Progression Model – Year 11 Biology (Foundation Tier)

Module Title: Inheritance, variation and Evolution	**Module Title:** Ecology and Biodiversity	**Module Title:** Exam preparation and revision
Learning Intent for this module: Building upon what they learned in the Reproduction topic in Y7 students will study how sexual reproduction leads to variety. Building on knowledge from the genetics and evolution topic in Y8, students will explore how mutation can lead to new alleles of genes. They will explore how alleles of genes are inherited from two parents in different combinations leading to different characteristics. They will also learn how environmental selection pressures favour certain characteristics leading to evolution by natural selection. • Inheritance • Variation and Evolution	**Learning Intent for this module:** Building on their knowledge of bioenergetics from Y10 students will learn how materials such as carbon are recycled in ecosystems. They will learn how ecosystems are composed of complex communities of animals and plants dependent on each other and adapted to particular conditions. Students will explore the importance to all living organisms of biodiversity in ecosystems. They will also investigate how humans are threatening biodiversity as well as the natural systems that support it and actions that must be taken to ensure our future health and well-being. • Classification and evolution • Ecology	**Learning Intent for this Module:** Students will revisit topics covered throughout Y9-11 allowing them to recall and retrieve their knowledge. They will practice the application of their knowledge to exam questions allowing improvement of exam skills. Students will act upon feedback from Mock exams and formative assessments to allow targeting of specific knowledge gaps in order to enhance their revision and practice. • Exam preparation and revision of key topics
Key Content to be learned: Students will discover how the number of chromosomes are halved during meiosis and then combined with new genes from a sexual partner to produce unique offspring. They will learn that gene mutations occur continuously can affect the functioning of the animal or plant. They will discover that mutations can lead to a number of genetic disorders or death or can occasionally be beneficial leading to increased fitness in the individual. They will learn the importance of variation as the basis for natural selection allowing species to evolve. They will discuss how understanding these processes has allowed scientists to create new varieties of plants or animals first by selective breeding and more	**Key Content to be learned:** Students will learn how scientists classify organisms using a binomial system based on evolutionary relationships. They will learn how the Sun is a source of energy that passes through ecosystems. They will learn how materials including carbon and water are continually recycled by the living world, released through respiration of animals, plants and decomposing microorganisms and taken up by plants in photosynthesis. Students will learn that 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. They will learn how ecosystems provide essential services that support human life and continued	**Key Content to be learned:** Students will revisit cells, organisation, communicable diseases, bioenergetics, homeostasis, inheritance & evolution and ecology. They will act upon feedback from mock exams and formative assessments to allow targeting of specific knowledge gaps in order to enhance their revision and practice. They will complete practice exam questions allowing them to recall and retrieve their knowledge and improve exam technique by application of their knowledge.

recently by genetic engineering. They will also explore the potential benefits and controversy around the technique of genetic modification.	development. They will also learn that in order to continue to benefit from the services humans need to engage with the environment in a sustainable way. Students will explore how humans are threatening biodiversity as well as the natural systems that support it and consider some actions needed to ensure future health, prosperity and well-being.	
Prior knowledge: • The nucleus containing genetic information in the form of DNA which is found inside the nucleus is covered in the cell division topic in Y9 • Genetic information being inherited from two parents via sexual reproduction is covered in the reproduction topic in Y7 • Inheritance of genes resulting in variation which leads to evolution is introduced in the genetics and evolution topic in Y8	**Prior knowledge:** • Communities of organisms being interdependent and relying on each other for food and/or shelter is covered in the ecology topic in Y8 • Organisms being adapted to their environments and how human activities can have a negative effect on these environments is introduced in the ecology topic in Y8 • The issues of fossil fuel use and pollution are introduced in the energy topic in Y7 • The carbon cycle and climate change are introduced in the Y8 Earth and atmosphere topic.	**Prior knowledge:** • Topics covered throughout Y9-11 should be a base for students to recall information and apply it to exam questions • Feedback from Mock exams and formative assessment will allow targeting of specific knowledge gaps and improvement of exam skills
Key tasks for this module: • Genetic Disease and Prenatal testing • Mock exam 1	Key tasks for this module: • Fossils and evolution • Mock exam 2	Key tasks for this module: • Past Papers • GCSE Exams