

## Biology – Year 10 Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	Careers
	<b>Cells</b>	<b>Systems</b>		<b>Disease</b>	<b>Natural World</b>	<b>Coordination &amp; Control</b>	
<b>Year 10</b>	<p>Cells can be eukaryotic or prokaryotic.</p> <p>Some cellular features are shared between animal and plant cells; some cells have unique adaptations because they are specialised.</p> <p>Stem cells, however, are non-specialised and can become any type of cell found within an organism.</p> <p>We can use a microscope to examine cells and sub-cellular structures.</p> <p>Substances can move into and out of cells via the processes of diffusion, osmosis and active transport.</p> <p><b>SEPARATE SCIENCE:</b></p> <p>Unicellular microorganisms, such as bacteria can be cultured in aseptic conditions so that the</p>	<p>Organisms are organised to include cells, tissues, organs and organ systems.</p> <p>The Human Digestive System breaks down large insoluble molecules into smaller soluble molecules.</p> <p>Enzymes are produced to help with digestion. Enzymes can be affected by changes in temperature and pH.</p> <p>The heart contains atria and ventricles and pumps deoxygenated blood to the lungs and oxygenated blood to the body.</p> <p>Blood contains red blood cells, white blood cells, platelets and plasma and circulates the body through arteries, veins and capillaries.</p>	<p>Lifestyle factors can influence the prevalence of non-communicable diseases, including cancer.</p> <p>Plants also contain tissues, organs and organ systems. These play a vital role in the transport of substances around a plant and in gas exchange.</p>	<p>Vaccination can help to reduce the spread of a pathogen if used within a large proportion of the population.</p> <p>Antibiotics can be used to kill bacteria but not viruses. Some bacteria are becoming resistant to antibiotics.</p> <p><b>SEPARATE SCIENCE:</b></p> <p>Monoclonal antibodies from lymphocytes have numerous industrial uses.</p> <p>There are many ways to spot diseases in plants; some of which can affect plant growth.</p>	<p>Photosynthesis occurs in the chloroplasts of plant cells.</p> <p>The rate of this reaction can be affected by light intensity and carbon dioxide concentration.</p> <p>Respiration occurs in the mitochondria of living cells and transfers energy to the cell from glucose.</p> <p>During exercise, the body reacts to the increased demand for energy; the heart rate, breathing rate and breath volume increase.</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><b>SEPARATE SCIENCE:</b></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><b>Term 3: A career in Cardiology.</b></p> <p>When studying systems and evaluating the advantages and disadvantages of treating cardiovascular diseases by drugs, mechanical devices or transplant, students will look at how a cardiologist will treat patients.</p>
				<b>Disease</b>		<b>Coordination &amp; Control</b>	
			<p>Communicable diseases are infectious diseases caused by bacteria, viruses, protists and fungi.</p> <p>The human body can defend against these pathogens through non-specific defence systems and the immune system.</p> <p>The immune system includes white blood cells</p>		<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>		



	effect of antibiotics/antiseptics can be investigated.		which help to defend against pathogens.				
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