



2020/21

CURRICULUM MAP

Science KS4 – Biology

Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Year 9	B1 - Cell Biology 1	B1 Cell Biology 2 Transport	B2 Organisation 1 Digestion	B2 Organisation 2 Heart and Heart Disease	B2 Organisation 3 Plant Organisation	B3 – Infection and Response 1 Communicable disease and Animal Response	B3 – Infection and Response 2 Drugs and Plant Disease
	<ul style="list-style-type: none"> •Plant and animal cells •Microscopy •Required practical 1: Use a light microscope to observe, draw and label a selection of plant and animal cells. •Cell specialisation and differentiation •Stem cells 	<ul style="list-style-type: none"> •Eukaryotic and Prokaryotic cells •Cell cycle and mitosis •Diffusion •Osmosis •Active transport •Required practical 3: Investigate the effect of salt or sugar solutions on plant tissue 	<ul style="list-style-type: none"> •Cells, tissues, organs and the digestive system •Required practical 4: Qualitative nutrient tests •Enzymes •Human digestive enzymes •Required practical 5: Investigate the effect of pH on amylase 	<ul style="list-style-type: none"> •Blood and blood vessels •Heart and circulatory system •Lungs and respiratory system •Coronary heart disease •Lifestyle, health, and non-communicable disease •Cancer 	<ul style="list-style-type: none"> •Leaf structure •Water transport in plants •Plant review 	<ul style="list-style-type: none"> •Communicable diseases •Pathogens – bacteria and viruses •Pathogens – fungi and protists •Human defence system – Immunity •Vaccinations •Monoclonal Antibodies 	<ul style="list-style-type: none"> •Antibiotics and painkillers •Drug discovery and development •Plant disease •Plant defences •Required practical 2: Investigate the effect of antiseptics or antibiotics on bacterial growth using agar plates and measuring zones on inhibition

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
Year 10	B4 – Bioenergetics 1 Photosynthesis	B4 – Bioenergetics 2 Respiration	B5 – Homeostasis and Response 1 Nervous system	B5 – Homeostasis and Response 2 Endocrine system	B5 – Homeostasis and Response 3 Reproduction and Plant Responses	B6 – Inheritance, variation and Evolution 1	B6 – Inheritance, variation and Evolution 2
	<ul style="list-style-type: none"> •Photosynthesis •Limiting factors •Required practical 6: Rate of photosynthesis •More limiting factors •Uses of glucose 	<ul style="list-style-type: none"> •Aerobic respiration •Anaerobic respiration •Effects of exercise •Metabolism 	<ul style="list-style-type: none"> •Homeostasis and the nervous system •Reflex actions •Required practical 7: Investigating reactions •Synapses •The brain •The eye •Control of body temperature – Negative feedback 	<ul style="list-style-type: none"> •The endocrine system •Control of blood glucose •Water and nitrogen balance •The Kidney •Kidney Failure •Thyroxine and adrenaline 	<ul style="list-style-type: none"> •Hormones and the menstrual cycle •Artificial control of fertility •Plant hormones •Use of plant hormones •Required practical 8: An investigation into the effect of light on plant shoots. 	<ul style="list-style-type: none"> •Variation •Classification •DNA and the genome •Sexual reproduction and meiosis •Inheritance •Genetic Disorders 	<ul style="list-style-type: none"> •Selective breeding •Evolution •Speciation •History of evolution •Evidence for evolution

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	Autumn 1	Autumn 2	Spring 1	Spring 2		
Year 11	B6 – Inheritance, variation and Evolution 3	Paper 1 Revision	B7 – Ecology 1	B7 – Ecology 2	Paper 2 Revision	Exam Preparation
	<ul style="list-style-type: none"> •Asexual reproduction •Cloning •Genetic engineering •Making proteins •Mutations 	Paper 1 Assessment Units B1- B4 October/ November	<ul style="list-style-type: none"> •Communities and ecosystems •Interdependence and Competition •Adaptations •Feeding relationships •Trophic levels and energy •Required practical 9 Measure the population size of a common species in a habitat. 	<ul style="list-style-type: none"> •Material cycling •Decomposition •Required practical 10: Investigate the effect of temperature on the rate of decay of fresh milk by measuring pH change. •Biodiversity 1: Human population and biodiversity •Biodiversity 2: Effects of Pollution •Food Security and Biotechnology 	Paper 2 Assessment Units B5 - B7 January / February	<ul style="list-style-type: none"> •Paper 1 B1-B4 (1.45) •Paper 2 B5-7 (1.45)

Supporting at home

Homework is set weekly on Educake to provide on going retrieval practice of key information. If you want to support further, our learning checklists can be found [here](#) and practice Q and A [here](#). Our curriculum is supported by [work booklets](#) that can be used in cases of absence and you can access the most relevant links to BBC bitesize and Oak Academy videos here.

BBC Bitesize	B1 – Cells Biology	B2 – Organisation	B3 - Disease and Response	B4 - Bioenergetics	B5 - Homeostasis and Response	B6 – Inheritance, Variation and Evolution	B7 - Ecology
Oak Academy	B1 – Cells Biology	B2 – Organisation	B3 - Disease and Response	B4 - Bioenergetics	B5 - Homeostasis and Response	B6 – Inheritance, Variation and Evolution	B7 - Ecology