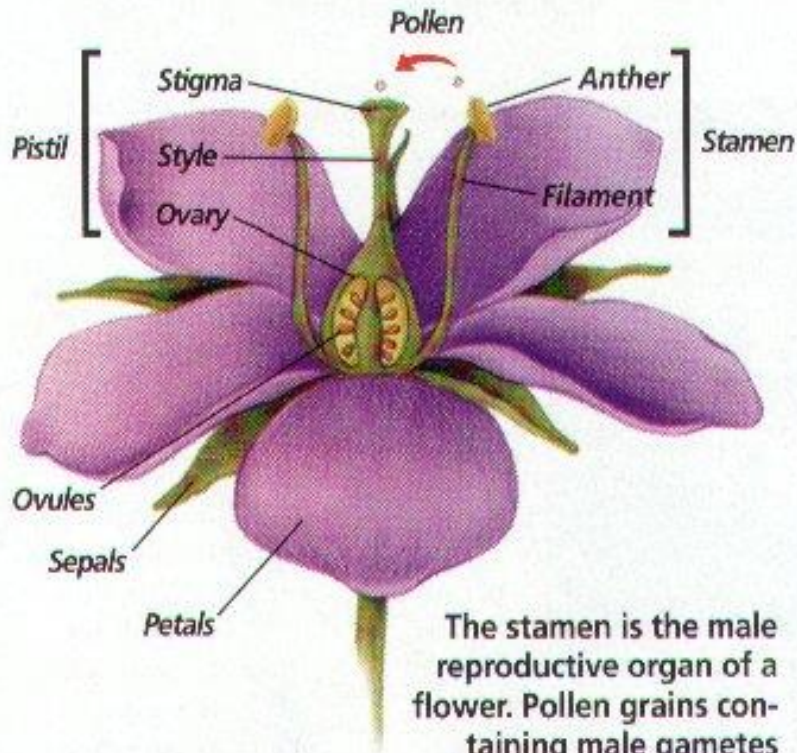


**2019-2020**  
**PLANT MORPHOLOGY LAB.**

**Dr. Aydan ACAR ŞAHİN**  
**12th week**

# Angiosperms or Flowering plants

The pistil is the female reproductive organ. Inside the ovary at the base of the pistil are the ovules. Ovules contain the female gametophyte generation of the plant. Female gametes—egg cells—form in each ovule.



The stamen is the male reproductive organ of a flower. Pollen grains containing male gametes form inside the anther.

- ✓ Bright colors, attractive shapes, and fragrant aromas help flowering plants **attract their pollinators (insects, birds, mammals...)**
- ✓ Flowers without bright colors and pleasing odors are usually **wind or water** pollinated (grasses)
- ✓ **Flowers**, the reproductive part of a plant, have a swollen base or **receptacle** to attach to the stem
- ✓ Flowers have 4 whorls (modified leaves) attached to the receptacle: **petals, sepals, pistils, and stamen**
- ✓ **Pistils (innermost whorl)** are the female part of the flower, while **Stamens** are the male part

In DICOTS:

- ✓ **Sepals (outermost whorl)** are found **below the petals** and may look leaf-like (some may be the same color as petals)
- ✓ **Sepals enclose** the flower **bud** before it opens
- ✓ **Sepals** are collectively called the **calyx**
- ✓ **Petals** are often **colorful** to attract pollinators
- ✓ **Petals** are collectively called the **corolla**

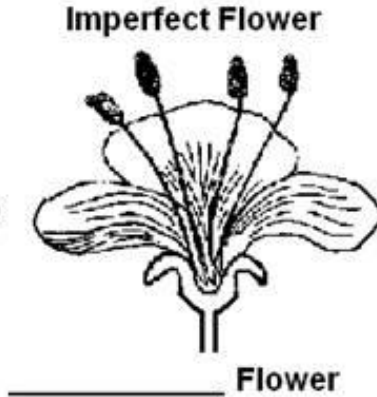
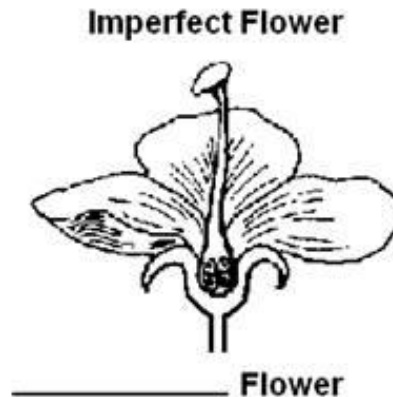
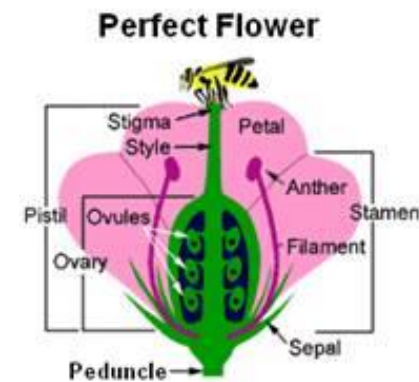
IN MONOCOTS:

- ✓ **Tepals** are collectively called the **perigone**

- ❖ **Monocot flower** parts are arranged in **multiple of THREES**, while dicots are in multiples of **FOUR or FIVE**
- ❖ **Perfect flowers** have both **stamens & pistils** (rose)
- ❖ **Imperfect flowers** are either a **male** (pistillate) or **female** (staminate) **flower** (pumpkin or melons)
- ❖ Some angiosperms have both male & female flowers on the **SAME** plant (**monoecious**)
- ❖ Other angiosperms have entire male **OR** female plants (**dioecious**)
- ❖ **Hermaphrodite (Monoclin) flowers:** each flower of each individual has both male and female structures, i.e. it combines both sexes in one structure. Flowers of this kind are called **perfect**, having both stamens and carpels.
- ❖ **Diclinous flowers:** having either functionally male or functionally female flowers

## 2. Diclinous

### 1. Hermaphrodite: flower has both sexes





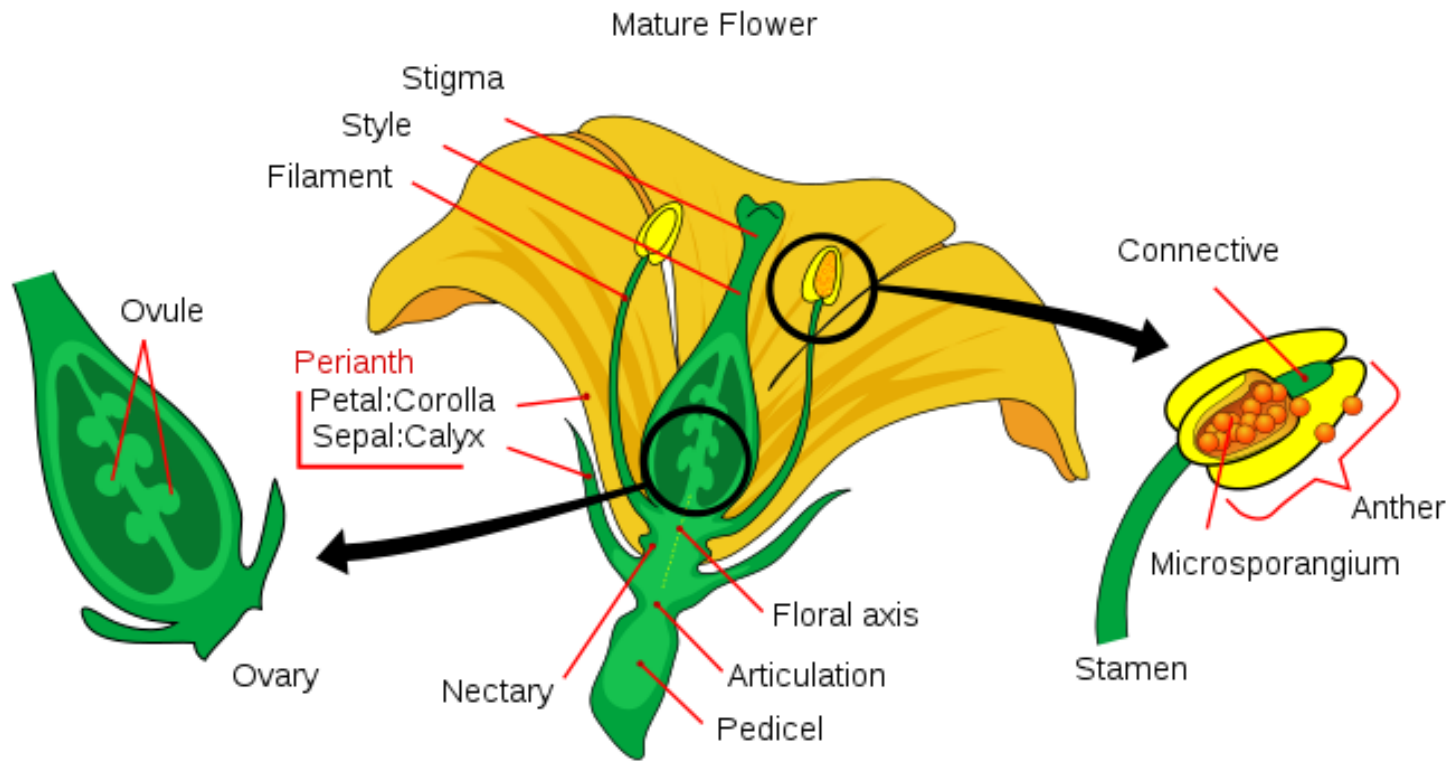


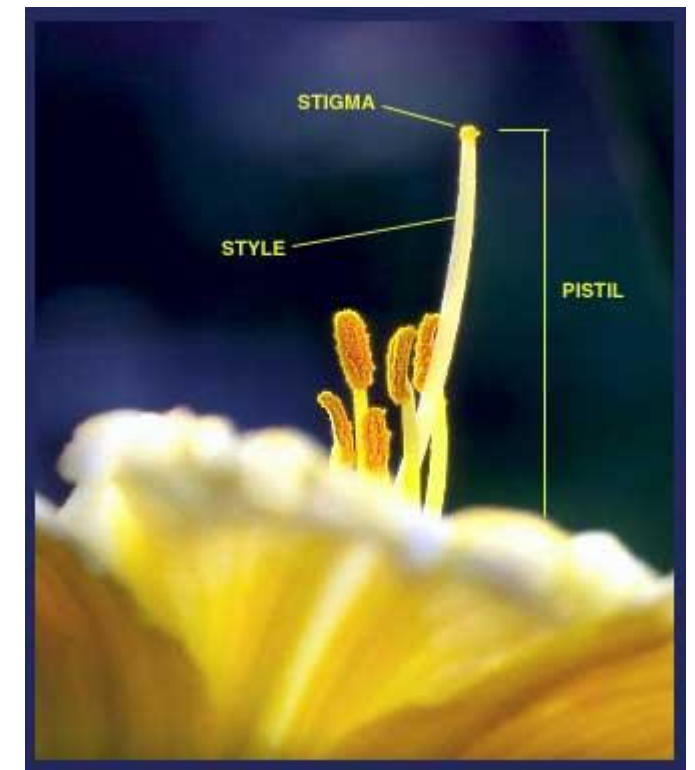
Diagram showing the parts of a mature flower. In this example the perianth is separated into a **calyx** (sepals) and **corolla** (petals)



A *Lilium* flower showing the six **tepals**: the outer three are sepals and the inner three are petals.

### **Female Reproductive Structures:**

- ✓ Called carpals
- ✓ Carpals may be fused to form the pistil
- ✓ Produce eggs
- ✓ Composed of 3 parts --- stigma, style, and ovary
- ✓ Stigma is located at the top and may be sticky or have hairs to hold pollen grains landing there
- ✓ Style is a stalk-like connection between the stigma and the ovary
- ✓ Ovary is the enlarged base containing ovules with eggs



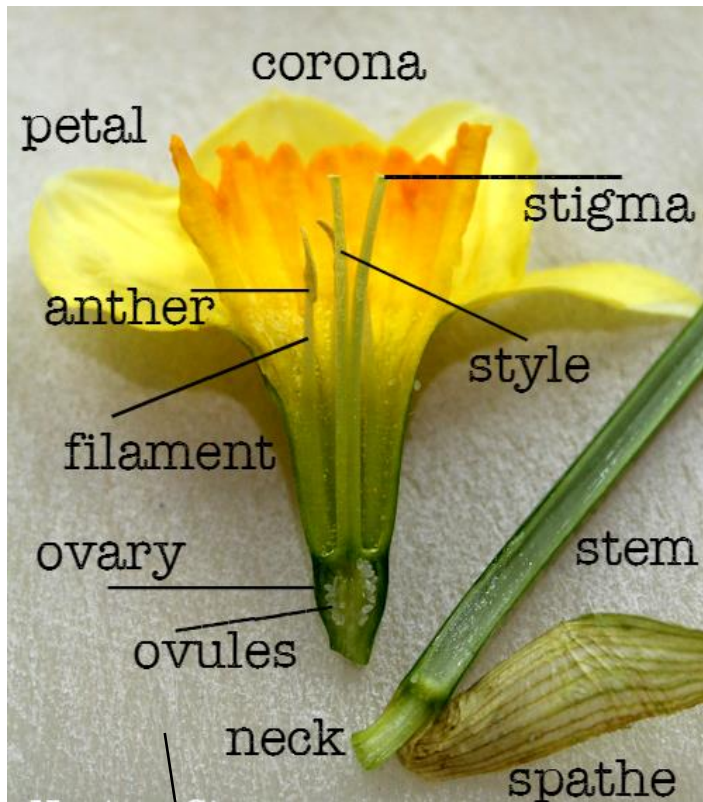
### **Male Reproductive organs:**

- ✓ Called stamens
- ✓ Produce pollen
- ✓ Composed of 2 parts --- filament & anther (pollen sac)
- ✓ Anthers produce pollen grains containing sperm
- ✓ Filament is stalk-like & supports the pollen sacs





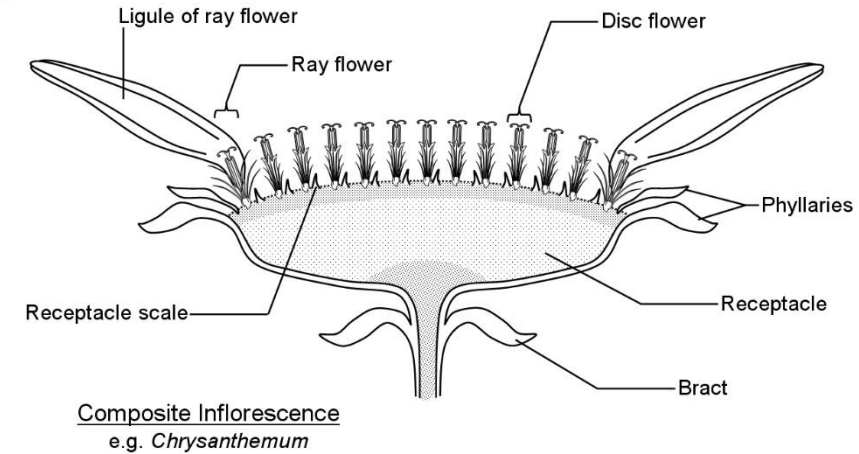
# Monocot vs. Dicot flowers



**Monocots**  
Parts in 3s



**Dicots**  
Parts in 4s or 5s



Subject: **Plant reproduction**

Sub topic: **Monocot flowers diagram**

Fam: Amaryllidaceae

Sp.: *Narcissus sp.*

Formula:  $[T_{3+3} A_{3+3}] G_3$

Subject: **Plant reproduction**

Sub topic: **Dicot flowers diagram**

Fam: Asteraceae

Sp.: *Chrysanthemum*

Formula: