



Structure and Transport in Flowering Plants

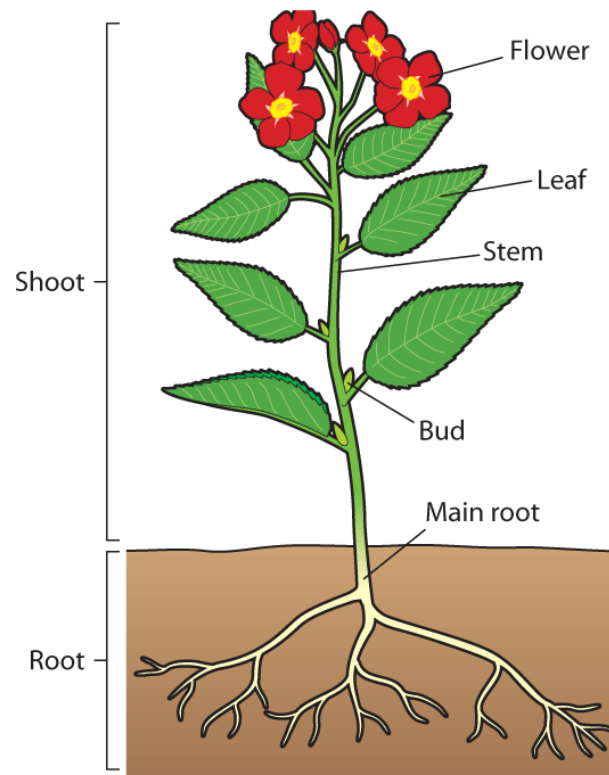


The Structure of a Flowering Plant

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- The Flowering Plant is divided into 2 main parts:
 1. **The Shoot** (anything above ground level)
 2. **The Root** (anything below ground level)

The Structure of a Flowering Plant

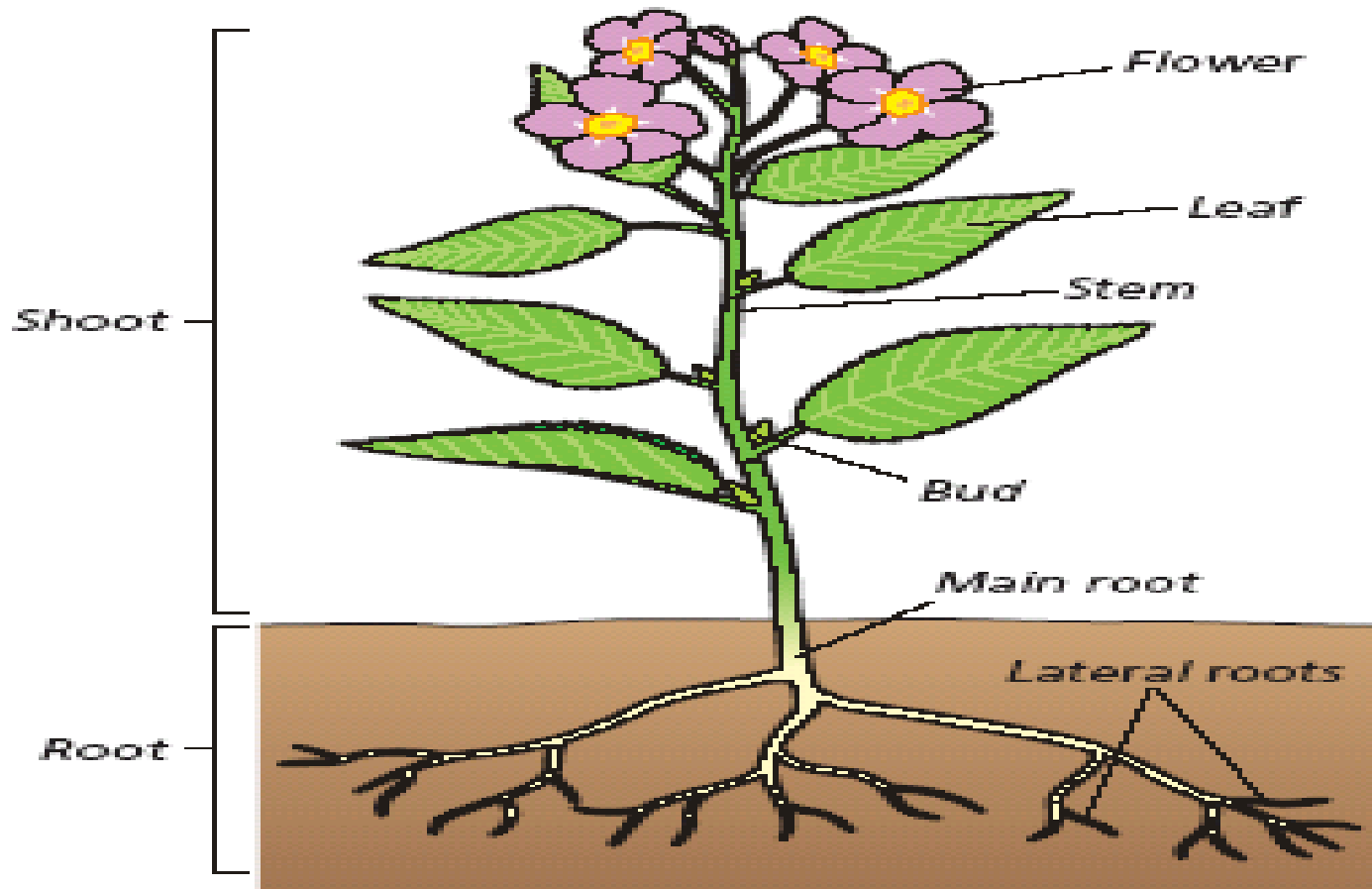


▲ Fig 12.2 The parts of a flowering plant

The Parts of a Flowering Plant

The Roots

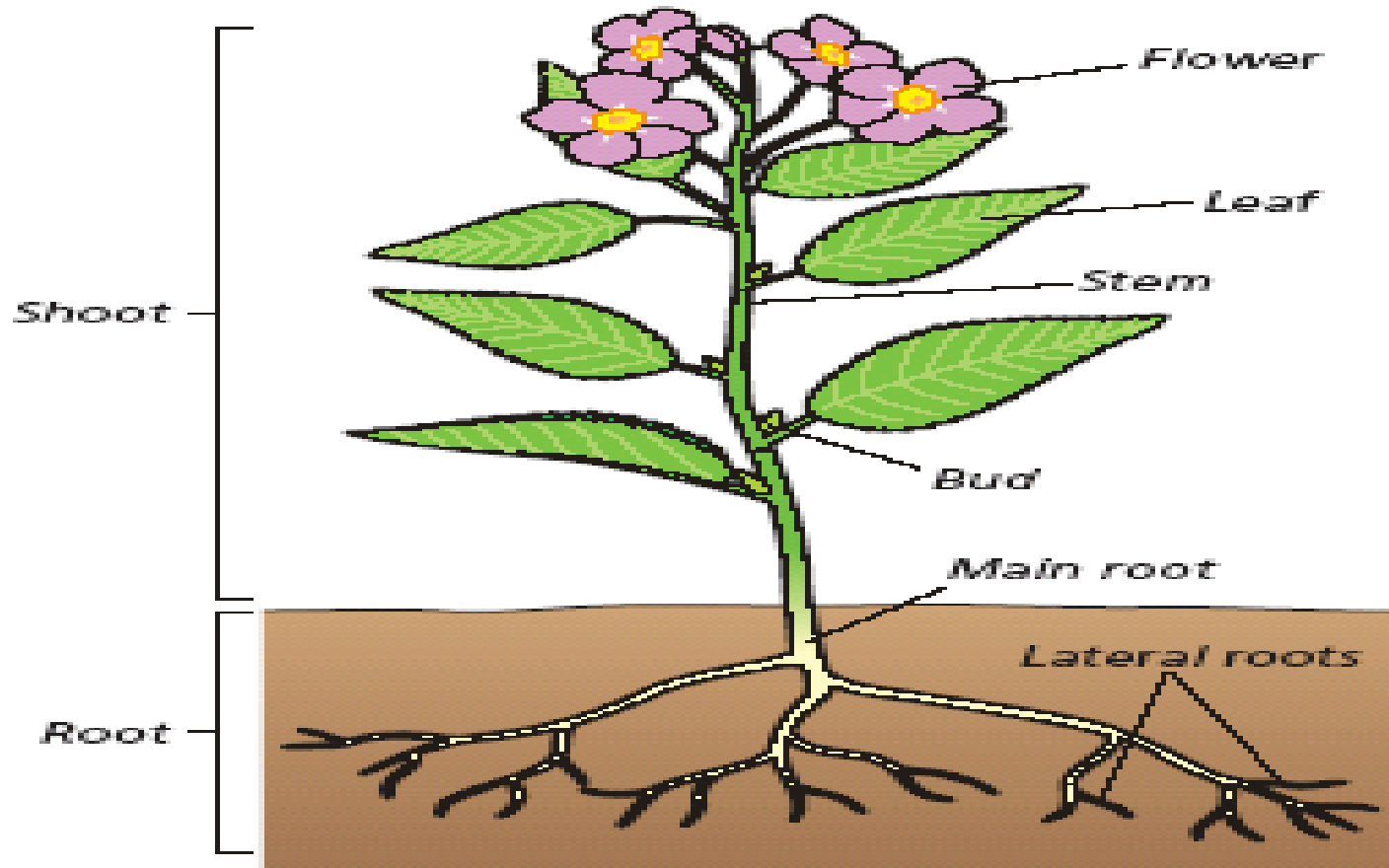
- The Roots keep the plant in the soil
- The Roots take in water from the soil
- Some plants store food in their roots



The Parts of a Flowering Plant

The Stem

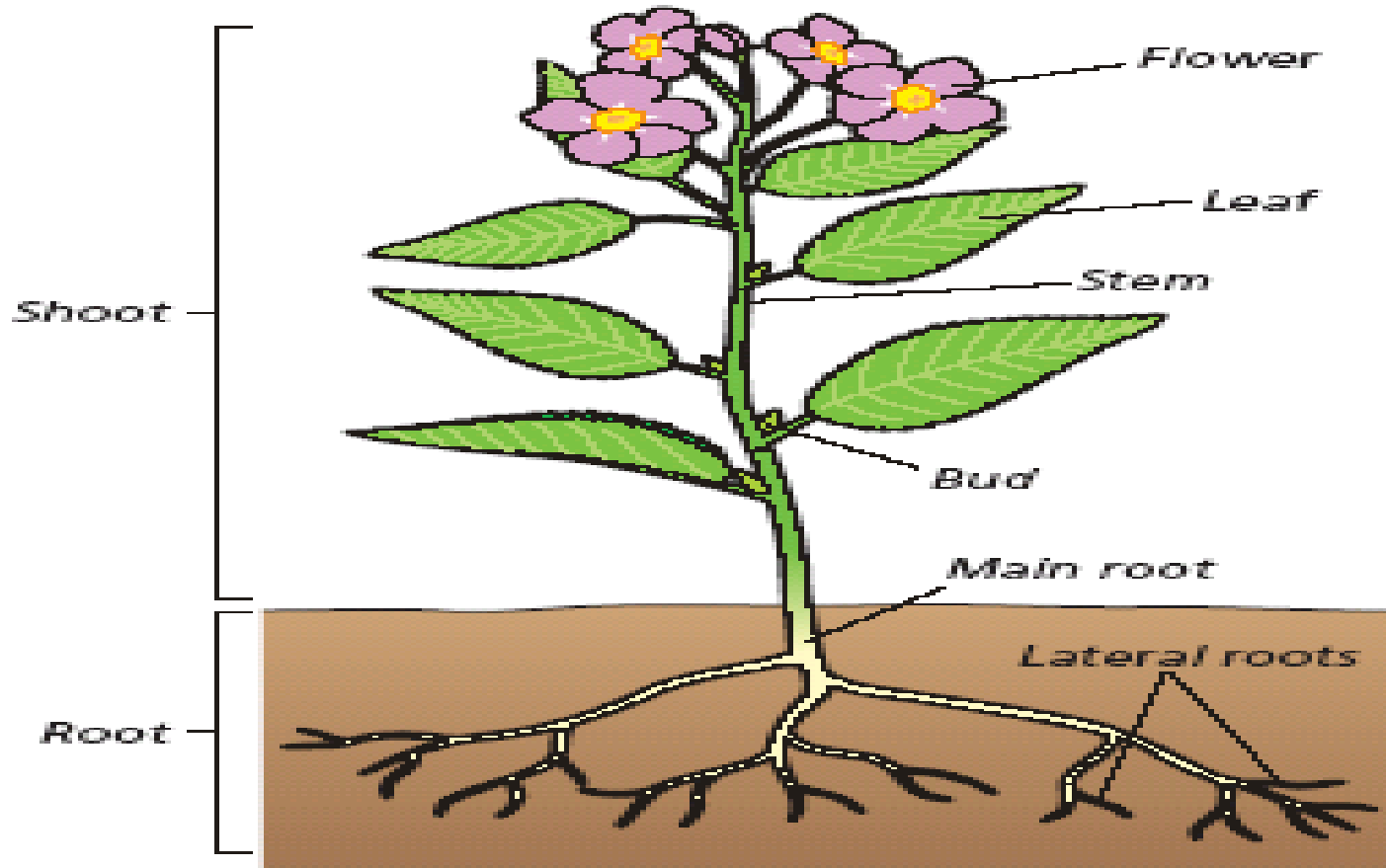
- The Stem holds up the leaves and flowers
- The Stem carries water from the roots up through the plant to the leaves
- It also carries food from the leaves down through the plant to the roots
- Some plants store food in their stems



The Parts of a Flowering Plant

The Leaves

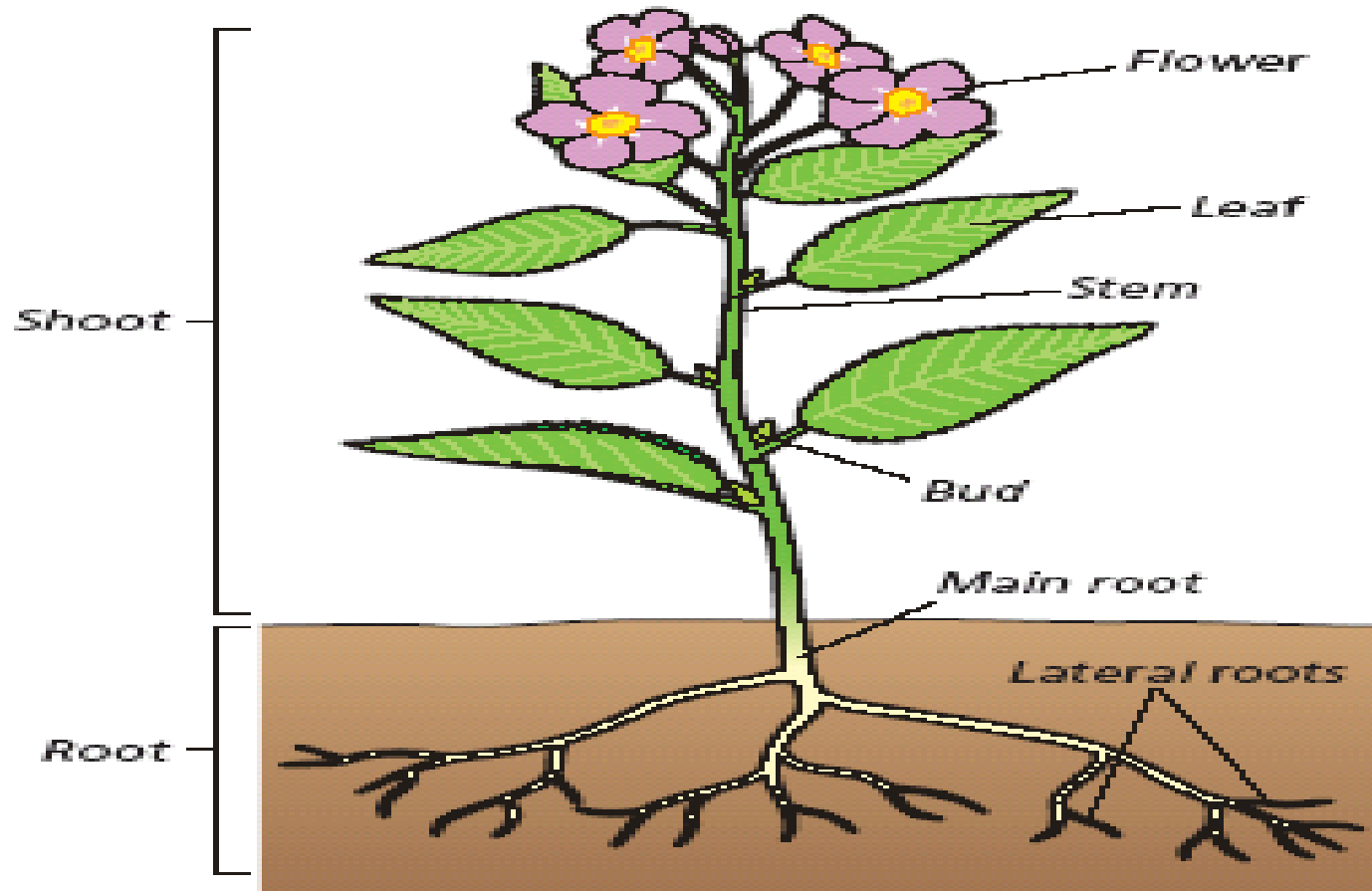
- The Leaves make food through Photosynthesis
- They allow Carbon Dioxide to pass into and Oxygen to pass out of the plant
- They allow water vapour to pass out of the plant
- Some leaves store food



The Parts of a Flowering Plant

The Flowers

- The Flowers produce seeds



Transpiration

Transpiration

Transpiration is

The loss of water from a plant



Water and Food Movement in a plant

Water and Food Movement in a plant

- Every plant has a system of tubes that carry water and food around the plant
- There are 2 main types of tubes:
 1. The Xylem
 2. The Phloem

The Xylem

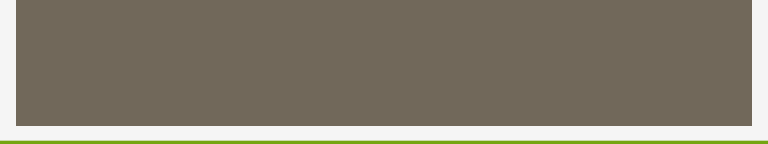
The Xylem

- **The Xylem** tube carries water only
- Water moves up from the roots, through the stem to the flowers and leaves

The Phloem

The Phloem

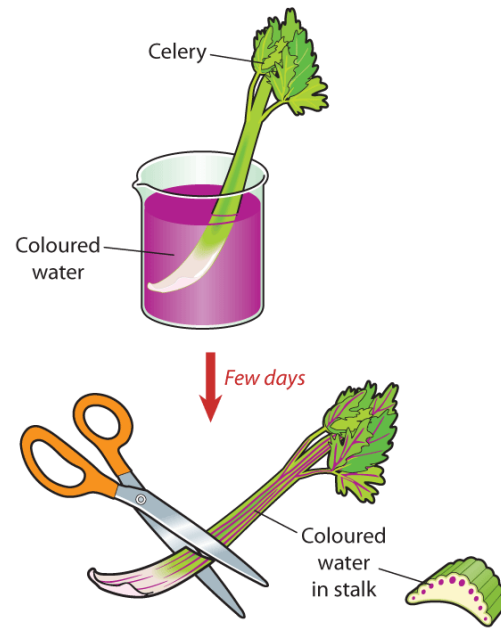
- **The Phloem** tube carries food only
- Food moves from the leaves down through the stem to the roots



A Demonstration to
show the path of
water through a plant

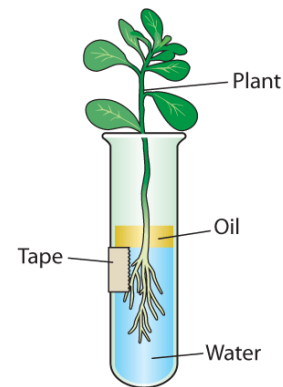
A Demonstration to show the path of water through a plant

- Add some food dye to water in a beaker
- Place some celery into the beaker of dyed water
- Leave for a week
- **Results:** The Coloured water dyes the celery plant all the way to the top
- **Conclusion:** Water moves from the roots up through a plant



▲ Fig 12.7 Examining the flow of water in a plant

- To show that water passes from the roots up through the stem and out of the leaves:
 - Place the roots of a young plant in water.
 - Cover the water with a layer of oil.
 - Note that the level of water goes down over time.



▲ Fig 12.9 The movement of water in a plant



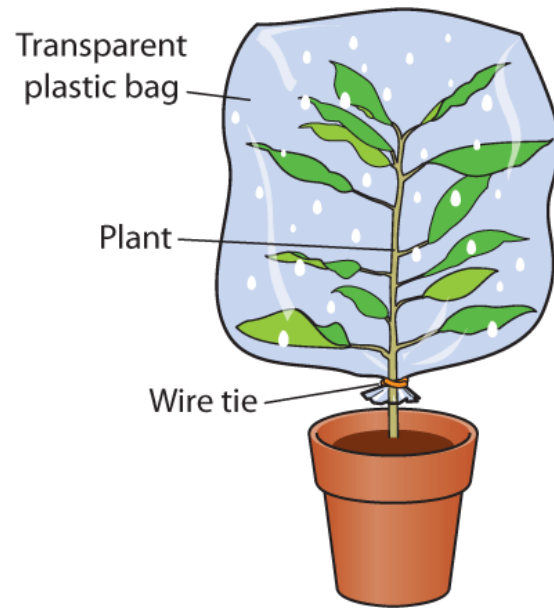
A Demonstration to show Transpiration

A Demonstration to show Transpiration

- Put a plastic bag around a potted plant
- Leave for a week
- Drops of liquid form on the inside of the plastic bag
- Test the liquid with Blue Cobalt Chloride paper

A Demonstration to show Transpiration

- **Results:** Blue Cobalt Chloride paper → Pink
- **Conclusion:** Water is lost from the plant. Transpiration has taken place



▲ Fig 12.10 To show transpiration