REPRODUCTION

Sexual reproduction in plants
(Pollination and Fertilization)

LEARNING OUTCOMES

Students will be able to:

1. define pollination and its types;

2. describe sexual reproduction in plants by explaining the life cycle of a flowering plant;

3. describe the adaptations in the structure of wind pollinated and insect-pollinated flowers.

PARTS OF A FLOWER

POLLINATION

Pollination is a process by which pollen is transferred in plants, thereby enabling fertilisation and sexual reproduction.

Pollen grains transport the male gametes (sperm) to where the female gamete(s) are contained within the carpel;

Pollination is a necessary step in the reproduction of flowering plants, resulting in the production of offspring that are genetically diverse.

TYPES OF POLLINATION

1. Cross pollination

Cross-pollination occurs when pollen grains are transfered from one plant to another plant of the same species.

2. Self pollination

Self-pollination occurs when pollen grains from one flower pollinates the same flower or other flowers of the same plant.

INSECT-POLLINATED FLOWERS

Example: the buttercup
The petals are big and colourful and have lines on them which lead the insects towards the nectaries. These lines are called "guidelines" because they guide the insect towards the nectar.

When the stamens are mature they stand upright with the anthers open.Pollen grain is sticky and spiky which makes it easier for it to be picked up by the hairy bodies of the insects as they walk over the flower.The top of the carpel is slightly pointed and covered with short, thick hairs. This is called the stigma and it is this part of the carpel which collects the pollen from insect bodies.

Pollen

WIND POLLINATED FLOWERS

These flowers are often small and inconspicuous since they do not need to attract insects. They do not produce nectar and they do not have any scent. Most trees and grassses have wind-pollinated flowers.

Rye-grass flowers are small and very close together at the end of a long stem.

In the summertime, if you look carefully, you can see the long, thin, anthers dangling out of the flowers. The stamens are loosely joined to the filaments and they vibrate even in the slightest breeze. They release large quantities of very small and light pollen grains which are easily carried away by the wind.

Other rye-grass flowers have mature stigmas which look like fine cotton wool as they dangle outside the flower. Some of the pollen is blown onto these stigma where the pollen grains get caught in the network of threads.

Multiple Choice Questions

1. In insect pollinated flowers, the petals are

A. bright coloured.
B. very small.
C. inconspicuous.
D. not present.

2. "Guidelines" on a flower petal

A. give off a nice smell.
B. lead the insect to the flower.
C. give the flower its colour.
D. make the flower look bigger.