

Overview:

The Year 7 science course introduces all the key science themes students will cover in greater complexity in later years. We have distinct topics so students can clearly understand which area of science they are studying, with lessons within each topic developing knowledge, practical skills and analysis. Topics build in complexity so that students use previous learning to make sense of more challenging ideas. Our independent learning strategy allows students to rehearse retrieval of key knowledge points, as well as developing good revision techniques.

Careers in the Curriculum:

The topics covered will highlight links to careers in apprenticeships in biology, biomedical science (focusing on virology), orthopaedic nurse, minerals technologist and remote vehicle operatives.

Term	Topic	Assessment
Aut1	7 Matter <ul style="list-style-type: none"> • Particle model • Diffusion • Separation techniques, to include filtering, chromatography and distillation 7 Waves <ul style="list-style-type: none"> • Sound, to include amplitude, frequency and pitch • Light, to include reflection, refraction and the eye 	Aiming High 1 test in mid-November assessing all of the topics taught up to that point.
Aut2	7 Electromagnets <ul style="list-style-type: none"> • Circuits, to include series and parallel circuits • Potential difference • Resistance • Static charge 	
Spr1	7 Organisms <ul style="list-style-type: none"> • Bones, muscles and joints • Cells, tissues and organs. • Effects of smoking • Microscope, including making a slide 	Aiming High 2 test to assess the learning since the Aiming High 1 test - to take place in mid - March.
Spr2	7 Reactions <ul style="list-style-type: none"> • The reactivity series, to include displacement • Properties of metals and non-metals • Acid, bases and alkalis, to include the pH scale • Indicators 	
Sum1	7 Genes <ul style="list-style-type: none"> • Causes of variation, to include survival in changing environments. • Reproduction, to include growth of the fetus and IVF 7 Forces <ul style="list-style-type: none"> • Speed, to include distance-time graphs • Mass and weight, to include gravity 	Formative assessment in class through the use of show me boards and questioning.
Sum2	7 Earth <ul style="list-style-type: none"> • Earth structure • Rock types, to include weathering and erosion, and the rock cycle • Days and nights, to include the solar system and the universe 7 Ecosystems <ul style="list-style-type: none"> • Food chains and food webs • Flower structure, to include pollination and seed dispersal 	Formative assessment in class through the use of show me boards and questioning.



Overview:

Year 8 builds on the learning in Year 7. Topics have the same title as they did in Year 7 so it is clear that we are continuing to explore these topics in more breadth and depth. Ideas are slightly more complex in Year 8 with students being challenged to recall more detail and give longer explanations of how things are. Energy is taught entirely in Year 8 but this is the only brand new topic. Lessons continue to develop key knowledge, practical skills and scientific enquiry.

Careers in the Curriculum:

The topics covered will highlight links to careers in ecology, electronics design, engineering, solar farming, paleontology, marine biology and space science.

Term	Topic	Assessment
Aut1	8 Organisms <ul style="list-style-type: none"> • Respiratory system, including gas exchange and respiratory disorders • Digestive system, including balanced and unbalanced diets, and digestive disorders 8 Matter <ul style="list-style-type: none"> • The periodic table • Group 1 and Group 7 elements • Chemical formulae 	Aiming High 1 test at the end of October assessing all of the topics taught up to that point.
Aut2	8 Electromagnets <ul style="list-style-type: none"> • Magnets and magnetic fields • Electromagnets 8 Reactions <ul style="list-style-type: none"> • Combustion reactions • Thermal decomposition • Conservation of mass, to include exothermic and endothermic reactions 	
Spr1	8 Genes <ul style="list-style-type: none"> • Evolution and natural selection, to include extinctions • The importance of biodiversity • Inheritance, to include DNA, genetic and genetic modification 8 Waves <ul style="list-style-type: none"> • Types of waves, to include transverse and longitudinal waves • The electromagnetic spectrum 	Formative assessment in class through the use of show me boards and questioning.
Spr2	8 Earth <ul style="list-style-type: none"> • The greenhouse effect and global warming • The carbon cycle • Ores and mining, to include the extraction of metals and electrolysis • Recycling 	Formative assessment in class through the use of show me boards and questioning.
Sum1	8 Forces <ul style="list-style-type: none"> • Contact and non-contact forces, to include friction and drag. • Pressure in solids, liquids and gases 8 Ecosystems <ul style="list-style-type: none"> • Respiration to include fermentation • Photosynthesis 	Aiming High 3 test to assess the learning since the Aiming High 1 test - to take place in late April.
Sum2	Energy <ul style="list-style-type: none"> • Energy in food • Electricity generation • Energy stores and transfers • Levers and pulleys • Energy and temperature • Conduction, convection and radiation 	



Overview:

In Year 9 we build on the learning from Years 7 and 8 and begin teaching topics from our AQA trilogy GCSE course. These topics develop more complex ideas and students learn more complex practical skills which set them up for the further GCSE topics in Years 10 and 11. Year 9 is taught by two teachers with each teacher delivering different topics. We support learning with regular retrieval and independent learning tasks that develop long term memory and help students develop good revision techniques for future exams.

Careers in the Curriculum:

The topics covered will highlight links to careers in parasitology, science journalism, engineering, prosthetics, postdoctoral research, nanotoxicology.

Term	Topic	Assessment
Aut1	C1 - Atomic structure and the periodic table <ul style="list-style-type: none"> • Separation techniques • Elements and compounds • Atomic structure, isotopes and ions B1 - Cell biology <ul style="list-style-type: none"> • Eukaryotic and prokaryotic cells, to include microscopy • Diffusion, osmosis and active transport 	Aiming High 1 test in mid-October assessing all of the topics taught up to that point.
Aut2	C1 - Atomic structure and the periodic table <ul style="list-style-type: none"> • Conservation of mass • Group 1, group 7, group 0 and the transition metals P5 - Forces <ul style="list-style-type: none"> • Resultant forces • Weight and gravitational fields 	
Spr1	P1 - Energy <ul style="list-style-type: none"> • Energy store and conservation of energy Energy sources (water, wind, solar, geothermal, biofuels). P5 – Forces <ul style="list-style-type: none"> • Work done, to include Hooke's Law 	Formative assessment in class through the use of show me boards and questioning.
Spr2	C2 - Bonding, structure and properties of matter <ul style="list-style-type: none"> • Bonding, to include ionic, covalent and metallic bonds. • Types of molecules, to include simple, giant covalent, graphene and fullerene P3 - Particle model of matter <ul style="list-style-type: none"> • Change of state • Density • Internal energy 	Formative assessment in class through the use of show me boards and questioning.
Sum1	B2 - Organisation <ul style="list-style-type: none"> • Digestive system, to include food tests. • Enzymes P6 - Waves <ul style="list-style-type: none"> • Properties of waves • Electromagnetic spectrum 	Aiming high 3 test to assess the learning since the Aiming High 1 test - to take place in early May..
Sum2	B2 - Organisation <ul style="list-style-type: none"> • Blood and the heart • Breathing and gas exchange • Cancer P5 - Forces <ul style="list-style-type: none"> • Velocity time graphs • Acceleration 	