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| **Year 10 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:** B1 – Cell Biology | **Topic:** B2 – Organisation. | **Topic:** B3 – Infection and Response . | **Topic:** B4 – Bioenergetics |
| **Key Learning Outcomes** | 1. Cell structure 2. Required practical: Microscopy 3. Microscopes 4. Magnification 5. Stem cells 6. Specialised cells 7. Mitosis 8. Progress assessment 9. Progress assessment DIRT 10. Culturing microorganisms (TRIPLE) 11. Required practical: Culturing microorganisms 12. Diffusion 13. Surface area and Volume Calculations 14. Required Practical: Osmosis 15. End of Unit 16. End of Unit DIRT | 1. Organisation principles 2. Digestive system 3. Enzymes 4. Required practical: Food tests 5. Required practical: Enzyme and pH 6. The heart 7. Blood and vessels 8. Progress assessment 9. Progress assessment DIRT 10. CHD 11. The respiratory system 12. Exchange surfaces 13. Plant organisation 14. End of Unit 15. End of Unit DIRT | 1. Microorganisms and pathogens 2. Protecting the body 3. White blood cells 4. Monoclonal antibodies 5. Cancer 6. Development of drugs 7. New drugs 8. Progress assessment 9. Progress assessment DIRT 10. Required Practical: Antibiotics 11. Vaccination 12. Maria 13. Plant disease 14. End of Unit 15. End of Unit DIRT | 1. Respiration and metabolism 2. Photosynthesis 3. Starch testing 4. Progress assessment 5. Progress assessment DIRT 6. Limiting factors 7. Required practical: Limiting factors 8. End of Unit 9. End of Unit DIRT |
| **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   Year 9:     * What is the structure and functions of prokaryotic and eukaryotic cells? * What are adaptations of key specialised cells? * How are substances transported in and out of cells? * How is the digestive system adapted for the absorption of food? * How do enzymes support in the breakdown of food? * How is the circulatory system adapted for transporting substances around the body? | Year 2:   * Find out about and describe the basic needs of animals, including humans, for * Survival (water, food and air) *  describe the importance for humans of exercise, eating the right amounts of different * Types of food, and hygiene.   Year 4 :   * Describe the positive and negative impact of humans on the environment   Year 9:     * 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 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   Year 8   * Cell structure * Bioenergetics   Year 9   * What is the structure and functions of prokaryotic and eukaryotic cells? * What are adaptations of key specialised cells? * How are substances transported in and out of cells? * How is the digestive system adapted for the absorption of food? * How do enzymes support in the breakdown of food? * How is the circulatory system adapted for transporting substances around the body? |
| **CEIAG**  **Specific careers links** | Scientific research  Medicine  Engineering | Scientific research  Medicine  Dermatologist | Scientific research  Immunologist | Scientific research  Metabolic researcher |
| **RRSA** | Article 14: Freedom of thought, belief and religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of education  Article 27: Adequate standard of living | Article 14: Freedom of thought, belief and religion  Article 24: Health and the Health services  Article 28: Right to education  Article 29: Goals of 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 27: Adequate standard of living | Article 14: Freedom of thought, belief and religion  Article 28: Right to education  Article 29: Goals of education  Article 27: Adequate standard of living |
| **Cross curricular links** | Geography, Mathematics, Chemistry, Careers | Geography, Mathematics, Chemistry, Careers | Geography, Mathematics, Chemistry, Careers | Chemistry, Mathematics, Careers |
| **Useful websites/videos** | https://www.savemyexams.co.uk/gcse/biology/aqa/18/revision-notes/1-cell-biology/1-1-cell-structure/1-1-1-eukaryotes--prokaryotes/ | https://www.savemyexams.co.uk/gcse/biology/aqa/18/revision-notes/2-organisation/2-1-organisation-digestion/2-1-1-principles-of-organisation/ | https://www.savemyexams.co.uk/gcse/biology/aqa/18/revision-notes/4-bioenergetics/4-1-photosynthesis/4-1-1-photosynthetic-reaction/ | https://www.savemyexams.co.uk/gcse/biology/aqa/18/revision-notes/3-infection--response/3-1-communicable-diseases/3-1-1-communicable-infectious-diseases/ |
| **Wider Reading** | https://www.theverge.com/2022/5/26/23142769/tissue-engineering-growing-cells-mobile-robot-skeleton | https://www.bbc.co.uk/news/science-environment-61501577 | https://www.bbc.co.uk/news/uk-northern-ireland-61593051 | https://www.bbc.com/news/uk-england-cambridgeshire-61443073 |
| **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 | * 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.  Selective reading activity.  Points grid ILT. | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice Questions.  Selective reading activity.  Points grid ILT. | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice Questions.  Selective reading activity.  Points grid ILT. | Mind-map revision homework  Retrieval practice homework  Knowledge Organiser practice Questions.  Selective reading activity.  Points grid ILT. |