

ACHIEVERS FOUNDATION

ICSE 9th : BIOLOGY Quick Revision Sheet Flower, Pollination, Fertilization & Seed Germination

1. Flower

Term	Meaning
Flower	Reproductive part of a flowering plant.
Pedice	Stalk of a flower.
Thalamus (Receptacle)	Swollen tip of the flower stalk where floral parts are attached.
Complete Flower	Has all four whorls: calyx, corolla, androecium, gynoecium.
Incomplete Flower	Lacks one or more floral whorls.
Bisexual Flower	Contains both stamens and pistil.
Unisexual Flower	Contains either stamens or pistil only.
Calyx	Outermost whorl made of sepals.
Sepals	Green leaf-like structures protecting the flower bud.
Corolla	Whorl made of petals.
Petals	Brightly coloured structures attracting pollinators.
Androecium	Male reproductive whorl.
Stamen	Male reproductive organ.
Anther	Produces pollen grains.
Filament	Supports the anther.
Gynoecium (Pistil/Carpel)	Female reproductive whorl.
Stigma	Sticky surface that receives pollen.
Style	Connects stigma and ovary.
Ovary	Contains ovules.
Ovule	Develops into seed after fertilization.
Nectary	Produces nectar to attract insects.

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2. Pollination

Term	Meaning
Pollination	Transfer of pollen grains from anther to stigma.
Self-pollination	Pollen transferred to the stigma of the same flower or another flower on the same plant.
Cross-pollination	Pollen transferred to a flower on another plant of the same species.
Autogamy	Pollination within the same flower.
Geitonogamy	Pollination between flowers of the same plant.
Xenogamy	Pollination between flowers of different plants.
Pollinating Agents	Wind, water, insects, birds, bats, animals.
Entomophily	Pollination by insects.
Anemophily	Pollination by wind.
Hydrophily	Pollination by water.
Ornithophily	Pollination by birds.
Chiropterophily	Pollination by bats.
Pollen Grain	Male gametophyte carrying male gametes.
Pollen Tube	Tube formed after pollen germination carrying male gametes to ovule.

3. Fertilization

Term	Meaning
Fertilization	Fusion of male and female gametes to form a zygote.
Male Gamete	Reproductive cell present inside pollen grain.
Female Gamete (Egg Cell)	Present inside the ovule.
Zygote	Fertilized egg that develops into an embryo.
Embryo	Young developing plant inside the seed.
Fruit	Mature ovary after fertilization.
Seed	Mature ovule after fertilization.
Cotyledons	Seed leaves storing food.
Endosperm	Food storage tissue in many seeds.
Testa	Outer protective seed coat.
Tegmen	Inner seed coat.

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Term	Meaning
Plumule	Embryonic shoot.
Radicle	Embryonic root.
Hilum	Scar showing where the seed was attached to the fruit.
Micropyle	Tiny pore in the seed coat for water absorption and gas exchange.

4. Seed Germination

Term	Meaning
Germination	Process by which a seed develops into a seedling.
Seedling	Young plant after germination.
Dormancy	Resting stage during which seeds do not germinate.
Imbibition	Absorption of water by the seed.
Respiration	Breakdown of food to release energy for growth.
Epigeal Germination	Cotyledons come above the soil.
Hypogeal Germination	Cotyledons remain below the soil.
Viable Seed	Living seed capable of germination.
Non-viable Seed	Dead seed incapable of germination.
Seed Coat	Protective covering of the seed.
Enzyme Activation	Enzymes become active after water absorption to digest stored food.

5. Important Differences

Self Pollination

Same plant

Less variation

Less pollen needed

No pollinating agents usually needed

Cross Pollination

Different plants

More variation

More pollen needed

Pollinating agents required

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Epigeal

Cotyledons come above soil

Hypocotyl elongates

Example: Bean

Hypogeal

Cotyledons stay below soil

Epicotyl elongates

Example: Pea

Ovule

Develops into seed

Contains egg cell

Ovary

Develops into fruit

Contains ovules

6. One-Line Definitions (Very Important for ICSE)

- **Flower:** Reproductive organ of a flowering plant.
 - **Pollination:** Transfer of pollen grains from anther to stigma.
 - **Fertilization:** Fusion of male and female gametes.
 - **Zygote:** Fertilized egg cell.
 - **Embryo:** Young developing plant.
 - **Seed:** Mature fertilized ovule.
 - **Fruit:** Mature ovary.
 - **Cotyledon:** Seed leaf storing food.
 - **Plumule:** Embryonic shoot.
 - **Radicle:** Embryonic root.
 - **Micropyle:** Small opening in the seed coat.
 - **Hilum:** Scar of attachment of the seed.
 - **Germination:** Development of a seed into a seedling.
 - **Dormancy:** Temporary resting stage of a seed.
 - **Imbibition:** Absorption of water by a dry seed.
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