## Physics Curriculum Overview – Year 9

Sequencing of topics	What knowledge will students develop? (Including key terminology)	What skills will students develop? (Including literacy & numeracy)	Assessment opportunities	Homework opportunities	Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross-	Curriculum links
					curricular, Careers)	
		Autumn Te	rm			
Energy	<ul> <li>Energy stores and systems</li> <li>Changes in energy</li> <li>Energy changes in systems</li> <li>Power</li> <li>Conservation and dissipation of energy</li> <li>Efficiency</li> <li>National and global energy resources</li> </ul>	<ul> <li>Appreciate the power and limitations of science and consider any ethical issues which may arise</li> <li>Explain everyday and technological applications of science; evaluate associated personal, social, economic and environmental implications; and make decisions based on the evaluation of evidence and arguments</li> <li>Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences</li> <li>Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena</li> <li>Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment</li> <li>Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations</li> <li>Make and record observations and measurements using a range of apparatus and methods</li> </ul>	<ul> <li>Targeted questioning</li> <li>Mid-topic assessment</li> <li>End of topic assessment</li> </ul>	<ul> <li>Worksheets</li> <li>Flipped learning activities</li> <li>Past exam questions</li> <li>Research</li> <li>Practical write-ups</li> </ul>	<ul> <li>United in harmony when we consider the implications of using national and global resources</li> <li>Grateful for having access to energy</li> <li>Faith-filled and hopeful when searching for solutions to the energy crisis</li> <li>Discerning when considering data presented and joyful at the possibilities of science in finding solutions</li> <li>Leading others in pursuit of justice when planning and carrying out a practical</li> <li>Service and sacrifice when we recognise the scientific work</li> </ul>	KS1/2 • Light • Sound • Electricity KS3 • Energy KS4 KS5 • Mechanics • Electricity

of topicswill students develop? (Including key terminology)(Including literacy & numeracy)opportunitiesopportunities(Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross- curricular, Careers)link•Evaluate methods and suggest possible improvements and further investigations ••	al development Curriculum	Homework	Assessment	What skills will students develop?	What knowledge	Sequencing
develop? (Including key terminology)Catholic Social Teaching, Cultural Capital, Cross- curricular, Careers)• Evaluate methods and suggest possible improvements and further investigations • Presenting observations and other data using appropriate methods • Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends,Catholic Social Teaching, Cultural Capital, Cross- curricular, Careers)• Evaluate methods and suggest possible improvements and further investigations • Presenting observations and other data using appropriate methods • Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends,• Dignity of the human considering the plight of others without access to energy • Loving and	ne Values, links	opportunities	opportunities	(Including literacy & numeracy)	will students	of topics
key terminology)Teaching, Cultural Capital, Cross- curricular, Careers)••Evaluate methods and suggest possible improvements and further investigations ••that has been done before us••Evaluate methods and other data using appropriate methods •••Dignity of the human person when considering the plight of others without access to energy including identifying patterns and trends,••Loving and	c Social				develop? (Including	
Capital, Cross- curricular, Careers)         • Evaluate methods and suggest possible improvements and further investigations         • Presenting observations and other data using appropriate methods         • Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends,	ng, Cultural				key terminology)	
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making inferences and drawing conclusionscompassionate when we think about those we think about those we think about those who suffer through a lack of resources0Being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error0Dignity of God's people0Use scientific vocabulary, terminology and definitions0Dignity in work0Recognise the importance of scientific quantities and understand how they are determined0Dignity in work0Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate0Art History0Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano)0PE Engineer Geologist0Use an appropriate number of significant figures in calculation0Significant Engineer	has been done ore us hity of the human idering the plight thers without ess to energy ng and passionate when think about those or suffer through a of resources hity of God's ple munity and cicipation hity in work darity sonal tural al ory ngraphy ths sicist ineer logist			<ul> <li>Evaluate methods and suggest possible improvements and further investigations</li> <li>Presenting observations and other data using appropriate methods</li> <li>Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions</li> <li>Presenting reasoned explanations including relating data to hypotheses</li> <li>Being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error</li> <li>Use scientific vocabulary, terminology and definitions</li> <li>Recognise the importance of scientific quantities and understand how they are determined</li> <li>Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate</li> <li>Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano)</li> <li>Interconvert units</li> <li>Use an appropriate number of significant figures in calculation</li> </ul>		

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	key terminology)				Teaching, Cultural	
					Capital, Cross-	
					curricular, Careers)	
		Spring Ter	m			
The particle model of matter	<ul> <li>Changes of state and the particle model</li> <li>Density of materials</li> <li>Internal energy</li> <li>Temperature changes in a system and specific heat capacity</li> <li>Changes of state and specific latent heat</li> <li>Particle motion in gases</li> <li>Pressure in gases</li> <li>Increasing the pressure of a gas</li> </ul>	<ul> <li>Understand how scientific methods and theories develop over time</li> <li>Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts</li> <li>Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences</li> <li>Use scientific theories and explanations to develop hypotheses</li> <li>Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena</li> <li>Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment</li> <li>Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations</li> <li>Make and record observations and measurements using a range of apparatus and methods</li> </ul>	<ul> <li>Targeted questioning</li> <li>Mid-topic assessment</li> <li>End of topic assessment</li> </ul>	<ul> <li>Worksheets</li> <li>Flipped learning activities</li> <li>Past exam questions</li> <li>Research</li> <li>Practical write-ups</li> </ul>	<ul> <li>United in harmony when planning and carrying out a practical</li> <li>Discerning when analysising data and joyful at the possibilities of science</li> <li>Leading others in pursuit of justice when planning and carrying out a practical</li> <li>Service and sacrifice when we recognise the scientific work that has been done before us</li> <li>Care for creation</li> <li>Community and participation</li> <li>Dignity of God's people</li> <li>Social</li> <li>Physical</li> <li>Moral</li> <li>Cultural</li> </ul>	KS1/2 • States of matter KS3 • Energy • Pressure in fluids KS4 KS5 • Thermal physics

Sequencing	What knowledge	What skills will students develop?	Assessment	Homework	Personal development	Curriculum
of topics	will students	(Including literacy & numeracy)	opportunities	opportunities	(Ursuline Values,	links
	develop? (Including				Catholic Social	
	key terminology)				Teaching, Cultural	
					Capital, Cross-	
					curricular. Careers)	
		<ul> <li>Evaluate methods and suggest possible improvements and further investigations</li> <li>Presenting observations and other data using appropriate methods</li> <li>Interpreting observations and other data (presented in verbal, diagrammatic, graphical, symbolic or numerical form), including identifying patterns and trends, making inferences and drawing conclusions</li> <li>Presenting reasoned explanations including relating data to hypotheses</li> <li>Being objective, evaluating data in terms of accuracy, precision, repeatability and reproducibility and identifying potential sources of random and systematic error</li> <li>Use scientific vocabulary, terminology and definitions</li> <li>Recognise the importance of scientific quantities and understand how they are determined</li> <li>Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate</li> <li>Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano)</li> <li>Interconvert units</li> <li>Use an appropriate number of significant figures in calculation</li> </ul>			<ul> <li>Geography</li> <li>PE</li> <li>Food Tech</li> <li>Maths</li> </ul>	

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				curricular Careers)	
	I Summer Te	rm		carriedali, careers,	
				<ul> <li>Grateful for waves</li> </ul>	KS1/2
<ul> <li>Waves</li> <li>Waves in air, fluids and solids</li> <li>Transverse and longitudinal waves</li> <li>Properties of waves</li> <li>Reflection of waves</li> </ul>	<ul> <li>Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts</li> <li>Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences</li> <li>Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena</li> <li>Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment</li> <li>Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of measurements and health and safety considerations</li> <li>Make and record observations and measurements using a range of apparatus and methods</li> <li>Evaluate methods and suggest possible improvements and further investigations</li> <li>Presenting observations and other data using appropriate methods</li> </ul>	<ul> <li>Targeted questioning</li> <li>Mid-topic assessment</li> <li>End of topic assessment</li> </ul>	<ul> <li>Worksheets</li> <li>Flipped learning activities</li> <li>Past exam questions</li> <li>Research</li> <li>Practical write-ups</li> </ul>	<ul> <li>Graterul for waves enabling us to be able to communicate</li> <li>Discerning when analysing data presented to us and joyful at the possibilities of science</li> <li>Leading others in pursuit of justice when planning and carrying out a practical</li> <li>Service and sacrifice when we recognise the scientific work that has been done before us</li> <li>Loving and compassionate when we consider how scientific advancements can be used to help others</li> <li>Dignity of God's people</li> <li>Community and participation</li> </ul>	<ul> <li>Light</li> <li>Sound</li> <li>KS3</li> <li>Observed waves</li> <li>Sound waves</li> <li>Sound waves</li> <li>Energy and waves</li> <li>Light waves</li> <li>Light waves</li> <li>KS4</li> <li>Y10 Waves</li> <li>KS5</li> <li>Waves</li> </ul>

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Capital, Cross-	
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<ul> <li>Interpreting observations and other data</li> <li>Dignity in water</li> </ul>	ork
(presented in verbal, diagrammatic, O Peace and	
graphical, symbolic or numerical form), reconciliation	n
including identifying patterns and trends, o Solidarity	
making inferences and drawing conclusions o Personal	
<ul> <li>Presenting reasoned explanations including</li> <li>Social</li> </ul>	
relating data to hypotheses o Moral	
<ul> <li>Being objective, evaluating data in terms of</li> <li>Cultural</li> </ul>	
accuracy, precision, repeatability and o Art	
reproducibility and identifying potential o Geography	
sources of random and systematic error O Maths	
<ul> <li>Use scientific vocabulary, terminology and</li> </ul>	
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• Recognise the importance of scientific	
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