Foxford Learning Plan

Year 9

Summer 1

B1 Cell Biology

Key Vocabulary

Eukaryotic cell	A cell with genetic material enclosed in a nucleus, such as a plant or animal cell.
Prokaryotic cell	A smaller cell with no nucleus; bacteria have a DNA loop and may have plasmids.
Differentiation	The process by which a cell develops structures suited to a specialised function.
Magnification	How many times larger an image is than the real object: image size ÷ actual size.
Resolution	The ability to distinguish two close points as separate.
Chromosome	A DNA molecule carrying genes; chromosomes normally occur in pairs in body cells.
Mitosis	Nuclear division producing two nuclei with identical sets of chromosomes.
Stem cell	An undifferentiated cell that can divide and develop into specialised cells.
Diffusion	Net movement of particles from a higher to a lower concentration.
Osmosis	Net movement of water through a partially permeable membrane from a dilute to a more concentrated solution.
Active transport	Movement against a concentration gradient, using energy from respiration.
Concentration gradient	The difference in concentration between two regions.

Over this course I will be able to

Key Skills

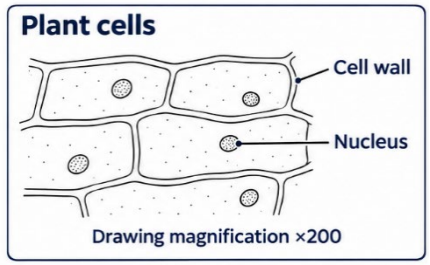
Compare animal, plant and bacterial cells, linking sub-cellular structures and specialised cell adaptations to their functions.

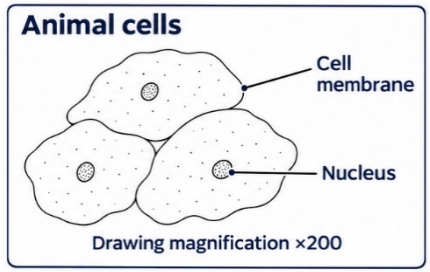
Required Practical 1: Use a light microscope to observe, draw and label plant and animal cells, including a magnification scale.

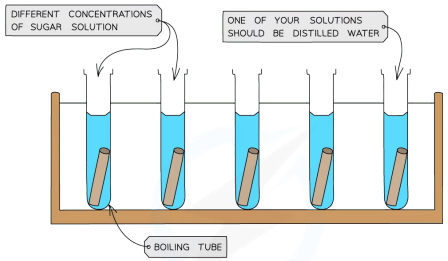
Calculate magnification, actual size and surface area to volume ratios; convert units and use standard form.

Required Practical 2: Investigate salt or sugar concentration and plant tissue mass; calculate percentage change and interpret graphs.

Explain cell-cycle models, evaluate stem-cell uses and compare transport processes using evidence and examples.







I will understand

How eukaryotic and prokaryotic cells differ; how structures support function; and how differentiation produces specialised cells.
How light and electron microscopes differ in magnification and resolution, and how microscopy has developed understanding of cells.
How DNA in chromosomes is copied before mitosis, producing genetically identical cells for growth, repair and replacement.
How embryonic, adult and plant meristem stem cells differ, including therapeutic cloning, plant cloning, benefits, risks and ethical issues.
How diffusion, osmosis and active transport work; how gradients, temperature and surface area affect diffusion; and how exchange surfaces are adapted.