

Year 7 ~ Curriculum Map for Biology

What are the intended aims for this year's curriculum? To be able to identify and explain the differences between plants and animals, including; cellular structure, obtaining nutrients, effect of drugs and reproduction. This will also include the explanation of how organisms interact in ecosystems along with how the role of reproduction leads to genetic variation.											
Term 1		Term 2		Term 3		Term 4		Term 5		Term 6	
Topic(s): Cells, tissues and organs	Aim of A&R	Topic(s): Reproduction	Aim of A&R	Topic(s): Microbes	Aim of A&R	Topic(s): Photosynthesis and changing environments	Aim of A&R	Topic(s): Ecosystems	Aim of A&R	Topic(s): Variation	Aim of EoY exam
'Big idea(s)' / fundamental concepts	What are the differences between plant and animal cells and why?	What are the differences between animal and plant reproduction?		How do antibiotics affect microbes		How did organisms change the environment		How is energy transferred from one organism to another		What makes us different?	
Knowledge to be learnt	Structure and function of plant and animal cells	Animal reproduction, male and female reproductive systems Plant reproduction Seed dispersal		Different microbes that can affect the body How drugs affect the body How antibiotics can be used to treat infections		The process of photosynthesis How earth's atmosphere has changed The dependence all life on earth has on photosynthesis Climate change		Food webs and chains Transfer of energy down a food chain/web How animals in an ecosystem interact Pyramids of Biomass		Genetic and environmental variation Structure of DNA and the discovery of the double helix	
Key vocabulary	Nucleus, cell membrane, cytoplasm, cell wall, chloroplasts, vacuole,	Egg, sperm, ovule, ovary, gametes		Bacteria, Virus, Fungi, Antigens, Antibiotics, Antibodies, White blood cells, drugs, protists		Photosynthesis, organisms, atmosphere, pollutants, climate change, ozone layer, global warming		Energy transfer, producer, consumer, predator, prey, ecosystems		Franklin, Watson and Crick, Genes, environment, variation, hereditary, continuous and discontinuous variation	
The role of reading and comprehension	Instructions on using a microscope	Reading of the process of fertilisation		Pupils could produce a flow diagram to show how microbes affect the body		Create a story board on how the earth's atmosphere has changed is a possible task to solidify student's knowledge		Interpreting information on energy transfer through a food web and using a pyramid of biomass to explain an ecosystem		Story Franklin, Watson and Crick and the discovery of the DNA double helix	
The role of independent extended writing	6-mark question Compare the structures of a plant and animal cell. Ensure you are using the following key words to support your answer; Cell membrane, nucleus, cell wall, vacuole, chloroplast and cytoplasm.	6-mark question Explain the effects lifestyle will have on the development of a human baby from fertilisation.		6-mark question Compare and contrast the structure and function of bacteria and virus cells		Students could develop their knowledge by creating a timeline of events on the changing and development of the earth's atmosphere		6-mark question Explain how energy is passed along a food chain and explain why food chain food chain will normally be more than 4 organisms		Students can develop their knowledge by writing a letter to Franklin outlining the importance her scientific discovery has today and what students now understand about themselves and your genetic characteristics.	
The role of maths/ numeracy	All students to calculate simple magnification of a microscope	N/A		Calculating how many bacteria will be present due to the rate of multiplication (doubles every 20 minutes)		Interpreting graphical information on the composition of gases in the atmosphere and comparing how these have changed over time - Percentage increase/decrease		Calculating percentage of energy transfer between stages of the food chain and drawing and interpreting a pyramid of biomass		Interpreting data on recording different types of variation on the class e.g eye colour and height	
Links to careers/aspirations	Pathologist Microbiologist Haematology	Family planning IVF research		Antibiotics research		Environmental scientist Researching climate change		Zoologist Marine biologist		Genetic disorders research (human genome project) Botany Ecology	
Core skills	To able to: Identify differences between plants and animal slides using a microscope	To be able to: identify key parts of development using the baby model		To be able to: Grow bacteria and explain the conditions required		To be able to: test for oxygen and carbon dioxide and explain how and why the levels have changed within the earth's atmosphere		To Be able to interpret food webs and food chains		To be able to identify the difference between environmental and genetic variation	
Dept. enrichment activities	n/a	n/a		n/a		n/a		n/a		n/a	
Home learning opportunities				Have a look at home cleaning products. What types of pathogens do each type of cleaning product claim to kill?		Research the effects of global warming. Make predictions on what you think the earth's atmosphere will be like in 100/200/1000 years!		Go to a wood/a park/the seafront / town centre. List all the types of organisms you can see. How do you think they interact in their different ecosystems (areas) can you build a food chain or even a food web?		British science museum – replica of Watson and Crick DNA model http://collection.sciencemuseum.org.uk/objects/co146426/replica-of-crick-and-watsons-1953-dna-double-helix-model-model-representation-templates-structures-structural-elements-molecular-biology-genetics	