

STD 6 Science

Classroom notes

Unit 3-Flower to flower

Introduction to Flowers

- Definition: A flower is the reproductive part of a plant, often colorful and fragrant, which helps in the process of reproduction.
 - Importance: Flowers attract pollinators, facilitate reproduction, and result in the formation of fruits and seeds.
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Structure of a Flower

1. Calyx (Sepals)

- Outer green part, protects the flower bud before it opens.
- Collectively called the calyx.

2. Corolla (Petals)

- Colorful part of the flower that attracts pollinators.
- Collectively called the corolla.

3. Androecium (Stamens)

- Male reproductive part.
- Composed of:
 - Filament: The stalk that supports the anther.
 - Anther: Produces pollen grains (male gametes).

4. Gynoecium (Pistil)

- Female reproductive part.
- Composed of:

- Stigma: The sticky top part that captures pollen.
 - Style: The stalk connecting the stigma to the ovary.
 - Ovary: Contains ovules (female gametes), which develop into seeds after fertilization.
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Types of Flowers

- Unisexual Flowers
 - Contain either stamens or pistils but not both.
 - Examples: Pumpkin, cucumber, bitter gourd.
 - Bisexual Flowers
 - Contain both stamens and pistils.
 - Examples: Hibiscus, rose, lily.
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Pollination

- Definition: The transfer of pollen grains from the anther to the stigma of a flower.
- Types of Pollination:
 1. Self-Pollination:
 - Pollen from the same flower or another flower on the same plant lands on the stigma.
 - Common in bisexual flowers.
 2. Cross-Pollination:
 - Pollen from a flower of one plant lands on the stigma of a flower on a different plant.
 - Promotes genetic diversity.

Agents of Pollination

- Insects (Entomophily): Bees, butterflies, beetles, etc.
 - Wind (Anemophily): Grasses, pine, wheat.
 - Water (Hydrophily): Vallisneria, seagrass.
 - Animals (Zoophily): Birds, bats, mammals.
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Flower Peculiarities to Attract Pollinators

- Color: Bright colors attract bees, butterflies, and birds.
 - Scent: Fragrant flowers attract insects and mammals.
 - Nectar: Sweet liquid that provides food for pollinators.
 - Shape: Specific shapes accommodate particular pollinators (e.g., tubular flowers for hummingbirds).
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Fertilization and Fruit Formation

1. Fertilization:

- After pollination, pollen grain germinates on the stigma.
- Pollen tube grows down the style, reaching the ovule in the ovary.
- Male gamete fuses with the female gamete (ovule) to form a zygote.

2. Fruit Formation:

- The ovary develops into a fruit.
 - Ovules develop into seeds.
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Types of Fruits

- Simple Fruits: Develop from a single ovary of one flower.
 - Examples: Mango, tomato, apple.
 - Aggregate Fruits: Develop from multiple ovaries of one flower.
 - Examples: Strawberry, raspberry.
 - Multiple Fruits: Develop from the ovaries of multiple flowers that are closely packed.
 - Examples: Pineapple, fig.
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Seed Dispersal

- Methods:
 1. Wind Dispersal: Seeds are light and have wings or hairs (e.g., dandelion, maple).
 2. Water Dispersal: Seeds can float (e.g., coconut).
 3. Animal Dispersal: Seeds stick to fur or are eaten and excreted by animals (e.g., burdock, berries).
 4. Self-Dispersal: Seed pods burst open to release seeds (e.g., peas, balsam).
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Summary

- Flowers are crucial for plant reproduction, containing both male (stamens) and female (pistils) parts.
- Pollination is necessary for fertilization, leading to the formation of seeds and fruits.
- Different flowers attract pollinators through their colors, scents, shapes, and nectar.

- Fruits protect seeds and aid in their dispersal to new locations for plant growth.
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Key Terms

- Sepals
 - Petals
 - Stamens (Anther, Filament)
 - Pistil (Stigma, Style, Ovary)
 - Unisexual Flower
 - Bisexual Flower
 - Pollination (Self-Pollination, Cross-Pollination)
 - Fertilization
 - Fruit
 - Seed Dispersal
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Diagrams

1. Parts of a Flower: Label the calyx, corolla, androecium, and gynoecium.
2. Pollination Process: Show self-pollination and cross-pollination.
3. Types of Fruits: Illustrate simple, aggregate, and multiple fruits.
4. Seed Dispersal Methods: Depict wind, water, animal, and self-dispersal.