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| **Year 9 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:** B7 – Cell Biology and Organisation 2 | **Topic:** B8 – Health and Disease. | **Topic:** B9 Ecology. |
| **Key Learning Outcomes** | 1. Prokaryotic and Eukaryotic cells
2. Calculating Magnification
3. Specialised cells
4. Cell transport
5. Circulatory system
6. Respiratory system
7. Enzymes and digestion
8. Progress assessment
9. Nervous system
10. Reflex actions
11. Endocrine system
12. Leaf organisation
13. Gas exchange in the leaf
14. Plant transport systems
15. End of Unit assessment.
16. Reteach and DIRT
 | 1. Health
2. Mental health
3. Mental health additional reading
4. Pathogens and communicable disease
5. Growing bacteria
6. Practical: growing bacteria
7. Culturing bacteria problem solver
8. Culturing bacteria problem solver DIRT
9. HIV treatments
10. Plant communicable diseases
11. Progress Assessment
12. Body defences
13. White blood cells
14. Vaccinations
15. Vaccinations DART
16. Non-communicable disease
17. Cancer
18. Cancer treatments
19. Recreational drugs
20. Inherited disease
21. Other health conditions
22. End of Unit assessment.
23. Reteach and DIRT
 | 1. Ecosystems
2. Habitats
3. Competition
4. Making an ecosystem
5. Ecosystem DART
6. Adaptations
7. Progress assessment
8. Discovering adaptations
9. Natural selection problem solver
10. Natural selection problem solver DIRT
11. Sampling
12. Sampling practical
13. Human impact
14. Improving human impact
15. End of Unit assessment.
16. Reteach and DIRT
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| **Prior knowledge** | Year 6  Transport of nutrients in blood Single celled organisms in living things   Year 7:  * Cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope
* The functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts
* The similarities and differences between plant and animal cells
* The role of diffusion in the movement of materials in and between cells
* The structural adaptations of some unicellular organisms
* The hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms
* Reproduction in humans and puberty

 Year 8: * The structure and functions of the gas exchange system in humans, including adaptations to function
* The mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume
* The dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere

  | Year 6  Single celled organisms in living things   Year 7:  * Unicellular organisms
* The effect of lifestyle on the developing foetus
* Barrier methods of contraception

 Year 8: * The structure and functions of the gas exchange system in humans, including adaptations to function
* The mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume
* The dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere
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Year 9 unit 1:  * Prokaryotic cells and the structure of bacteria
 | Year 3 Plant reproduction inc. Parts/functions Year 4 Constructing food chains and understanding predators and prey  Year 4 Describe the positive and negative impact of humans on the environment Year 7  What an ecosystem is and a basic understanding of interdependence Knowledge of how to use a quadrat and basic sampling techniques   |
| **CEIAG** **Specific careers links** | Scientific researchMedicineEngineering | Scientific researchMedicineEpidemiologistBioinformatics | Scientific researchEcologist |
| **RRSA** | Article 14: Freedom of thought, belief and religionArticle 24: Health and the Health servicesArticle 28: Right to educationArticle 29: Goals of educationArticle 27: Adequate standard of living | Article 14: Freedom of thought, belief and religionArticle 24: Health and the Health servicesArticle 28: Right to educationArticle 29: Goals of educationArticle 27: Adequate standard of living | Article 14: Freedom of thought, belief and religion Article 28: Right to educationArticle 29: Goals of educationArticle 27: Adequate standard of living  |
| **Cross curricular links** | Geography, Mathematics, Chemistry, Careers   | Geography, Mathematics, Chemistry, Careers  | Geography, Mathematics, Chemistry, Careers  |
| **Useful websites/videos** | <https://www.cnet.com/news/what-happens-to-the-unprotected-human-body-in-space/> - Pressure in space. <https://www.telegraph.co.uk/travel/cruises/news/inside-symphony-of-the-seas-worlds-largest-cruise-ship/> - Cruise ship<https://sciencing.com/can-oceans-pressure-crush-you-12458.html> - Pressure in the ocean | <https://www.scientificamerican.com/article/north-poles-largest-ever-ozone-hole-finally-closes/> - Largest ever ozone hole closes (UV radiation link) | [https://www.bbc.co.uk/bitesize /guides/zc9q7ty/revision/1](https://www.bbc.co.uk/bitesize%20/guides/zc9q7ty/revision/1) Particles BBC bitesize |
| **Wider Reading** | **Reading**:<https://spaceplace.nasa.gov/jupiter/en/> Pressure on Jupiter<https://news.softpedia.com/news/Why-Cheetah-is-the-Fastest-Land-Animal-69322.shtml> Spine of a Cheetah <https://www.nasaspaceflight.com/2020/05/virgin-orbit-first-orbital-launch-launcherone/> - Rocket launch<https://www.edgarsnyder.com/car-accident/cause-of-accident/cell-phone/cell-phone-statistics.html> - Car accident | ‘The Martian by Andy Wier. Astrophysics for people in a hurry. Neil Degrasse Tyson |  <https://www.livescience.com/58839-archimedes-principle.html> - The story of Archimedes and his irregular density theories  |
| **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
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| **Independent Learning Tasks** | Mind-map revision homeworkRetrieval practice homework Knowledge Organiser practice Questions. Selective reading activity. Points grid ILT. | Mind-map revision homeworkRetrieval practice homework Knowledge Organiser practice Questions.Selective reading activity. Points grid ILT. | Mind-map revision homeworkRetrieval practice homework Knowledge Organiser practice Questions.Selective reading activity. Points grid ILT. |