# Macintosh HD 1:Users:d.burckitt:Google Drive:iMac Google Drive:Marketing Resources:FA Logo 2019 COLOUR (SMALL).pngFareham Academy – Science Overview – Year 8

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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Topic(s) | * Forces in action * The periodic table | * Energy in motion * Organ systems | * Electromagnets * Wave properties | * Earth * Reactions | * Genes | * Cellular chemical reactions |
| Topic Objectives | **Forces in action**  Calculate resultant forces, explore speed calculations, understand and interpret distance time graphs, explore pressure and hydraulics, link appropriate forces to buoyancy.  **The periodic table**  Explore the layout of the periodic table and how it is utilised by scientists in a range of scenarios. | **Energy in motion**  Link types of energy to work done, calculate moments on either side of a pivot, investigate the impact of using different types of levers and pulleys, understand the effect on internal energy when a substance changes state, investigate the different heat transfer methods and investigate the efficiency of different insulators.  **Organ systems**  Recognise the key organs in the respiratory system and the digestive system and describe the role of the main digestive enzymes. | **Electromagnets**  Investigate properties of permanent magnets and magnetism and link to understanding electromagnets.  **Wave properties**  Compare transverse waves and longitudinal waves and link to frequency and wavelength and explore properties of electromagnetic waves. | **Earth**  Learn the reactivity series and understand how it can be used to the extract metals from their ores, explain how fossil fuels are created and the issues associated with them, explore combustion, and understand the carbon cycle.  **Reactions**  Compare complete and incomplete combustion, understand thermal decomposition, distinguish between endothermic and exothermic reactions. | **Genes**  Identify and explain the adaptations of planets and animals to be able to live in different climates, understand the theory of evolution and apply Darwin’s theory to explain evolution of different species, understand how genes are involved in the inheritance of difference features. | **Cellular chemical reactions**  Write the symbol and word equations for Photosynthesis, understand where photosynthesis happens in a plant, label the cross section of a leaf structure and explain how cell specialisation helps the leaf photosynthesise, write the word and symbol equation for respiration and explain the purpose of respiration, compare aerobic and anaerobic respiration. |
| Acquired Knowledge/Skills | Using formula, number manipulation, graph work, HSW planning, using models reaffirm understanding. | Using formula, number manipulation, evaluate using data, HSW investigation. | Experimental techniques to enforce learning, HSW planning, linking properties to everyday scenarios. | Evaluation skills with link to climate change, HSW. | Use date to make predictions, use probability to predict outcomes. | HSW investigations, comparison of processes and make links to everyday processes. |
| Assessments | * Forces in action test * The periodic table test | * Energy in motion test * Organ systems tests | * Electromagnets test * Wave properties test | * Earth test * Reactions test | * Genes test | * Cellular chemical reactions test |