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| **Year 11 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:** B5 – Homeostasis and Response  | **Topic:** B6 – Inheritance and Variation | **Topic:** B7 – Ecology |
| **Key Learning Outcomes** | 1. Nervous system and homeostasis
2. Nervous system
3. Reflex actions
4. The brain
5. Required Practical: Reactions
6. The eye
7. Seeing in focus and eye defects
8. Endocrine system
9. Thermoregulation
10. Controlling blood sugars
11. The kidneys
12. Kidney conditions
13. Reproduction
14. Contraception and fertility treatments
15. Plant hormones
 | 1. Species and adaptations
2. Variation
3. Alleles, genotype and phenotype
4. DNA organisation
5. Genetic crosses
6. Mendel
7. Protein synthesis
8. Asexual reproduction
9. Selective breeding
10. Natural selection
11. Speciation
12. Evolution
13. Classification
14. Genetic engineering
15. Antibiotic resistance
 | 1. Ecology
2. Adaptations
3. The distributions of organisms
4. Biodiversity and waste management
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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 9:  * How are substances transported in and out of cells?
* What is meant by the term ‘good health’ (physical and mental health)?
* Communicable diseases. What pathogens are and how they can be spread between organisms.
* Non-communicable diseases including, CHD, COPD, cancer

Year 10:* Organisation principles
* The heart
* Blood and vessels
* The respiratory system
* Exchange surfaces
 | 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:  * What is the structure and functions of prokaryotic and eukaryotic cells?
* What is meant by the term ‘good health’ (physical and mental health)?
* Communicable diseases. What pathogens are and how they can be spread between organisms.
* Culturing bacteria
* Describe examples of communicable diseases in plants and animals
* Describe defences against communicable diseases
* Non-communicable diseases including, CHD, COPD, cancer

Year 10:* What is the structure and functions of prokaryotic and eukaryotic cells?
* How are substances transported in and out of cells?
* Communicable diseases. What pathogens are and how they can be spread between organisms.
* Culturing bacteria
* Describe examples of communicable diseases in plants and animals
* Describe defences against communicable diseases
* Non-communicable diseases including, CHD, COPD, cancer
 | 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  * Can you describe the relationships within a food web?
* What is the impact of bioaccumulation?
* Why are insects so important to food security?
* The importance of plant reproduction through insect pollination in human food security

Year 9* Describe the organisation of ecosystems and describe examples
* Describe a range of habitats of plants and animals
* Describe what plants and animals compete for
* How plants and animals are adapted to their habitat
* Carry out sampling techniques to assess how many organisms live in an environment
* Human impact on ecosystems
* Improving human impact on ecosystems
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| **CEIAG** **Specific careers links** | Scientific researchMedicineHormone therapy nurseFamily counsellor Fertility clinician | Scientific researchMedicineEpidemiologistBioinformaticsGeneticistFamily Genetics Counsellor | Scientific researchEcologistHydrologistAgricultural scientist |
| **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.savemyexams.co.uk/gcse/biology/aqa/18/revision-notes/5-homeostasis--response/5-1-the-human-nervous-system/5-1-1-structure--function/ | https://www.savemyexams.co.uk/gcse/biology/aqa/18/revision-notes/6-inheritance-variation--evolution/6-1-reproduction/6-1-1-sexual--asexual-reproduction/ | https://www.savemyexams.co.uk/gcse/biology/aqa/18/revision-notes/7-ecology/7-1-adaptations-interdependence--competition/7-1-1-communities/ |
| **Wider Reading** | https://www.bbc.co.uk/news/health-61527680 | https://www.sciencefocus.com/news/first-complete-human-genome-reveals-genetic-variants-disease/ | https://www.bbc.co.uk/news/science-environment-61563299 |
| **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. |