Year 10 Biology Curriculum End Points and Key Vocabulary

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Unit of Work	Organisms - Organisation	Ecosystems - Bioenergetics		Ecology		Organisms - Infection and Response
Ethos links	**STEM** - explaining how the body works, how tech can be used to treat coronary heart disease	**STEM –** Understanding the human body		**STEM** – waste management, using farming techniques to improve food security, the role of biotechnology in meeting demands of the growing population. **Sust.** – maintaining biodiversity, materials cycling, food security, sustainable fishing		**STEM** – preventing disease, drug development
Knowledge	By the end of this unit students will know and understand: - How cells, tissues, organs and organ systems are arranged - The structure and function of the digestive system - What enzymes are, how they work and what they are used for, and factors affecting enzymes, including carbohydrases, amylase, proteases and lipases, the products of digestion and what they are used for - The role of bile in digestion - The structure of the heart and lungs, including adaptations - The three different types of blood vessel and how their structure relates to function - The composition of blood and the function and adaptation of each component - The causes of coronary heart disease and how this can be treated - Causes of ill health (communicable and non-communicable disease and lifestyle factors) and how different types of disease interact - Types of cancer and how lifestyle factors can affect risk - Plant tissues and how the structure is related to the function	By the end of this unit students will know and understand: - The photosynthetic reaction, both word and symbol - The factors affecting the rate of photosynthesis, and how these can be controlled to give maximum growth and maximum profit - How to measure the rate of photosynthesis - How plants use glucose - The equations for aerobic and anaerobic respiration, and the similarities and differences between them. Including the fermentation of yeast. - How the body responds to exercise in terms of heart rate, breathing rate and breath volume - How the body metabolises lactic acid (HT) - What is meant by metabolism, and the importance of sugars, amino acids, fatty acids and glycerol. -		By the end of this unit students will know and understand: - What an ecosystem is, and how organisms interact and compete - The biotic and abiotic factors that can affect a community in an ecosystem - How organisms are adapted to live in their habitat - The levels of organisation and how this relates to feeding relationships - How to measure the population size of a species in a habitat through sampling - How carbon and water are cycled through an ecosystem - How temperature, water and oxygen affect the rate of decay of biological material (triple only) - The impact of environmental changes on the distribution of species in an ecosystem - What is meant by biodiversity and why it is important - How waste is managed to reduce pollution - The effects of human population on land use, leading to deforestation and global warming - Strategies to maintain biodiversity - The trophic levels within an ecosystem, how biomass is transferred between trophic levels and pyramids of biomass (triple only) - Factors affecting food security and how farming techniques can make food production more efficient (triple only) - How we can fish sustainably - The role of biotechnology in meeting the demands of the growing population		By the end of this unit students will know and understand: - How diseases are caused and spread by viruses, bacteria, protists and fungi, and consequently how the spread can be reduced - The causes, symptoms, prevention and methods of spread of the viral diseases measles, HIV and tobacco mosaic virus - The causes, symptoms, prevention and methods of spread of the bacterial diseases salmonella and gonorrhoea. - The causes, symptoms, prevention and methods of spread of the fungal disease rose black spot - The causes, symptoms, prevention and methods of spread of the protist disease malaria. - Human defence systems such as skin, nose, trachea, bronchi, stomach, and how white blood cells help to defend against pathogens by phagocytosis, antibodies and antitoxins - The use of vaccination and antibiotics to prevent and treat disease, alongside painkillers which can treat symptoms of disease. - The stages of discovery and development of new drugs, from plants and microorganisms (digitalis, aspirin, penicillin) and synthesis in the pharma industry. - The production of monoclonal antibodies and how they are used (triple only, HT) - How to identify plant diseases and ion deficiencies (triple only) - Physical and chemical plant defence responses and mechanical adaptations. (triple only)

Key vocabulary				
	Enzyme Artery Vein Capillary Plasma Communicable Immune system Cancer Mesophyll Xylem Phloem Meristem Stomata	Photosynthesis Limiting Factor Respiration Aerobic Anaerobic Fermentation Metabolism	Community Ecosystem Abiotic Biotic Extremophile Decomposition Biodiversity Peat Trophic Decomposer Biomass Biotechnology Mycoprotein	Virus Bacteria Protist Fungi Pathogen Phagocytosis Antibiotic Antibodies Monoclonal Symptom