GCSE Biology – Year 9

GCSE Biology – Year 9 Biology Spec points covered			
Biology	Spec poir		
Microscopes	B1.3	Explain how changes in microscope technology, including electron microscopy, have enabled us to see cells with more clarity and detail than in the past Demonstrate an understanding of size and scale in relation to microscopy, including	
	B1.4 B1.5	magnification calculations. Demonstrate an understanding of the relationship between quantitative units,	
	в1.5	including (a) milli (10 ⁻³), micro (10 ⁻⁶), nano (10 ⁻⁹), pico (10 ⁻¹²)	
	B1.6	(b) calculations with numbers written in standard form Produce labelled scientific drawings from observations of biological specimens using microscopes	
Plant and animal cells	B1.1	Explain how the sub-cellular structures of eukaryotic and prokaryotic cells are related to their functions, including:	
		(a) animal cells - nucleus, cell membrane, mitochondria and ribosomes(b) plant cells - nucleus, cell membrane, cell wall, chloroplasts, mitochondria and ribosomes	
	B1.4 B1.6	Demonstrate an understanding of size and scale in relation to microscopy, including magnification calculations	
		Produce labelled scientific drawings from observations of biological specimens using microscopes	
Cell Specialisation	B1.1	Explain how the sub-cellular structures of eukaryotic and prokaryotic cells are related to their functions, including: (a) animal cells - nucleus, cell membrane, mitochondria and ribosomes	
		(b) plant cells - nucleus, cell membrane, cell wall, chloroplasts, mitochondria and ribosomes	
	B1.4 B1.6	Demonstrate an understanding of size and scale in relation to microscopy, including magnification calculations Produce labelled scientific drawings from observations of biological specimens using microscopes	
Inside Bacteria	B1.1	Explain how the sub-cellular structures of eukaryotic and prokaryotic cells are related to their functions, including: (c) bacteria - chromosomal DNA, plasmid DNA, cell membrane, ribosomes and flagella.	
	B1.5	Demonstrate an understanding of the relationship between quantitative units, including (a) milli (10 ⁻³), micro (10 ⁻⁶), nano (10 ⁻⁹), pico (10 ⁻¹²)	
Enzymes and nutrition	B1.12	Explain the importance of enzymes as biological catalysts in the synthesis of carbohydrates, proteins and lipids and their breakdown into sugars, amino acids and fatty acids and glycerol	
	B1.5	(b) calculations with numbers written in standard form	
Enzyme action	B1.7	Explain the mechanism of enzyme action including the active site and enzyme specificity	
	B1.8	Explain how enzymes can be denatured due to changes in the shape of the active site	
Enzymes activity	B1.9	Explain the effects of temperature, substrate concentration and pH on enzyme activity	
	B1.11 B1.10	Demonstrate an understanding of rate calculations for enzyme activity Investigate the factors that affect enzyme activity	
Transporting substances	B1.15 B1.17 B1.16	Explain how substances are transported by diffusion, osmosis and active transport. Calculate percentage gain and loss of mass in osmosis Investigate osmosis in potatoes	

GCSE Biology – Year 9

Biology	Spec points covered	
Mitosis	B2.1 B2.2 B2.3 B2.4	Describe mitosis as part of the cell cycle including the stages interphase, prophase, metaphase, anaphase and telophase and cytokinesis Describe the importance of mitosis in growth, repair and asexual reproduction Describe the division of a cell by mitosis as the production of two daughter cells, each with identical sets of chromosomes in the nucleus to the parent cell, and that this results in the formation of two genetically identical diploid body cells Describe cancer as the result of changes in cells that lead to uncontrolled cell division.
Growth	B2.5 B2.7 B2.6	Describe growth in organisms, including: (a) cell division and differentiation in animals Demonstrate an understanding of the use of percentiles charts to monitor garowth Explain the importance of cell differentiation in the development of specialised cells
Growth in plants	B2.5 B2.6	Describe growth in organisms, including: (b) cell division, elongation and differentiation in plants Explain the importance of cell differentiation in the development of specialised cells
Stem Cells	B2.8 B2.9	Describe the function of embryonic stem cells, stem cells in animals and meristems in plants Discuss the potential benefits and risks associated with the use of stem cells in medicine
The nervous system	B2.13	Explain the structure and function of sensory neurones, motor neurones and synapses in the transmission of electrical impulses including the axon, dendron, [myelin sheath and the role of neurotransmitters]
Neurotransmissio n speeds	B2.13 B2.14	Explain the structure and function of sensory neurones, motor neurones and synapses in the transmission of electrical impulses including the [axon, dendron,] myelin sheath and the role of neurotransmitters Explain the structure and function of a reflex arc including sensory, relay and motor neurones