

Year 8 Curriculum Map : Biology

	Autumn	Spring	Summer
Assessment Objectives	AO1 - Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures (40%) AO2 - Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures (40%) AO3 - Analyse information and ideas to: interpret and evaluate; make judgements and draw conclusions; develop and improve experimental procedures (20%)		
Unit Length	Topic: B4 Nutrition and Digestion (13 lessons)	Topic: B5 Bioenergetics (16 lessons)	B6 Genetics and Evolution (13 lessons)
Key Learning Outcomes	<u>Unit four-Nutrition and Digestion</u> 1. What is a nutrient? 2. How much energy is in food? 3. What is an unhealthy diet? Intentional monitoring 4. What are the effects of a poor diet? 5. What is the structure and function of the digestive system? 6. What is an enzyme? Intentional monitoring 7. What are digestive enzymes? 8. What are probiotic substances? 9. Progress assessment, feedback, reteach and DIRT. 10. How do we test food? 11. What is a drug? 12. What are the effects of alcohol and tobacco? 13. End of unit assessment, feedback reteach, DIRT.	<u>Unit five- Bioenergetics</u> 1. What is photosynthesis? 2. What is the structure of the leaf? 3. What minerals do plants need? 4. How do plants use glucose? 5. What is aerobic respiration? Intentional monitoring 6. What is anaerobic respiration? 7. How do aerobic and anaerobic respiration differ? 8. How do plants and algae affect carbon dioxide levels in the atmosphere? 9. Progress assessment, feedback, reteach and DIRT 10. What is chemosynthesis? 11. How does the structure and function of humans allow for gas exchange? 12. How does air move in and out of the lungs? 13. How are gas exchange systems affected by exercise? Intentional monitoring 14. What is normal respiratory rate is and what happens to the rate during and after exercise? 15. What is the effect of smoking and asthma on the respiratory system 16. End of unit assessment, feedback reteach, DIRT.	<u>Unit six- Genetics and Evolution</u> 1. What type of characteristics are inherited from parents in animals and plants? 2. What is DNA and how is it structured in our cells? 3. How can we extract DNA? What were the roles played by Watson, Crick, Wilkins and Franklin in the Intentional monitoring development of the DNA model? 4. What are the differences between different species? 5. How are different organisms adapted to their surroundings? 6. What is natural selection? 7. Progress assessment, feedback, reteach and DIRT. 8. What is extinction and how do species become extinct? Intentional monitoring 9. How can gene banks be used to preserve hereditary material? 10. End of unit assessment, feedback reteach, DIRT.
Prior knowledge	Year 3: Demonstrate that animals get their nutrition from other food sources Year 4: Is able to describe the function of basic parts of the digestive system Year 6: Understands the impact of diet, exercise, drugs and lifestyle choices on the body Year 7: Cells, tissues, organs and organ systems Year 7- The effect of smoking and alcohol on a developing foetus	Year 3: What plants need to grow Year 6: Circulatory system – Heart blood vessels and blood Year 7: Cell structure and the function of chloroplasts and mitochondria Diffusion Hierarchy of cells, tissues, organs Food webs and chains and the role of producers Gas pressure Organisation of the body	Year 6: Is beginning to understand how living things change over time. Demonstrates an understanding that fossils are a historical source of evidence for life on Earth. Demonstrates an understanding that living things produce offspring but that they are usually different to their parents. Is able to describe how animals/plants have adapted to their environment and how this may lead to evolution.

		Similarities and differences between animal and plant cells The functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts	Year 7: The variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation
CEIAG Specific careers links	Nutritionist Doctor Personal trainer Advertisement Hospitality and catering Nurse Chef	Physiotherapist Sports coach Athlete Personal trainer Botanist Farming and agriculture Doctor Nurse	Farming and agriculture Conservationist Geneticist Natural history Documentary/ film maker
RRSA	Article 24: Health and the Health services Article 28: Right to education Article 27: Adequate standard of living	Article 14: Freedom of thought, belief and religion Article 28: Right to education Article 29: Goals of education	Article 28: Right to education Article 29: Goals of education Article 32: Child Labour
Cross curricular links	Food technology- Nutrition and digestion Maths- Converting units, calculating calories, percentages Chemistry- catalysts	PE- Aerobic and anaerobic respiration PE- Heart rate and breathing rate Food technology- anaerobic respiration in yeast Geography- Carbon dioxide and the atmosphere Mathematics- Unit conversions, graph plotting, describing and analysing, heart rate and breathing rate, volumes, calculating mean averages.	History- Scientists and models throughout history. The extinction of organisms throughout history. Geography- How geological activity can lead to extinction. What organisms compete for in an environment- living and non-living factors. Maths: calculating mean averages, drawing graphs and tables PE: Strength/ speed
Useful websites/vi deos	https://www.bbc.co.uk/bitesize/guides/z9pv34j/revision/3	https://www.bbc.co.uk/bitesize/topics/zvrrd2p/articles/zn4sv9q https://www.bbc.co.uk/bitesize/topics/zvrrd2p/articles/zdqx2v4	https://www.bbc.co.uk/bitesize/topics/zpffr82 https://www.bbc.co.uk/bitesize/guides/zw9jq6f/revision/1
Wider Reading	https://www.storyjumper.com/book/index/22279578/My-Journey-Through-the-Digestive-System#page/8 https://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/effects_cig_smoking/index.htm	https://gaslab.com/blogs/articles/what-is-cryogenics#:~:text=Cryogenics%20is%20the%20production%20of,liquid%20to%20a%20solid%20state. DARTs: Fertiliser constituents Chemosynthesis: Open research reading opportunity Breathing: https://www.health.harvard.edu/staying-healthy/7-strategies-to-fight-winter-breathing-problems	https://www.bbc.co.uk/news/world-africa-50205190 https://www.bbc.co.uk/news/technology-48110894 https://www.sciencehistory.org/historical-profile/james-watson-francis-crick-maurice-wilkins-and-rosalind-franklin https://www.vice.com/en_us/article/ezp5da/this-is-why-ligers-mules-and-other-hybrid-animals-cant-reproduce https://www.nationalgeographic.com/science/prehistoric-world/dinosaur-extinction/ https://www.sciencenewsforstudents.org/article/explainer-what-gene-bank
Literacy Programme	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies 	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies 	<ul style="list-style-type: none"> • Decode it NOW • Guided practice/model answers • Sentence Starters • Writing strategies
Independent Learning Tasks	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice Questions.	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice Questions.	Mind-map revision homework Retrieval practice homework Knowledge Organiser practice Questions.