

Biology Curriculum Overview – Year 11

Sequencing of topics	What knowledge will students develop? (Including key terminology)	What skills will students develop? (Including literacy & numeracy)	Assessment opportunities	Homework opportunities	Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross-curricular, Careers)	Curriculum links
Autumn Term 1						
Inheritance, variation and evolution	<ul style="list-style-type: none"> ○ Sexual and asexual reproduction ○ Meiosis ○ Advantages and disadvantages of sexual and asexual reproduction (biology only) ○ DNA and the genome ○ DNA structure (biology only) ○ Genetic inheritance ○ Inherited disorders ○ Sex determination ○ Classification of living organisms 	<ul style="list-style-type: none"> ○ Modelling behaviour of chromosomes during meiosis. ○ Appreciate that embryo screening and gene therapy may alleviate suffering but consider the ethical issues which arise. ○ Explain the structure of the DNA and why scientists think it's a double helix. ○ Classification based on physical and morphological characteristics. ○ Historical developments of our understanding of the causes and prevention of malaria. ○ Interpret a diagram of DNA structure but will not be required to reproduce it. ○ Modelling insertions and deletions in 	<ul style="list-style-type: none"> ○ AFL in lessons and homework ○ Mid Topic assessment QWC ○ End of topic test-summative assessment ○ Mock paper 1 and paper 2 	<ul style="list-style-type: none"> ○ Differentiated worksheets ○ Flipped Learning ○ Badger assessed tasks ○ Neeto/satchel quizzes ○ YouTube videos with questions ○ Exam Booklets 	<ul style="list-style-type: none"> ○ Grateful for the beauty in a cell and how it works ○ Loving and compassionate when we consider how scientific advancements can be used to help others with genetic disorders ○ Faith-filled and hopeful when seeing the complexity of the DNA ○ United in harmony when we consider the classification of living organisms ○ Discerning and joyful at the possibilities of science and medicine ○ Service and sacrifice when we recognise the scientific work that has been done before us 	<ul style="list-style-type: none"> KS1/2 <ul style="list-style-type: none"> ○ Healthy human development ○ Animal life cycles ○ Human development KS3 <ul style="list-style-type: none"> ○ Human reproduction ○ Inheritance KS4 <ul style="list-style-type: none"> ○ Cell division – mitosis ○ Stem cells KS5 <ul style="list-style-type: none"> ○ BTEC Human Biology Unit 1- Genetics ○ A level Biology- Topic 2 and Topic 3

		chromosomes to illustrate mutations.			<ul style="list-style-type: none"> ○ Call to Family, Community, and Participation ○ Care for God's Creation ○ Life and Dignity of the Human Person ○ Personal ○ Physical ○ Art ○ History ○ Geneticist ○ Biologist ○ Research Scientists ○ Genetic Councilor ○ Doctor ○ GP ○ Surgeon 	
--	--	--------------------------------------	--	--	---	--

Autumn Term 2

Inheritance, variation and evolution	<ul style="list-style-type: none"> ○ Variation ○ Evolution ○ Selective Breeding ○ Genetic engineering ○ Cloning (biology only) ○ Theory of evolution (biology only) ○ Speciation (biology only) ○ The understanding of genetics (biology only) ○ Evidence for evolution ○ Fossils ○ Extinction ○ Resistant bacteria 	<ul style="list-style-type: none"> ○ Use the theory of evolution by natural selection in an explanation. ○ Explain the benefits and risks of selective breeding given appropriate information and consider related ethical issues. ○ Interpret information about genetic engineering techniques and to 	<ul style="list-style-type: none"> ○ AFL in lessons and homework ○ Mid Topic assessment QWC ○ End of topic test-summative assessment ○ Mock paper 1 and paper 2 	<ul style="list-style-type: none"> ○ Differentiated worksheets ○ Flipped Learning ○ Badger assessed tasks ○ Neeto/satchel quizzes ○ YouTube videos with questions ○ Exam Booklets 	<ul style="list-style-type: none"> ○ Loving and compassionate when we consider how we are all varied ○ Dignity of the human person when considering genetic engineering ○ Faith-filled and hopeful when understanding the complexity of genetics ○ United in harmony when we consider the 	<p>KS1/2</p> <ul style="list-style-type: none"> ○ Classification ○ Evolution and fossils ○ Genetic variation ○ Adaptation and evolution <p>KS3</p> <ul style="list-style-type: none"> ○ Variation ○ Human reproduction ○ Evolution ○ Inheritance
--------------------------------------	---	---	---	---	---	--

		<p>make informed judgements about issues concerning cloning and genetic engineering, including GM crops.</p> <ul style="list-style-type: none"> Data is now available to support the theory of evolution. Extract and interpret information from charts, graphs and tables. Appreciate why the fossil record is incomplete. Understand how scientific methods and theories develop over time. Interpret evolutionary trees 			<p>impact of our NHS and the treatment they provide for MRSA</p> <ul style="list-style-type: none"> Care for God's Creation Life and Dignity of the Human Person Rights and Responsibilities Solidarity Social Moral RE Politics Sociology History Geography Geneticist Biologist Research Scientists Genetic Councilor Archaeologist Farmer 	<p>KS4</p> <ul style="list-style-type: none"> Generic engineering Cloning & selective breeding Fossil and evolution <p>KS5</p> <ul style="list-style-type: none"> A level Biology Topic 3 and Topic 4 BTEC Human Biology Unit 1 and Unit 3
Spring Term 1						
Ecology	<ul style="list-style-type: none"> Communities Abiotic factors Biotic factors Adaptations Levels of organisation How materials are cycled Decomposition (biology only) Impact of environmental change (biology only) (HT only) Biodiversity 	<ul style="list-style-type: none"> Recording first-hand observations of organisms Extract and interpret information from charts, graphs and tables. Interpret graphs used to model predator-prey cycles. Interpret and explain the processes in diagrams of the 	<ul style="list-style-type: none"> AFL in lessons and homework Mid Topic assessment QWC End of topic test-summative assessment Mock paper 1 and paper 2 	<ul style="list-style-type: none"> Differentiated worksheets Flipped Learning Badger assessed tasks Neeto/satchel quizzes YouTube videos with questions Exam Booklets 	<ul style="list-style-type: none"> Grateful for the beauty our ecosystem and how they work together Faith-filled and hopeful when seeing the biodiversity on earth Dignity of the human person when considering the impacts of climate change 	<p>KS1 and 2</p> <ul style="list-style-type: none"> Animal life cycles Plant life cycle <p>KS3</p> <ul style="list-style-type: none"> Variation Interdependence Plant reproduction Photosynthesis <p>KS4</p> <ul style="list-style-type: none"> Plant organisation

		<ul style="list-style-type: none"> carbon cycle, the water cycle. ○ Explain how waste, deforestation and global warming have an impact on biodiversity. ○ Understand the conflict between the need for cheap available compost to increase food production and the need to conserve peat bogs and peatlands as habitats for biodiversity and to reduce carbon dioxide emissions. 			<ul style="list-style-type: none"> ○ Loving and compassionate when we consider how important recycling is ○ Leading others in pursuit of justice when seeing organisms live in communities ○ Life and Dignity of the Human Person ○ Call to Family, Community ○ Care for God's Creation ○ Social ○ Moral ○ Spiritual ○ Sociology ○ Geography ○ Ecologist ○ Biologist ○ Research Scientists ○ Microbiologist ○ Geographer 	<ul style="list-style-type: none"> ○ Transpiration and translocation & stomata ○ Photosynthesis and limiting factors <p>KS5</p> <ul style="list-style-type: none"> ○ BTEC Applied Human Biology Unit 1 Unit 3 ○ A Level Biology Topic 4
--	--	---	--	--	--	---

Spring Term 2

Ecology	<ul style="list-style-type: none"> ○ Waste management ○ Land use ○ Deforestation ○ Global warming ○ Maintaining biodiversity ○ Trophic levels 	<ul style="list-style-type: none"> ○ Evaluate the environmental implications of deforestation. ○ Understand that the scientific consensus 	<ul style="list-style-type: none"> ○ AFL in lessons and homework ○ Mid Topic assessment QWC 	<ul style="list-style-type: none"> ○ Differentiated worksheets ○ Flipped Learning ○ Badger assessed tasks 	<ul style="list-style-type: none"> ○ United in harmony when we consider the impact of deforestation ○ Grateful for the farming techniques 	<p>KS1 and 2</p> <ul style="list-style-type: none"> ○ Plant life cycle ○ Genetic variation ○ Habitats ○ Food chains
---------	---	---	---	--	---	---

	<ul style="list-style-type: none"> ○ Pyramids of biomass ○ Transfer of biomass ○ Factors affecting food security ○ Farming techniques ○ Sustainable fisheries ○ Role of biotechnology 	<p>about global warming and climate change is based on systematic reviews of thousands of peer reviewed publications.</p> <ul style="list-style-type: none"> ○ Explain why evidence is uncertain or incomplete in a complex context ○ Evaluate given information about methods that can be used to tackle problems caused by human impacts on the environment. ○ Explain and evaluate the conflicting pressures on maintaining biodiversity given appropriate information. 	<ul style="list-style-type: none"> ○ End of topic test-summative assessment ○ Mock paper 1 and paper 2 	<ul style="list-style-type: none"> ○ Neeto/satchel quizzes ○ YouTube videos with questions ○ Exam Booklets 	<p>that allow us to feed the population</p> <ul style="list-style-type: none"> ○ Loving and compassionate when we consider the impact of global warming ○ Leading others in pursuit of justice when planning for food security and fisheries ○ Discerning and joyful at the possibilities the role of Biotechnology ○ Care for God's Creation ○ Life and Dignity of the Human Person ○ Solidarity ○ The Dignity of Work and the Rights of Workers ○ Social ○ Moral ○ Spiritual ○ Sociology ○ Geography ○ Ecologist ○ Biologist ○ Research Scientists ○ Microbiologist ○ Geographer ○ Fisherman ○ Farmer 	<p>KS3</p> <ul style="list-style-type: none"> ○ Interdependence ○ Plant reproduction ○ Photosynthesis <p>KS4</p> <ul style="list-style-type: none"> ○ Climate ○ Earth resources <p>KS5</p> <ul style="list-style-type: none"> ○ BTEC Human Biology Unit 3 ○ A level Biology Topic 4
--	---	---	--	---	---	--

Summer Term 1

Exam Revision
and
Preparation

Summer Term 2

Study Leave