

Westbourne Academy Curriculum Planning Document

Subject: Science Year: 11



| Timescale | Autumn | | | |
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| Prior Learning (from KS2/3) | Y7 – Ecology & Classification Y8 – Earth & Atmosphere Y9 – Chemistry of the atmosphere Y10 - Bioenergetics | Y7 – Particles, Materials from the Earth Y8 – Earth & Atmosphere Y9 – Atomic structure and the periodic table, Structure & bonding | Y7 – Light & sound Y8 – Energy Y9 – Energy 1 Y10 – Energy 2 | |
| Unit Title | Ecology | Organic Chemistry and Chemical Analysis | Waves | Triple Science Only |
| Key knowledge (5-10 points) | <ol style="list-style-type: none"> 1. Communities and Competition 2. Biotic and Abiotic Factors 3. Adaptations 4. Organisation, Food Chains and Food Webs 5. Sampling Required Practical 6. Carbon and Water Cycle 7. Biodiversity and Maintaining Biodiversity 8. Waste Management 9. Land Use 10. Deforestation and Global Warming | <ol style="list-style-type: none"> 1. Crude Oil and Hydrocarbons 2. Fractional Distillation and Petrochemicals 3. Properties of Hydrocarbons 4. Cracking and Alkenes 5. Pure Substances and Formulations 6. Chromatography and Required Practical 7. Test for Hydrogen and Oxygen 8. Test for Carbon Dioxide and Chlorine | <ol style="list-style-type: none"> 1. Transverse and Longitudinal Waves 2. Wave Speed Calculations 3. Wave Speed Required Practical 4. Electromagnetic Spectrum 5. Properties of Electromagnetic Waves 1 and Required Practical 6. Properties of Electromagnetic Waves 2 7. Uses and Applications of Electromagnetic Waves | <ol style="list-style-type: none"> 1. Decomposition and Required Practical 2. Impact of Environmental Change (HIGHER) 3. Trophic Levels and Pyramids of Biomass 4. Transfer of Biomass 5. Factors Affecting Food Security and Biotechnology 6. Farming Techniques and Sustainable Fisheries 7. Structure and Formula of Alkenes 8. Reactions of Alkenes 9. Alcohols 10. Carboxylic Acids 11. Addition Polymerisation 12. Condensation Polymerisation (HIGHER) 13. Amino Acids (HIGHER) 14. DNA and Other Naturally occurring Polymers 15. Flame Tests 16. Metal Hydroxides 17. Identification of Halides |

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| | | | | 18. Identification of Carbonates and Sulfates 18. Identifying Ions Required Practical 19. Instrumental Methods and Flame Emission Spectroscopy 20. Reflection of Waves and Required Practical 21. Sound Waves (HIGHER) 22. Waves for Detection and Exploration (HIGHER) 23. Lenses 24. Visible Light 25. Black Body Radiation |
| Assessment (methods to assess) | Ecology low stakes assessment, Y11 term 1 assessment, Y11 PRE 2 | Organic chemistry low stakes assessment. Chemical analysis low stakes assessment, Y11 term 1 assessment, Y11 PRE 2 | Energy 2 low stakes assessment. Electricity 2 low stakes assessment, Y11 term 1 assessment, Y11 PRE 2 | Low stakes assessments and Y11 term 1 assessment, Y11 PRE 2 |
| Links to other units in KS3/4. | | | | |

| Timescale | Spring | | | |
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| Prior Learning (from KS2/3) | Y7 – Cells & Organisation, Reproduction Y8 – Biological systems and processes Y9 – Cell biology 1 & 2 Y10 – Homeostasis and response | Y7 – Materials from the Earth, Particles Y8 – Earth & Atmosphere, Matter Y9 – Energy 1 | Y7 – Forces, Electricity & magnetism Y8 – Forces in action Y9 – Electricity 1 Y10 – Electricity 2 | |
| Unit Title | Inheritance, Variation and Evolution | Using Resources | Magnetism and Electromagnetism | Triple Science Only |
| Key knowledge (5-10 points) | 1. Sexual and Asexual Reproduction 2. Meiosis 3. DNA 4. The Human Genome 5. Genetic Inheritance 6. Sex Determination 7. Inherited Disorders 8. Genetic Screening 9. Variation 10. Evolution 11. Selective Breeding 12. Genetic Engineering 13. Fossils 14. Extinction 15. Resistant Bacteria 16. Classification | 1. Renewable and Finite Resources 2. Potable Water and Desalination 3. Water Required Practical 4. Waste Water Treatment 5. Phytomining and Bioleaching (HIGHER) 6. Recycling and Life Cycle Assessment | 1. Magnets and Magnetic Fields 2. Electromagnetism 3. Fleming's Left-Hand Rule and Electric Motors (HIGHER) | 1. DNA Structure 2. Cloning 3. Theory of Evolution 4. Speciation 5. Understanding Genetics 6. Corrosion 7. Alloys 8. Ceramics, Polymers and Composites 9. The Haber Process 10. NPK Fertilisers 11. Loudspeakers (HIGHER) 12. Induced Potential and Generator Effect (HIGHER) 13. Microphones (HIGHER) 14. Transformers (HIGHER) 15. The Solar System 16. Life Cycle of a Star 17. Satellites 18. Red Shift |
| Assessment (methods to assess) | Inheritance, Variation and Evolution low stakes assessment, Y11 PRE 2 | Using resources low stakes assessment, Y11 PRE 2 | Magnetism and electromagnetism low stakes assessment, Y11 PRE 2 | Low stakes assessments, Y11 PRE 2 |
| Links to other units in KS3/4. | | | | |

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| Timescale | Summer |
| Unit Title | Revision |
| Assessment (methods to assess) | GCSE Exams |