



Curriculum Map



Subject: Science - BIOLOGY

Year group: 10

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Content</p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p>Bio 1: Cell infrastructure and the use of microscopes. Prokaryotic and eukaryotic cells. How cells divide and specialise and the use of stem cells.</p>	<p>Bio 2: Osmosis – a special case of diffusion. How cells move substances against a concentration gradient. How certain organisms use organ systems to overcome large diffusion distances. How exchange surfaces are adapted to ensure cells obtain required nutrients. Transport and exchange systems of different organisms – fish and mammals. Functioning of enzymes – theory and specific enzymes involved in digestion.</p>	<p>Bio 3: Food tests The hearts and the blood vessels Blood</p>	<p>Bio 4: Non -communicable disease Aerobic and anaerobic respiration Response to exercise Metabolism</p>	<p>Bio 5: Plant tissues and organs Photosynthesis limiting factors of photosynthesis The uses of glucose</p>	<p>Bio 6 Communicable diseases Types of pathogen Treatment for diseases Development of medicines</p>
<p>Skills</p> <p><i>Procedural Knowledge – ‘Know How’</i></p>	<p>Lab techniques are used to grow microorganisms. How to test the efficacy of antibiotics, antiseptics and disinfectants.</p>	<p>Carry out investigations into the impact of different solutions on cells. How temperature, surface area and concentration affect the rate of diffusion</p>	<p>How to test for different food groups in food How the specialised cells work together in the circulatory system The role of the blood in the human body</p>	<p>How lifestyle choices can affect the health of a person. The WHO definition of health How to increase heart rate</p>	<p>How to investigate the effect of light and gravity on the growth of germinating seeds. What factors affect photosynthesis? The structure of a plant/leaf</p>	<p>How diseases are spread The pathogens that can cause disease How to reduce the spread of disease</p>
<p>Key Questions</p>	<p>What features do certain cells have in common? How do we and should we use stem cells?</p>	<p>What factors affect the rate of diffusion and osmosis? Why is diffusion, osmosis and active transport important for healthy cells?</p>	<p>What is a positive test for different macronutrients? How does the blood move through the heart? What are the components of the blood?</p>	<p>What factors reduce your chance of developing heart disease? How genetics play a role in the development of heart disease?</p>	<p>How does the structure of a leaf maximise photosynthesis? How are minerals and sugars transported through a plant? How glucose is used in plants to allow them to grow?</p>	<p>What is a pathogen? How are diseases spread from person to person? How can we reduce the spread of disease?</p>



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	How do organisms become more complex?	What is the role of enzymes in the body What factors affect the rate of an enzyme controlled reaction?	What is the difference between the different types of blood vessels? What is the function of the different blood vessels?	The interaction between lifestyle choices and genetics in the development of non-communicable diseases What does it mean to be healthy?		How have medicines been developed over time? What are the restrictions of medicines and how can we help the NHS to increase the effectiveness of antibiotics?
Assessment	Diagnostic assessment	Summative assessment	Diagnostic assessment	Summative assessment	Diagnostic assessment	PPE's
Literacy / Numeracy / SMSC / Character	Magnification calculations. How to make estimates of size.	How to calculate surface area to volume ratio.	How to interpret tables, charts and graphs.	Evaluating the impact of health choices on health Evaluating the term 'health'	Calculating mean averages, using these to determine repeatability. Estimating uncertainty [range over mean].	Evaluating the effectiveness of medication