Science
Year 8 Curriculum Journey

St Michael's CE High School

Brief overview how the intended learning over the year	Pupils in year 8 continue to build upon the key scientific concepts they have completed in year 7. This is achieved through a sequenced curriculum delivered through the 10 big ideas of science which are developed further through to year 11.

	Trinity 2		Michaelmas 1		Michaelmas 2		Lent 1		Lent 2		Trinity 1
	June	July	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Topic/Big Question	Variation and Human Reproduction		Resistance and Current	Elements and Periodic Table	Earth Structure and Universe	Breathing and Digestion	Sound and Light		Types of Reaction	Contact Forces and Pressure	Photosynthesis and Respiration
Theme(s)	Genes		Electromagnetism	Matter		Organisms	Waves		Reactions	Forces	Ecosystems
Key Knowledge	• what variation is and the different causes • continuous and discontinuous variation • puberty and adolescence • reproductive systems • fertilisation and implantation • development of a foetus • the menstrual cycle		• electrical symbols • circuit diagrams • current and potential difference in series and parallel circuits • resistance in circuits	• elements, mixtures and compounds • making and naming compounds • arrangement of the periodic table and its development • properties of elements in groups 1, 7 and 0.	• structure of the earth • formation of sedimentary, igneous and metamorphic rocks • the rock cycle • the solar system and our place in the universe • phenomena of day, night, seasons • phases of the moon.	• structure and function of the breathing system • the processes of inhalation, exhalation • gas exchange • the effect of smoking drugs and alcohol • different nutrients needed for a balanced diet • how to identify nutrients in foods • structure and function of the digestive system • role of enzymes in digestion	• how sound waves are produced • properties of sound waves such as amplitude, wavelength, frequency and pitch • structure and function of the ear • how hearing can be affected • properties of light • reflection and refraction • the structure and function of the eye • why we see colours		• what happens to the particles during a chemical reaction • conservation of mass • products of combustion • thermal decomposition • exothermic and endothermic reactions • energy level diagrams	• describe contact forces such as friction, air resistance and water resistance • explain the causes of each force • give examples of where each force occurs • where the forces may be useful or not as well as methods to reduce them • explain moments • investigate the law of moments • pressure in gases, liquids and solids • describe how pressure can be changed • describe when this may be useful or not.	• aerobic and anaerobic respiration • effects of exercise of respiration • respiration in yeast • process of photosynthes • how to prove photosynthesis has occurred • measuring the rate of photosynthesis • adaptations of the plant for photosynthesis
Key Skills	Collect data and construct graphs. They should also use key vocabulary in explanations.		Use scientific models, diagrams and key vocabulary to explain scientific concepts. They should also collect data from an experiment, analyse and use it to draw scientific conclusions from their investigation.	Identify variables, collect and analyse data to allow them to draw suitable conclusions. Use scientific models and key vocabulary to explain scientific concepts. Explain how models and theories change over time with new evidence and the importance of peer review.	Use scientific models, diagrams and key vocabulary to explain key vocabulary. They should also explain how models and theories change over time with new evidence	Use scientific models and key vocabulary to explain scientific concepts. Collect data from an experiment, analyse and use it to draw scientific conclusions from their investigation.	Identify variables, collect and analyse data to allow them to draw suitable conclusions. Use scientific models, construct scientific diagrams and use key vocabulary to explain scientific concepts.		How to collect data and analyse it to allow them to draw suitable conclusions. Use scientific models and key vocabulary to explain scientific concepts.	How to identify variables in an investigation, collect data, analyse data and make conclusions. Use scientific models and key vocabulary to explain scientific concepts.	Identify variables in an investigation, collect data, analyse data and make conclusions. Link observations to key substantive knowledge.
Assessment	End of unit learning checkpoint. Extended answer on the menstrual cycle.		End of unit learning checkpoint. Extended answer on electrical circuits.	End of unit learning checkpoint. Extended answer on chemical reactions.	End of unit learning checkpoint. Extended answer on seasons.	End of unit learning checkpoint. Extended answer on gas exchange. Extended answer on digestion.	End of unit learning checkpoint. Extended answer on colour and filters.		End of unit learning checkpoint.	End of unit learning checkpoint.	End of unit learning checkpoint. Extended answer on effects of exercise.
Careers	Midwife		Electrician	Dentist	Astronomer Geologist Volcanologist	Dietician	Optometrist Sonographer Stage lighting Visual effects			Formula 1 engineer	Brewer Horticulturist
Personal and Spiritual Development	Spirituality - awe and wonder of creation Courageous advocacy - period poverty. Tolerance - differences during puberty Individual liberty - decision to have children or not Healthy living - effects of smoking and alcohol on foetal development		Spirituality - relationship with others about electricity generation in other parts of the world. Relationship with others during practical work Rule of law - health and safety during practical work	Relationship with others during practical work Rule of law - health and safety during practical work Citizenship - evaluate uses of the noble gases	Spirituality - Awe and wonder of the solar system and universe Relationship with God and creation Tolerance - different beliefs about the Universe's creation	Healthy living - importance of a balanced diet. Healthy living - risks of smoking and alcohol. Individual liberty - food choices	Spirituality - awe and wonder of how we see colours Relationship with others during practical work Rule of law - health and safety during practical work Healthy living - effects of sight and hearing damage		Spirituality - Awe of creation through chemical reactions Relationship with others during practical work Rule of law - health and safety during practical work	Relationship with others during practical work Rule of law - health and safety during practical work	Stewardship. Spirituality - Awe and wonder of nature. Relationship with environment and others Courageous advocacy - preventing deforestation (importance of trees and plants) Citizenship - responsibility of looking after the Earth
Any other key information (if relevant)	Builds on ideas from KS2			Builds on the particle model unit from year 7	Builds on ideas from KS2	Builds on ideas from movement and cells			Builds on the particle model unit from year 7 and elements unit from year 8	Builds on the speed and gravity unit from year 7	