

KS4 Biology Curriculum Map

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Organising animals and plants/ Cell division	Communicable diseases / Human defences and vaccination	Non-communicable diseases / Bioenergetics - Photosynthesis	Bioenergetics – Respiration/Nervous system	Bioenergetics - photosynthesis	Bioenergetics - Respiration
Year 10	<p>Ecology Required Practicals RP9 – Field Investigations RP10 – Decay TRIPLE ONLY TRIPLE CLASSES – Ecology Trophic levels and biomass, Biomass transfers, Factors affecting food security, Making food production efficient and Sustainable food production.</p> <p>Organising plants and animals</p> <ul style="list-style-type: none"> - Blood - Blood vessels - The heart - Heart problems and solutions - Breathing and gas exchange - Tissues and organs in plants - Transport in plants - Evaporation and Transpiration - Factors affecting transpiration - Investigating stomatal distribution 	<p>Organisation and the digestive system</p> <ul style="list-style-type: none"> - Tissues and organs - Human digestive system - The chemistry of food - Required practical activity 4: Food tests - Catalysts and enzymes - Factors affecting enzyme action - Required practical activity 5: effect of pH on amylase - How the digestive system works - Making digestion efficient <p>Cell division</p> <ul style="list-style-type: none"> - Cell cycle - Mitosis - Cell differentiation - Stem cells 	<p>Communicable diseases</p> <ul style="list-style-type: none"> - Health and disease - Pathogens and disease - Growing bacteria - Preventing bacterial growth - Preventing infections - Viral diseases - Bacterial diseases - Diseases caused by fungi and protists - Human defence responses - Plant diseases – Triple - Plant defences – Triple <p>Human defences and vaccination</p> <ul style="list-style-type: none"> - Vaccination - Antibiotics and painkillers - discovering drugs - drug development - Making monoclonal antibodies – Triple - Uses of monoclonal antibodies - Triple 	<p>Human defences and vaccination</p> <ul style="list-style-type: none"> - Vaccination - Antibiotics and painkillers - discovering drugs - drug development - Making monoclonal antibodies – Triple - Uses of monoclonal antibodies - Triple <p>Non-communicable diseases</p> <ul style="list-style-type: none"> - non-communicable diseases - cancer - smoking and the risk of disease - diet, exercise and disease - alcohol and other carcinogens 	<p>Photosynthesis</p> <ul style="list-style-type: none"> - photosynthesis - factors affecting the rate of photosynthesis - RP 6 The effect of light intensity on the rate of photosynthesis - how plants use glucose - making the most of photosynthesis 	<p>Respiration</p> <ul style="list-style-type: none"> - aerobic respiration - respiration and exercise - anaerobic respiration - Liver and metabolism

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
	The human nervous system and hormonal coordination	Homeostasis in action and Reproduction	Variation and Evolution	Genetics and Evolution	Exam Preparation
	<p>The human nervous system</p> <ul style="list-style-type: none"> - Principles of homeostasis - The structure and function of the human nervous system - Reflex actions - RP 7 Reflexes - The brain – Triple - The eye – Triple - Problems with the eye – Triple <p>Hormonal coordination</p> <ul style="list-style-type: none"> - Principles of hormonal control - Control of blood glucose levels - Treating diabetes - The role of negative feedback (Higher) - Human reproduction - Hormones and the menstrual cycle (higher) - The artificial control of fertility - Infertility treatments - Plant hormones and responses - Using plant hormones 	<p>Homeostasis in Action TRIPLE</p> <ul style="list-style-type: none"> - Controlling body temperature - Removing waste products - The human kidney - Dialysis - Kidney transplants <p>Reproduction</p> <ul style="list-style-type: none"> - Reproduction - Cell division in sexual reproduction - The best of both worlds – triple - DNA and the genome - DNA structure and protein synthesis – Triple - Gene expression and mutation – Triple - Inheritance in action - Genetic crosses - Inherited disorders - Screening for genetic disorders 	<p>Variation and evolution</p> <ul style="list-style-type: none"> - Genetic engineering - Cloning – Triple - Ethics of genetic technology - Variation - Evolution by natural selection - Selective breeding 	<p>Genetics and evolution</p> <ul style="list-style-type: none"> - The history of genetics – triple - Theories of evolution – Triple - Accepting Darwin’s ideas – Triple - Evolution and speciation – Triple - Evidence for evolution - fossils and extinction - more about extinction - antibiotic resistant bacteria - classification - New systems of classification 	<p>Revision</p> <p>Week 1–2: Core Knowledge Review (Paper 1 Topics) Focus: Cell Biology, Organisation, Infection & Response, Bioenergetics.</p> <p>GCSEPod Pods:</p> <ul style="list-style-type: none"> • “Cell Structure & Transport” • “Enzymes & Digestion” • “Photosynthesis” • “Respiration & Energy” <p>Required Practicals: Microscopy, Enzyme activity.</p> <p>Past Paper Questions (Paper 1):</p> <ul style="list-style-type: none"> • <i>June 2019 P1 Q2:</i> Microscopy & magnification. • <i>Nov 2020 P1 Q5:</i> Enzyme practical and data analysis. • <i>June 2018 P1 Q6:</i> Photosynthesis limiting factors. <p>Homework/Independent Work:</p> <ul style="list-style-type: none"> • Watch 2–3 Pods each evening. • Make flashcards for definitions & equations. • Attempt short-answer past paper questions (mark with the mark scheme).

					<p>Week 3-4: Paper 2 Topics & Practicals Focus: Homeostasis, Inheritance & Variation, Ecology, Reproduction. GCSEPod Pods:</p> <ul style="list-style-type: none">● "Homeostasis & Negative Feedback"● "Genetic Inheritance Basics"● "Ecosystems & Biodiversity"● "Reaction Time Practical"● "Field Investigations in Ecology" <p>Required Practicals: Reaction time, Field investigations. Past Paper Questions (Paper 2):</p> <ul style="list-style-type: none">● <i>Nov 2021 P2 Q3:</i> Reaction time practical.● <i>June 2019 P2 Q6:</i> Genetic inheritance Punnett squares.● <i>Nov 2020 P2 Q7:</i> Biodiversity and conservation. <p>Homework/Independent Work:</p> <ul style="list-style-type: none">● Complete practice questions on inheritance (Punnett squares & family trees).● Create a summary mind map of ecosystems and biodiversity.● Re-watch Pods on practicals before attempting relevant exam questions.
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