

## Cell Biology: Paper 1

Content	RAG
Describe the structure of eukaryotic and prokaryotic cells	
State the differences between animal, plant, bacterial and algal cells	
Explain how the organelles present in cells are related to cell function	
Explain how the structure of different types of specialised cell relate to their function in a tissue, organ or organ system in an organism	
Understand that differentiation in cells can lead to a cell becoming specialised	
Be able to work out the magnification of an object seen using a light microscope	
Explain why an electron microscope helps scientists to achieve a greater level of understanding of cell structure	
Know that the nucleus of a cell contains 23 pairs of chromosomes and that each chromosome holds a large number of genes.	
Recognise and describe the main processes involved in mitosis (cell division)	
Understand the importance of cell division	
Know what a stem cell is and understand the potential benefits and risks of stem cell research in humans and plants.	
Describe diffusion as the movement of substances into or out of cells from a high concentration to a low concentration, giving examples	
State and explain the factors that affect the rate of diffusion and explain how the rate of diffusion can be increased	
Understand that osmosis is the movement of water molecules from a more dilute solution to a more concentrated one through a partially permeable membrane	
Describe active transport as a process requiring energy by which substances move from an area of low concentration to an area of higher concentration against a gradient	
Describe the role of active transport and osmosis in a plant root hair, in the gut and in kidney dialysis	

Skills	RAG
Use the prefixes centi, milli, micro and nano	
Appreciate scale and work out magnification	
Observe and draw animal and plant cells using a microscope	
Use models to understand how cells divide	
Evaluation of STEM cell use	
Calculate and compare surface area to volume ratios	

Required practical 1	Skills involved	Completed
Investigate the effect of salt or sugar solutions on plant tissue	Calculate percentages, use negative numbers and construct graphs.	