

Separate Science Biology – Year 11 Curriculum

Content (Intent)	Links to prior learning	Skills and Assessment (Implementation)	Expected Learning Outcomes (Impact)
<p>Term 1</p> <p>Separate Science content from Cell Biology</p> <ul style="list-style-type: none"> • Binary fission • Culturing microorganisms • Required practical 2 <p>Separate Science content from Infection and Response</p> <ul style="list-style-type: none"> • Monoclonal antibodies • Plant diseases and defences <p>Homeostasis and Response</p> <ul style="list-style-type: none"> • Homeostasis • The nervous system • The brain and the eye • Controlling body temperature • The endocrine system • Controlling blood glucose • The kidneys • Puberty and the menstrual cycle • Controlling fertility 	<p>Year 7 Cells</p> <p>Year 9 Fundamental Biology</p> <p>Year 10 Cell Biology</p> <p>Year 10 Infection and response</p> <p>Year 7 Reproduction</p>	<p>Skills:</p> <p>Practical Skills – RP2 – Aseptic technique</p> <p>Maths skills – rearranging equations, calculating area, standard form, powers</p> <p>Literacy – 6 mark answers</p> <p>Assessment:</p> <p>End of topic test covering content from this topic and previous topics. Test includes multiple choice, structured, closed short answer, and open response questions</p>	<ul style="list-style-type: none"> • Describe how bacteria reproduce and the conditions required • Describe how to prepare an uncontaminated culture and calculate cross-sectional areas of colonies or clear areas around colonies using πr^2 and the number of bacteria in a population after a certain time if given the mean division time • Describe what monoclonal antibodies are, why they are useful and how they are produced and evaluate the advantages and disadvantages (inc side effects) • Describe some observable signs of plant disease, and how plant diseases can be identified and describe physical, chemical and mechanical defence responses of plants • Describe the workings of the nervous system and name its important components, and how information passes through the nervous system and what happens in a reflex action • Explain how features of the nervous system are adapted to their function, including a reflex arc (inc all types of neurone and the synapse), including the brain and the eye. • Describe how body temperature is monitored and controlled and how the body's responses act to raise or lower temperature • Describe the endocrine system, including the location of the pituitary, pancreas, thyroid, adrenal gland, ovary and testis and the role of hormones • Describe and explain the organs and processes involved in controlling blood glucose concentration, water content of the blood and body temperature and their importance

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			<ul style="list-style-type: none"> • Describe what happens at puberty in males and females, inc knowledge of reproductive hormones, the menstrual cycle and contraception (to include IVF).
<p>Term 2 Mock – paper 1 – 1hour 45</p> <p>Homeostasis and Response cont.</p> <ul style="list-style-type: none"> • Plant hormones <p>Inheritance, variation, evolution</p> <ul style="list-style-type: none"> • DNA and protein synthesis • Mutations • Reproduction and meiosis • X and Y chromosomes • Genetic diagrams • Inherited disorders • The work of Mendel 	<p>Year 8 Ecosystems processes</p> <p>Year 8 Adaptations and inheritance</p>	<p>Skills:</p> <p>Practical skills – RP8 plant tropisms</p> <p>Maths skills – probability, calculating percentages, ratios</p> <p>Literacy – 6 mark questions</p> <p>Assessment:</p> <p>Mock</p> <p>End of topic test covering content from this topic and previous topics. Test includes multiple choice, structured, closed short answer, and open response questions</p>	<ul style="list-style-type: none"> • Describe the action of plant hormones and their role in horticulture and agriculture. • Describe and explain the structure of DNA and its involvement in protein synthesis, including the role of mutations. • Describe the process of meiosis and its role in reproduction • Describe the role of X and Y chromosomes • Draw and interpret genetic diagrams, including probability. • Describe inherited disorders • Discuss the work of Mendel and its role in modern genetics,
<p>Term 3</p> <p>Inheritance, variation, evolution cont.</p> <ul style="list-style-type: none"> • Variation • Evolution • Selective breeding • Genetic engineering 	<p>Year 8 Adaptations and inheritance</p>	<p>Skills:</p> <p>Literacy – 6 mark questions</p> <p>Assessment:</p> <p>End of topic test covering content from</p>	<ul style="list-style-type: none"> • Explain the role of variation in evolution and speciation • Evaluate selective breeding, genetic engineering and cloning • Describe the formation of fossils and how they provide evidence for evolution • Explain how new species arise through speciation • Explain how bacteria can become resistant to antibiotics and its implications • Describe how organisms are classified

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<ul style="list-style-type: none"> • Cloning • Fossils • Speciation • Antibiotic resistance • Classification 		this topic and previous topics. Test includes multiple choice, structured, closed short answer, and open response questions	
<p>Term 4</p> <p>Ecology</p> <ul style="list-style-type: none"> • Decay • Investigating decay • Trophic levels • Pyramids of biomass • Biomass transfer • Food security and farming • Biotechnology 	Year 7 Ecosystem processes Year 9 Ecology	Skills: Practical Skills – RP10 Decay Maths skills – collecting, analysing and presenting data Literacy – 6 mark questions Assessment: End of topic test covering content from this topic and previous topics. Test includes multiple choice, structured, closed short answer, and open response questions	<ul style="list-style-type: none"> • Describe the process of decay and investigate the conditions that affect the rate of decay • Describe the different trophic levels and use numbers and names to represent them, construct pyramids of biomass accurately from data and explain what they represent • Explain how biomass is lost between trophic levels, including the consequences of this and calculate efficiency between trophic levels • Explain the term 'food security' and describe biological factors that threaten it • Describe how modern biotechnology is used in food production, including the fungus <i>Fusarium</i> as an example • Describe the uses of genetically modified organisms in insulin and food production
<p>Term 5</p> <p>Revision</p>	All GCSE topics	Skills: Practical Skills Maths skills Literacy Assessment:	To consolidate knowledge and understanding of the course content and exam skills.

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		Paper 2 mock - 1hour 45 C7-15	

Resources and/or activities to support learning

Type of resource	Where to find it	Why?
Textbook	Kerboodle: www.kerboodle.com	Use for research, to consolidate class work, complete summary questions
Revision notes and past paper questions by topic	Physics and Maths tutor https://www.physicsandmathstutor.com/biology-revision/gcse-aqa/ Save My Exams https://www.savemyexams.co.uk/gcse/biology/aqa/18/	It saves you time making your own revision notes. Answering questions allows you to apply what you have learned and identify gaps in your knowledge. Also has notes on the required practicals
PiXL KnowITs and GraspITs	Teams	KnowITs contain revision notes and fact recall questions to check your knowledge. GraspITs are exam-style questions that allow you to apply your knowledge
Revision videos/pods	Cognito on Youtube https://youtube.com/playlist?list=PLidqqIGKox7X5UFT-expKluR-i-N3Q1g GCSE pod www.gcsepod.com FreeScienceLessons.co.uk	Quick summaries of the content that you can watch/listen to if you are more of a visual/aural learner
Revision notes	CGP Combined Science revision guide (Higher and Foundation versions can be purchased from Amazon)	A good resource to go over the content, look up areas you are unsure about