

**MINISTRY OF EDUCATION**  
**SECONDARY ENGAGEMENT PROGRAM**  
**GRADE 8**  
**INTEGRATED SCIENCE**

**Week 3**

**Lesson 1**

**Topic:** Sexual Reproduction in Plants

**Objectives:**

- Given an unlabeled diagram of a flower, students will correctly identify the male and female parts.
- With the aid of a handout, students will briefly explain the types of pollination and the role of insects in pollination.

**Content**

- Reproduction is the process by which plants generate new offspring. Reproduction is either sexual or asexual.
- Sexual Reproduction is the formation of offspring by the fusion of gametes. Most flowering plants reproduce sexually.
- Asexual Reproduction is the formation of offspring without the fusion of gametes.
- The flower is the reproductive part of a plant, that is, both male and female gametes are produced by flowers.
- A flower may consist of either stamen (male part) or pistil (female part) or both. Based on this, a flower can be either unisexual or bisexual.
- A bisexual or perfect flower is composed of both male and female reproductive structures, including the stamen and ovary in the same flower.
- A unisexual flower has either the male or female reproductive organs.
- To form a zygote, male gametes in pollen grains must fuse with the egg in the ovule. This is achieved by the process called pollination.
- Pollination is the process of transferring pollen grains from the anther – male part of a flower, to the stigma – female part of a flower.

- When pollen grains are transferred to the stigma, the male gametes from pollen grains release and fuse with the egg in the ovule to form a zygote. This process of fusion of gametes is called fertilization.

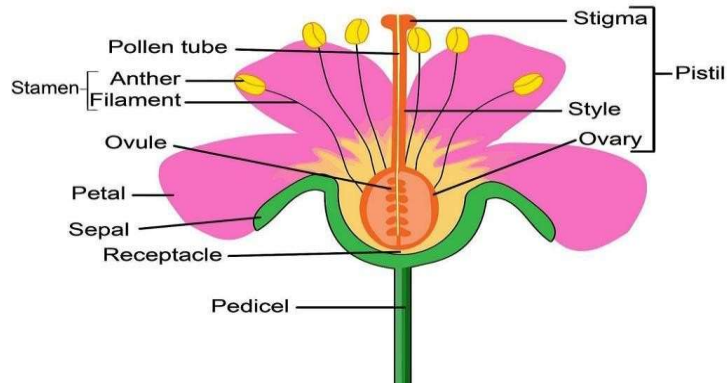


Diagram showing the parts of a flower

### Functions of parts of a flower

	Part	Function
1	Petal	Often large and coloured, to attract insects
2	Sepal	Protects the flower while in bud
3	Petiole (stalk)	Supports the flower to make it easily seen by insects, and to be able to withstand wind
4	Nectary	Produces nectar, to attract insects
5	Stamen	The male reproductive part of the flower, made up of anther and filament
6	Anther	Contains pollen sacs, in which pollen grains are formed. Pollen contains male sex cells.
7	Filament	Support the anther
8	Carpel	The female reproductive part of the flower, made up of stigma, style and ovary
9	Stigma	A sticky surface to the ovary, through which pollen tubes grow
10	Style	Links the stigma to the ovary, through which pollen tubes grow
11	Ovary	Contains ovules, which develop into seeds when fertilised.

## Types of Pollination

1. Self-pollination- this type of pollination occurs when pollen grains from the anther fall directly onto the stigma of the same flower or on another flower of the same plant.
2. Cross-pollination- in this type of pollination, the pollen grains from the anther of one flower is transferred to the stigma of the flower on another plant but of the same species.

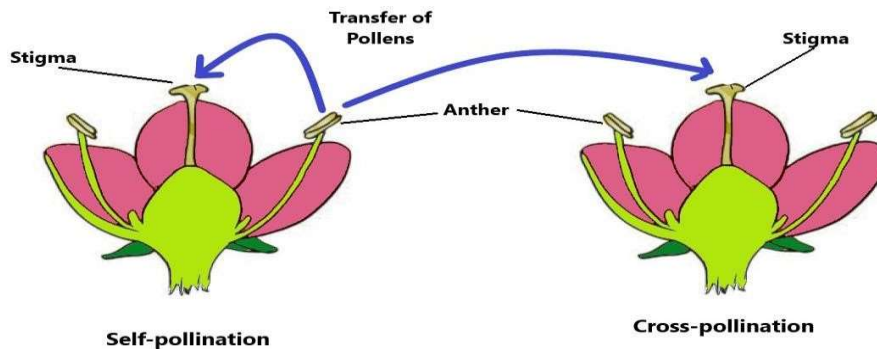


Diagram showing Cross Pollination and Self-Pollination in a Flower

## Agents of Pollination

The agents of pollination are animals, wind, and water. The most common agents of pollination are winged insects such as butterflies, bees, and flies.

## Comparing insect and wind pollinated flowers



Feature	Insect-pollinated	Wind-pollinated
<b>Petals</b>	Large and brightly-coloured – to attract insects	Small, often dull green or brown – no need to attract insects
<b>Scent and nectar</b>	Usually scented and with nectar – to attract insects	No scent or nectar – no need to attract insects
<b>Number of pollen grains</b>	Moderate - insects transfer pollen grains efficiently	Large amounts – most pollen grains are not transferred to another flower
<b>Pollen grains</b>	Sticky or spiky - sticks to insects well	Smooth and light – easily carried by the wind without clumping together
<b>Anthers</b>	Inside flower, stiff and firmly attached - to brush against insects	Outside flower, loose on long filaments – to release pollen grains easily
<b>Stigma</b>	Inside flower, sticky - pollen grains stick to it when an insect brushes past	Outside flower, feathery – form a network to catch drifting pollen grains

## Homework

Discuss the advantages and disadvantages of self and cross pollination

## References

Naik, K.(2019). *Parts of Flowers & What They Do*. Retrieved from

<https://sciencing.com/parts-flowers-do-8173112.html>

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<https://study.com/academy/lesson/what-is-pollination-in-plants-definition-types-quiz.html>.