GCSE Biology Learning Checklist

Unit 1: Cell biology | Sub-unit: Cell transport

I can...		After Lesson	After Revision
1	describe how substances are transported into and out of cells by diffusion.		
2	give examples of some substances that are transported in and out of cells by diffusion.		
3	explain how the following factors affect the rate of diffusion: • difference in concentration (concentration gradient); • temperature; • surface area of the membrane.		
4	explain how the surface area to volume ratio of a single-celled organism allows sufficient transport of molecules into and out of the cell to meet the needs of the organism		
5	calculate and compare surface area to volume ratios.		
6	explain the need for exchange surfaces and a transport system in multicellular organisms in terms of surface area to volume ratio		
7	describe how the small intestine and lungs in mammals, gills in fish and the roots and leaves in plants are adapted for exchanging materials.		
8	explain why surfaces and organ systems in multicellular organisms are specialised		
9	explain how the effectiveness of an exchange surface is increased by: • having a large surface area; • a membrane that is thin, to provide a short diffusion path; • (in animals) having an efficient blood supply; • (in animals, for gaseous exchange) being ventilated.		
10	describe how substances are transported into and out of cells by osmosis.		
11	describe an experiment to investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue (required practical activity 2).		
12	use simple compound measures of rate of water uptake.		

13	use percentages and calculate percentage gain and loss of mass of plant tissue.		
14	plot, draw and interpret graphs to show the gain or loss of mass of plant tissue		
15	describe how substances are transported into and out of cells by active transport		
16	explain why active transport is used to absorb mineral ions into plant root hairs.		
17	explain why active transport is used to absorb sugar molecules from the gut into the blood.		
18	explain the differences between diffusion, osmosis and active transport.		

Keywords:

Active transport
Alveoli
Diffusion
Hypertonic
Hypotonic
Isotonic
Osmosis
Partially permeable membrane
Plasmolysis
Turgid

Exam insights:

When answering questions about microscopes, use the word ‘magnification’ instead of zoom.

Dilute solution means more water particles. Concentrated solution means less water particles. Be careful with these words when describing osmosis. When describing osmosis, it is usually best to talk about the movement of water in relation to ‘solute concentration’.