Subject: Year 11 Biology
Year Overview

ST. MARY MAGDALENE C OF E SCHOOL
PENINSULA CAMPUS
Excellence through innovation, founded in faith since 1840

Key content – knowledge and skills	National Curriculum focus
In light of school closures during the summer term 2020, the following year 10 topics have been carried through into year 11. Work has been set via distance learning for these topics but will still need to be revisited. **<u>Ecology:</u>** The Sun is a source of energy that passes through ecosystems. Materials including carbon and water are continually recycled by the living world, being released through respiration of animals, plants and decomposing microorganisms and taken up by plants in photosynthesis. All species live in ecosystems composed of complex communities of animals and plants dependent on each other and that are adapted to particular conditions, both abiotic and biotic. These ecosystems provide essential services that support human life and continued development. The remainder of the year will be spent revisiting topics covered in year 9 and 10.	Planning experiments to test hypotheses on distribution. Plotting and drawing appropriate graphs selecting appropriate scales for the axes. Evaluating methods and identify possible improvements
Key assessment points	
End of unit assessment Mock exams	
Christian ethos	

British values
• Considering the environment • Understanding that science has a major effect on the quality of our lives. • Consider the benefits of scientific developments and the social responsibility involved

Subject: BIOLOGY (year 11)
Medium-term plan

Week	Month	Learning Intentions and/or Key Questions
Aut1-1	September	<u>Biology: Ecology Part 1</u> • I can link keywords to explain why a community is stable and important. • I can use evidence to write hypotheses about why populations have changed in a community. • I can explain why interdependence is important in maintaining a stable community. • I can describe in detail how to measure the pH and water content of soil. • I can analyse data in detail and draw appropriate conclusions. • I can discuss what factors determine the size of the quadrat used. • I can design independently an investigation based around a question or hypothesis. • I can evaluate in detail the use of sampling to estimate • population size. • I can evaluate a model of competition between organisms. • I can use the terms inter-specific and intra-specific competition and give examples of each. • I can suggest and explain how animals are adapted to compete for resources. • I can plan a method to investigate competition between cress seeds. • I can analyse data to explain the effects of overcrowding. • I can suggest the problems caused by plants that can easily outcompete others. • I can explain how an unfamiliar plant is adapted and give reasons for its adaptations. • I can link and explain rate of transpiration to leaf surface.
Aut1-2		
Aut1-3		
Aut1-4		
Aut1-5	October	
Aut1-6		
Aut1-7		

		• I can suggest and explain why a cactus would not survive in a cold climate. • I can explain in detail why all living things depend on producers. • I can evaluate in detail food chains/webs as models to show feeding relationships. • I can make predictions based on data of a predator prey relationship. • I can explain how detritivores increase the rate if decay using ideas about surface area.
		Half term holiday
Aut2-1	November	<u>Biology: Ecology Part 2</u>
Aut2-2		• I can explain how substances change as they decay.
Aut2-3		• I can comment on the limitations of a simple model of decay. • I can explain in detail why the concentration of carbon dioxide I the atmosphere is rising and why this is an issue.
Aut2-4		• I can explain the links between photosynthesis, respiration and combustion in the carbon cycle.
Aut2-5		• I can explain why factors speed up or slow down decay.
Aut2-6	December	• I can apply factors which affect the rate of decay to real life situations, e.g. compost making, preserving food. • I can calculate percentage change and rate of decay.
Aut2-7		• I can explain in detail why a high level of biodiversity is important to the stability of ecosystems. • I can explain why human population change differs from population change of other animals. • I can suggest and evaluate solutions to the problems caused by human population growth. • I can explain in detail how pollution affects biodiversity. • I can explain how pesticides in water can kill top predators in food chains. • I can consider a land or water-based pollution issue, stating opinions with reasoning. • I can use word and symbol equations to show how burning some fuels produces acidic gases. • I can explain what causes global dimming and smog and describe their effects. • I can analyse in detail data showing sulphur emissions over the last 3 years and suggest reasons for the trend. • I can explain in detail how deforestation and peat removal increase the amount of carbon dioxide in the air. • I can analyse data to describe a trend in deforestation rate and give an explanation. • I can explain the conflict between using peat to increase food production and the need to conserve peat bogs. • I can produce scale diagrams showing some of the contributors to the greenhouse effect. • I can explain in detail the causes and effects of rising carbon dioxide and methane levels in the atmosphere. • I can categorise environmental changes as due to seasonal changes, geographical changes, human interaction or a combination. • I can explain how people are attempting to reduce the problems caused by a change in distribution of organisms. • I can predict and explain how an environmental change will affect the distribution of an organism.

		• I can evaluate the conflicting pressures on maintaining biodiversity in some habitats. • I can link ideas to suggest why recycling can help protect habitats. • I can explain why pyramids of biomass are always pyramid shaped. • I can evaluate a method for collecting information about biomass. • I can calculate the percentage of biomass passed between trophic levels. • I can calculate the efficiency of energy transfers. • I can explain in detail the reasons why not all biomass is passed from one trophic level to the next. • I can link the reduction in biomass to energy transfers and evaluate a model used to represent this. • I can suggest and explain how events could affect food security. • I can consider if malnutrition is just a problem in developing countries. • I can present information clearly with supporting evidence. • I can use viewpoints from a range of people during a debate on farming. • I can explain in detail why, in terms of food production efficiency, it is a good idea to reduce meat in the diet or replace it with insects. • I can explain the negative impacts of fishing restrictions on communities. • I can compare and contrast the production of mycoprotein with intensive farming.
		Christmas holiday
Spr1-1	January	<u>Revision B1-4</u>
Spr1-2		
Spr1-3		
Spr1-4		
Spr1-5		
Spr1-6	February	
		Half term holiday
Spr2-1		<u>Revision B5-8</u>
Spr2-2		
Spr2-3	March	
Spr2-4		
Spr2-5		
Spr2-6		
	April	**Easter holiday**
Sum1-1		

Sum1-2		Prepare for Biology Paper 1
Sum1-3	May	
Sum1-4		
Sum1-5		
Sum1-6		
	June	**Half term holiday**
Sum2-1		
Sum2-2		
Sum2-3		
Sum2-4		
Sum2-5	July	
Sum2-6		
Sum2-7		