

# Biology Long Term Programme of Study Year 10 2021-2022

## Temperance Term

W/C	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	HALF TERM
Area of Study	<b>B4 – Bioenergetics</b>							
Core Learning	<b>B4 - Describe and explain the processes of respiration and photosynthesis</b> -State the word and symbol equations for photosynthesis. -MS Measure and calculate the rate of photosynthesis as well as extract and interpret graphs. -RP Investigate the effect of light intensity on the rate of photosynthesis -Describe the uses of glucose from photosynthesis. -Explain the processes of aerobic and anaerobic respiration, stating the equations. -Explain how the body responds to exercise.							
Opportunities Challenge	Explain the importance of sugars, amino acids, fatty acids and glycerol in the synthesis and breakdown of carbohydrates, proteins and lipids.							
Assessment	End of Topic Test							

W/C	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	CHRISTMAS
Area of Study	<b>B5 – Homeostasis and response</b>						
Core Learning	<b>B5 – Describe the structure and function of the nervous system and the hormonal system.</b> -Define 'homeostasis' -Explain the role of homeostasis in the control of blood glucose, body temperature and water levels. -Describe the structure and function of the nervous system -MS Extract and interpret data from graphs -RP 7 Investigate the effect of a factor on human reaction time. -Explain how the human endocrine system is controlled. -WS 1.3 Evaluate information around the relationship between obesity and diabetes. -Describe the role of hormones in human reproduction, including the menstrual cycle. -WS 1.3 Discuss why the issues regarding contraception cannot be answered by science alone						
Opportunities for Challenge	Explain the role of the reflex arc in reflex actions.						
Assessment	End of Topic Test						

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## Justice Term

W/C	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	HALF TERM
Area of Study	<b>B6 – Inheritance, variation and evolution</b>						
Core Learning	<p><b>Compare asexual and sexual reproduction, with relation to number of chromosomes and explain how favoured characteristics can be selectively bred.</b></p> <ul style="list-style-type: none"> <li>-Understand the differences between mitosis and meiosis.</li> <li>-WS 1.2 Model behaviour of chromosomes during meiosis.</li> <li>-Describe the structure of DNA</li> <li>-Describe the importance of the human genome</li> <li>-Draw genetic diagrams to show the possible genotype and phenotype of offspring</li> <li>-MS 1c, 3a use direct proportion and simple ratios to express outcomes of genetic crosses.</li> </ul>						
Opportunities for Challenge	Consider and debate the ethical considerations of screening for genetic disorders.						
Assessment	End of Topic Test						

W/C	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	EASTER
Area of Study	<b>B6 – Inheritance, variation and evolution</b>						
Core Learning	<p><b>Compare asexual and sexual reproduction, with relation to number of chromosomes and explain how favoured characteristics can be selectively bred.</b></p> <ul style="list-style-type: none"> <li>-Explain how Polydactyly and Cystic Fibrosis are caused.</li> <li>-WS 1.2 Use the theory of evolution by natural selection in an explanation</li> <li>-WS 1.3, 1.4. Explain the benefits and risks of selective breeding given appropriate information and consider the related ethical issues.</li> <li>-Describe the evidence for evolution.</li> <li>-Use information given to show understanding of the Linnaean system.</li> </ul>						
Opportunities for Challenge	Consider and debate the ethical considerations of cloning						
Assessment	End of Topic Test						

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## Courage Term

W/C	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	HALF TERM
Area of Study	<b>B7- Ecology</b>				<b>Revision</b>		
Core Learning	<b>B7 Describe how humans can affect biodiversity and consider the actions that improve sustainability.</b> -Describe different levels of organisation in an ecosystem and the importance of interdependence -MS Extract and interpret data from graphs and tables -Explain how abiotic and biotic factors can affect a community. -Explain how organisms are adapted to survive. -Draw and interpret food chains. -MS Understand the terms mean, mode and median -RP Measure the population size of a common species in a habitat and investigate the effect of a factor on the distribution of the species. -WS 1.2 Interpret and explain the processes in diagrams of the carbon cycle and the water cycle.						
Opportunities for Challenge	Explain how organisms are adapted to live in their natural environment, given appropriate information.						
Assessment	End of Topic Test						

W/C	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	SUMMER
Area of study	<b>Y10 Mock Exams</b>		<b>B7- Ecology</b>				
Core Learning			<b>Describe how humans can affect biodiversity and consider the actions that improve sustainability.</b> -Explain the effects of temperature, water and oxygen on the rate of decay -RP Investigate the effect of temperature on the rate of decay of fresh milk. -WS Explain how waste, deforestation and global warming have an impact on biodiversity. -Describe the differences between the trophic levels of organisms within an ecosystem and construct pyramids of numbers and biomass -WS 1.4 Interpret population and food statistics to evaluate food security. -WS 1.4 Evaluate the advantages and disadvantages of modern farming techniques.				

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<b>Opportunity for Challenge</b>		Explain how organisms are adapted to live in their natural environment, given appropriate information.	
<b>Assessment</b>		End of Topic Test	