



Plant
Reproduction

Plant Reproduction

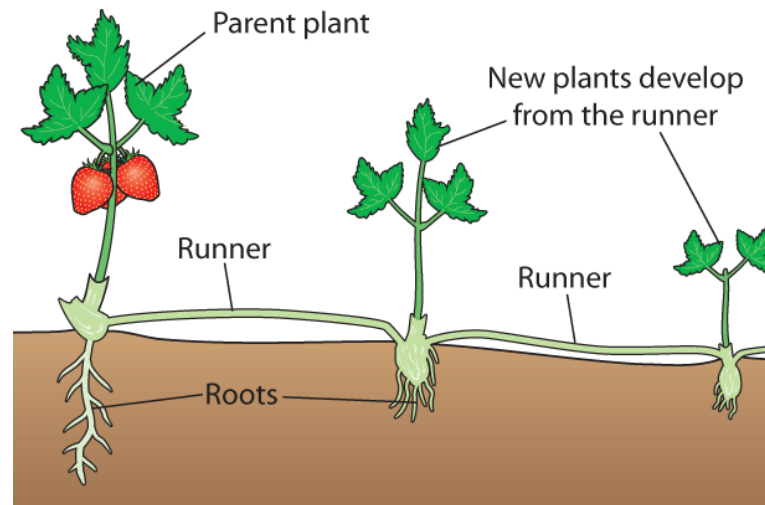
- Plants reproduce (make new plants) in 2 ways. These are:
 1. Asexual Reproduction
 2. Sexual Reproduction

Asexual Reproduction

Asexual Reproduction

- **Asexual Reproduction** is reproduction with only one parent
- **Example:** The Strawberry Plant

Asexual Reproduction in the Strawberry Plant

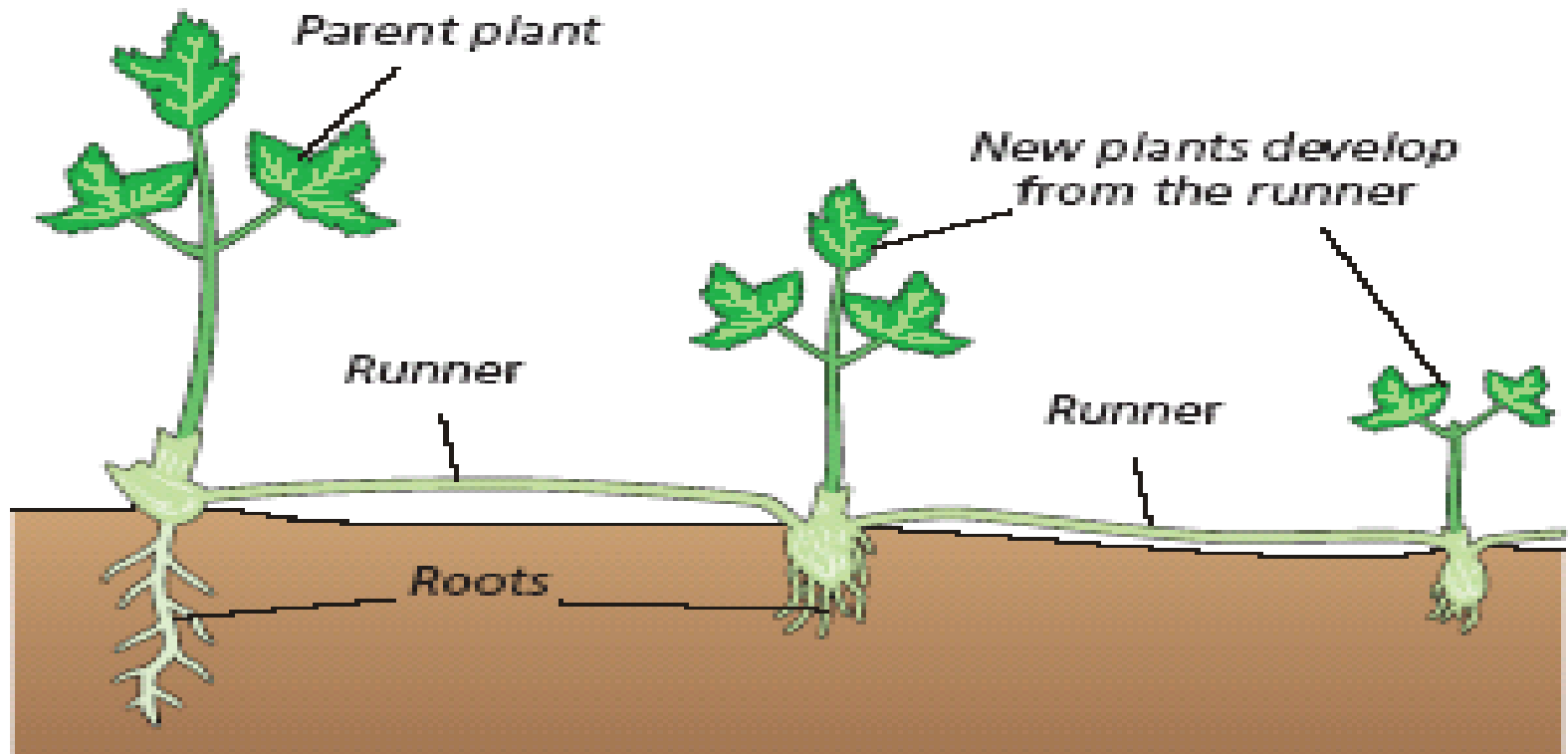


▲ Fig 14.1 Runners as an example of asexual reproduction

Asexual Reproduction in the Strawberry Plant

- Strawberry Plants have special stems called runners
- Runners grow at the bottom of the Strawberry Plant
- Runners grow away from the Strawberry Plant

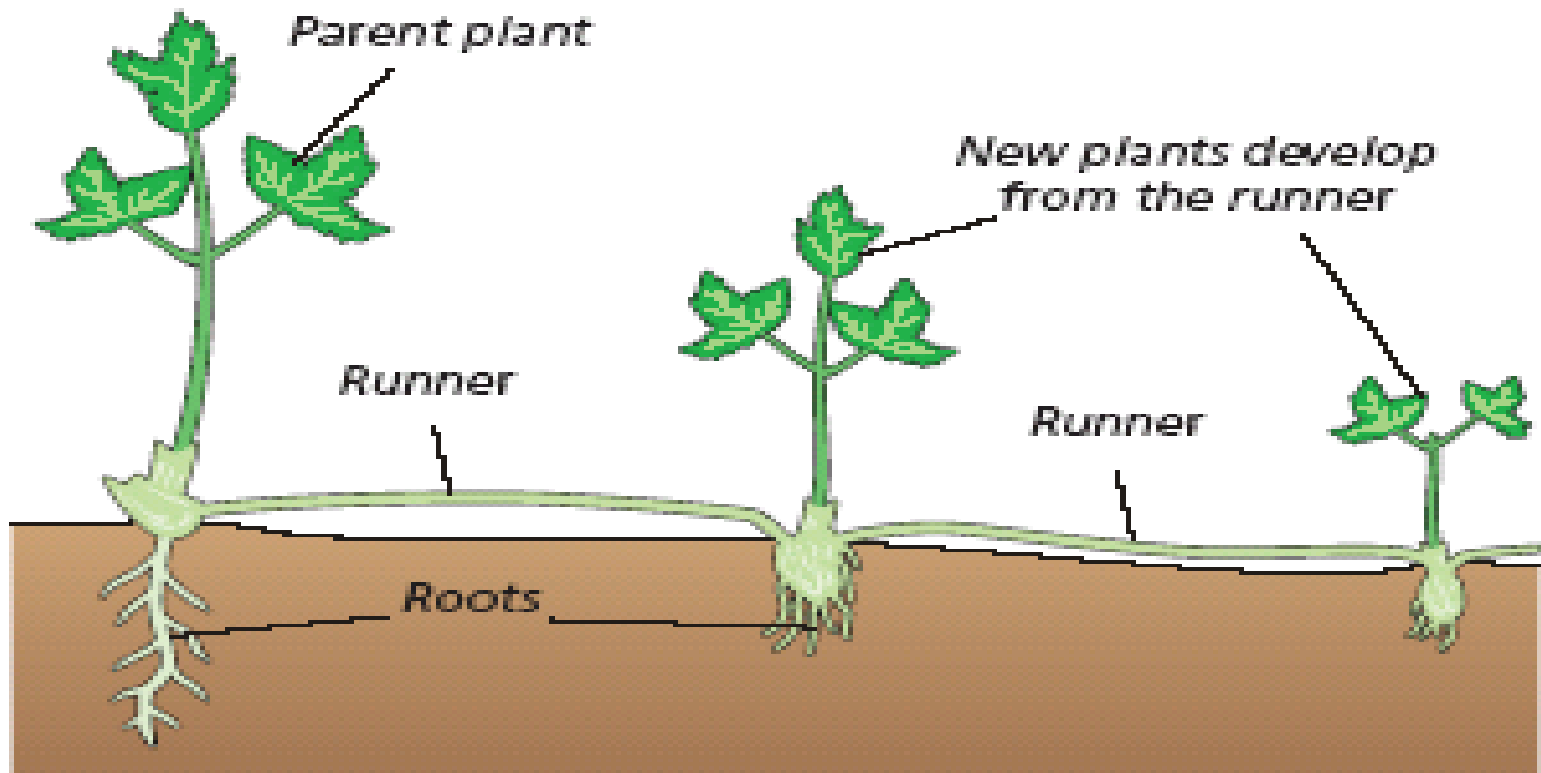
Asexual Reproduction in the



Asexual Reproduction in the Strawberry Plant

- Eventually, the runner begins to grow new roots and a new shoot
- A new Strawberry Plant is formed
- This is asexual reproduction (one parent only)

Asexual Reproduction in the



Sexual Reproduction

Sexual Reproduction

- **Sexual Reproduction** is reproduction with 2 parents, male and female
- **Example:** Humans and the majority of Flowers

The 5 stages of sexual reproduction

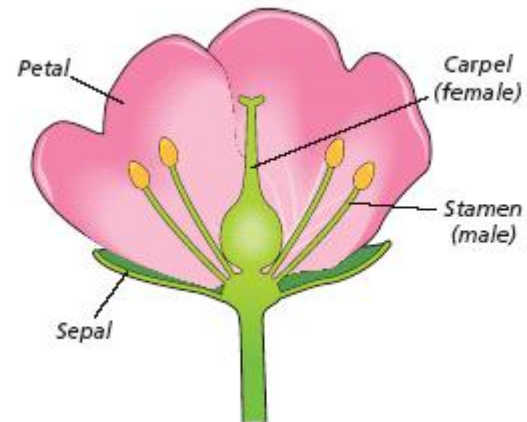
The 5 stages of sexual reproduction*

1. Pollination
2. Fertilisation
3. Seed and Fruit formation
4. Seed and Fruit dispersal
5. Germination



The Structure of the Flower

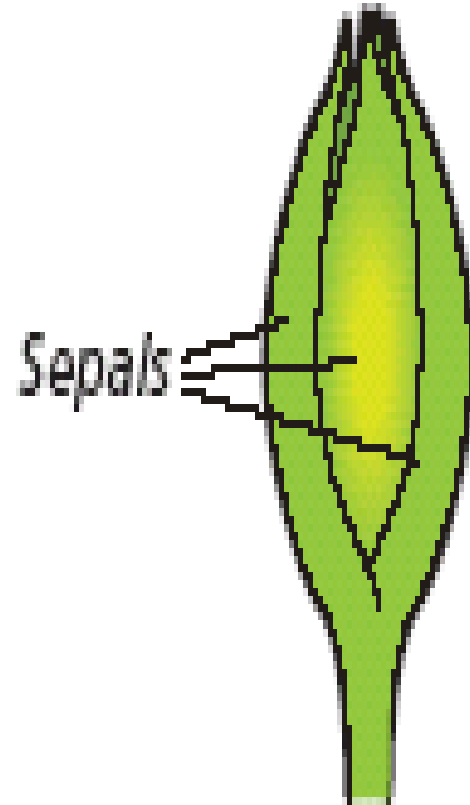
The Structure of the Flower



The Structure of

The Sepal

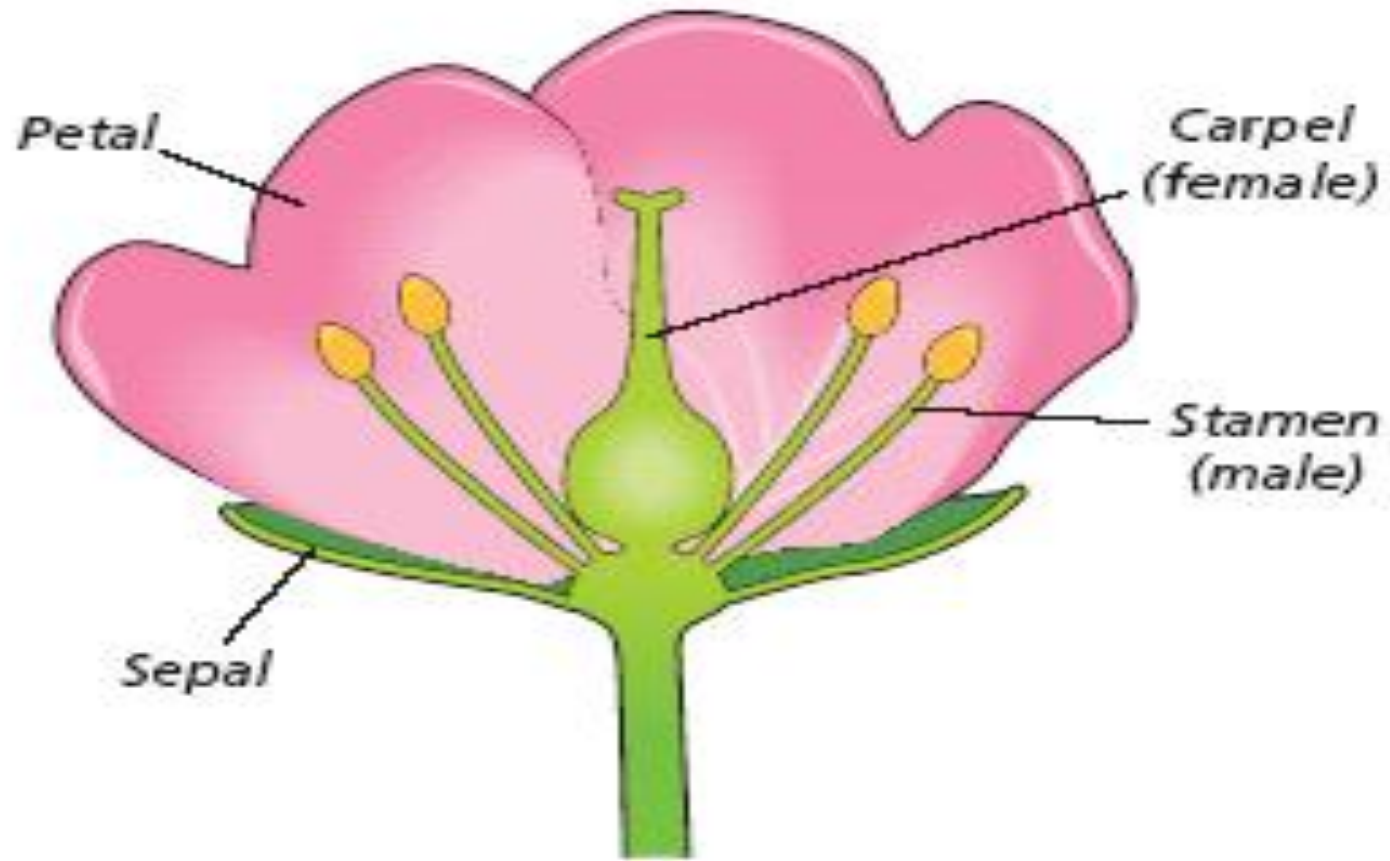
- The Sepal is usually green
- It protects the flower when it's in bud



The Structure of the Flower

The Petals

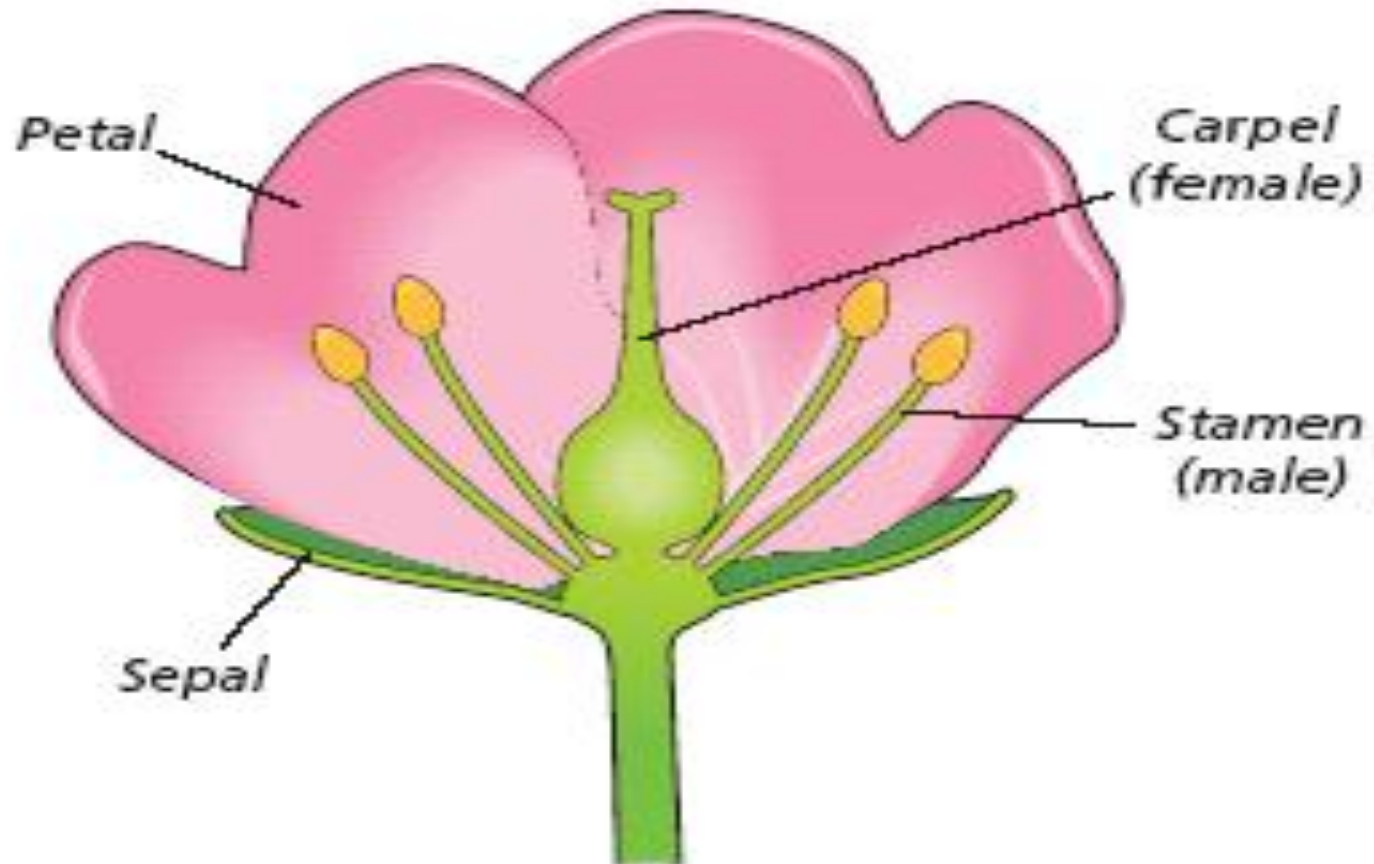
- The Petals are brightly coloured
- The Petals protect the inside of the flower



The Structure of the Flower

The Carpel

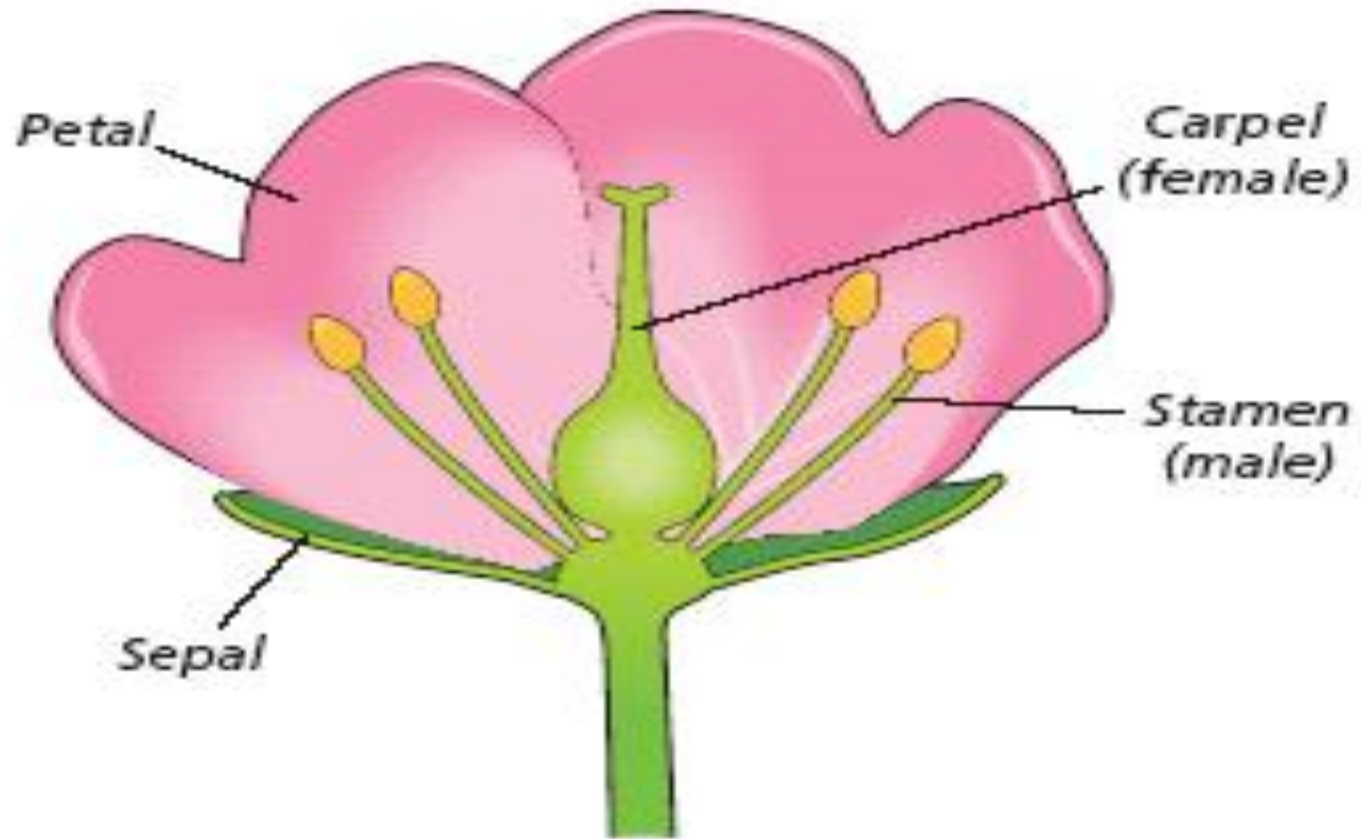
- The Carpel is the female part of the flower
- The Carpel produces the egg (female sex cell)



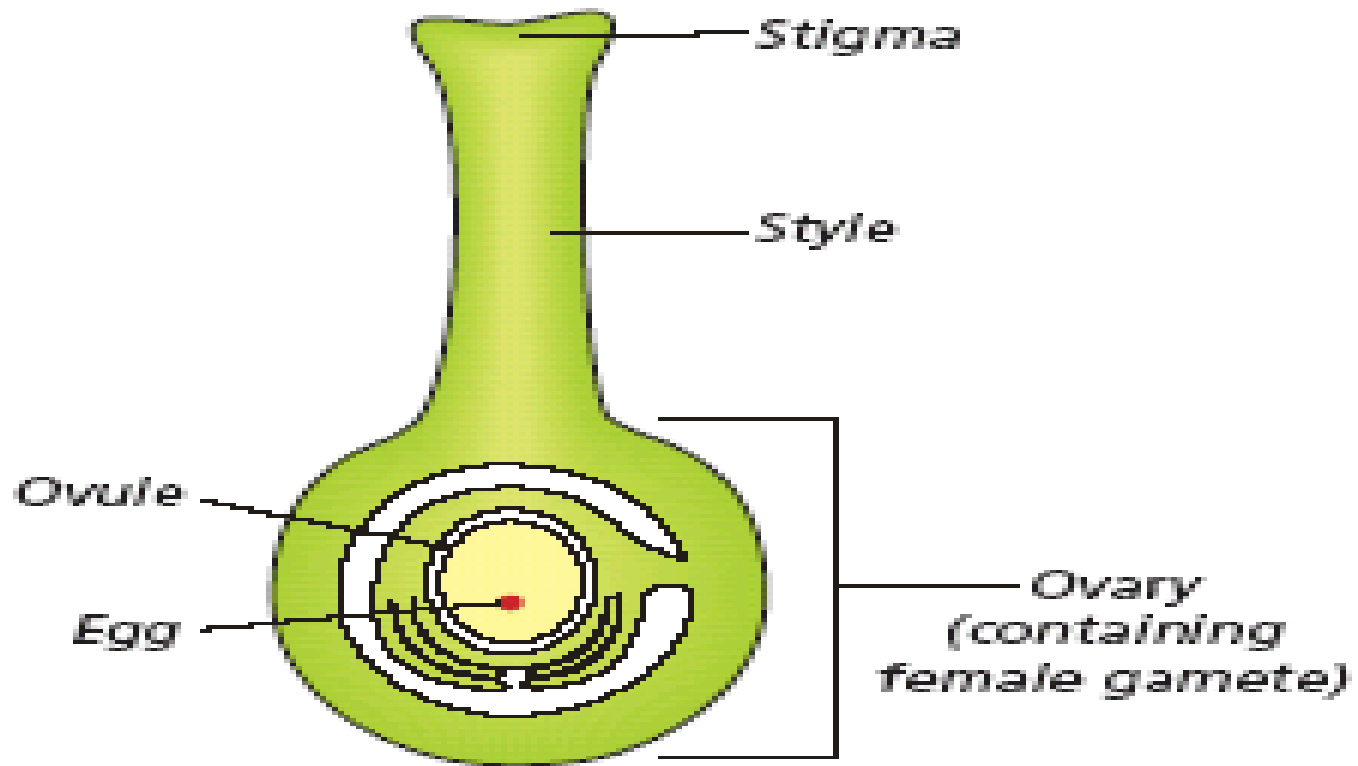
The Structure of the Flower

The Stamen

- The Stamen is the male part of the flower
- The Stamen produces the pollen (male sex cell)



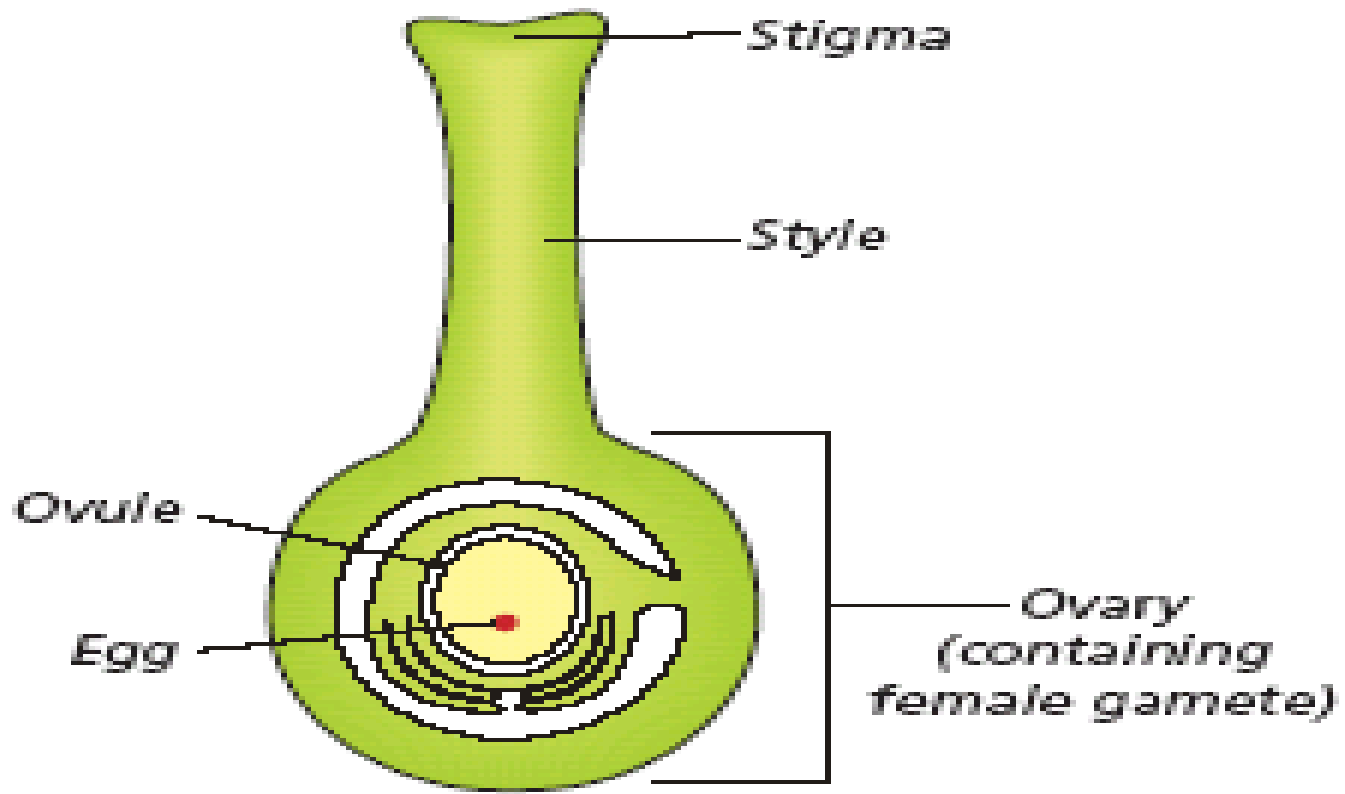
The Carpel



The Carpel

The Carpel has 3 main parts. These are:

1. The Stigma
2. The Style
3. The Ovary



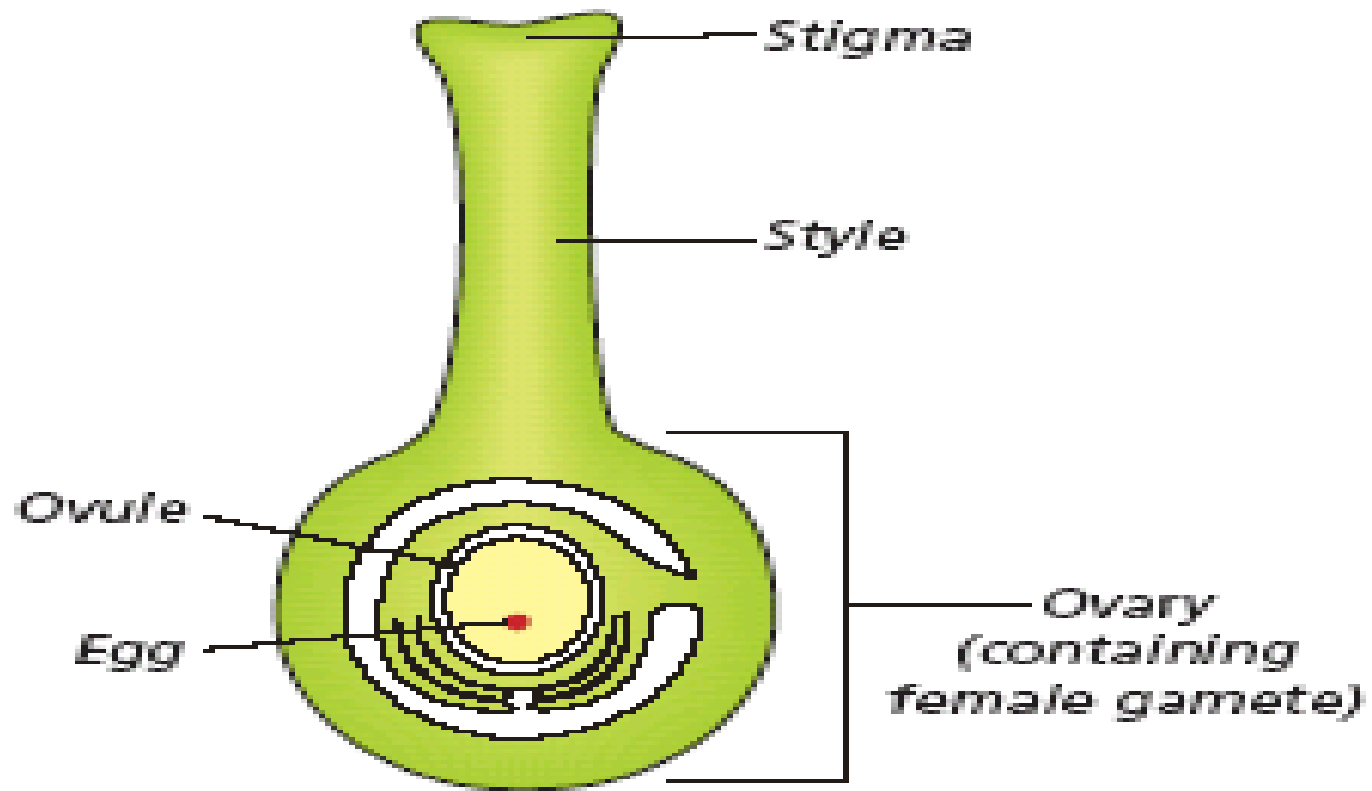
The Carpel

The Stigma

- The Stigma is where pollen lands

The Style

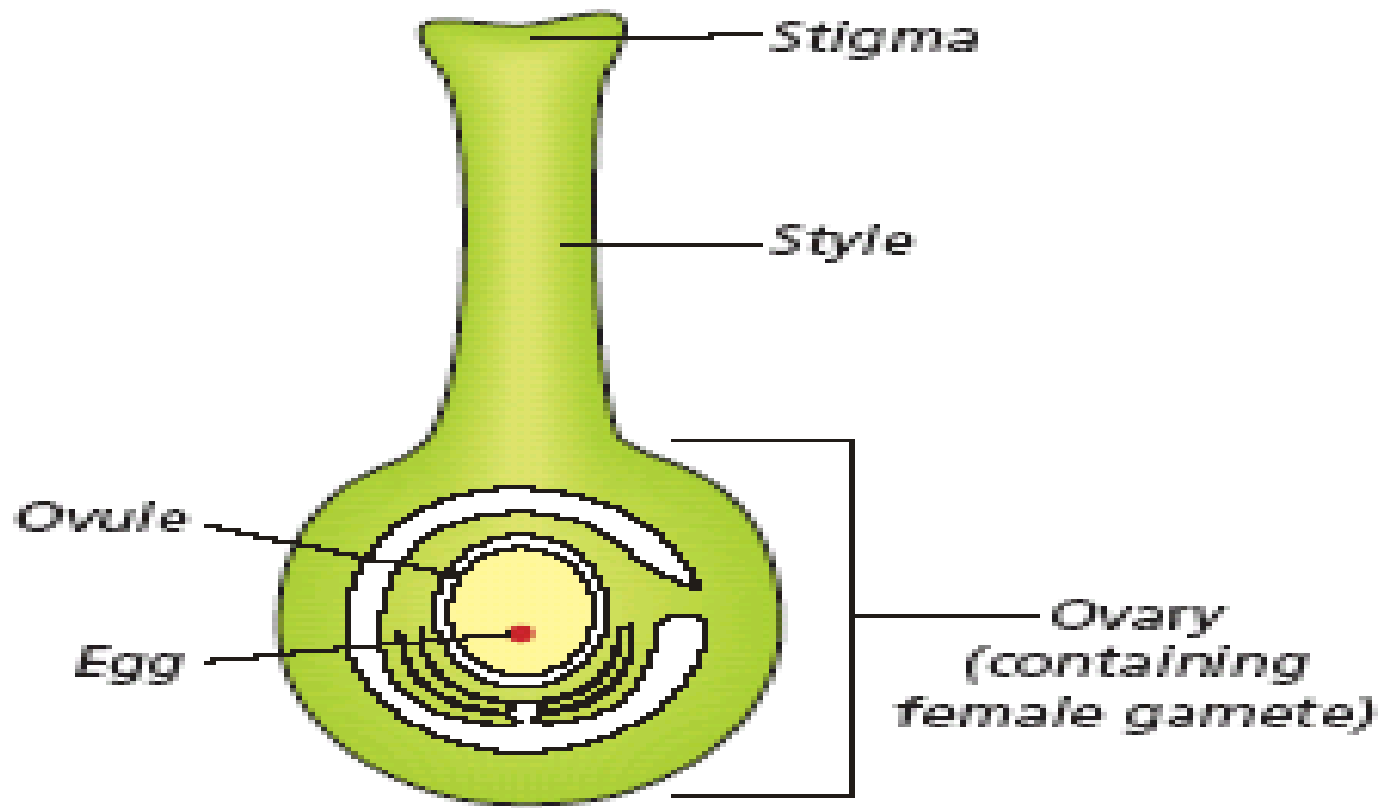
- The Style connects the Stigma to the Ovary



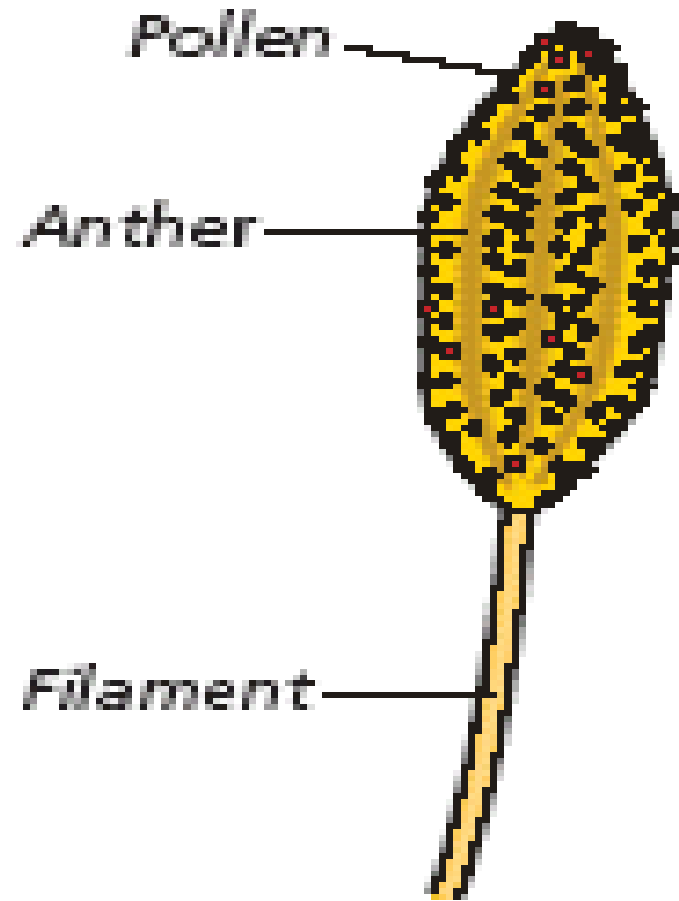
The Carpel

The Ovary

- The Ovary contains ovules (1 or many)
- Each Ovule has one egg (female sex cell)



The Stamen



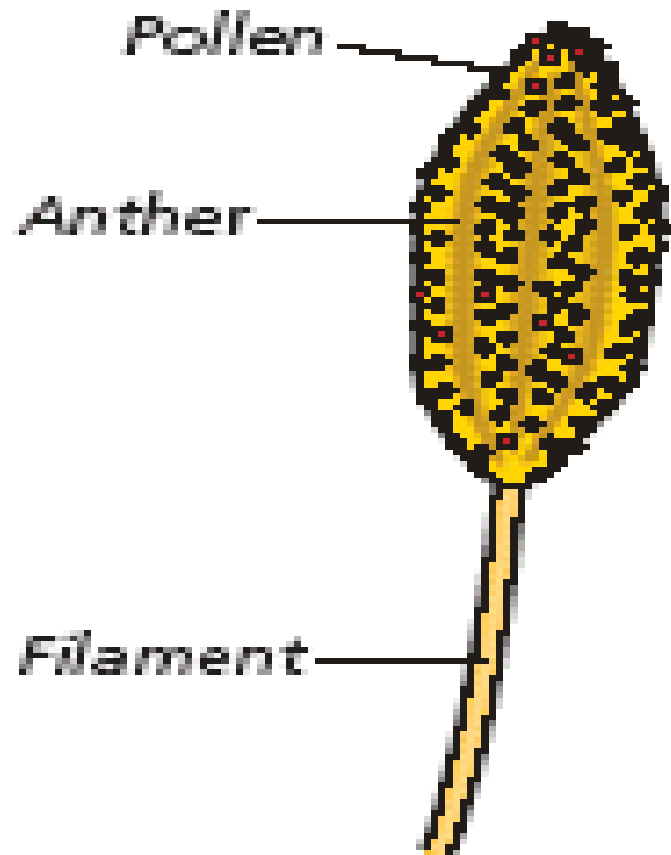
The Stamen

The Filament

- The Filament holds up the anther

The Anther

- The Anther makes pollen (male sex cell)



Pollination

Pollination

- **Pollination is** the transfer of pollen from the stamen in one flower to the carpel of another flower

Pollination

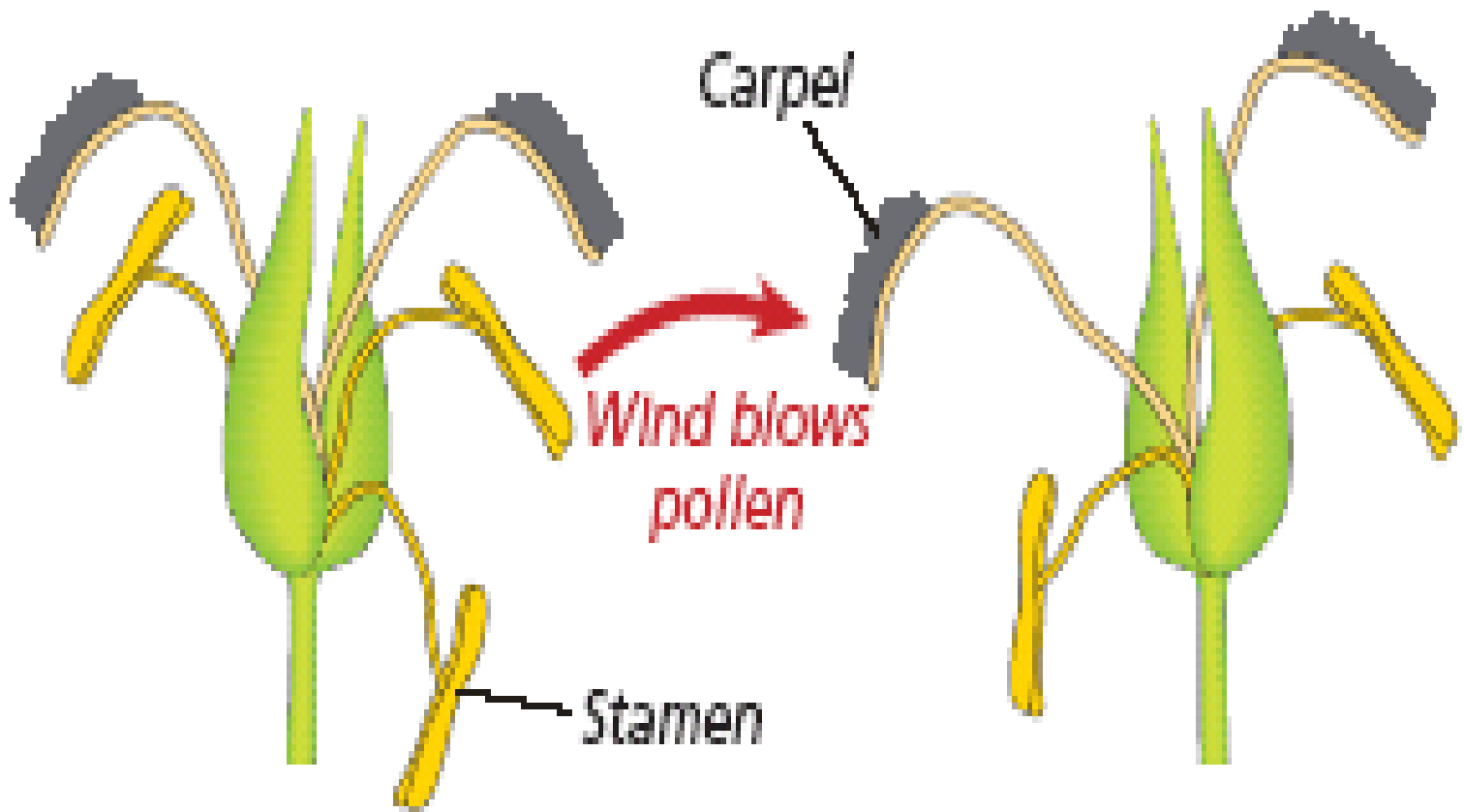
There are 2 types of pollination

1. Insect pollination
2. Wind pollination

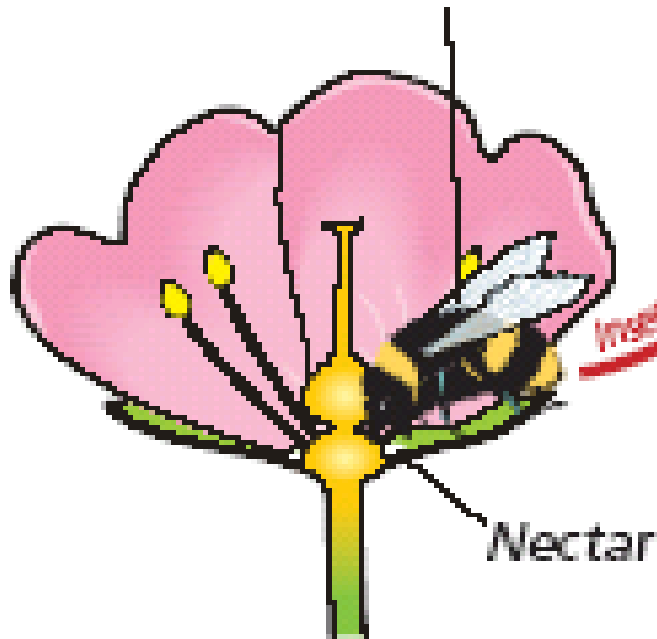


The Differences between Insect and Wind pollination

Flower Part	Wind pollinated flowers	Insect pollinated flowers
Petals	Small, Green, No nice smell	Large, Brightly coloured, nice smell
Pollen	Large amounts of small grains	Small amounts of large grains
Stamen	Outside the flower	Inside the flower
Carpel	Outside the flower	Inside the flower
Examples	Grass, trees	Roses, Dandelions

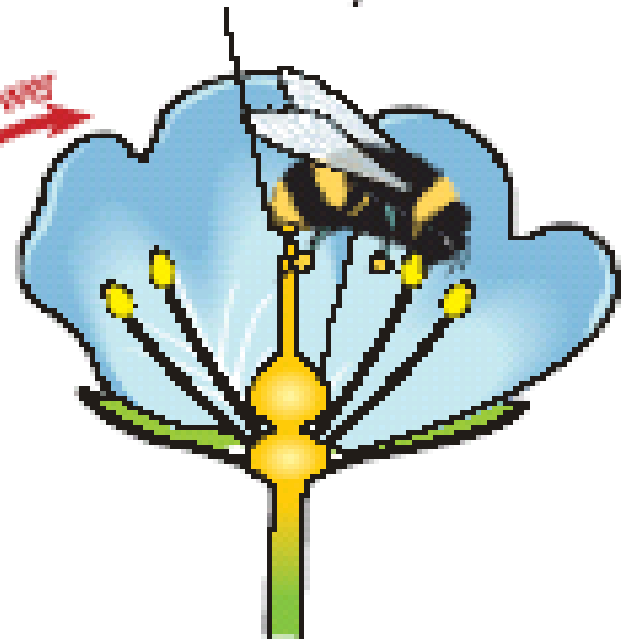


*Pollen sticks to the
body of the insect*



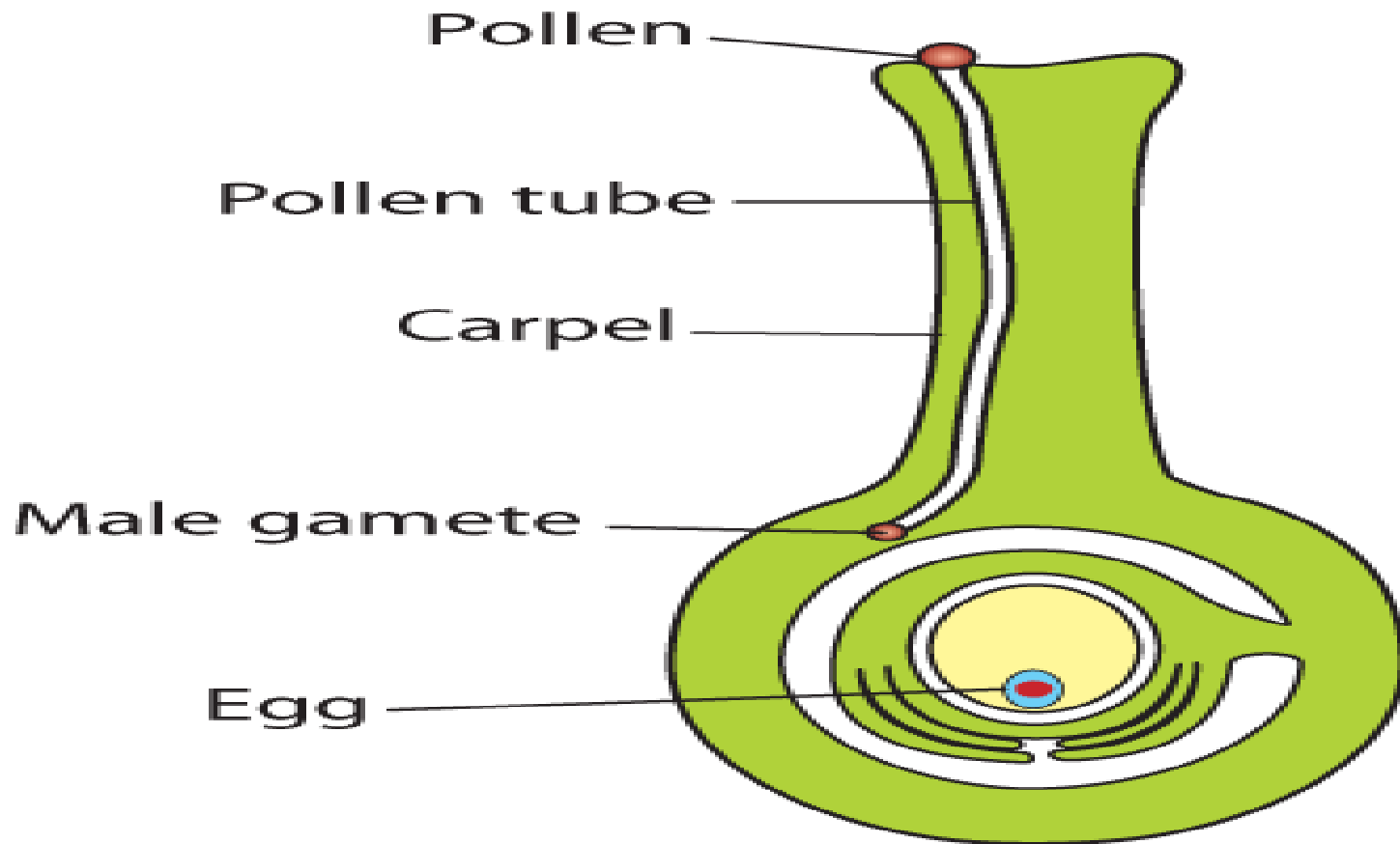
Insect flies to another flower

*Pollen falls from
insect onto carpel*



Fertilisation

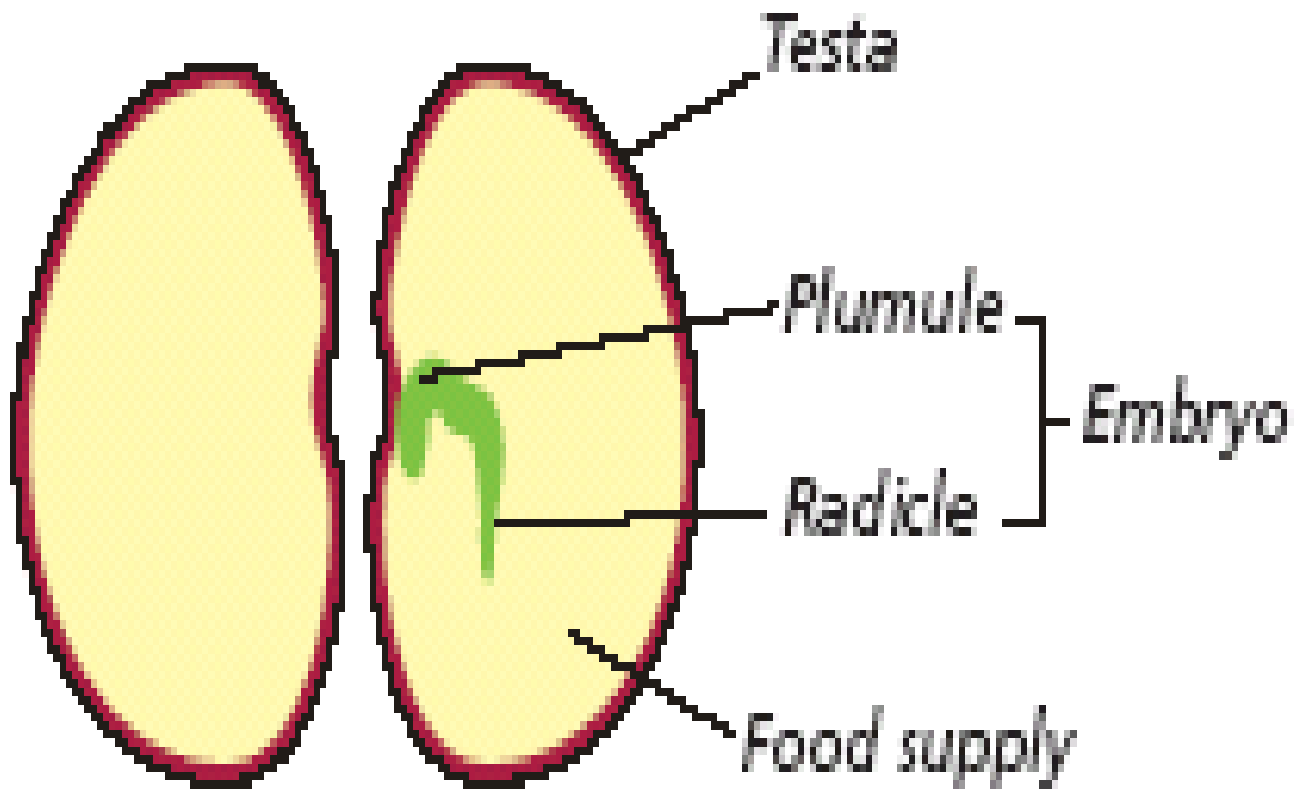
- When the egg and pollen meet to form a zygote
- A pollen tube forms
- The pollen (male) moves down the pollen tube into the egg in the ovary



▲ Fig 14.12 The growth of a pollen tube

- After fertilisation the ovule (where the egg and pollen – zygote have formed) forms a seed
- The ovary, where the ovule is forms the fruit

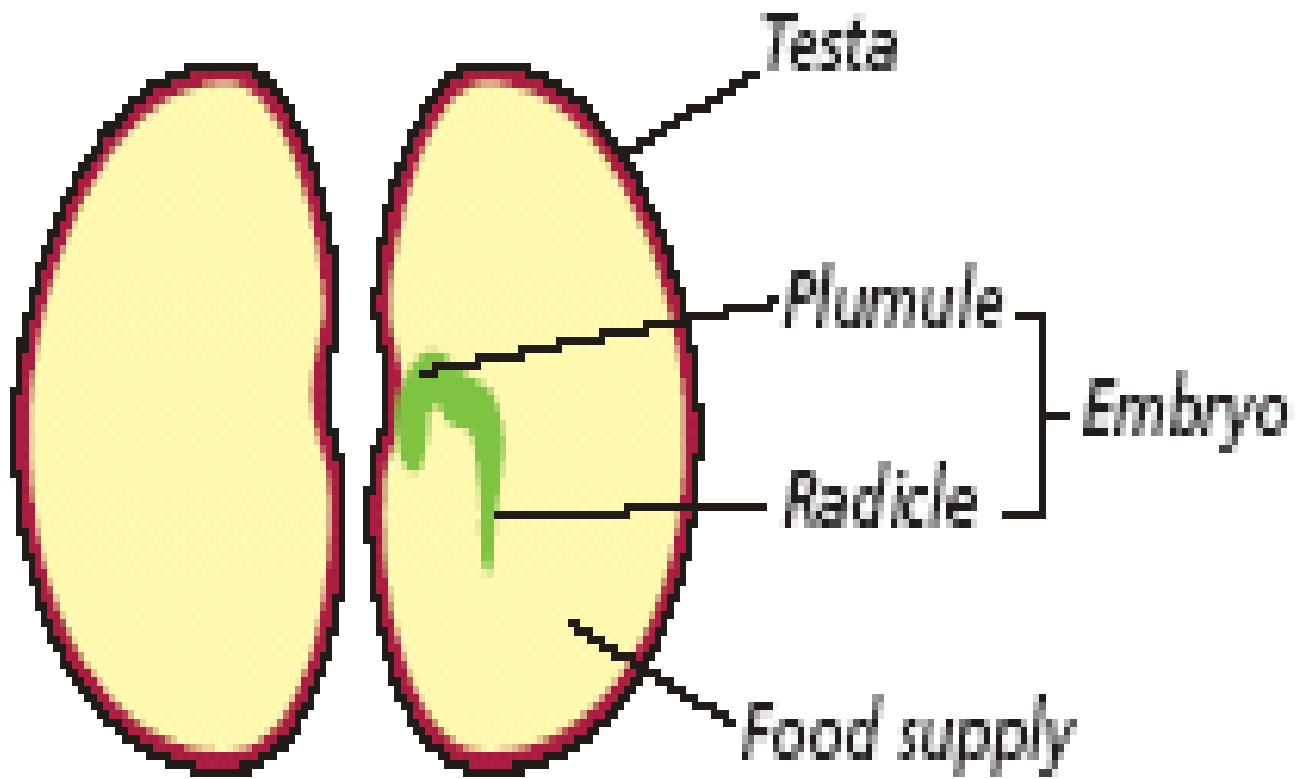
Seed Structure



Seed Structure

The Testa

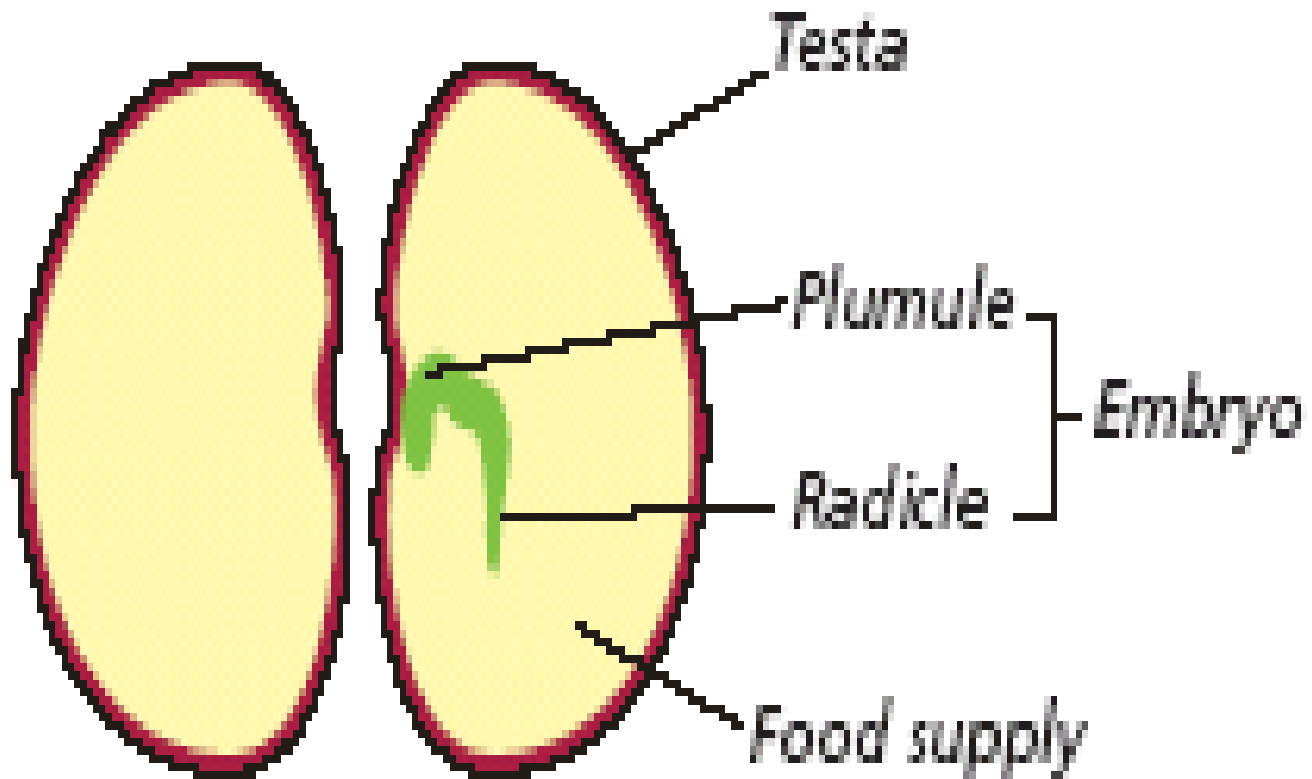
- The seed is surrounded by a hard coat called the Testa
- The Testa protects the seed



Seed Structure

The Embryo (Plumule + Radicle)

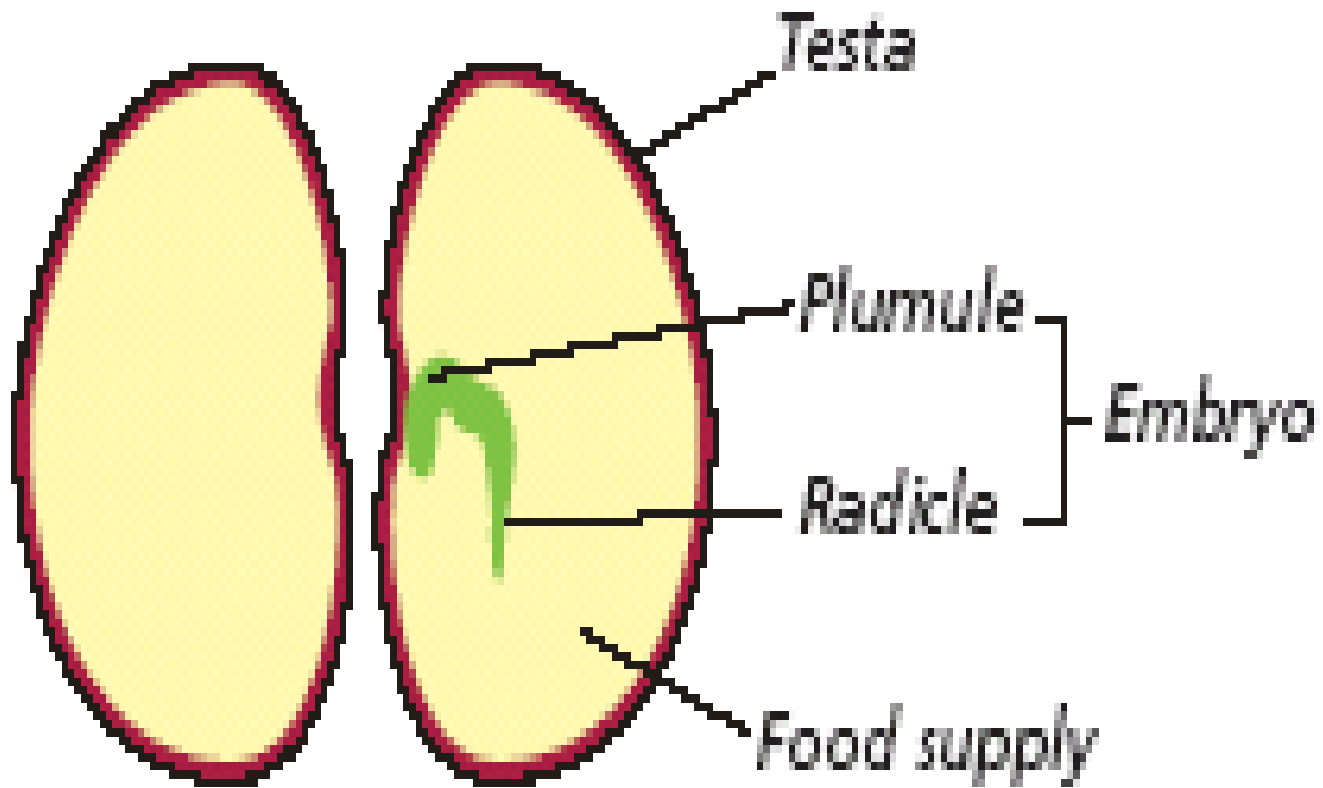
- The Plumule will grow to form the Shoot
- The Radicle will grow to form the Roots



Seed Structure

The Food Supply

- The Food Supply surrounds the Embryo and supplies it with nutrients to grow



Seed Dispersal

Seed Dispersal

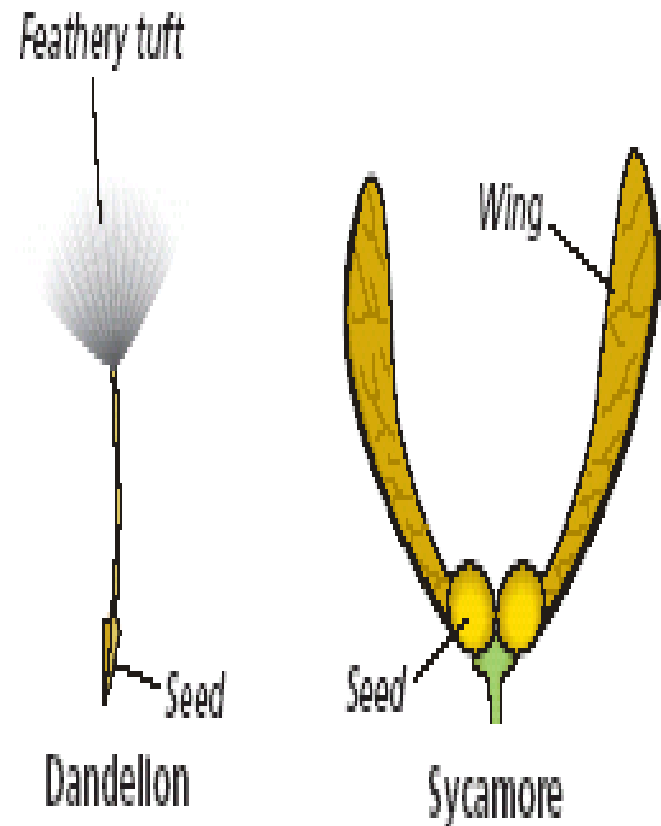
- **Seed Dispersal is** when the seed of a plant is carried as far away from the parent plant as it can go
- This means the plant can grow in many different areas so the plants are not all competing against each other to survive

Seed Dispersal*

- There are 4 main types of seed dispersal. These are:
 1. Wind Dispersal
 2. Animal Dispersal
 3. Self Dispersal
 4. Water Dispersal

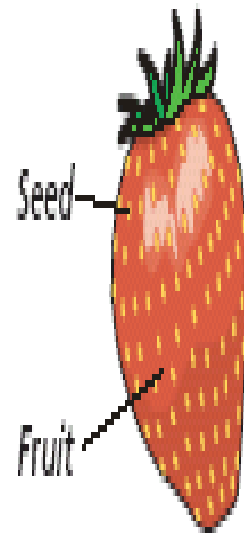
Wind Dispersal

- Seeds are carried by the wind away from the parent plant
- Example: The Sycamore and the Dandelion seeds

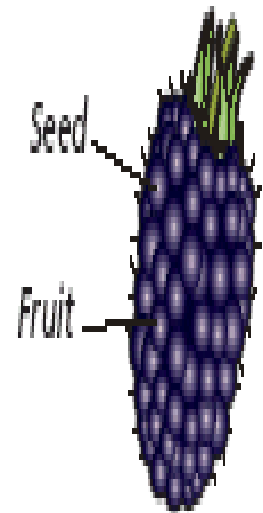


Animal Dispersal

- Animals eat fruits from trees and pass the seeds out later
- Example: Strawberries and Blackberries



Strawberry



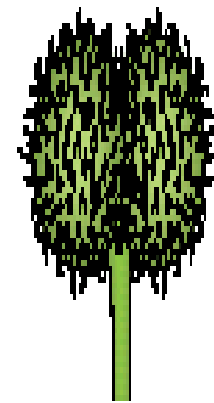
Blackberry

Animal Dispers

- Some seeds can also stick to the animals fur/hair and fall off some time later
- Example:
Burdock and
Goosegrass



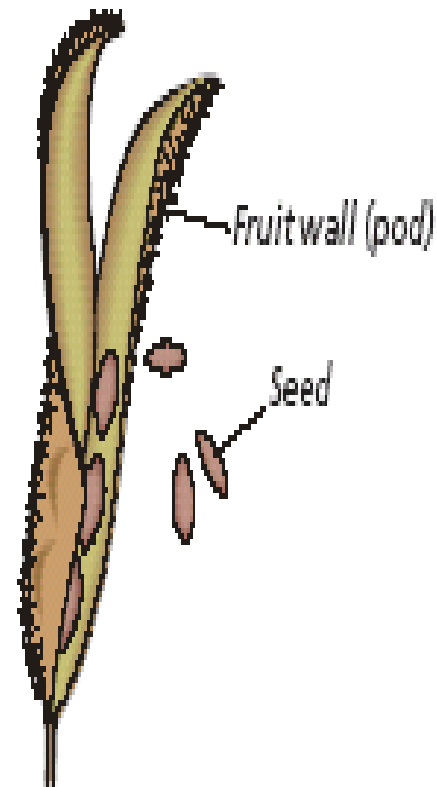
Burdock



Goosegrass

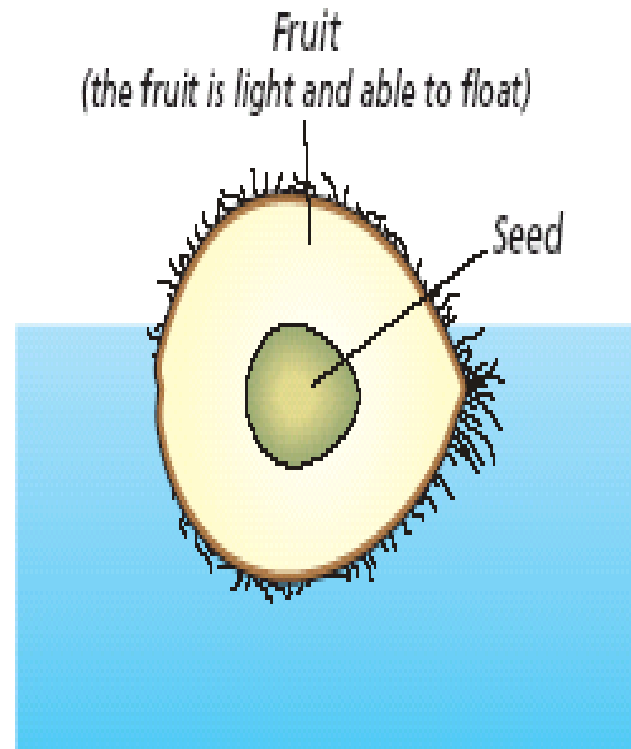
Self Dispersal

- A fruit can burst open itself releasing seeds. The seeds are flung away from the parent plant
- Example: Peas and Beans



Water Dispersal

- Some fruits and seeds can float. They can be carried by water far away from the parent plant
- Example: The Coconut,



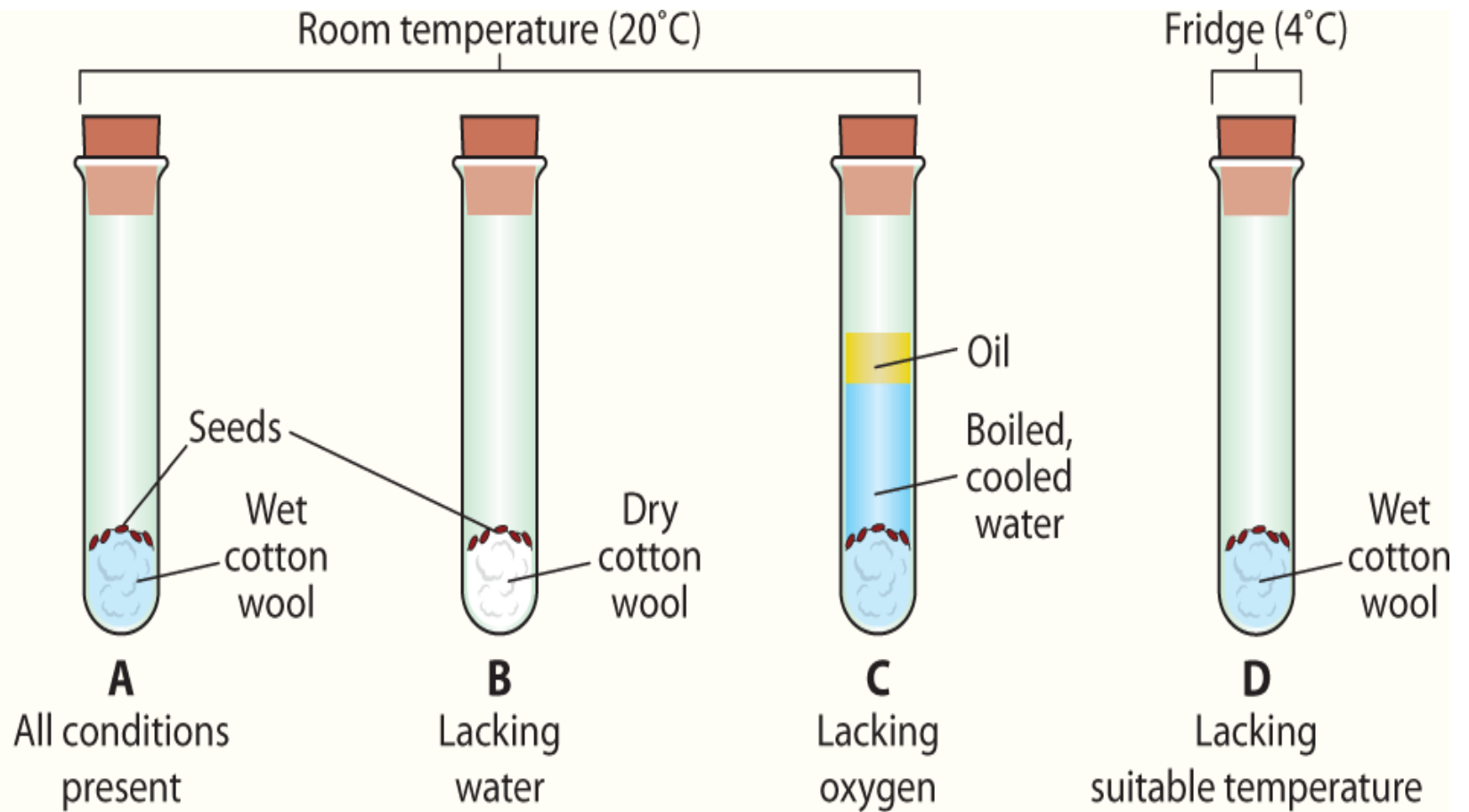
Germination

Germination

- **Germination is** the growth of a seed into a plant
- 3 factors needed for Germination to happen
 1. W Water
 2. O Oxygen
 3. W Warmth

Experiment to investigate the conditions necessary for germination

- To investigate the conditions necessary for germination, place seeds in four tubes so that:
 - Tube A has water, oxygen and a suitable temperature (germination takes place)
 - Tube B has no water (no germination)
 - Tube C has no oxygen (no germination)
 - Tube D is in a low temperature (no germination)



▲ Fig 14.26 Investigating the conditions needed for germination