

The Leaf

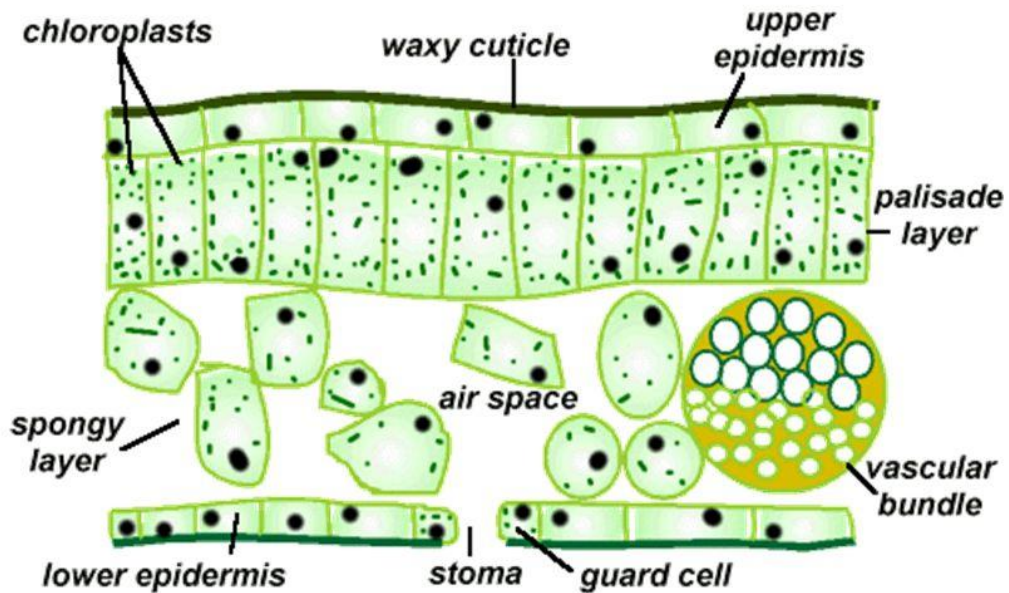
Plants, just like animals, contain cells, tissues, organs and organ systems.

An example of a plant organ is the **leaf/stem/root**. Examples of tissues include:

- **Epidermal** – covers the plant
- **Meristem** – contains undifferentiated cells (stem cells) which enable a plant to grow. Found in shoot/root tips.

A leaf arranges tissues in a unique way – see p89 of your textbook and copy the diagram from there. If you cant find your textbook use the lower diagram:

Leaf Structure



The tissues in a leaf have unique adaptations and specific functions:

- The upper epidermal tissue is covered by a waxy cuticle. This prevents water loss.
- The upper epidermis itself is transparent to let light pass through.
- The palisade mesophyll layer contains lots of chloroplasts for photosynthesis. They are arranged in a columnar pattern at the top of the leaf to absorb as much light as possible.
- The xylem and phloem are arranged into a vascular bundle which provides support to the leaf and transports water/mineral ions (xylem) and glucose (phloem).
- The spongy mesophyll layer contains air spaces for the diffusion of gases.
- The lower epidermis contains holes called stomata. This allows the entry of CO₂ and O₂. They are opened and closed by guard cells.