

St Mary's CE High School Curriculum Map 2022-23



Subject: Science Year: 7

GREEN = CROSS CURRICULAR LINKS TO EXPLORE

The understanding of scientific thinking is fundamental to making decisions in society that affect us all. This enables students to broaden their minds to make informed decisions about all aspects of the world in which we live. We are passionate about the subject as a way of understanding the universe and the excitement and enjoyment it can bring to how we view the world around us. We encourage the study of Biology, Chemistry and Physics equally and separately but recognise the common skills required by all three.

We believe the study of Science give students the skills they need that are useful to them for later learning and decision making for any subjects they study in the future. The study of Science also paves the way for a vast array of careers and job opportunities whether they require pure scientific knowledge or an application of the skills and understanding gained through the study of the subjects.

Fundamental skills essential for Science include analysis of data, communication of ideas through speech and writing, application of knowledge to explain natural phenomena and make predictions, use of evidence to come to conclusions and the use of practical skills to carry out experiments.

Year 7 Science - At Key Stage 3 students develop scientific knowledge and conceptual understanding by studying a broad range of topics covering Biology, Chemistry and Physics. At St Mary's students follow the Exploring Science scheme of learning by Pearson Publishing which develops an understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. The course is designed to lead students seamlessly into their GCSE Science studies and ensures students are equipped with the scientific knowledge and skills required to understand the uses and implications

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

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<p>CONTENT</p> <p><i>Declarative Knowledge – 'Know What'</i></p>	<ul style="list-style-type: none"> ▪ Working Safely in the Lab ▪ Cells, tissues, organs and body systems ▪ The Particle Model 	<p>Mixtures and Separation Atoms, elements and molecules</p>	<ul style="list-style-type: none"> ▪ Forces ▪ Reproduction 	<ul style="list-style-type: none"> ▪ Sound ▪ Electricity 	<ul style="list-style-type: none"> ▪ Energy ▪ Ecosystems 	<ul style="list-style-type: none"> ▪ Acids and Alkalis ▪ Muscles and Bones
<p>Skills</p> <p><i>Procedural Knowledge – 'Know How to'</i></p>	<ul style="list-style-type: none"> • Correct and safe use of apparatus • Identify hazards, risks and precautions • Correctly prepare a specimen slide and view under a microscope • Formulate and test a scientific hypothesis. • Making and recording observations and measurements • Consideration of experimental variables • Calculate the mean of a data set. • Explain what is meant by the term 'repeatability' and its significance. • Use of models to develop scientific understanding <p><u>Maths Skills</u> Decimals, estimation, significant figures, means, bar charts, symbols. English – use of Tier 2 and 3 vocabulary. Geography – states of matter and particles explained in terms of water. Religious Studies – the concept of Stewardship and protecting the environment.</p>	<ul style="list-style-type: none"> • Make predictions and conclusions from data • Explain the importance of controlling variables to ensure validity. • Draw, represent and interpret bar graphs and categorical data. • Understand that whenever a measurement is made there is always an element of uncertainty <p><u>Maths Skills</u> Range of a data set, reading a graph, fractions.</p> <p>English – use of Tier 2 and 3 vocabulary. Technology – students learn about forces, motion and aerodynamics when designing racing cars in Year 7 technology. Religious Studies – ideas about conception and when life begins. PE – understanding of pressure to improve performance in sport. Music – sound in terms of music and how musical instruments work e.g. drums. ICT- presenting and tabulating data. Religious Studies – the concept of Stewardship and protecting endangered species.</p>	<ul style="list-style-type: none"> • Drawing scientific diagrams • Draw, represent and interpret line graphs and continuous data. • Describe and follow a method for practical procedure. • Identify and define anomalous results. <p><u>Maths Skills</u> Frequency diagrams, finding unknown values in equations, drawing axes, plotting variables.</p> <p>English – use of Tier 2 and 3 vocabulary. Geography – study of rivers in Year 7 as an example of an ecosystem. Use of fossil fuels and the idea of sustainability. Religious Studies – the concept of Stewardship and protecting fragile ecosystems. PE – how our muscles and bones allow movement.</p>			
<p>Key Questions</p>	<p>How can we keep ourselves safe when working in a Science laboratory? What do all living things do?</p>	<p>What can forces do? How do springs help us to measure forces?</p>	<p>How do our bodies use energy? How can you compare the energy stored in different foods?</p>			

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	<p>How is the human body organised? How are plant and animal cells similar and different? How should we dispose of our rubbish? How can Scientists use language effectively? How do Scientists think and work? How do solids, liquids and gases behave? What is the particle theory of matter? What evidence allowed scientists to accept this theory? How would you write a good method for an experiment? How could you separate solutes from a solution? How do we make sea water drinkable? What kind of particles are found in the air? What is the difference between metals and non-metals? How do elements form compounds? How can we use chemical reactions?</p>	<p>How can we control friction? How is pressure used in sports? What are the standard units used in Science What happens when forces are balanced? How do different organisms reproduce? What happens during the gestation period and birth? What happens during puberty and adolescence? How can studying reproduction help endangered species? How are different sounds made? How does sound travel? How can we detect sounds? How do humans and animals use sound? What are sound waves? How do human noises affect animals? How do we measure electricity? How can we use models to help us think about electricity? What are the differences between series and parallel circuits? How do we use electricity safely?</p>	<p>How is energy stored and moved? Where do fuels come from? What energy resources should we use? How can we use less fossil fuels? What is variation? How do environments affect organisms? How do organisms affect their habitats? How does energy move through food chains? How do organisms compete with one another? How do we deal with hazardous chemicals? How can we use indicators? What happens during neutralisation? How do muscles help with gas exchange? What are the functions of the skeleton? How are muscles used in the locomotor system? How do drugs affect our bodies? How do athletes try to improve their chances of winning?</p>			
<p>Assessment</p>	<p>ALL YEAR 7 STUDENTS WILL SIT A BASELINE ASSESSMENT IN SEPTEMBER.</p> <p>Formative assessment: weekly low stakes 'progress checks' for students in the form of exit tickets.</p> <p>This will be marked by the class teacher and used as a diagnostic tool. Students will have opportunities to redraft</p>	<p>Summative assessment:</p> <p>End of unit assessments.</p>	<p>Formative assessment: weekly low stakes 'progress checks' for students in the form of exit tickets.</p> <p>This will be marked by the class teacher and used as a diagnostic tool. Students will have opportunities to redraft their work.</p>	<p>Summative assessment:</p> <p>End of unit assessments.</p>	<p>Formative assessment: weekly low stakes 'progress checks' for students in the form of exit tickets.</p> <p>This will be marked by the class teacher and used as a diagnostic tool. Students will have opportunities to redraft their work.</p>	<p>Summative assessment:</p> <p>End of unit assessments.</p> <p>END OF YEAR 7 EXAM SUMMER 6 – June.</p>

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	their work.					
Extended Learning /Extension Activities	(ALL EXTENDED LEARNING, BLENDED LEARNING TASKS, HOMEWORK and CHALLENGE ACTIVITIES - SET VIA GOOGLE CLASSROOM STEM CLUB – begins in Autumn Term, open to all Year 7 and 8 students.					