

# Botany Cheatsheet

## Plant Anatomy

### Parts of a Flower

- **Pistil:** The female reproductive part of the flower, consisting of the stigma, style, and ovary.
- **Stamen:** The male reproductive part of the flower, consisting of the anther and filament.
- **Sepal:** The outermost part of the flower, usually green in color and protecting the flower bud.
- **Petal:** The brightly colored part of the flower that attracts pollinators.

### Parts of a Leaf

- **Blade:** The broad, flat portion of the leaf.
- **Petiole:** The stalk that attaches the blade to the stem.
- **Veins:** The network of vessels that transport water and nutrients throughout the leaf.

### Parts of a Stem

- **Node:** The point on the stem where a leaf is attached.
- **Internode:** The section of stem between two nodes.
- **Apical bud:** The bud at the tip of the stem that allows for upward growth.

## Plant Physiology

### Photosynthesis

- **Definition:** The process by which green plants and some other organisms use sunlight to synthesize foods with the help of chlorophyll and other pigments.
- **Equation:**  $6 \text{ CO}_2 + 6 \text{ H}_2\text{O} + \text{light energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{ O}_2$
- **Importance:** The primary source of energy for most life on Earth.

### Respiration

- **Definition:** The process by which organisms convert organic matter into energy.
- **Equation:**  $\text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{ O}_2 \rightarrow 6 \text{ CO}_2 + 6 \text{ H}_2\text{O} + \text{ATP}$
- **Importance:** Provides the energy necessary for growth and other life processes.

## Botanical Classification

### Taxonomy

- **Definition:** The science of classifying organisms.
- **Classification system:** Kingdom, Division/Phylum, Class, Order, Family, Genus, Species.

### Binomial Nomenclature

- **Definition:** A system for naming species using two names, the genus name and the specific epithet.
- **Example:** *Solanum lycopersicum* (Tomato)

## Plant Reproduction

### Sexual Reproduction

- **Definition:** Reproduction involving the fusion of gametes from two different parents.
- **Examples:** Seed production, spore production.

## Asexual Reproduction

- **Definition:** Reproduction without the involvement of gametes.
- **Examples:** Vegetative propagation, bulb division.

## Plant Ecology

### Biomes

- **Definition:** A major ecological community of plants and animals that is determined by climate and geography.
- **Examples:** Tundra, Taiga, Temperate Forest, Rainforest, Desert, Grassland.

### Succession

- **Definition:** The process by which an ecological community undergoes a change in species composition over time.
- **Types:** Primary succession, secondary succession.

## Plant Uses

### Food

- **Examples:** Fruits, vegetables, grains, spices.

### Medicine

- **Examples:** Digitalis (Foxglove), Taxol (Pacific Yew).

### Industrial

- **Examples:** Timber, paper, textiles.

## Resources

- [Botanical Society of America](#)
- [Royal Botanic Gardens, Kew](#)
- [USDA Plants Database](#)