

Biology Long-Term Plan

Long-term planning (LTPs) - Planning how the key concepts, knowledge, skills identified in the Progression map will be delivered termly per year group
 Ensuring that end points & NC/spec are covered
 Identifying what assessments are planned and when
 Ensuring whole school intent priorities to be planned for

(Year 10 Biology)						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title:	B5 Communicable diseases	B4 Organising plants and animals / B6 Preventing and Treating Disease	B7 Non Communicable Disease / B8 Photosynthesis	B9 Respiration/ B16 Adaptations, independence and competition	B16 Adaptations, independence and competition/ B1,B2, B3, B4 revision	B17 Organising an ecosystem/ B18 Biodiversity and ecosystems
Unit length:	12 lessons	7/6 lessons	5/5 lessons	4 / 8 lessons	10 lessons	4 lessons / 9 lessons
Key concepts:	Pathogens and disease, growing bacteria, preventing bacterial growth, preventing infections, human defence responses, plant diseases and defences.	Vaccination, antibiotics and painkillers, drug discovery, monoclonal antibodies	Cancer, smoking, diet, alcohol. Increasing the rate of photosynthesis, how plants use glucose, improving crop yields, required practical.	Aerobic and anaerobic respiration, response to exercise, metabolism.	Communities, competition, distribution, adaptation.	Food chains, the carboy cycle, decay. Pollution, global warming, trophic levels, efficient farming.
Knowledge/ Skills:	Recall the concept of health and the different pathogens that can cause communicable disease, including bacteria, viruses, and protists, and how these can be spread between organisms – both animals and plants. Recall methods to prevent the spread of pathogens. Recall the symptoms and treatments of a range of different animal and plant diseases, and the different defence mechanisms of the human body and plants. Be able to grow bacteria in the	Explain the prevention of disease by vaccination, how the immune system works and what is meant by antigens and antibodies. Understand the concept of herd immunity and that memory cells remain in the body to provide long-term immunity. Explain the treatment of disease by drugs including painkillers and antibiotics, that antibiotics are drugs used to cure bacterial infections only. Recall the discovery of drugs in plants and microbes, including the	Recognise correlations between data sets and the need for evidence to secure a causal mechanism. Recall the general causes and treatment of cancer and the risks of diseases from smoking as well as the dangers of smoking whilst pregnant. Appreciate the connection between obesity and other diseases such as type 2 diabetes. Understand the effect of alcohol on the brain and	Describe the process of respiration and write the balanced symbol equation. Recall the response of humans to exercise, including changes in heart rate, breathing rate, and breakdown of glycogen be able to write the word equation for anaerobic respiration in animal muscles. . Recall that anaerobic respiration occurs in yeast cells and some plant cells and that fermentation is an	Recall the precise meaning of community, population, habitat, ecosystem, abiotic factor, and biotic factor. Understand the importance of communities including the interdependence of all the species present and recall the effects of abiotic and biotic factors on populations. Measured the distribution of organisms with quadrats and transects.	Recall the main feeding relationships within a community and understand how the numbers of predators and prey are inter-related. Understand how materials are recycled through the abiotic and biotic components of an ecosystem, and the importance of decay. List factors that affect decomposition and the rate of decay. Recall that anaerobic decay produces

	<p>laboratory using aseptic technique.</p>	<p>discovery of penicillin and outline the processes of clinical trials including double blind trials and using placebos. Recall the production and uses of monoclonal antibodies. Give examples of how monoclonal antibodies are used.</p>	<p>liver, and of drinking alcohol during pregnancy. Recall the word and symbol equation for photosynthesis. Recall the adaptations of leaves to achieve maximum efficiency and understand the concept of limiting factors. Describe the inverse square law as applied to light intensity. Recall glucose's use in respiration, and also how it can be assimilated into starch and cellulose and how glucose can be used to make lipids Explain the use of greenhouses and how the conditions can be monitored and manipulated to achieve the highest rate of photosynthesis.</p>	<p>economically important reaction</p> <p>List common metabolic reactions, recall the roles of lactic acid, urea formation, and the liver.</p>	<p>Give examples of the ways in which animals and plants are adapted to their environments. In studying animals in cold climates make the link to surface area to volume ratio.</p>	<p>methane gas in a biogas generator. Explain the reasons for and the effects of the human population explosion. understand the effect of different types of pollution including land, water, and air pollution.</p> <p>outline the processes of deforestation and peat destruction. understand what is meant by the greenhouse effect, global warming, and its predicted effects. distinguish greenhouse gases from those that cause acid rain.</p> <p>GCSE Biology higher-tier students have studied the impact of environmental change and should be able to recall how changes in the distribution of organisms can be evaluated.</p> <p>give examples of some of the actions being taken to stop the reduction in biodiversity. how biomass is transferred from one trophic level to the next, pyramids of biomass, and the efficiency of this energy transfer. outline ways of improving the efficiency of food production, discuss the ethics of factory farming, and understand the concept of sustainable food production with a focus on fisheries.</p>
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End points covered:	Deep understanding of Human health	Deep understanding of Cells and organisation Human Health	Deep understanding of Health and Photosynthesis. Accurately follow or write a method correctly using a range of apparatus Make accurate observations, take sufficient data to find an average and record data methodically in a table using the correct units	Respiration, Relationships in ecosystems. Make accurate observations, take sufficient data to find an average and record data methodically in a table using the correct units	Cells and organisation, Nutrition and digestion, Gas exchange systems, Health, relationships in ecosystems	Relationships in ecosystems
NC/Spec coverage:	4.2/4.3	4.2 / 4.3	4.3/ 4.4	4.4 / 4.7	4.7 / 4.1/4.2/4.3	4.7
Cross-curricular links:	Use ratios, fractions and percentages. Use a scatter diagram to identify a correlation between two variables	PE/Health and fitness	6.4 overlaps with 5.1 Atomic structure	4.7.1 overlaps with 5.9.3.1 Atmospheric; and Some overlap with physical geography	4.7.2/4.7.3 overlap with physical geography	Information from highway code such as stopping distances
Assessments:	EoU tests PRs MOCKs GCSE exams	EoU tests PRs MOCKs GCSE exams	EoU tests PRs MOCKs GCSE exams	EoU tests PRs MOCKs GCSE exams	EoU tests PRs MOCKs GCSE exams	EoU tests PRs MOCKs GCSE exams
Other school intent priorities						
New experiences – broadening horizons	Range of infectious diseases that you may come across in life/Ways in which the body can defend itself – including vaccines.	Lifestyles and it effect on the body	.	How plants make their food, and how we use that food to provide ourselves with energy. Aspire session on “what is sugar?”	How we interact with the environment around us and how to improve biodiversity and save the environment.	

				How the environment around us interacts with each other.	Aspire session on "climate change"	
Developing character – <i>Kind, Hard Working, Successful</i>						
Context specific need – diversity, inclusion; reading, literacy; mental health						
Curriculum Careers - Gatsby 4	Virologist, microbiologist, Immunologist, doctor	Doctor	Radiographer, doctor	Ecologist	Ecologist	Ecologist