

Biology – Year 11 Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Careers
	Coordination and Control	Inheritance		Ecology		
Year 11	<p>Homeostasis maintains optimal conditions for enzyme action and all cell functions.</p> <p>The human nervous system and endocrine system allow the body to respond to stimuli.</p> <p>The reflex arc allows reflex actions to be automatic and rapid.</p> <p>Hormones secreted from glands in the endocrine system causes ‘slower’ changes compared to the nervous system.</p> <p>Blood glucose and the menstrual cycle are regulated by hormones.</p> <p>Some contraceptives contain hormones to control aspects of fertility.</p> <p>SEPARATE SCIENCE:</p>	<p>Reproduction can be sexual or asexual.</p> <p>Sexual reproduction involves gametes which are produced by meiosis. Variation is introduced in this process.</p> <p>Gametes contain DNA in their nucleus – this is a molecule containing the code to produce and order amino acids into protein.</p> <p>Proteins give people characteristics inherited from their parents.</p> <p>Offspring inherit their biological sex from their parents as well as, in some circumstances, medical conditions such as cystic fibrosis from their parents.</p>	<p>Variation can be caused by genes and the environment.</p> <p>Sometimes variation can be caused by mutations in DNA.</p> <p>Mutations that cause variation over a long period of time can contribute to the process of ‘Natural Selection’ which can lead to the evolution of a species.</p> <p>Fossils and resistant bacteria provide evidence for evolution.</p> <p>Humans can also select genes to breed in a species and can use genetic engineering to insert specific genes into DNA to alter the characteristics of an organism.</p> <p>Variation in organisms (in both phenotype and in their DNA) allows biologists to classify them into groups</p>	<p>Abiotic and biotic factors affect communities living within ecosystems.</p> <p>Some organisms show adaptations that help them to compete and survive in their communities.</p> <p>Within an ecosystem, materials can cycle through the abiotic and biotic components, for example carbon and water.</p> <p>Biodiversity ensures the stability of an ecosystem and can be influenced by several factors including: waste management, land use, and deforestation.</p> <p>SEPARATE SCIENCE:</p> <p>Temperature, water and oxygen availability can affect the rate of decay of biological material.</p>	<p>Organisms within an ecosystem occupy different trophic levels.</p> <p>Biomass is transferred through the trophic levels of an ecosystem; this can be represented through a pyramid of biomass.</p> <p>High levels of carbon dioxide and methane can contribute towards Global Warming.</p> <p>Global warming has many biological consequences; these can be countered by measures that aim to maintain biodiversity. These include:</p> <ul style="list-style-type: none"> • Breeding programmes. • Regeneration of habitats. <p>Reducing deforestation.</p>	<p>Term 2: A career as an Embryologist.</p> <p>When studying inheritance and how a sperm cell fertilises an egg cell, students will look at how embryologists are involved in fertility treatment and reproductive research.</p>

<p>The brain controls complex behaviour and the different areas of the brain have different functions.</p> <p>The eye is a sense organ which contains receptors sensitive to light intensity and colour.</p> <p>Body temperature is also controlled by the brain.</p> <p>Plant Hormones can be used as weed killers and for promoting plant growth.</p>		<p>and to trace common ancestors for species.</p> <p>SEPARATE SCIENCE:</p> <p>Cloning is a technique performed through tissue culture, cuttings, embryo transfers and adult cell cloning.</p>		<p>Exam Preparation</p> <p>Extensive and explicit recall of knowledge to facilitate effective rehearsal of exam technique.</p> <p>Links between different sections of knowledge are embedded further.</p>	
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