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| **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** | Unit four-Nutrition and Digestion   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. | Unit five- Bioenergetics   * 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. | Unit six- Genetics and Evolution   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  Similarities and differences between animal and plant cells  The functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts | 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.  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/videos** | <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** | * Decode it NOW * Guided practice/model answers * Sentence Starters * Writing strategies | * Decode it NOW * Guided practice/model answers * Sentence Starters * Writing strategies | * 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. |