

KEY FACTS

- Eukaryotic cells: membrane-bound nucleus, mitochondria, ribosomes, cell membrane, cytoplasm
- Plant cells ALSO have: cell wall (cellulose), chloroplasts, permanent vacuole
- Prokaryotic (bacteria): NO nucleus, circular DNA, plasmids, cell wall, ribosomes, sometimes flagellum
- Cells specialise (differentiate) by switching genes on/off
- Red blood cell: no nucleus, biconcave, haemoglobin → carries O₂
- Root hair cell: long extension → large SA for absorption
- Nerve cell: long axon, dendrites, myelin sheath → fast signals
- ★ Electron microscopes: higher resolution → reveal organelle detail not visible with light

KEY TERMS

Eukaryotic	Has membrane-bound nucleus (animals, plants, fungi)
Prokaryotic	No nucleus — DNA floats freely (bacteria)
Differentiation	Cell becoming specialised by switching specific genes on/off
Organelle	Specialised structure inside a cell with a specific function

■ EXAM TIP: Plant cells have THREE extras vs animal: cell WALL, CHLOROPLASTS, VACUOLE. Bacteria = prokaryotic = NO nucleus.