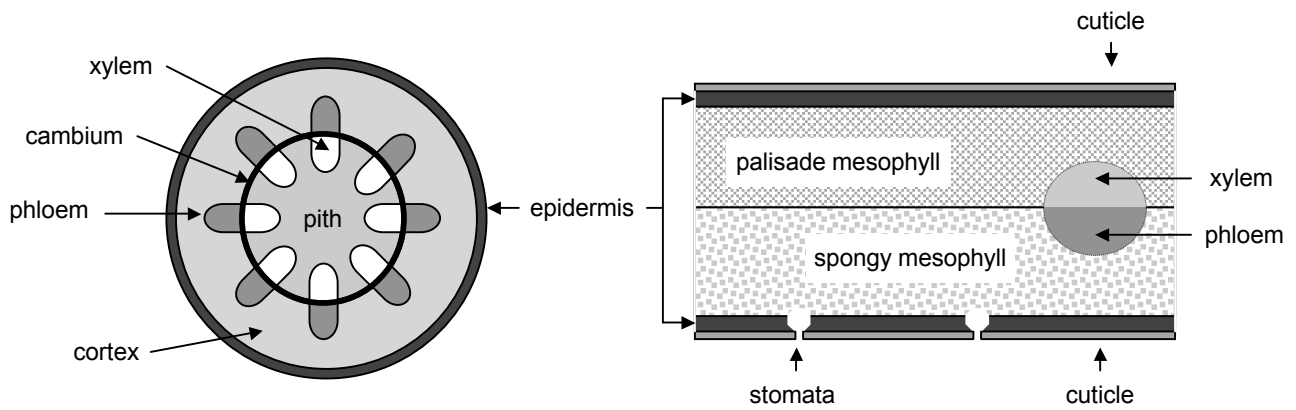


Plant Structure and Growth (9.1)

Plan diagrams of dicotyledonous stem and leaf (9.1.1)



Monocots vs Dicots (9.1.2)

Structure	Monocots	Dicots
Veins	Parallel	Reticulated
Floral organ	Multiples of 3	Multiples of 4 or 5
Seeds	1 cotyledon	2 cotyledons
Roots	Fibrous	Tap root
Vascular tissue	Scattered	In a ring
Pollen	1 opening	3 openings

Leaf tissue distribution (9.1.3)

Tissue	Distribution	Function
Palisade Mesophyll	Upper portion of leaf	Photosynthesis (region is rich in chloroplast)
Spongy Mesophyll	Lower portion of leaf	Gas exchange
Vascular Bundle (veins)	Roughly middle of leaf	Nutrient (phloem) and water (xylem) exchange
Stomata	Bottom surface of leaf	Regulates water loss / transpiration

Plant modifications (9.1.4)

Storage Roots: Modified roots that store water or food (*e.g. carrots / beets*)

Bulbs: Vertical underground stems with scales (*e.g. onions*)

Tubers: Horizontal underground stems that store carbohydrates (*e.g. potatoes*)

Tendrils: Specialised leaf that coils around objects for support and climbing (*e.g. vines*)

Meristems (9.1.5 / 9.1.6)

- Meristems are undifferentiated tissue that generates new cells for plant growth
- **Apical:** Found in roots and shoots and adds growth to these regions (primary growth)
- **Lateral:** Found in stems (cambium) and adds growth to this region (secondary growth)

Explain the role of auxin in phototropism (9.1.7)

- **Phototropism** is growth in response to a unilateral light source
- Auxin mediates growth by increasing the elasticity of the cell wall allowing the cell to swell with water intake and elongate
- Light eradicates auxin, so that only the shaded surface elongates
- This causes the shoot to bend towards the light

