Year 10 Themes	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
	Students will know that					
Organisation **Infection & response** **Cell Division**	Enzymes are proteins with specific active sites that bind to substrates via the lock-and-key model. Digestive enzymes (amylase, protease, lipase) break down carbohydrates, proteins, and lipids into smaller, absorbable molecules. Bile emulsifies fats and neutralises stomach acid to create optimum pH for enzyme action in the small intestine. Enzymes are biological catalysts affected by temperature, pH, and substrate concentration. The digestive system is adapted for absorption through villi and microvilli, increasing surface area. Organ systems are made of tissues working together to perform specific functions.	The circulatory system is a double circulatory system enabling efficient oxygen transport. The heart acts as a double pump; arteries, veins, and capillaries differ in structure and function. The blood transports oxygen, glucose, amino acids, carbon dioxide, hormones, and waste substances. CHD is caused by fatty deposits in coronary arteries; lifestyle factors contribute to risk. Gas exchange in the alveoli depends on a large surface area, thin walls, and steep diffusion gradients. The lungs allow efficient gas exchange through diffusion. Plants transport water and minerals via xylem and sugars via phloem through transpiration and translocation.	Communicable diseases are caused by pathogens such as bacteria, viruses, fungi and protists. Different pathogens cause different types of disease and spread through air, water, vectors and direct contact. Bacterial diseases may be treated with antibiotics, but viral diseases cannot be. Overuse or misuse of antibiotics can lead to the development of resistant strains. Plant diseases such as tobacco mosaic virus and rose black spot reduce crop yield and show characteristic symptoms. Plants have physical, chemical and mechanical defence systems against pathogens.	Non-communicable diseases (e.g., CHD, cancer, type 2 diabetes) are not infectious and are influenced by lifestyle factors. Risk factors such as diet, smoking, alcohol and lack of exercise can significantly increase disease likelihood. Lifestyle, environment and genetics can all contribute to non-communicable disease prevalence. Non-communicable diseases place a major financial and social burden on health systems globally.	The cell cycle consists of growth, DNA replication and mitosis. Mitosis produces two genetically identical daughter cells for growth and repair. Uncontrolled cell division can lead to cancer. Cell differentiation enables the formation of specialised cells. Stem cells (embryonic and adult) can differentiate into various cell types. There are ethical, medical and scientific considerations around stem cell use.	Effective revision involves retrieval practice, spaced learning, and interleaving topics. Command words (describe, explain, evaluate, compare) determine the depth of response needed. Data interpretation is essential across Biology, including graphs, tables, and practical results. Required practical skills apply across all units and are assessed both directly and indirectly.

Students will know how to					
Test for carbohydrates, proteins, and lipids. Investigate enzyme activity using iodine and colour change.	Label and explain the circulatory system. Analyse data on lifestyle factors and health outcomes.	Describe different modes of pathogen transmission. Identify symptoms of key plant and human communicable diseases. Carry out antiseptic effectiveness investigations.	Analyse disease risk factor data and interpret correlations. Evaluate the impact of lifestyle choices on disease outcomes. Interpret health graphs relating to CHD, cancer and diabetes. Explain the steps of phagocytosis. Describe antibody production and antigen recognition. Explain how vaccination leads to immunity. Evaluate vaccination programmes and their role in herd immunity. Carry out antiseptic effectiveness practical.	Explain and sequence the stages of the cell cycle and mitosis. Evaluate the use of embryonic and adult stem cells.	Retrieval and application of knowledge across all AQA GCSE Biology topics. Exam technique, data analysis, extended response practice.
Vocabulary and the concepts they link to					
Tissue, organ, enzyme, substrate, active site, denature, coronary artery,	*diffusion gradient, alveoli, plasma, platelets.*	*Tissues, organ, enzyme, substrate, active site, denature, bile, villi*	*Coronary artery, diffusion gradient, alveoli, plasma, platelets, xylem, phloem*	*Mitosis, stem cell, differentiation, embryonic*	
Assessment					

	End-of-unit test; Required Practicals (Food Tests, Enzymes); heart structure extended answer.	Global health inequalities. Diversity of medical researchers contributing to cardiology.	Global impacts of outbreaks; contribution of Jenner, Pasteur, and modern scientists.	Global impacts of outbreaks; contribution of Jenner, Pasteur, and modern scientists.	End-of-unit test; extended writing on mitosis and transport.	Mock exams; targeted intervention based on misconceptions.
	Diversity & development of cultural capital					
	Cross-curricular opportunities and enrichment					
	Maths: rate of reaction graphs.	PE: fitness and cardiovascular health.	Geography: spread of disease. PSHE: vaccine confidence.	Geography: spread of disease. PSHE: vaccine confidence.		All subjects: Retrieval and revision strategies across curriculum. Maths: Data interpretation for graphs and tables. English: Extended writing and exam technique.

Year 11 Themes	Autumn term 1	Autumn term 2	Spring term 1	Spring term 2	Summer term 1	Summer term 2
	Students will know that					
Homeostasis **Inheritance** **Ecology** **Revision**	The nervous system allows rapid communication through electrical impulses. The endocrine system communicates more slowly using hormones released into the bloodstream. Reflex actions occur without conscious thought to protect the body. Blood glucose levels are controlled by insulin and glucagon produced in the pancreas. Body temperature is regulated by the thermoregulatory centre in the brain. Homeostasis maintains optimal internal conditions. Coordination involves receptors, effectors, and control centres. The nervous system uses electrical impulses; reflex actions prevent harm.	DNA structure enables it to store genetic information in the sequence of bases. Protein synthesis follows the sequence DNA → mRNA → ribosome → protein. Some genetic disorders are inherited through dominant or recessive alleles (e.g., polydactyly, cystic fibrosis). Genetic and environmental factors interact to produce variation. Fossils provide evidence for evolution, and extinction can result from rapid environmental change. DNA is a polymer forming a double helix. Genes code for proteins; alleles cause variation. Sexual reproduction leads to genetic variation; asexual reproduction does not. Mutations occur naturally and can affect phenotype. Genetic disorders can be inherited.	Stable ecosystems rely on the balance of feeding relationships, competition, and environmental conditions. Abiotic factors (temperature, moisture, pH, minerals) and biotic factors (predation, competition) influence distribution. Adaptations may be structural, behavioural, or functional, enabling organisms to survive in their environment. Decomposition is affected by temperature, oxygen, and water availability. Biodiversity is vital for stable ecosystems and is threatened by pollution, habitat destruction, and climate change. Ecosystems consist of interacting organisms and abiotic factors. Competition, adaptation, and interdependence maintain stability. Use of quadrats and transects helps study distribution. Decomposition and cycles (carbon, water) recycle matter. Human activities threaten biodiversity. Conservation strategies can protect ecosystems.		Effective revision involves retrieval practice, spaced learning, and interleaving topics. Command words (describe, explain, evaluate, compare) determine the depth of response needed. Data interpretation is essential across Biology, including graphs, tables, and practical results. Required practical skills apply across all units and are assessed both directly and indirectly. Systems in Biology are interconnected—for example, photosynthesis links to respiration, genetics to evolution, and homeostasis to health.	

	Hormones regulate processes including metabolism, reproduction, and blood glucose. Diabetes is caused by failure of blood glucose regulation.	Evolution occurs by natural selection. Selective breeding and genetic engineering have benefits and risks.		
	Students will know how to			
	Describe pathways of nervous responses. Investigate reaction times. Explain menstrual cycle and hormonal contraception. Compare type 1 and type 2 diabetes.	Model genetic crosses for monohybrid inheritance. Interpret Punnett squares and family trees. Explain natural selection and speciation. Evaluate GM crops and cloning.	Use field sampling techniques. Construct and interpret food webs and pyramids of biomass. Explain impacts of pollution, deforestation, and global warming. Evaluate conservation strategies.	Retrieval and application of knowledge across all AQA GCSE Biology topics. Exam technique, data analysis, extended response practice. Cross-unit links such as photosynthesis–respiration, DNA–evolution, homeostasis–health.
	Vocabulary and the concepts they link to			
	Stimulus, receptor, effector, relay neurone, synapse, insulin, glucagon, negative feedback.	*Chromosome, gene, allele, genotype, phenotype, heterozygous, homozygous, mutation, evolution, natural selection.*	***Biodiversity, interdependence, extremophile, decomposer, transect, quadrat, trophic level.***	Mock exams; targeted intervention based on misconceptions.
	Assessment			
	End-of-unit test; Required Practical (Reaction Time).	End-of-unit test; exam-style questions on genetics.	End-of-unit test; Required Practical (Sampling); extended writing on ecosystems.	
	Diversity & development of cultural capital			
	Global access to insulin and	Contributions from Darwin, Mendel, Franklin, and global geneticists.	Indigenous environmental knowledge and global conservation.	

	reproductive healthcare.			
	Cross-curricular opportunities and enrichment			
	PSHE: Contraception, lifestyle and diabetes education. PE: Hormones and athletic performance. Maths: Reaction time data analysis.	History: Darwin, Mendel, Franklin, discovery of DNA. Computing: Bioinformatics and genetic databases. PSHE: Ethics of genetic testing, IVF, GM crops. Maths: Probability, ratios in genetic crosses.	Geography: Ecosystems, climate change, sustainability. Citizenship: Conservation, environmental ethics. Maths: Sampling techniques, statistical analysis. Chemistry: Pollution, carbon cycle gases.	All subjects: Retrieval and revision strategies across curriculum. Maths: Data interpretation for graphs and tables. English: Extended writing and exam technique.