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| **Year 9****Trilogy Combined Science** **2021-2022** | In year 9 you will learn: **Biology** - How scientists developed their understanding of cell structure and function, How organisms obtain energy from food and why it is important to study microorganisms; how substances move in, out and around organisms, why organ systems are required, their structure and function. How enzymes work; What factors affect our chances of having a non-communicable disease, how communicable diseases spread and how we can control the spread of disease. This build upon KS3 topics exploring cell structure and body organ systems. **Chemistry** - How models of the atom and the periodic table developed and how arrangement of electrons results in chemical reactivity; How atoms can combine to form compounds, what happens as substances change state and how particle arrangement and bonding affects properties. All further chemistry topics build upon these fundamental building blocks. **Physics** - You will learn about the structure of the atom and how the nucleus gives rise to radiation, radioactive decay and the uses and dangers of radiation. How particles are arranged, the properties that arise from the arrangement and the energy particles have. What the connection is between energy transfer and power; energy changes and temperature changes and look at how we can monitor the transfer of energy and examine the environmental impact of energy resources. What the connection is between energy transfer and power; energy changes and temperature changes and look at how we can monitor the transfer of energy and examine the environmental impact of energy resources.  This builds upon work on states of matter and types of energy and energy transfers covered in KS3. These topics deepen the knowledge of particle movement, behaviour and the energies involved in all particle activity. |

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| **Topic B1 CELL BIOLOGY** |
| Weekly Homework Tasks |  | Mid Topic Assessment |  |  |  | End of Topic B1 Test |
| **Key Knowledge concept** = cell structure and development**Attitudes and Skills TENSILE:**Numeracy, Independence**Numeracy** = size and number | Required Practical – Using light microscopes |  |  |  |  |
| **Topic C1 ATOMIC STRUCTURE AND PERIODIC TABLE** |
| Weekly Homework Tasks |  |  | Mid Topic Assessment |  |  |  |
| **Key Knowledge concept** = The outer electrons and how these determine reactions **Attitudes and Skills TENSILE:** Numeracy, Enquiry, Solving Problems**Numeracy** = Standard form |  |  |  |  |

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| **Topic P1 Energy**  | **Topic B3** |
|  | Mid Topic Assessment  |  |  |  | End of Topic P1 Test  | Weekly Hwk |
| **Key Knowledge Content =**Energy Transfers **Attitudes and Skills** **TENSILE:**Numeracy, **Numeracy** = significant figures and handling data  |  | Required Practical = Specific heat capacity  |  |  |  |
| **C1 continued** | **Topic C2 STRUCTURE, BONDING AND**  **PROPERTIES OF MATTER** |
| End of Topic C1 Test | Weekly Homework Tasks |  |  | Mid Topic Assessment |  |  |
|  | **Key Knowledge concept** = size of particles **Attitudes and Skills TENSILE:** Numeracy, Problem Solving, Expression**Numeracy** = 2D and 3D shapes |  |  |  |  |  |

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| 17 | 18 | 19 | 20 | 21 | **22** | 23 | 24 |
| **Topic B3 MOVING AND CHANGING MATERIALS** |  |  |  | National Science Week |
| Weekly Homework Tasks |  | Mid Topic Asessment |  |  |
| **Numeracy** = interpreting information**Key Knowledge concepts** = Transport systems, How molecules enter, exit and move around the body.**Attitudes and Skills TENSILE**: Numeracy, Literacy | Required practical – Osmosis | Required practical - Enzymes |  | Required practical – Food tests |  |
| **C2 Continued** | **Topic P4 ATOMIC STRUCTURE** |
|  |  | End of Topic C2 Test | Weekly Hwk |  |  | Mid Topic Asessmen |
|  |  |  | **Key Knowledge concept** = Developing ideas for the structure of the atom**Attitudes and Skills TENSILE:** Numeracy, Literacy, Enquiry**Numeracy** = Ratios and proportion |  |  |  |

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| 25 | 26 | 27 | **28** | 29 | 30 | 31 | 32 |
|  |  | **Topic B4 HEALTH MATTERS** |
|  |  | End of Topic B3 Test |  |  |  | Mid Topic Assessment |
|   |  |  | **Key knowledge concept** = Sampling data and how this informs health decisions**Attitudes and Skills TENSILE:** Numeracy, Literacy, Enquiry**Numeracy** = Risk factors |  |  |  |
| **P4 Cont** |  | **Topic P3 PARTICLE MODEL OF MATTER** |
|  | End of Topic P4 Test |  |  |  | Mid Topic Asessment |  | End of Topic P4 Test |
|  |  | **Key knowledge concept** = particle model and changes of state**Attitudes and Skills TENSILE:** Numeracy**,** Expression, Independence**Numeracy** = Graphing data |  | Required practical = Density |  |  |

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| **B4 Cont** | **Consolidation** of Yr 9 Content, Numeracy and Literacy skill Development |  |
|  |  |  | End of Topic B4 Test |
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| Required Practical Consolidation  |  |
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