Science Curriculum Map

Intent A high-quality science education provides the foundations for understanding the world through the specific disciplines of Biology, Chemistry and Physics. Science has changed and continues to change our lives; Science is vital to the world's future prosperity. Pupils at St Monica's follow a mastery curriculum in Science, which enables them to develop a body of key foundational knowledge and concepts, methods, processes and applications of scientific knowledge. Pupils are encouraged to recognise the power of scientific explanation and develop a sense of excitement and curiosity about natural phenomena. Our pupils are taught to appreciate the beauty of God's creations and share the idea that Science and Religion are not exclusive. Our learners will also be able to use these skills to help build a better future for the global community that they will serve.

KS2	Time	7	8	9	10	11	KS5	Careers
					(GCSE Edexcel)	(GCSE Edexcel)		
Knowledge By the end of	Autumn	Cells are Alive	Bodies are Systems	<u>Cells are Alive</u>	Autumn Term 1	Autumn Term 1	Science A Level prepares	Teacher
KS2, children	Term	Coll structure	The musculockolotal	Eukapietic and prokanistic	Growth and ropair through	Transforring operativiting	of HE opportunitios and	Nurso
should be able		Cell specialization	system		mitosis	forces	employment Students	Nuise
to use			The breathing system	Microscopos	Motion	Animal coordination and	develop a range of	Doctor
abstract		Principles of organisation	Drugs	Cell transport	Speed acceleration and	control	transferable skills:	DUCIUI
scientific ideas		Structure determines	Plant structure	Cell division (mitosis)	graphs of motion	The perious system and	Applytical thinking	Eoronsic Science
to describe		Particles	Reactions rearrange	Stem cells and cell	Atomic structure	hormones in the body	Analytical thinking Data analysis	Torensic science
predictions		Chemistry 1 1 Particles	matter	Differentiation	The structure of the atom	Electrolytic processes	Data analysis Evoluotivo skills	Vet
about how the		States of matter	Chemistry 2.1 Acids and	Structure determines Particles	including electron	Electrolysic and metal	Evaluative skills	VCI
world works.		The particle model	alkalis	Chemistry 3.1 Periodic table	configuration	extraction	Develop testable	Psychology
They should		Changing states	Acids and alkalis	Atoms elements and	comparation	extraction	hypothesis and	тэуспоюду
also recognise		Diffusion	Indicators	compounds	Autumn Term 2		pursue outcomes	Engineer
that science is		Gas pressure	Word equations	Atomic structure	The periodic table	Autumn Term 2	without blas	Engineer
state of flux		Density	Reactions of acids and	Electronic configuration	The history of the periodic	Electricity and	Communication skills	Electrician
and that		Forces Predict Motion	Alkalis	Isotopes	table and the arrangement	electromagnetism	SKIIIS	Liebenioidii
scientific ideas		Physics 1.1 Contact Forces	Forces predict Motion	The atomic model	of atoms	Electricity, resistance, and	Problem solving Sthight overlapping	Aerodynamicist
develop over		Forces	Physics2.1 Movement and	The periodic table	Forces	electromagnetic induction	Ethical evaluations	
time, as our		Resultant forces	pressure	Forces predict motion	Newton's 3 laws of motion	Groups in the periodic table	 Developing and intermediate and data 	Journalism
understanding		Effects of forces	Speed	Physics 3.1 Acceleration	and momentum	Groups 1. 7 and 0 in the	Interpreting models	
KS2 children			Distance-time graphs	Speed	Genetics	periodic table	Liely Green College	Sound Engineer
should be able			Pressure	Scalars and vectors	Inheritance, genetic disease	Exchange and transport	Riology	
to design and				Newton's First and Third Laws	and genetic modification	The circulatory system	biology	Conservationist
conduct a fair				Acceleration	5		Chemistry Develop	
test, drawing				Velocity-Time graphs			Physics 12 13 Applied	Tree surgeon
conclusions	Spring	Characteristics are	Ecosystems Cycle	Organisms are Interdependent	Spring Term 1	Spring Term 1	Science	
they have	Term	Inherited	Resources	Biology 3.2 Human interaction	Chemical bonding	Rates of reaction		Physiotherapist
gathered.		Biology 1.2 Reproduction	Biology 2.2 Respiration and	Biodiversity	Ionic, covalent and metallic	Surface area, concentration,	Bury College	
0		Sexual and asexual	photosynthesis	Pollution	bonding	temperature and catalysts in	• Biology	Geologist
		reproduction	Respiration and exercise	Pyramids of biomass	Waves	reactions	Chemistry	
Rev topics:		Puberty	Fermentation	Food security	Longitudinal, transverse	Particles, forces and matter	Environmental	Pharmacist
Animals		The menstrual cycle	Photosynthesis	Reactions rearrange	waves, refraction and the	The particle model of matter,	Science	
Light, Living		Embryo development	Plant adaptations	Matter	EM spectrum	specific heat capacity and	L3 Forensic	Audiologist
things and		Plant reproduction	Biomes	Chemistry 3.2 Introduction to	Evolution	Hooke's law	and Criminal	
habitats,		Structure determines	Reactions rearrange matter	Quantitative Chemistry	Evolution by natural	Spring Term 2	Investigation	Clinical research
properties of		properties	Chemistry 2.2 Changing	Chemical reactions and equations	selection and evidence to	The Earth and the atmosphere	 L3 Laboratory 	
materials,		Chemistry 1.2 Atoms,	substances	Relative atomic and formula mass	support	The evolution of the earth's	Technician	
electricity		Elements and Compounds	Chemical and physical	Introducing concentration	Spring Term 2	atmosphere, human impact	Apprenticeship	
Earth and		Atoms and elements	changes	Making soluble salts	Acids and alkalis	and combustion	Physics	
space, Forces		The periodic table	Chemical equations and the	Energy is conserved	Acids, bases, alkalis,	Biodiversity	 L2, L3 Applied 	
and Rocks.		ivietais and non-metais	law of conservation of mass	Physics 3.2 Heating	neutralisation and the pH	Ecosystems and habitats.	Science	
		compounds and mixtures	Chemical reactions	Internal energy	scale De dia estivita	Parasitism and mutualism.		
		Hazards in the lab	lests for gases	i nermal transfer	Radioactivity	Iviaterial cycles		
		rields	<u>Fields</u>	Specific fieldsort bast	ine structure of the atom,	GUSE REVISION		
		produce forces	produce forces	Specific latent heat	radioactive decay and the	Edeved Coloness Coosification		
		Provide the second second	Provide the second seco		uses of radiation	EXERCITE Sciences Specification.		
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		The Solar System				-gcses/sciences-2016.tml		

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Summer	Organisms are	Species	Characteristics are inherited	Summer Term 2		
Term	Interdependent	Show Variation	Biology 3.3 Genetics	Health and disease		
	Biology 1.3	Biology 2.3 Life Diversity	Sexual and asexual reproduction	Pathogens, the immune		
	Interdependence	Variation	Cell division (meiosis)	system and the		
	Ecosystems	Selective breeding	DNA, genes and chromosomes	development of medicine		
	Sampling	Adaptation	Inheritance	including vaccines		
	Food chains and webs	Earth systems interact	Coding for proteins	Plant structures and their		
	Competition for resources	Chemistry 2.3 Earth systems	Earth systems interact	functions		
	Structure determines	The structure and composition	Chemistry 3.3 Using Resources	Adaptations of plants to		
	Properties	of the Earth	Potable water	transport substances and		
	Chemistry 1.3 Mixtures	Types of rock	Testing water	increase the rate of		
	Pure substances and	The water cycle	Using Earth's resources	photosynthesis		
	mixtures	Burning fuels	Reduce, reuse, recycle			
	Solutions	Electricity transfers	Life Cycle Assessment	Summer Term 2		
	Separation techniques	Energy	Evaluating impact	Chemical calculations		
	Energy is conserved	Physics 2.3 Electric circuits	Sources of information	Molar calculations and		
	Physics 1.3	resistance	Radiation transfers energy	empirical formulae		
	Energy transfers	Resistance	Physics 3.3 Sounds and Waves			
	Energy stores	Ohm's Law	Properties of waves			
	Energy transfers	Resistance in series and	Sound and ultrasound			
	Thermal energy and transfer	parallel circuits	Reflection and refraction			
	Electricity transfers	Bodies are systems	Technological use of waves			
	Energy Physics 1.4 Electric	Biology 2.4 Nutrition	Electricity transfers energy			
	circuits current and voltage	Digestion	Physics 3.4 Home electricity			
	Electric circuits	Digestive enzymes	Mains electricity			
	Current	Food tests	Power in appliances			
	Voltage	A balanced diet	The National Grid			
		Plant nutrition	Energy resources			
		Radiation transfers energy	Static electricity			
		Physics 2.4 Light				
		Properties of light				
		Reflection				
		Refraction				
		Light and colour				