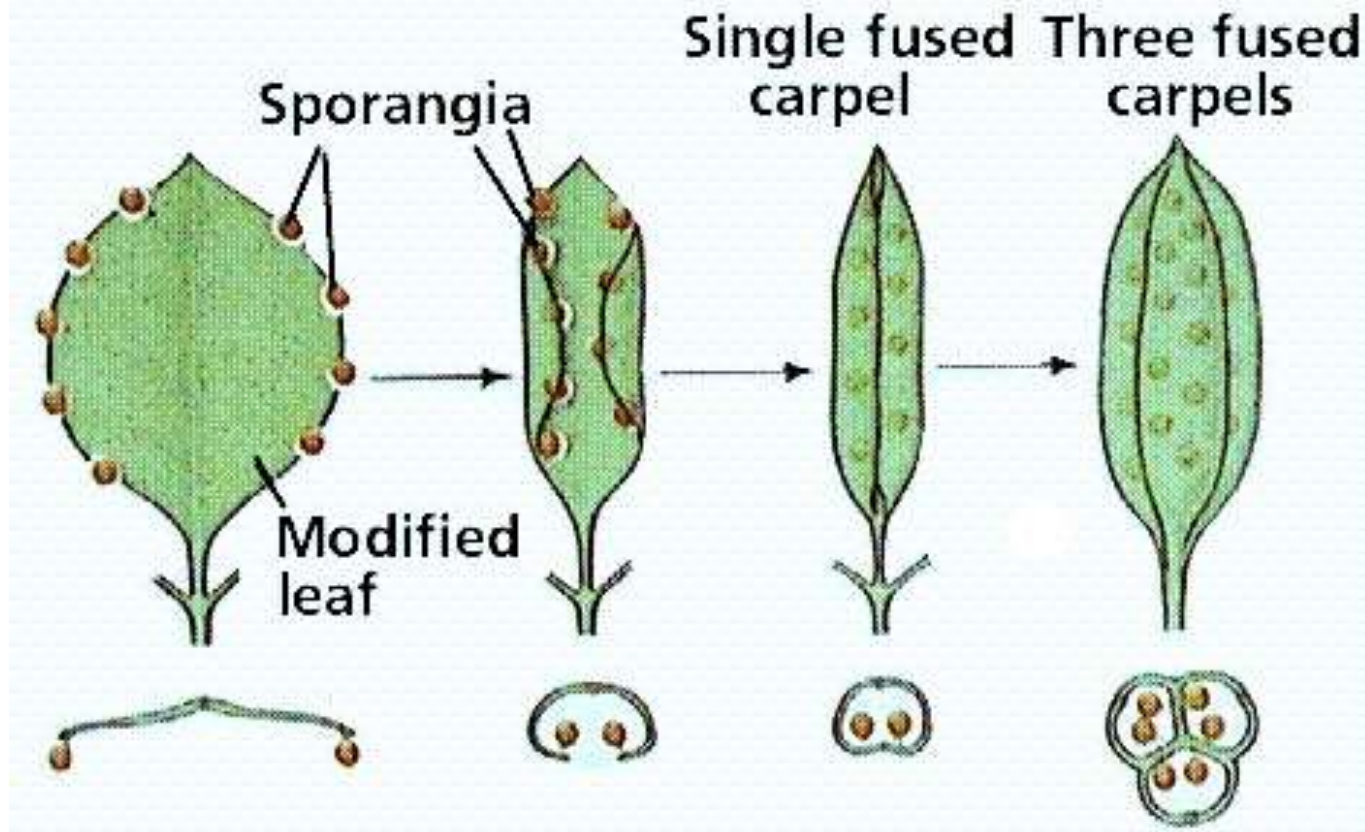


fertilization



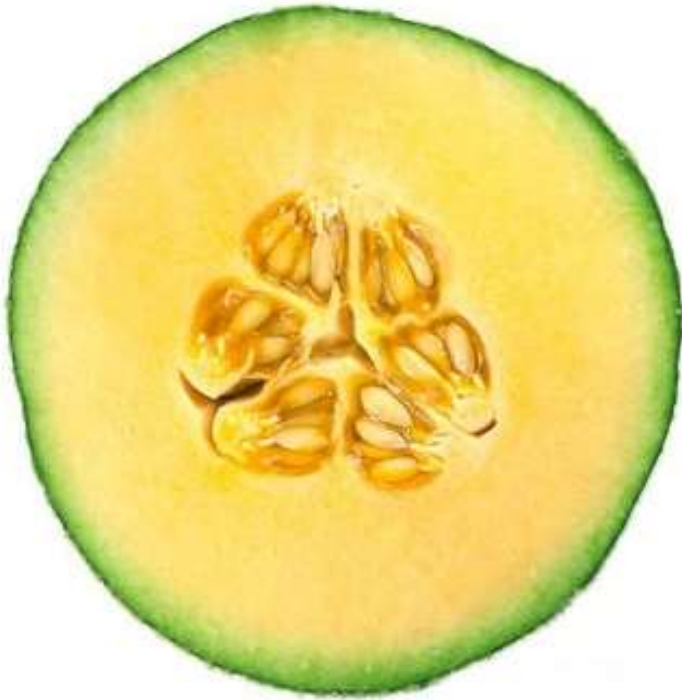
carpel structure

Evolution of the Carpel



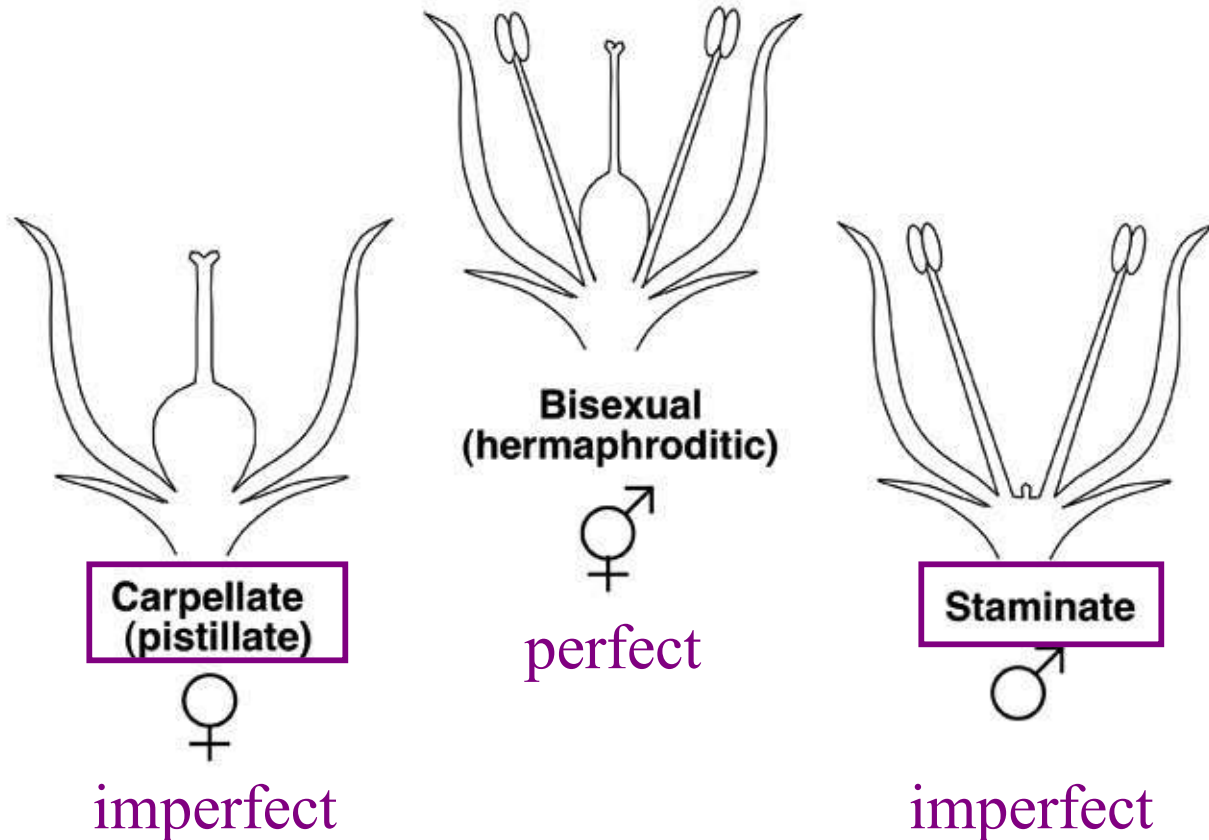
Fruit and Seed Formation

A fruit develops from an **ovary**. A seed develops from an **ovule**.



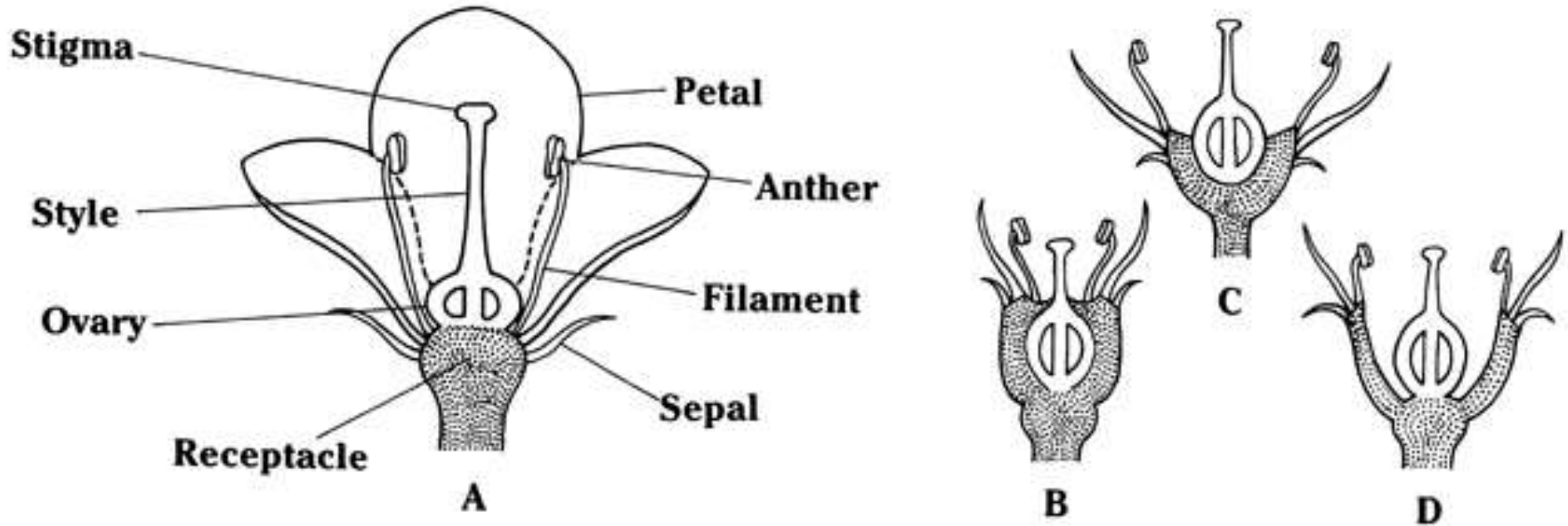
Flower Structure Variation

Flower Sexual Conditions



Flower Structure Variation

Ovary Position



A. ovary superior, floral parts hypogynous

B. ovary inferior, floral parts epigynous

C. ovary half-inferior

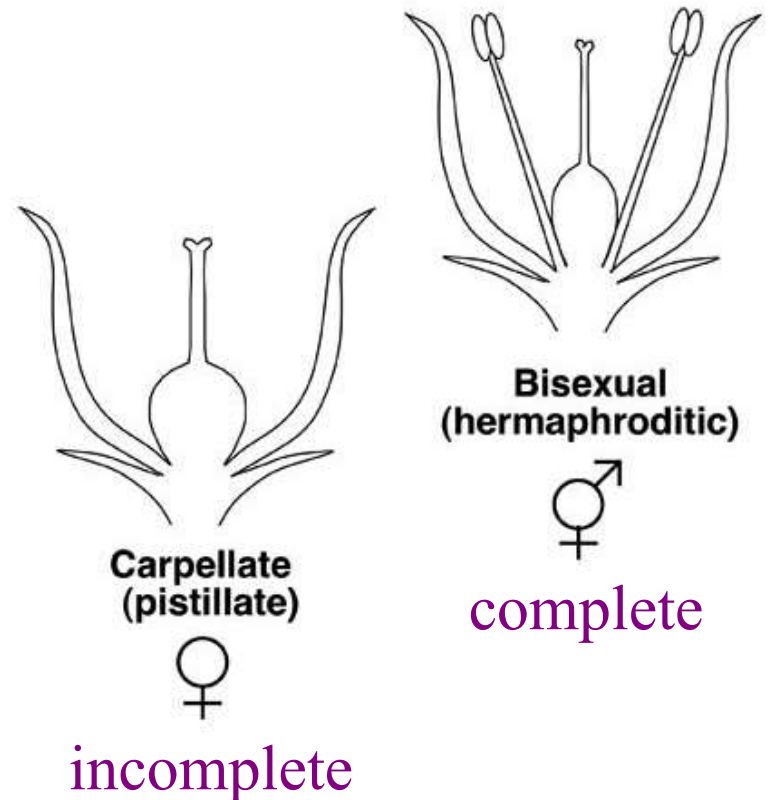
D. ovary superior, floral parts perigynous, hypanthium cup shaped

Flower Structure Variation

A flower having sepals, petals, stamens, and pistils is **complete**; if a flower is lacking one or more of these whorls, it is said to be **incomplete**.



no stamens present = incomplete



Inflorescences

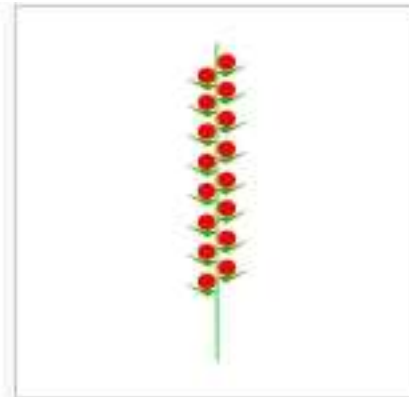
An **inflorescence** is a group or cluster of flowers. It may be branched or unbranched. Modifications can involve the length, variations in the proportions, compressions, and swellings, and the order in which the flowers open.

Usually the modifications have been evolved to optimize the plant's method of pollen dispersal.

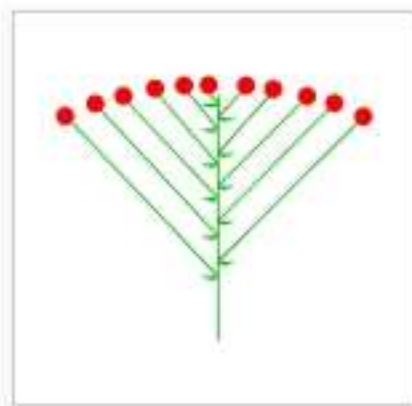
Inflorescences



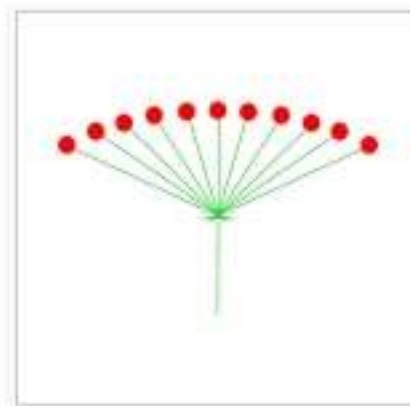
raceme



spike



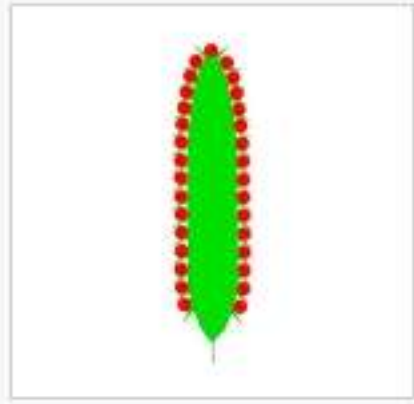
corymb



umbel



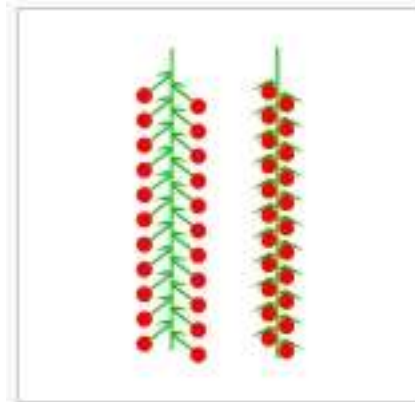
Inflorescences



spadix



head



catkin

Pollen Dispersal by Animals

Bees, Beetles, Bats, Birds, Butterflies, etc...



Symmetry

Flowers that are **actinomorphic** have "radial symmetry", meaning they can be divided into symmetrical halves by more than one longitudinal plane passing through the axis, much as a pie can be cut into several equal and identical pieces.



Zygomorphic flowers are "yoke shaped" or have "bilateral" symmetry, where flowers can be divided by only a single plane into two mirror-image halves, much like a yoke or a person's face.



Dicot versus Monocot

Dicot



Usually four or five floral parts (or multiples of these)



Monocot



Usually three floral parts (or multiples of three)



Thank

You