

BIOLOGY TERM BY TERM CURRICULUM

[Specification link - AQA 7402 A Level Biology](#)



YEAR 12

TERM	Teaching Overview Teacher 1 (2 x double lessons – 70 minutes 1 x single lesson – 50 minutes & 1 x double – 70 minutes)	Teacher 2 (2 x doubles - 70 minutes each)
1	3.1 Biological molecules part 1 • 3.1.1 – monomers and polymers • 3.1.4 – structure and function of proteins • 3.1.6 – structure and properties of ATP • 3.1.7 – structure and properties of water • 3.1.8 – uses of inorganic ions Including: • Exam question practice, end of topic test and feedback - proteins • Required practical 1 – enzyme action	3.1 Biological molecules part 2 • 3.1.2 – structure and properties of carbohydrates • 3.1.3 – structure and properties and lipids • 3.1.5 – structure and function of nucleic acids Including: • Exam question practice, end of topic test and feedback – carbohydrates and lipids • Exam question practice, end of topic test and feedback – ATP, water, ions and nucleic acids
2	3.2 Cells part 1 • 3.2.1 – cell structure • 3.2.2 – all cells arise from other cells (including mitosis, microscopy and magnification) • 3.2.3 – transport across the cell membrane (diffusion, osmosis, active transport and co-transport) Including: • Numerous microscopy practicals • Required practical 2 – observing mitosis in onion cells • Exam question practice, end of topic test and feedback – cell structure and microscopy	3.2 Cells part 2 • 3.2.4 – cell recognition and immunity (includes the human immune response and vaccination) Including: • Exam question practice, end of topic test and feedback – immunity • Introduction to the synoptic essay (25 marks) for paper 3 • Mock exams and feedback

3	3.2 Cells part 3 Including: • Exam question practice, end of topic test and feedback – cell transport • Synoptic essay technique • Required practical 3 – factors affecting osmosis in potato cells • Required practical 4 – factors affecting diffusion in beetroot cells	3.4 Genetic information, variation and relationships between organisms part 1 • 3.4.1 – DNA, genes and chromosomes • 3.4.2 – protein synthesis (transcription and translation) • 3.4.3 – genetic diversity causes (includes mutation and meiosis) • 3.4.4 – genetic diversity and adaptations Including: • Exam question practice, end of topic test and feedback – genetic information, diversity and adaptation • Required practical 6 – antibiotic resistance • Synoptic essay technique
4	3.3 Organisms exchange substances with their environment part 1 • 3.3.1 – surface area to volume ratio • 3.3.2 – gas exchange excluding plants (includes lung structure and function, gas exchange in insects, lung dissection, fish gills) • 3.3.3 – digestion and absorption Including: • Exam question practice, mini test and feedback – exchange in animals	3.4 Genetic information, variation and relationships between organisms part 2 • 3.4.5 – species and taxonomy • 3.4.6 – biodiversity in a community • 3.4.7 – investigating diversity (transects, ecology, standard deviation and field work) • Statistical tests (maths skills) – chi-squared test, t-test and correlation coefficient
5	3.3 Organisms exchange substances with their environment part 2 • 3.3.4 – mass transport excluding plants (includes structure and function of haemoglobin, the mammalian circulatory system) • 3.3.2 – gas exchange in plants (leaf structure) • 3.3.4 – mass transport in plants (transpiration and translocation) Including: • Exam question practice, end of topic test and feedback – exchange in animals • Required practical 5 – dissection of a mass transport system (mammalian heart)	3.3 Organisms exchange substances with their environment • 3.7.4 – populations in ecosystems (includes competition, predator prey relationships, succession and conservation techniques) Including: • 3 day non-residential field trip • Required practical 12 – environmental factors affecting distribution of a species • Exam question practice, end of topic test and feedback – genetic diversity from term 4
6	Mocks and feedback Exam technique Required practical catch up	

YEAR 13

TERM	Teaching Overview Teacher 1 (1 x single lesson – 50 minutes & 2 x doubles – 70 minutes)	Teacher 2 (2 x doubles - 70 minutes each)
1	3.6 Organisms respond to changes in their internal and external environment part 1 • 3.6.1 – stimuli, both internal and external are detected and lead to a response (includes receptor, reflexes, means by which organisms ensure their survival) • 3.6.2 – nervous control (includes the structure and function of nerves, structure and function of a synapse) Including: • Exam question practice, end of topic test and feedback – nerves and stimuli (including synoptic essay)	3.5 Energy transfers in and between organisms • 3.5.2 – respiration (the biochemistry behind the reaction involved in aerobic and anaerobic respiration) • 3.5.3 – energy and ecosystems (includes food webs, trophic levels and energy transfer, productivity of crops and livestock) • 3.5.4 – nutrient cycles (includes nitrogen cycle, phosphorous cycle and the use of fertilisers) Including: • Exam question practice, end of topic test and feedback – respiration
2	Required practicals 8, 10 and 11 Includes exam technique, feedback and assessment on practical techniques questions 3.6 Organisms respond to changes in their internal and external environment • 3.6.3 – skeletal muscle (includes the structure and function of skeletal muscle and muscle contraction)	Required practical 9 Includes exam technique questions and feedback on the practical Including: • Exam question practice, end of topic test and feedback- energy and ecosystems 3.6 Organisms respond to changes in their internal and external environment • 3.6.4 – homeostasis (includes the regulation of blood glucose, osmoregulation – water levels and diabetes) Including: • Exam question practice, end of topic test and feedback – homeostasis Kidney dissection

3	3.7 Genetics, populations, evolution and ecosystems • 3.7.2 – populations (variation in organisms) • 3.7.3 – evolution (includes natural selection and speciation – the rise of new species) Including: • Revision • Exam technique • Mock exams	3.7 Genetics, populations, evolution and ecosystems • 3.7.1 – inheritance (includes genetic crosses and the different ways that characteristics can be inherited) • Hardy Weinberg Equation Including: • Revision • Exam technique • Mock exams
4	3.8 Control of gene expression • 3.8.4 – gene technology (includes cloning, genetic fingerprinting and genetic diagnoses of diseases) Including: • Exam question practice, end of topic test and feedback – control of gene expression part 2 • Feedback from mocks • Synoptic essay practice	3.8 Control of gene expression • 3.8.1 – alteration of base sequences (includes mutations) • 3.8.2 – gene expression is controlled by a number of features (includes stem cells, regulation of transcription – protein synthesis, tumour suppressor genes and epigenetics) • 3.8.3 – using genome projects (the human genome project – research based) Including: • Exam question practice, end of topic test and feedback – control of gene expression part 1 • Feedback from mocks • Synoptic essay practice
5	• Biology mock exam (extra) • Required practical catch up • Revision	• Biology mock exam (extra) • Required practical catch up • Revision