

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
12	<p><b>Topic 1</b> Introduction to course <b>SPEC 3.1</b> Biological molecules, Monosaccharides Disaccharides, Reducing and Non-reducing sugars &amp; Test for reducing sugars Starch, Glycogen &amp; Cellulose, Intro &amp; Emulsion Test Triglycerides &amp; Phospholipids, Mid topic assessment Proteins, introduction &amp; Biuret test, formation of Dipeptide bonds. The structure of proteins The role of H – ionic bonds and disulphide bridges. Structure &amp; Properties of proteins, Enzyme catalysis and activation energy. (The induced-fit model. Enzyme specifically linked to active site structure).</p> <p><b>Topic 2</b> <b>SPEC 3.2</b> Cell structure Structure of eukaryotic cells, eukaryotic &amp; Prokaryotic Structure of prokaryotic cells and viruses Methods of Studying cells Microscopes All cells arise from other cells, The cell cycle Required Practical 2 Root tip squash</p>	<p><b>Topic 1</b> Required Practical 1 enzyme controlled reaction <b>Mid topic Assessment</b> Nucleic acids, Structure &amp; Importance Extracting DNA, Formation of Phosphodiester bond Semi-conservative replication Water, inorganic ions <b>Mid topic Assessment, Exam practice, synoptic essay practice</b> Feedback</p> <p><b>Topic 2</b> The structure of the cell-surface membrane. The fluid mosaic model The components of the cell-surface membrane Diffusion, Methods of crossing membranes, Data analysis of movement across membranes Osmosis &amp; Water potential / Visking tubing exp ATP Active transport, Co-transport <b>Required Practical 4 Permeability</b> The adaptations of Epithelial cells <b>Mid topic Assessment</b></p>	<p><b>Topic 1</b> <b>SPEC 3.3</b> Exchange between organisms and the environment Gas exchange in single-celled organisms and insects phagocytosis Gas exchange in fish RP5 Fish gill dissection Gas exchange in the plant leaf Limiting water loss Structure of the human gas-exchange system</p> <p><b>Topic 2</b> Defence mechanisms Phagocytosis T-lymphocytes and cell mediated immunity B-lymphocytes and humoral immunity Antibodies Vaccination</p>	<p><b>Topic 1</b> The mechanism of breathing Exchange of gases in the lungs Enzymes and digestion SCIENCE WEEK TIMETABLE Absorption of the products of digestion Mid topic Assessment, synoptic essay practice HL Feedback</p> <p><b>Topic 2</b> HIV <b>Mid topic Assessment</b> RP6 Antimicrobials SPEC 3.4 Genes and the triplet code DNA and chromosomes Structure of ribonucleic acid Protein synthesis</p>	<p><b>Topic 1</b> Haemoglobin Transport of oxygen by haemoglobin Circulatory system of a mammal The structure of the heart RP5 Heart Dissection</p> <p><b>Topic 2</b> Mid topic Assessment Mutations Meiosis and genetic variation Genetic diversity and adaptation</p>	
13	<p><b>Topic 1</b> <b>SPEC 3.5</b> Overview of photosynthesis LDR Light independent reaction RP 7 Chromatography Mid topic Assessment Glycolysis Link reaction, Krebs cycle Oxidative phosphorylation RP9 Respiration</p> <p><b>Topic 2</b> <b>SPEC 3.6</b> Survival and response Plant growth factors Reflex arc Receptors Control of heart rate Mid topic Assessment Nervous coordination Nerve impulse</p>	<p><b>Topic 1</b> Aerobic respiration Mid topic Assessment Food chains and energy transfer, Energy transfer and productivity Nutrient cycles, Natural and artificial fertilisers Environmental issues SPEC 3.7 Studying inheritance Monohybrid, probability and genetic crosses Dihybrid inheritance Co-dominance</p> <p><b>Topic 2</b> Action potential Speed of impulse Synapses, Transmission across synapse Skeletal muscle structure Contraction of skeletal muscle Homeostasis</p>	<p><b>Mocks</b></p> <p><b>Topic 1</b> Sex linkage, autosomal linkage Mid topic Assessment, Exam practice, synoptic essay practice RP8 Dehydrogenase activity Epistasis</p> <p><b>Topic 2</b> Blood glucose, Diabetes RP Dilution Series Blood water potential, nephron structure Osmoregulation, Hormones in osmoregulation</p>	<p><b>Topic 1</b> Population genetics Variation in phenotype Natural selection, effects on evolution Isolation and speciation, Succession Populations and ecosystems, investigating populations Competition and Predation RP 12 Field Studies RP Catch up sessions - in lessons and after school</p> <p><b>Topic 2</b> <b>SPEC 3.8</b> Gene mutations, stem cells Regulation of transcription and translation Epigenetic control of gene expression Gene expression and cancer Gene expression and cancer - genome projects HL</p>	<p>Full Mock Revision Statistics revision, practical skills, Chi-squared Study Leave</p>	

		Feedback mechanisms Mid topic Assessment		Producing DNA fragments - in vivo gene cloning - vectors, in vitro gene cloning – PCR Locating genes, genetic screening and counselling - Genetic fingerprinting HL	
--	--	---	--	--	--