

# Review B1 Cell Biology

<i>Can you...?</i>	😊	😐	😞
<b>B1.1 Cell Structure</b>			
Name the main organelles of plant and animal cells (eukaryotic cells)			
Recall the relative size of bacterial cells (prokaryotic cells)			
Describe the difference in how the genetic material is found within eukaryotic and prokaryotic cells.			
Explain how the main sub-cellular structures, including the nucleus, cell membranes, mitochondria, cell wall and chloroplasts in plant cells and plasmids in bacterial cells are related to their functions			
Explain how the structure of different types of cell relate to their function in a tissue, an organ or organ system, or the whole organism. Including sperm cells, nerve cells and muscle cells in animals and root hair cells, xylem and phloem cells in plants.			
Describe cell differentiation			
Describe the differences in magnification and resolution between electron and light microscopes			
Define binary fission (biology only)			
Explain how to prepare an uncontaminated culture (biology only)			
<b>B1.2 Cell division</b>			
Recall that the nucleus of a cell contains chromosomes made of DNA molecules. Each chromosome carries a large number of genes. In body cells the chromosomes are normally found in pairs			
Give an overview of mitosis			
Understand that Cell division by mitosis is important in the growth and development of multicellular organisms			
Recognise and describe situations where mitosis is occurring.			
Define a stem cell			
Recall that stem cells from human embryos and adult bone marrow can be cloned and made to differentiate into many different types of human cells			
Name some conditions which may be helped by treatment with stem cells			
Discuss the ethical or religious objections and potential risk of stem cell use			
Recall that stem cells from meristems in plants can be used to produce clones of plants quickly and economically and describe possible uses			
<b>B1.3 Transport in cells</b>			
Explain how substances may move into and out of cells across the cell membranes via diffusion			
Describe diffusion			
Recall that some of the substances transported in and out of cells by diffusion are oxygen and carbon dioxide in gas exchange, and of the waste product urea from cells into the blood plasma for excretion in the kidney			
Describe factors that affect the rate of diffusion			
Recall that a single-celled organism has a relatively large surface area to volume ratio to allow sufficient transport of molecules into and out of the cell			
Explain how the small intestine and lungs in mammals, gills in fish, and the roots and leaves in plants, are adapted for exchanging materials			
List factors that increase the effectiveness of an exchange surface			
Describe osmosis			
Recall that active transport moves substances from a more dilute solution to a more concentrated solution (against a concentration gradient). This requires energy from respiration.			
Link the structure of a root hair cell to its function.			
Describe a use for active transport in both plants and animals.			
Explain the difference between diffusion, osmosis and active transport			