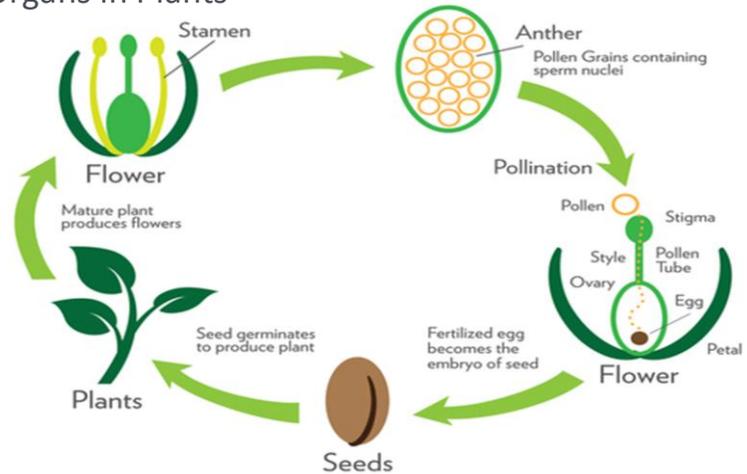


# Reproduction in Plants

## CONTENT

- ✓ Structures and Functions of the Reproductive Organs in Plants
- ✓ Arrangement of Reproductive Organs in Plants
- ✓ Types of Flowers
- ✓ Kinds of Placentations



## STRUCTURES AND FUNCTIONS OF THE REPRODUCTIVE ORGANS IN PLANTS

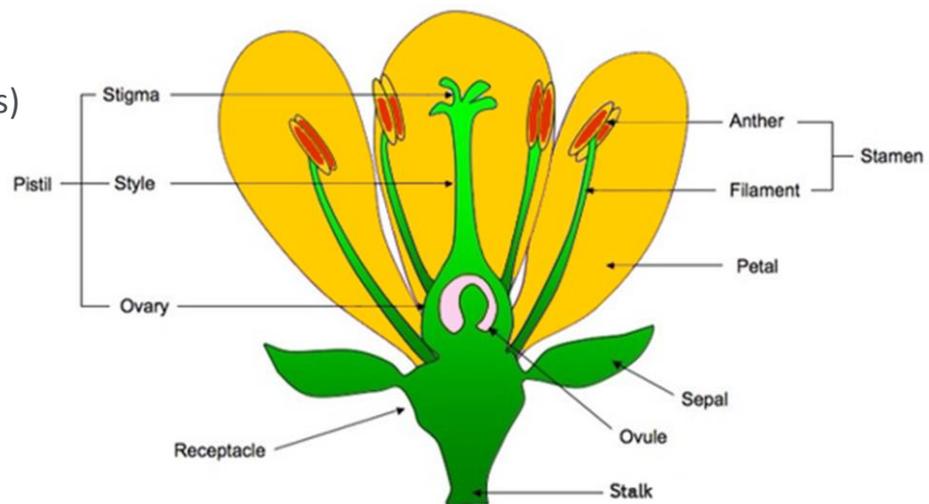
The flower is the reproductive structure of a flowering plant. It has both male and female sex organs hence it can carry out sexual reproduction. After fertilization has taken place in flowers, seeds are produced.

A flower has two major parts:

- The floral part (whorls)
- The flower stalk (pedicel).

The floral part of the flower is formed by

- calyx (sepals)
- Corolla (petals)
- androecium (stamens)
- gynoecium (carpels)



Parts of a flower

## **PARTS OF A TYPICAL FLOWER**

### **THE CALYX**

The **calyx** consists of sepals which are usually small and green. They protect the flower present in the bud. Sepals are usually up to 3-5 in numbers and they may be separated (polysepalous) or joined to form a cup (gamosepalous). Epicalyx may be present e.g. in hibiscus flower.

### **THE COROLLA**

The **corolla** consists of petals inside the sepals. Petals are the attractive part of a flower and could be up to 4-10 and maybe separated (polypetalous) or joined to form a tube (gamopetalous). They are generally coloured and scented to attract pollinators (e.g. insects)

### **THE ANDROECIUM**

The **androecium** is the male reproductive organs of a flower. It is a group of stamens which consist of two parts –the filament and anthers. Stamens could be up to 3 or more (free or joined together). The anther is a 2-4 lobed structure producing the pollen grains (fine yellowish particles) which in turn produce the male gamete in flowers. At maturity, the anther lobes open to release the pollen grains.

### **THE GYNOECIUM**

The **gynoecium** is the female reproductive organ of a flower. It is the innermost floral part of the flower. The gynoecium consists of carpels which may be one or many. Carpels may be separate (**monocarpous**) e.g. flamboyant or may be fused (**polycarpous**) e.g. hibiscus. A Pistil or carpel consists of three parts; they are ovary, style and stigma.

The ovary contains ovule which produces the female gamete. After fertilization, the ovary develops into the fruit while the ovule develops into a seed.

### **TYPES OF OVARY**

1. Superior Ovary- when it is above other floral parts and such flower is called hypogynous flower e.g. hibiscus
2. Inferior Ovary- when it is below other floral parts such flower is referred to as epigynous flower e.g. sunflower.
3. Half inferior Ovary- when the ovary is at the same level as other floral parts, such is called perigynous ovary e.g. rose flower.

### **TYPES OF FLOWER**

Generally, flowers differ in the following

- number of floral parts
- colour of petals
- size and shape
- symmetry

Flowers can be radially symmetrical/regular (actinomorphic) or irregular (zygomorphic).

- A complete or perfect flower, when all the four floral parts are present, or imperfect or incomplete flower if one or more of the floral parts are absent.
- Position of the ovary (hypogynous, epigynous or perigynous flowers).
- If flowers occur singly (solitary flower) or in a group (inflorescence).
- If flowers are born in axils of leaves (axillary) or at the end of the stem or branches (terminal flowers).

## SEXES IN PLANTS

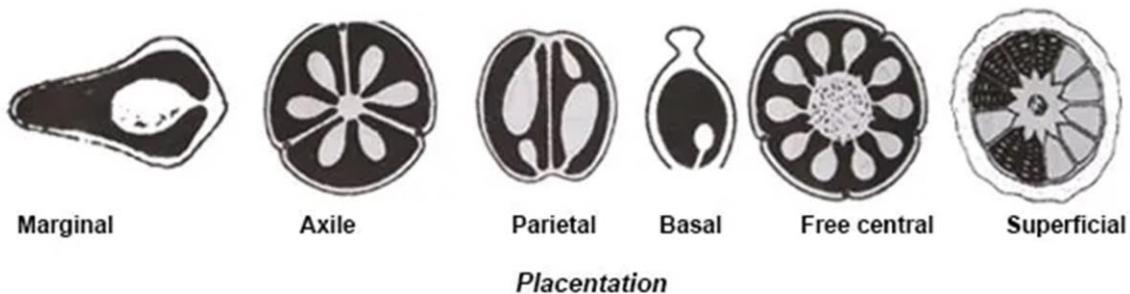
Most flowers are bisexual i.e. they have both stamens and carpels while a few are unisexual (either male or female). Therefore, a plant can be **monoecious** (when both male and female flower occurs on the same plant e. g. maize or **dioecious** (when male and female flower are found on different plant e. g. pawpaw).

## PLACENTATION

This is defined as the arrangement of the ovules within the ovary of a flower. The ovules are attached to the ovary by fleshy structures called placenta through short stalks called funicles.

### TYPES OF PLACENTATION;

1. **Marginal placentation:** Ovule is arranged at the margin of the ovaries e.g. beans, flamboyant flowers
2. **Parietal placentation:** Ovules are arranged to the side of the ovary or within a single chamber or cavity e.g. pawpaw.
3. **Free central placentation:** Ovules are born on a knob projecting from the base of the ovary e. g. water lily.
4. **Axile placentation:** Carpels meet at the centre to form the placenta for attachment of ovules e.g. tomatoes
5. **Basal placentation:** Ovules are attached to the base of ovule e. g. sunflower.



## ASSIGNMENT

1. With a well-labelled diagram describe the structural makeup of a flower.
2. With an example each state and explain the types of the ovary.
3. List the four floral parts of a flower and their functions.
4. Classify flower based on sexes.
5. What is placentation?