The Grange Academy Science curriculum map

Intent

This curriculum aims to ensure that all Future Academies students become scientifically literate who are able to recognise the importance of rational explanation, capable of scientific analysis and knowledgeable about the contribution that the sciences make to our theoretical and practical understanding of the world. It is designed so that foundational concepts are introduced at the outset and are carefully built upon over five years, ensuring students develop an increasingly sophisticated and specialised understanding of the separate sciences. As such, students benefit from a coherent and cumulative curriculum that enables them to grasp increasingly specialised concepts and to develop a rigorous understanding of scientific knowledge. There is a strong focus on retrieval practice and interleaving learning: each topic begins by explicitly returning to relevant prior learning and ends with an assessment and an interleaved test based on another topic. A practical skills assessment is placed at the end of the unit to enable students to connect their learning to a set of practical techniques and real-world applications. All too often, learning about science involves a series of disjointed lessons and unconnected information that is difficult to remember or fully understand. As such, a key principle of this curriculum is that the sciences can and should be taught through meaningful narratives that enable students to form long-term memories. This is seen through the explicit, planned-for links between relevant topics and an emphasis, where relevant, on the chronological development of scientific discoveries and theories, and of their cultural importance.

Implementation

	Autumn Term I	Autumn Term II	Spring Term I	Spring Term II	Summer Term I	Summer Term II
Year 7	Content Cells Particles	Content Particles Energy	Content Human Body Atoms	Content Forces Ecology	Content Ecology Acids & Alkalis AP Revision	Content AP AP Review Waves
Year 8	Content Health & Disease Metals	Content Metals Motion	Content Reproduction Non Metals	Content Non Metals Energy & Matter	Content Genetics & Inheritance Organic Chemistry AP Revision	Content Organic Chemistry AP AP Review Space
Year 9	Content	Content	Content	Content	Content	Content

	Cell Biology Electricity	Cell Biology Atomic Structure & Periodic Table Energy	Organisation Energy	Organisation Bonding, Structure & Properties of Matter Energy	Infection & Response Particle Model of Matter Energy Bonding, Structure & Properties of Matter	Quantitative Chemistry Infection & Response Particle Model of Matter
Year 10	Content Chemical Changes Atomic Structure Homeostasis	Content Chemical Changes Atomic Structure Homeostasis	Content Inheritance, Variation & Evolution Energy Changes Forces	Content Inheritance, Variation & Evolution Forces	Content Ecology The Rate and Extent of Chemical Change Organic Chemistry	Content Chemical Analysis The Rate and Extent of Chemical Change Organic Chemistry
Year 11	Content Cell Biology Atomic Structure & The Periodic Table Energy Organisation Bonding, Structure &	Content Infection & Response Quantitative Chemistry Particle Model of Matter Bioenergetics Energy Changes	Content Coordination & Response Organic Chemistry Chemical Analysis Forces	Content Ecology Magnetism & Electromagnetism The Rate & Extent of Chemical Change Genetics & Variation	Content Space Physics Exam Preparation	Content

	Properties of Matter Electricity	Atomic Structure Chemical Changes		Waves Chemistry of the Atmosphere Using Resources		