

Year 7		Year 8		Year 9	
<p>HT1:</p>	<p>HT2: Passport to Science</p> <p>This unit develops the maths and science skills linked to disciplinary knowledge. It links to KS2 by discussing terminology and building key themes e.g. methods.</p> <p>Cells, plants and human biology This unit covers cells, microscopes, organ systems, building blocks of life, puberty and pregnancy. As well as the practical skills needed to investigate these ideas. This develops on the ideas of MRS GREN and how we build to organisms as well as focusing on the development of humans until adulthood.</p>	<p>HT1: Diet, Digestion and the Nervous System</p> <p>This unit builds on Year 7 HT2 and includes diets, focusing on how they link to our body's needs. Pupils investigate how our digestive system works to ensure we can access the nutrients needed and how the nervous system reacts to stimuli to ensure we are safe and healthy. We continue to develop skills needed in both maths and science for disciplinary knowledge across all modules in the year.</p>	<p>HT2: Periodic Table and Chemical Reactions</p> <p>Further building on Year 7 HT3, we explore the development and use of the periodic table. Pupils investigate the reactions of the compounds and elements to further understand the ideas and skills in science. These link to the idea of rearranging atoms without losing or gaining any and build towards writing word and symbol equations.</p>	<p>HT1: Atoms and Elements</p> <p>This unit revisits the basics of the periodic table and looks at the differences between elements, atoms and compounds building on Year 7 HT3 and Year 8 HT2. We look at the structure of the atom and reactions of groups in the periodic table, linking the reactivity to their atomic structure and placement in the table. We continue to develop skills needed in both maths and science for disciplinary knowledge across all modules in the year.</p>	<p>HT2: Energy</p> <p>This unit introduces the 'new' concept of energy stores and pathways but builds upon knowledge gained in Year 7 HT4 about electricity as an energy. Pupils further expand their understanding of calculations and transfers.</p>
<p>HT3: Elements, Compounds and Separating Mixtures</p> <p>This unit develops the concept of elements, compounds, mixtures and how they differ and react, subsequently moving into how to use their properties to separate them using scientific techniques.</p>	<p>HT4: Electricity and Magnetism</p> <p>March - Science Week</p> <p>This unit covers all aspects of circuits and components. It links to technology when discussing circuits but also includes equations to help understand electricity and how it is used. The module moves onto magnetism including using electricity in magnets. We learn key skills around building different circuits and how they behave.</p>	<p>HT3: Sound and Light</p> <p>This unit teaches about how light and sound travel and behave, using the ideas behind the properties of waves and transfer of energy. We then explore how we use light and sound in our world.</p>	<p>HT4: Circulatory, Respiratory and Microbes</p> <p>March - Science week</p> <p>This unit further develops concepts introduced in Year 8 HT1. We cover how the circulatory and respiratory systems work, and how microbes enter and affect us. This links pupils' understanding of human body and how disease spreads and interacts with our body.</p>	<p>HT3: Plants and Ecosystems</p> <p>This unit introduces new content which links back to cells in Year 7. We cover photosynthesis as a concept linking to the uses and consequences on the environment. Pupils look into the uses both in the natural world and economically in a commercial sense.</p>	<p>HT4: Variation and Selection</p> <p>March - Science week</p> <p>Pupils further develop their understanding of concepts introduced in reproduction in Year 7 HT2. We begin to link key terms such as chromosome to the concept of inheritance and environmental factors including physical features and diseases to understand how species develop and survive in a changing world.</p>
<p>HT5: Forces and Motion</p> <p>This unit covers what a force is and how we use them, including calculations. Pupils relate the concepts to everyday life such as friction in cars and snow. We link the skills in maths to everyday situations to develop key concepts (such as gravity) from KS2 to a more in-depth understanding.</p> <p>End of Year exam</p>	<p>HT6: Acids and Alkalis</p> <p>Pupils look at acids and alkalis, defining them and how we use them. We develop the idea of everyday acids and alkalis, linking them to their uses moving on to laboratory examples and how they differ in terms of use and safety. We look at how and why we identify them to ensure safe and appropriate use.</p>	<p>HT5: Physical Changes</p> <p>This unit covers the states of matter developing the concepts to include the changes between them. Pupils make links between these changes and energy as well as understanding them in real-life contexts.</p> <p>End of Year exam</p>	<p>HT6: Earth Resources and Reactions of Metals</p> <p>This unit covers the development of the atmosphere and how it came to be as we know it today. Pupils develop an understanding of how natural and human activities have impacted our environment and solutions we can implement. We go on to explore how metals react with acids, water and other chemicals like oxygen.</p>	<p>HT5: Forces and Waves</p> <p>This unit links to Year 7 HT3, building on the idea of forces linking to the modules of sound and light introduced in Year 8 HT3. We add the topic of motors and the electromagnetic spectrum to take their understanding further.</p>	<p>HT6: Space</p> <p>This unit develops and builds on the idea of forces from Year 7 HT5 and KS2 seasons/day and night. Pupils explore the concept of space and gravity as well as the evolution and death of stars.</p> <p>The rock cycle develops from KS2 to look at different rock types and how they link together in a cycle of development.</p>

Notes

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Science

KS4 Trilogy GCSE

Year 10		Year 11	
<p>HT1: The Periodic Table, Cells and The Particle Model</p> <p>Pupils build on KS3 prior learning and begin to explore the building blocks of each discipline.</p>	<p>HT2: System Organisation, Energy</p> <p>Learning moves from the micro to macro scale in this unit as, in multicellular organisms, cells make tissues, which make organs, which make systems. The energy unit links with the particle model, providing a basis for chemistry units (bonding, energy changes), the biology unit (bioenergetics) and many physics units.</p>	<p>HT1: Quantitative Chemistry, Examination Preparation</p> <p>In this unit, pupils revisit and consolidate learning of quantitative chemistry. Pupils then revisit prior learning and undertake examination practice in readiness for the end of year examination, which covers all three disciplines of science.</p>	<p>HT2: Chemical Analysis, Waves, Homeostasis</p> <p>Pupils build upon a basic understanding of definitions and properties of atoms, compounds and mixtures. Further learning about waves develops understanding of physics and links to the unit on magnetism. Pupils also explore homeostasis, recapping understanding of cells and organisation, introducing a new organ system as the context to this learning.</p>
<p>HT3: Structure and Bonding, Energy Changes</p> <p>Pupils link concepts from atomic structure, the particle model and energy in this unit on structure and bonding, which will be built upon in the electricity and many other chemistry units. Pupils' learning about energy changes is largely practical, emphasising variables and how to conduct a scientific experiment - skills which can be applied to the rest of the RPs.</p> <p>We will study Infection and Response. This is timely as takes place in a half term when illness is rife. This boosts engagement. Also builds from cells à multicellular à unicellular</p>	<p>HT4: Electricity</p> <p>Pupils learn about electricity before moving on to explore chemical changes and focusing on electrolysis. Pupils' learning on chemical changes builds on knowledge of reactivity from work on atoms, as well as understanding of ionic compounds from the structure and bonding unit.</p>	<p>HT3: Using Resources, Inheritance and Selection, Chemistry of the Atmosphere</p> <p>Pupils apply learning of quantitative chemistry and chemical changes to consider our use of resources. Work on inheritance and selection builds from Paper 1 towards the study of ecology. Pupils explore the chemistry of the atmosphere, which links to resources, and to future study of ecology in biology.</p>	<p>HT4: Rates, Magnetism and Electromagnetism, Ecology</p> <p>This unit places strong focus on the language of the scientist and on required practicals. The difficult, abstract concepts of magnetism and electromagnetism are interleaved with more concrete concepts to maintain pupils' engagement. Pupils study ecology, (including RP), exploring the world in which we live and how every organism interlinks.</p>
<p>HT5: Atomic Structure and Radiation, Bioenergetics</p> <p>Interleaving of prior learning consolidates pupils' knowledge of the structure of the atom, an abstract concept pupils can find difficult. Pupils then build upon knowledge of chemical and energy changes to learn about equations and exo/endothemic reactions. Pupils also extend learning from cells to develop greater understanding of chloroplasts and mitochondria.</p>	<p>HT6: Quantitative Chemistry</p> <p>Conceptually, this is the most challenging maths learning within science. Pupils engage in it at this point to link effectively with their increasing mathematical knowledge and maturity. Learning links to atoms and compounds, and builds on the periodic table and chemical reactions. Pupils explore formula mass, mole equation and titration calculations.</p>	<p>HT5: Forces, Organic Chemistry, Space (Physics only)</p> <p>Pupils learn about forces. For single scientists, this is a large proportion of Physics Paper 2. In this unit, there is a clear emphasis on securing knowledge and recall. Work on organic chemistry recaps and builds upon learning from Year 10 and links to A Level. The study of space, for single scientists only, also builds upon earlier work on forces.</p>	<p>HT6: Examination Preparation</p> <p>Pupils engage in revisiting prior learning to secure and consolidate skills and knowledge, attempting practice papers to build confidence and fluency.</p>

Notes

Pupils taking the separate science route cover the same topics as the combined science pupils, with the addition of the physics unit 'Space' at the end of year 11. In all other units the separate science pupils study the topics in greater detail, as specified by AQA.