



Key Learning Constructs to be developed over the academic year. – Core Knowledge	Scheme of Learning Autumn Term	Scheme of Learning Spring Term	Scheme of Learning Summer Term
<p>*Pathogens are microorganisms such as viruses and bacteria that cause infectious diseases in animals and plants. They depend on their host to provide the conditions and nutrients that they need to grow and reproduce. They frequently produce toxins that damage tissues and make us feel ill. This section will explore how we can avoid diseases by reducing contact with them, as well as how the body uses barriers against pathogens. Once inside the body our immune system is triggered which is usually strong enough to destroy the pathogen and prevent disease. When at risk from unusual or dangerous diseases our body’s natural system can be enhanced by the use of vaccination. Since the 1940s a range of antibiotics have been developed which have proved successful against a number of lethal diseases caused by bacteria. Unfortunately many groups of bacteria have now become resistant to these antibiotics. The race is now on to develop a new set of antibiotics</p> <p>*Plants harness the Sun’s energy in photosynthesis in order to make food. This process liberates oxygen which has built up over millions of years in the Earth’s atmosphere. Both animals and plants use this oxygen to oxidise food in a process called aerobic respiration which transfers the energy that the organism needs to perform its functions. Conversely, anaerobic respiration does not require oxygen to transfer energy. During vigorous exercise the human body is unable to supply the cells with sufficient oxygen and it switches to anaerobic respiration. This process will supply energy but also causes the build-up of lactic acid in muscles which causes fatigue.</p> <p>*Cells in the body can only survive within narrow physical and chemical limits. They require a constant temperature and pH as</p>	<p>Part 1 Infection and Response – Defence against disease</p> <p>Part 2 Plant Diseases and Defence</p>	<p>Part 3 Bioenergetics - Photosynthesis</p> <p>Part 4 Bioenergetics - Respiration and Response to Exercise</p>	<p>Part 5 Homeostasis and Response – The Nervous System and Temperature Regulation</p> <p>Part 6 The Endocrine System Plant Hormones</p>

<p>well as a constant supply of dissolved food and water. In order to do this the body requires control systems that constantly monitor and adjust the composition of the blood and tissues. These control systems include receptors which sense changes and effectors that bring about changes. *The nervous system brings about fast responses. The hormonal system usually brings about much slower changes. Hormonal coordination is particularly important in reproduction since it controls the menstrual cycle. An understanding of the role of hormones in reproduction has allowed scientists to develop not only contraceptive drugs but also drugs which can increase fertility.</p>			
<p>Hinterland Knowledge</p>	<p>Real examples of the APPLICATION of the content studied (eg Irish potato famine)</p>	<p>Real examples of the APPLICATION of the content studied (eg brewing/wine – making)</p>	<p>Real examples of the APPLICATION of the content studied (eg how drugs affect the nervous system)</p>
<p>Assessment: -Formative Techniques</p> <p>-Summative Pieces</p>	<p>Use of whiteboards, hinge questions, recall questions.</p>		
	<p>End of Topic Tests</p>	<p>End of Topic Tests</p>	<p>End of Topic Tests and End of Year Assessment</p>
<p>Key Vocabulary</p>	<p>Key scientific terminology appropriate to each topic studied</p>	<p>Key scientific terminology appropriate to each topic studied</p>	<p>Key scientific terminology appropriate to each topic studied</p>
<p>Key Skills</p>	<p>Working Scientifically, relevant mathematical techniques (percentages, mean, mode, median etc) Graph plotting skills. Understanding variables and anomalies and their causes and effects</p>	<p>Working Scientifically, relevant mathematical techniques (percentages, mean, mode, median etc) Graph plotting skills. Understanding variables and anomalies and their causes and effects</p>	<p>Working Scientifically, relevant mathematical techniques (percentages, mean, mode, median etc) Graph plotting skills. Understanding variables and anomalies and their causes and effects</p>
<p>Opportunities Outside the taught Curriculum.</p>	<p>Careers, STEAM enrichment activities, educational visits</p>	<p>Careers, STEAM enrichment activities, educational visits</p>	<p>Careers, STEAM enrichment activities, educational visits</p>