



Year 9 Overview	aar 9 Overview				The year 9 science journey continues to follow the 10 big ideas of science. It will revisit and build on units that have been covered in years 7 and 8.						
		nity 2		elmas 1		elmas 2		nt 1		nt 2	Trinity 1
	June	July		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Topic/Big Question	Types of reactions	Earth's resources and	Photosynthesis and	Magnetism	Work, heating and cooling	Evolution and inheritance	Waves	Cell Biology - Structure	Energy	Cell biology - Transport	Energy
<b>T</b> heorem ( - )	Departieure	climate	respiration	Electronic en etiene	<b>F</b>	C	M	Atomic structure	Organisation - Health	Periodic table	Organisation - Tissues
Theme(s)	Reactions	Earth	Ecosystems	Electromagnetism	Energy	Genes	Waves	Organisms Matter	Energy Organisms	Organisms Matter	Energy Organisms
Key Knowledge	what happens to the	<ul> <li>impact of human activity</li> </ul>	aerobic and anaerobic	<ul> <li>properties of magnets,</li> </ul>	<ul> <li>simple machines</li> </ul>	the process of natural	key properties of waves	the structure of animal	different energy stores	movement of	amount of energy in
Key Kilowieuge	particles during a	on the atmosphere	respiration	magnetism	measuring	selection and how it leads	<ul> <li>how microphones and</li> </ul>	and plant cells	pathways between	substances in cells	kinetic stores,
	chemical reaction	<ul> <li>the importance of the</li> </ul>	<ul> <li>the effects of exercise of</li> </ul>		the work done	to evolution	loudspeakers use waves	<ul> <li>the function of cell</li> </ul>	stores	through diffusion, osmosis	
	<ul> <li>conservation of mass</li> </ul>	carbon cycle	respiration and respiration		<ul> <li>energy and temperature</li> </ul>	<ul> <li>extinction and methods</li> </ul>	<ul> <li>ultrasound</li> </ul>	organelles	<ul> <li>energy dissipation and</li> </ul>	and active transport.	elastic stores and thermal
	<ul> <li>the products of</li> </ul>	<ul> <li>the ways that we use</li> </ul>	in yeast	investigate how to	<ul> <li>the processes of</li> </ul>	to preserve biodiversity	<ul> <li>the electromagnetic</li> </ul>	<ul> <li>the differences between</li> </ul>	efficiency	<ul> <li>exchange surafces and</li> </ul>	stores
1	combustion and thermal		<ul> <li>the process of</li> </ul>	increase their strength	conduction convection	<ul> <li>the structure of DNA,</li> </ul>	spectrum	eukaryotic and prokaryotic	<ul> <li>energy resources and</li> </ul>	their adaptations	<ul> <li>work done, power and</li> </ul>
	decomposition	how we can reduce this to		and how this links to their	and radiation.	genetics, inheritance and	<ul> <li>the uses of the different</li> </ul>		how to prevent energy		how these link to energy.
( <u>(</u> )) H.	exothermic and	preserve them	how to prove	uses.		genetic modification.	waves in the spectrum		transfer in homes.		
	endothermic reactions and how to represent them in	materials and ceramics	photosynthesis has occurred				and what happens when waves interact with each	<ul> <li>specialised cells</li> <li>stem cells and their uses</li> </ul>		development of the     periodic table	
	energy level diagrams.		how to measure the rate				other.	<ul> <li>the process of mitosis.</li> </ul>		the properties of the	<ul> <li>the digestive system</li> </ul>
	chergy lever diagrams.		of photosynthesis and the						<ul> <li>levels of organisation in</li> </ul>	elements in groups 1, 7, 0	
			adaptations that enable					<ul> <li>representing reactions</li> </ul>	living organisms	and the transition metals.	diet
			the process to be efficient					through equations	<ul> <li>the components of</li> </ul>		<ul> <li>the role of enzymes in</li> </ul>
								<ul> <li>the structure of the</li> </ul>	blood		digestions
								atom	<ul> <li>the blood vessels</li> </ul>		<ul> <li>structure of plants</li> </ul>
								<ul> <li>electron arrangement</li> </ul>	<ul> <li>structure of the heart</li> </ul>		<ul> <li>the movement of</li> </ul>
								<ul><li>isotopes</li><li>the development of the</li></ul>	<ul> <li>heart diseases and treatments</li> </ul>		substances through transpiration and
								atomic model.	<ul> <li>types, causes and</li> </ul>		translocation.
									effects of cancer.		
Key Skills	How to collect data and	Use scientific	Identify variables in an	Identify variables in an	Identify variables,	Use scientific models	Recognise, interpret	Use scientific models,	Identify variables in an	Use scientific models,	Identify variables in an
Key Skills	analyse it to allow	vocabulary, models and		investigation, collect	collect and analyse	and key vocabulary to	and construct wave	diagrams and key	investigation, collect data	diagrams and key	investigation, collect data
	them to draw suitable	diagrams to explain	data, analyse data and	data, analyse data and	data to allow them to	explain scientific	diagrams and draw		and analyse data to make		and analyse data to make
	conclusions, use	scientific concepts,	make conclusions, link	make conclusions, use	draw suitable	concepts, explain how	conclusions from them,	scientific concepts,	a conclusion, make	scientific concepts,	a conclusion, make
	scientific models and	evaluate the impact of	observations to key	scientific models and	conclusions, use	models and theories	use scientific models	identify variables in an	repeatable	identify variables in an	repeatable
	key vocabulary to	human activities and	substantive knowledge.	key vocabulary to	scientific models and	change over time with	and key vocabulary to	investigation, collect data,		investigation, collect data,	measurements, use an
	explain scientific concepts.	discuss the methods that are being used to		explain scientific concepts.	key vocabulary to explain scientific	new evidence and the importance of peer	explain scientific concepts.	analyse data to draw conclusions, consider the	appropriate number of significant figures,	analyse data to draw conclusions, consider the	appropriate number of significant figures,
	concepts.	tackle these issues.		concepts.	concepts.	review.	concepts.	ethical arguments	calculate mean averages	ethical arguments	calculate mean averages
		tuckie these issues.			concepts.	Teview.		surrounding scientific	and use a range of	surrounding scientific	and use a range of
								developments.	mathematical techniques	developments.	mathematical techniques
									to enable them to answer		to enable them to answer
ක්ර								Identify variables in an	a scientific question. Use	Identify variables in an	a scientific question. Use
								investigation, collect data,		investigation, collect data,	SI units and to convert
Qfe								analyse data and make	measurements when	analyse data and make	measurements when
0-								conclusions, use scientific	necessary, use scientific models, diagrams and key	conclusions, use scientific models, diagrams and key	necessary, use scientific models, diagrams and key
								vocabulary to explain	vocabulary to explain	vocabulary to explain	vocabulary to explain
								scientific concepts and	scientific concepts and	scientific concepts and	scientific concepts and
								link observations to key	link observations to key	link observations to key	link observations to key
								substantive knowledge,	substantive knowledge.	substantive knowledge,	substantive knowledge.
								evaluate the advantages		evaluate the advantages	
								and disadvantages of	Identify variables in an	and disadvantages of	Identify variables in an
								scientific developments.	investigation, collect data, analyse data and make	scientific developments.	investigation, collect data, analyse data and make
									conclusions, use scientific		conclusions, use scientific
									models, diagrams and key		models, diagrams and key
									vocabulary to explain		vocabulary to explain
											, to explain

Assessment	End of unit learning checkpoint. Extended answer on thermal decomposition.	End of unit learning checkpoint. Extended answer on the greenhouse effect.	checkpoint. Extended answer on the	End of unit learning checkpoint. Extended answer on electromagnets.	End of unit learning checkpoint. Extended answer on conduction.	checkpoint. Extended answer on	End of unit learning checkpoint. Extended answer on the electromagnetic spectrum.	checkpoint on atomic structure.	checkpoint on energy stores and resources. End of unit learning checkpoint on organisation health. Extended answer on coronary heart disease.	checkpoint on transport in cells. Extended answer on osmosis. End of unit learning checkpoint on the periodic	calculations. End of unit learning checkpoint on organisation tissues.
Careers		Chemical engineer							Renewable energy engineer.		
Personal and Spiritual Development	Spirituality - creation of new sustances through chemical reactions.	Stewardship. Koinonia. Spirituality - awe and wonder of the earth. Citizenship - looking after the earth.	Healthy living - effects of exercise on respiration			Compassion. Spirituality - wonder of creation and evolution. Courageous advocates - protecting endangered species.	Healthy living - dangers of UV radiation.	Compassion. Citizenship - ethical debate regarding stem cells.	rennewable fuels.	over different ideas of the atomic model	Healthy living - components of a balanced diet.
Any other key information (if relevant)											