

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Content</p> <p>Knowledge</p>	<p>Genetics and Evolution: Variation and Evolution</p> <ul style="list-style-type: none"> • Variation • Evolution by Natural Selection • Selective Breeding • Genetic Engineering • Cloning • Adult Cell Cloning • Ethics of genetic technologies <p>Chapter B14 Knowledge: Knowing what is meant by variation. Explaining Darwin's theory of Natural Selection. Explain what is meant by genetic engineering. Describe the process of cloning in plants and animals. List advantages and disadvantages for cloning and other genetic technologies.</p>	<p>a) Genetics and evolution:</p> <ul style="list-style-type: none"> • The history of genetics • Theories of evolution • Accepting Darwin's ideas • Evolution and speciation • Fossils and extinction • Antibiotic resistant bacteria • Classification • Systems of classification <p>Chapter B15 Knowledge: Recall the work of Watson and Crick and their discovery of the DNA molecule. Recall Darwin's theory of evolution by natural selection. Understand why Darwin's theory wasn't initially accepted by the scientific community and the general public. Describe Lamarck's theory. Explain how a new species is formed. Describe how fossils are formed and list the different types of fossils. Describe why the fossil record is incomplete. Explain how bacteria</p>	<p>a) Adaptations, interdependence, and competition:</p> <ul style="list-style-type: none"> • Competition in animals and plants • Adaptations in animals and plants <p>Chapter B16 Knowledge: Know what animals and plants compete for. List different adaptations plants and animals have and describe how these adaptations aid in their survival.</p> <p>b) Organising an ecosystem</p> <ul style="list-style-type: none"> • Food chains and webs • The decay cycle • The water cycle • The carbon cycle • Rate of decomposition <p>Chapter B17 Knowledge: Identify producers and consumers in food chains and webs. Show how energy travels through a food chain. Describe the decay, water, and carbon cycle and explain their</p>	<p>a) Biodiversity:</p> <ul style="list-style-type: none"> • The human population explosion • Land, water and air pollution • Deforestation and peat destruction • Maintaining biodiversity • Trophic levels and biomass • Biomass transfers • Factors affecting food security • Making food production efficient • Sustainable food production <p>Chapter B18 Knowledge: Explore how an increasing human population poses risk and uncertainty for the planet's natural resources. Describe the effects of different types of pollution. Recall food chains and see how energy changes as we move up the food chain. Describe how water and land pollution can disrupt food chains. Discuss how rising food trends can impact the</p>	<p>Revision for Paper 1 and Paper 2</p> <ul style="list-style-type: none"> • To focus on recapping key knowledge and re-address common misconceptions • Embed additional exam practice for each chapter • Focus on key aspects of required practicals • Walk-Talk-Mocks 	<p>Summer GCSE exams</p>

		<p>become resistant. Understand the importance of classifying organisms. Look into binomial systems of classification. Discuss scientific advancements in classifying organisms based on their biochemistry.</p> <p>b) Ecology: Adaptations, interdependence, and competition</p> <ul style="list-style-type: none"> • Communities • Organisms in their environment • Distribution and abundance <p>Chapter B16</p> <p>Knowledge: Describe what is meant by a stable community. Describe the difference between biotic and abiotic factors in the environment. Carry out an investigation into measuring the distribution and abundance of a species. Evaluate methods used to measure abundance and distribution.</p> <p>Required Practical:</p> <ul style="list-style-type: none"> • Measuring Distribution and Abundance using a quadrat and transect 	<p>importance. Describe optimal conditions for decay.</p> <p>Required Practical: Investigating the effect of temperature on the rate of decay of fresh milk by measuring pH change</p>	<p>future of food for some communities. Explain how we can make food production more efficient and sustainable.</p>		
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<p>Skills</p>	<ul style="list-style-type: none"> • Compare and contrast different methods of cloning. • Evaluate the use of genetic engineering 	<ul style="list-style-type: none"> • Quantitatively measure the distribution and abundance of organisms 	<ul style="list-style-type: none"> • Plan an investigation to measure rate of decay 	<ul style="list-style-type: none"> • Justify a point of view on global warming and its contributing factors (deforestation, pollution etc.) and how we as a society can maintain our biodiversity • Construct pyramids of biomass and number to scale based on data provided or calculated 	<ul style="list-style-type: none"> • Recalling important information • Exam Technique • Spacing • Interleaving • Elaboration 	<ul style="list-style-type: none"> •
<p>Key Questions</p>	<p>Who was Charles Darwin? Is cloning widely used in industry?</p>	<p>Why was Wallace, Darwin's biggest threat? Why did people initially oppose Darwin's theory? How can we measure the distribution and abundance of species in an area? How do new species arise?</p>	<p>What is adaptation and why is it so important? Why is the cycling of materials in nature so vital to life on Earth?</p>	<p>What is global warming and why does it matter? How can we make food production more efficient?</p>		
<p>Assessment</p>	<p>Diagnostic test on B14 ReACT tasks B14 End of Chapter Test</p>	<p>Diagnostic tests on B15 and ReACT tasks B15 End of Chapter Test Mock Exam Paper 1 and 2</p>	<p>Diagnostic tests on B16 and B17 ReACT tasks B16 and B17 End of Chapter Tests</p>	<p>Diagnostic test on B18 ReACT tasks B18 End of Chapter Test Mock Exam Paper 1 and 2</p>	<p>GSCE AQA Biology Exam Paper 1 and Paper 2</p>	

<p>Literacy/numeracy/ SMSC/Character</p>	<p>Key words: natural selection, evolution, cloning, genetic engineering, selective breeding</p>	<p>Key words: speciation, antibiotic resistance, evolution, community, distribution, abundance, fossils, bionomial</p> <p>Numeracy: calculating mean, calculating area</p>	<p>Key words: adaptation, surface area: volume, photosynthesis, respiration, combustion, precipitation, decomposer, scavenger, producer, consumer, predator, prey</p> <p>Numeracy: Interpreting data and graphs, calculating surface area:volume</p>	<p>Key words: biofuel, deforestation, peat, sustainability, mycoprotein, bioaccumulation, biomass</p> <p>Numeracy: % change, % increase or decrease, calculating mean, interpreting data in a table or graph, drawing a graph, drawing pyramids of biomass and number using a scale</p>		
<p>Enrichment opportunities and futures</p>	<p>Learn more about Dolly the Sheep and if you ever find yourself in Edinburgh visit her at the National Museum of Scotland- https://www.nms.ac.uk/explore-our-collections/stories/natural-world/dolly-the-sheep/</p> <p>WHO AM I? Exhibition at the Science Museum in South Kensington, London.</p> <p>See Darwin's original copy of <i>On the Origin of Species</i> at The Natural History Museum in South Kensington, London.</p> <p>See the archaeopteryx and learn about its importance in terms of evolution at The Natural History Museum in South Kensington, London.</p>					