A-LEVEL – YEAR 13 – BIOLOGY – CURRICULUM OVERVIEW

Autumn Term		Spring Term		Summer Term
Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**
Key Themes	**Key Themes**	**Key Themes**	**Key Themes**	**Key Themes**
Respiration • ATP recap • Glycolysis • Link reaction & Krebs' cycle • Electron transport chain • Respirometers • RQ values • Respiratory substrates • Anaerobic respiration **Photosynthesis** • Chloroplast recap • Light-dependent reaction • Light-independent reaction • Limiting factors **Survival and response** • Taxis and kinesis • Required practical 10 – choice chambers • Plant growth factors • Reflex arc & receptors • Receptors in the eye • Control of heart rate	**Photosynthesis** • Required practical 7 – chromatography of pigments • Required practical 8 – DCPIP to investigate rate of photosynthesis • Photosynthometer • Exam question training **Essay skills training** **Energy, ecosystems and nutrient cycles** • Energy transfers & calculations • Maximising efficiency • Nitrogen cycle **Nerves and synapses** • Nervous system & neurones • Resting potential • Action potential • Propagation • Synapse structure • Synaptic transmission • Effect of drugs	**Energy, ecosystems and nutrient cycles** • Phosphorus cycle • Fertilisers+eutrophication • Mastery & consolidation **Inheritance & Evolution** • Studying inheritance • Monohybrid inheritance and probabilities • Dihybrid inheritance • Codominance and multiple alleles • Linkage • Epistasis • Chi-squared **Muscle contraction** • Neuromuscular junction • Muscle structure • Muscle contraction • Prac: observing tissues **Homeostasis** • Principles of homeostasis • Second messenger model • Control of blood glucose • Diabetes and its control	**Inheritance & Evolution** • Hardy Weinberg • Variation in phenotype • Natural selection & evolution • Isolation & speciation **Populations in ecosystems** • Ecosystems & niches • Variation in population size & competition • Carrying capacity • Predation • Sampling techniques • Succession • Conservation **Homeostasis** • Required practical 11 • Kidney structure & role **Gene expression & regulation** • Mutations recap • Stem cells, totipotency and uses of stem cells • Regulation of protein synthesis • RNA interference • Gene expression & cancer	**Revision & Mastery** • Application of knowledge • Building synoptic links • Maths and practical skills • Statistical testing • Continued essay training • Year 12 & 13 content **Gene expression & regulation** • Risk factors • Epigenetics • Diseases **Genome and DNA technology** • Genome projects and sequencing • Making DNA fragments • Genetic engineering • In vivo gene cloning • In vitro gene cloning • Genetic fingerprinting • Gene therapy
Assessment / Composite Tasks	**Assessment / Composite Tasks**	**Assessment / Composite Tasks**	**Assessment / Composite Tasks**	**Assessment / Composite Tasks**
Formative feedback (GMAs): • Respiration • Photosynthesis • Survival and response *End of topic test(s):* • Respiration • Survival and response	*Formative feedback (GMAs):* • Photosynthesis • Energy transfers *End of topic test(s):* • Nerves and synapses • Photosynthesis • Mock AQA A-level Biology Paper 1 & Paper 2 (partial)	• Essay skills training, writing and feedback. *Formative feedback (GMAs):* • Inheritance & evolution • Homeostasis *End of topic test(s):* • Energy transfers & nutrient cycles • Muscle contraction	• Mock AQA A-level Biology Paper 2 & 3. *Formative feedback (GMAs):* • Populations in ecosystems • Gene expression & regulation *End of topic test(s):* • Homeostasis • Inheritance & evolution • Populations in ecosystems	• Exam questions – short and long answer training • Essay writing practice & feedback. *Formative feedback (GMAs):* • Genome and DNA technology *End of topic test(s):* • Gene expression & regulation • Genome and DNA technology

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