Year 10 Biology & Combined Science Biology	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
	Content delivered: **Unit 1 Cells:** Cell structure Microscopy Prokaryotic and eukaryotic cells Stem cells Mitosis Movement across membranes	**Content delivered:** **Unit 2 Organisation:** Digestive system Enzymes The heart The blood CHD Cancer Non-communicable diseases Plant organs and tissues	**Content delivered:** **Unit 3 Microbes and disease:** Communicable disease Pathogens Vaccination Clinical trials Antibodies Monoclonal antibodies (Biology only) Plant diseases	**Content delivered:** **Unit 4 Bioenergetics:** Photosynthesis Limiting factors Aerobic respiration Anaerobic respiration	**Content delivered:** **Unit 4 Bioenergetics:** Response to exercise Metabolism **Unit 5 Homeostasis & response:** Homeostasis Nervous system Brain (Biology only)	**Content delivered:** **Unit 5 Homeostasis & response:** Endocrine system The eye (Biology only) Thermoregulation (Biology only) Mock exam preparation, review and feedback
Key Words **Level 2** **Level 3**	Eukaryotic, prokaryotic, cytoplasm, nucleus, mitochondria, ribosome, palisade, specialised, differentiated, flagella, chloroplast, chlorophyll, vacuole, membrane, differentiation, objective lens, focus, magnification, micrometre, resolution, differentiation, chromosome, mitosis, prophase, metaphase, anaphase, telophase, equator, chromosome, embryonic	Enzyme, amylase, protease, lipase, oesophagus, stomach, pancreas, liver, intestine, rectum, denature, optimum, Benedicts, biuret, ethanol, ventricle, atrium, artery, vein, capillary, pulmonary, vena cava, aorta, valve, malignant, benign	Pathogen, antigen, antibody, immunity, specific, lymphocyte, antibiotic, placebo, double blind trial, efficacy, monoclonal antibody, hybridoma, Tobacco Mosaic Virus, rose black spot, chlorophyll, chloroplast, aseptic	Photosynthesis, chloroplast, chlorophyll, limiting factor, independent variable, dependent variable, control variable, reproducibility, validity	Aerobic, anaerobic, lactic acid, ethanol, respiration, heart rate, breathing, haemoglobin, diffusion, alveoli, capillary, pulmonary artery, pulmonary vein, aorta, vena cava, synapse, sensory, motor, relay, neurone, impulse, diffusion, receptor, effector, cerebrum, cerebellum, medulla, hypothalamus, myopia, hyperopia, accommodation, sclera, retina, optic nerve, suspensory ligament	Myopia, hyperopia, accommodation, sclera, retina, optic nerve, suspensory ligament
Where previous knowledge has occurred and future development **KS2 → KS3 → KS4 → KS5**	KS2: X KS3: Year 7 – cell structure & diffusion KS3: Year 9 – genetics KS4: Unit 2 – organisation KS4: Unit 5 – Homeostasis KS5: Ultrastructure of the cell, membranes and fluid mosaic model	KS2: Nutrition, functions of parts of the digestive system KS3: Year 8 - digestion KS4: Unit 1 – plant cell structure KS4: Unit 5 – Homeostasis KS5: Tertiary protein structure, transport systems	KS2: Parts of the plant KS3: Year 9 – specialised cells - pathogens KS4: Unit 2 – the role of white blood cells KS5: Immunology and epidemiology	KS2: What plants need KS3: Year 7 – Plant cells KS3; Year 9 - Photosynthesis KS4: Unit 1 – plant cells structure KS4: Unit 5 – Homeostasis KS5: LIR, LDR, glycolysis, Krebs cycle, oxidative photophosphorylation	KS2: Impact of diet exercise and drugs on the human body KS3: Year 7 - muscles KS4: Unit 1 – cells/mitochondria KS4: Unit 2 – the heart KS5: Action potentials	KS2: X KS3: Year 8 – Light, refraction, eye KS4: Unit 5 – reflex actions KS4: Unit 1-4 for mock exam prep KS5: Homeostasis
Common Misconceptions	Changing objective leans makes the image clearer	Malnutrition is just being underweight	Antibiotics can be used on every pathogen Discussing the views of antivaxers	All factors affect the rate of photosynthesis in the same way	All messages are sent to the brain	That the body can tolerate a wide range of temperatures
Literacy	Scientific writing (HSW): osmosis practical Ethical arguments: stem cells NHTW reviews as starter activities	Scientific writing (HSW): factors affecting enzyme activity Comparative writing: stents & statins NHTW reviews as starter activities	Scientific writing (HSW): aseptic techniques Ethical arguments: should everyone be vaccinated? NHTW reviews as starter activities	Scientific writing (HSW): factors affecting the rate pf photosynthesis NHTW reviews as starter activities	Scientific writing (HSW): ruler drop test Descriptive writing: the effects of different stimuli NHTW reviews as starter activities	NHTW reviews as starter activities
Numeracy	Conversion of units Choosing and drawing appropriate graphs Rearranging formulae	Calculating means Rate graphs and gradients	Data extrapolation Standard form	Calculating means Rate graphs and gradients	Calculating mean, median, mode and range for class data (heart rates) Converting distance to reaction time	Calculating angles for refraction of light
Homework	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes	Completion of kerboodle/Seneca/carousel section quizzes
Assessment this half-term	Unit test for section 1	Unit test for section 2 – to include elements of unit 1	Unit test for section 3 Mock exam Unit 1 and 2	Photosynthesis section test	Unit 4 test – to include elements of units 1-3	Year 10 mock exam – paper 1 biology
Career opportunities **Employment Links**	LIFE SKILLS: Understanding the roles of different cells in the body EMPLOYMENT: Cellular biologist	LIFE SKILLS: Understanding risk factors for obesity and CHD EMPLOYMENT: Food development, Macmillan nurse, dietician	LIFE SKILLS: Understanding how diseases can spread EMPLOYMENT: Healthcare professional, research scientist	LIFE SKILLS: Understanding how plant growth can be manipulated EMPLOYMENT: Horticulturist	LIFE SKILLS: Understanding how the body systems are integrated EMPLOYMENT: Personal trainer, dietician	LIFE SKILLS: Understanding why people need to wear glasses EMPLOYMENT: Optician
Enrichment			Biology olympiad	Nancy Rothwell Award		
Practical activities/HSW	Microscopy Scientific drawings Osmosis practical	Food tests Factors affecting enzyme activity Heart dissection	Aseptic techniques	Factors affecting the rate of photosynthesis Starch testing leaves	Respiration in yeast Factors affecting heart rate Ruler drop test	
Employability Skills	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive	Aiming high Literacy Creativity Numeracy Leadership Independence Listening Communication Presenting Teamwork Problem solving Staying positive
IT Skills	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes	IT1 & IT2: Appropriate websites and research for homework as well as recall quizzes