



St Joseph's College Subject Curriculum Map: PHYSICS

Curriculum Intent

The curriculum is designed to spiral in content, connecting smaller ideas to more abstract ideas. Students are then better prepared to apply these concepts when approaching an unfamiliar topic.

Big ideas are introduced in KS3 and then further explored in later years to help master scientific concepts.

Students are encouraged to analyse the world around them, explain phenomena, and make predictions.

There is constant development of knowledge and understanding in science driven by working scientifically.

Key aspects of the curriculum from KS3 to KS5 include: development of scientific thinking, experimental skills and strategies, analysis and evaluation skills.

Throughout the curriculum there is a high emphasis on scientific vocabulary, quantities, units, symbols and nomenclature.

Year Group	Autumn Term		Spring Term		Summer Term		
	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6	
Key Stage 3	7	Atomic Structure Lab safety, diagrams, graphs, experimental analysis	Space, Forces and Motion Data analysis, practical skills, force diagrams	Forces and Motion Data analysis, graph skills, practical skills, calculations	Sound and Light Eye dissection, using an oscilloscope	The Particle Model Drawing scientific diagrams, using scientific models, making predictions	Energy Careers in energy (renewable and non-renewable), calculations
	8	Practical Skills, Electricity Lab safety, scientific questions, diagrams, graphs, experimental analysis	Practical Skills Revision Lab safety, scientific questions, diagrams, graphs, experimental analysis	Motion and Pressure Graphs, food groups practical, literacy	Magnets Careers in science (science week), practical skills	Energy Transfer Heat loss in the home project	Physics Revision Practical skills, drawing graphs, calculations, building an egg parachute project
	9	Space, Forces and Motion Calculations, force diagrams, research, building and testing models e.g. building rockets,	Space Revision, Energy Calculations, graph skills, practical skills	Energy Building circuits, presenting a project, calculations	The Particle Model Drawing scientific diagrams, using scientific models, making predictions	*Students are studying another Science subject	Physics Revision Practical skills, drawing graphs, calculations, building model of the solar system
Key Stage 4	10	Electricity Calculations, building circuits, data analysis, graphs, errors and uncertainties	Electricity and Energy Calculations, building circuits, data analysis, graphs, practical skills, literacy, careers in energy and the environment	Particle Model of Matter, Atomic Structure Drawing scientific diagrams, using scientific models, how science develops over time, errors and uncertainties	Atomic Structure Drawing scientific diagrams, using scientific models, modelling mathematical processes e.g. modelling exponential decay using dice	Forces and Physics Revision Using vector diagrams and scale diagrams, resolving vectors, force diagrams, calculations, interpreting graphs	Forces Using vector diagrams and scale diagrams, force diagrams, calculations, interpreting graphs
	11	Waves Practical skills, careers in communications, using lenses	Magnetism Practical skills, building a motor, drawing scientific diagrams, careers in technology	Energy, Electricity, Particle Model of Matter and Atomic Structure Revision Planning and organisation, types of revision, numeracy, literacy, project management	Waves, Forces and Magnetism Revision Planning and organisation, types of revision, numeracy, literacy, project management	End of GCSE Revision Planning and organisation, types of revision, numeracy, literacy, project management	Exams

Key Stage 5	12	Kinematics, Linear and Projectile Motion, Newtons Laws and Equilibrium <i>Practical skills, analysing and extracting information from graphs, resolving vectors, force diagrams, errors and uncertainties, using scientific instruments e.g. micrometre and light gates</i>	Momentum, Moments, Non-linear Motion, Density and Pressure, Work, Energy and Power <i>Practical skills, analysing and extracting information from graphs, resolving vectors, force diagrams, uncertainties, careers in mechanical engineering and civil engineering, using scientific models</i>	Waves <i>Practical skills, calculations, analysing and extracting information from graphs, careers in communications, investigating light</i>	Electricity <i>Practical skills, calculations, analysing and extracting information from graphs, building circuits, using scientific models and mathematical models</i>	Electricity and Materials <i>Practical skills, analysing and extracting information from graphs, building circuits, using scientific models and mathematical models</i>	Materials, Quantum Physics, Astrophysics <i>Practical skills, literacy, using scientific models, how science develops over time, drawing graphs, errors and uncertainties, calculations</i>
	13	Cosmology, Gravitational Fields, Electric Fields, Capacitors, Magnetic Fields <i>Calculations, drawing scientific diagrams, analysing graphs, literacy, how science develops over time, practical skills</i>	Circular Motion, Simple Harmonic Motion, Thermal Physics <i>Practical skills, calculations, analysing graphs, using mathematical modelling, using scientific models</i>	Thermal Physics, Nuclear Physics <i>Practical skills, calculations, analysing graphs, using mathematical modelling, using scientific models</i>	Medical Physics, Revision <i>Planning and organisation, types of revision, numeracy, literacy, project management, careers in medicine</i>	Exams	Exams