

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

**Week 3**

**Lesson 2**

**Topic:        Reproduction**

**Sub-topic:    Sexual Reproduction in plants**

**Objectives**

- Given a diagram of the internal structure of a flower, students will correctly identify the site of fertilization, the part of the flower that develops into the fruit and the part that develops into the seed.
- After reading handout, students will correctly identify all the methods by which seeds can be dispersed.

**Content**

- In plants, fertilization is a process of sexual reproduction, which occurs after pollination and germination.
- Fertilization can be defined as the fusion of the male gametes (pollen) with the female gametes (ovum) to form a diploid zygote.
- In fertilization, male gametes get transferred into the female reproductive organs through pollinators (honeybees, birds, bats, butterflies, flower beetles) and the final product will be the formation of the embryo in a seed.
- Seeds are the units of the reproduction of a flowering plant that can develop into a single plant.
- Seed Dispersal is an adaptive mechanism in all seed-bearing plants. This process involves the transport of seeds away from their parent plant to ensure the germination and survival of some of the seeds to adult plants.
- Plants rely on animals, wind and water to help scatter/ disperse their seeds.

## Fertilization in plants

Fertilization is the joining of male and female gametes, resulting in a zygote. The most generalized form of this process requires four steps: pollination, germination, penetration of the ovule, and fertilization. After fertilization, the zygote divides to form an embryo.



Once the pollen grains are deposited on the stigma, it forms the pollen tube. The pollen tube grows through the ovules and reaches the ovary where the female sex cell is located. The pollen tube enters the ovules through a small opening called the micropyle. Inside the ovule, the pollen tube releases two male gametes into the embryo sac. One of the male gametes fuses with the egg to form a zygote whereas the other gamete fuses with two polar bodies.

## Types of Seed Dispersal

There are different ways in which seeds from their parent plant are dispersed. These include:

1. **Wind dispersal**- the kind of seeds that are often dispersed by wind are generally small and have hair-like or feather-like structures. The image below shows a seed that is dispersed by wind.



2. **Animal dispersal** – Animals disperse seeds in several ways. Some plants or other structures that get tangled in animal fur or feathers and are then carried to new sites. Other plants produce their seeds inside fleshy fruits that get eaten by an animal. The fruit is digested by the animal, but the seeds pass through the digestive tract, and are dropped in other locations. An example of an animal dispersed seed is shown below.



3. **Seed Dispersal by water-** In this method of seed dispersal, seeds float away from their parent plant. These are mainly seen in plants that grow in water or nearby the water bodies like beaches, lakes. These types of seeds are contained in light and buoyant fruit, giving them the ability to float. Coconuts are well known for their ability to float on water to reach land where they can germinate.



4. **Seed Dispersal by Explosions** - Explosions in fruits literally refer to bursting with all its energy. In this case, as the fruits get ripened, it shoots out its seeds into the external environment. This type of seed dispersal is mainly seen in those plants having pods.



### **Homework**

List two (2) examples of seeds that are dispersed by water, wind, animals, and explosive mechanisms and describe how the structure of each seed relates to how they are dispersed.

### **Reference**

Herre, A. (2001). Hitching a ride. Retrieved from

<https://www.britannica.com/science/seed-dispersal>

Plant Fertilization: Process & Definition. (2016). Retrieved from

<https://study.com/academy/lesson/plant-fertilization-process-definition-quiz.html>.