Physics Curriculum Overview – Year 11

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	Curriculum links
					Capital, Cross-	
		Autumn H	alf Term 1		curricular, curcers,	
Atomic structure	 The structure of an atom 	 Use a variety of models such as representational spatial 	• Targeted	 Worksheets Elipped 	• Grateful for waves	KS1/2
	 Mass number, atomic number 	descriptive, computational and mathematical to solve problems,	 Mid-topic assessment End of topic 	learning activities	able to communicate	KS3
	 The development of the model of the atom 	scientific explanations and understanding of familiar and unfamiliar facts	assessment	 questions Research Practical 	analysing data presented to us and joyful at the	KS4
	 Radioactive decay and nuclear radiation 	 Evaluate risks both in practical science and the wider societal context, including perception of 		 write-ups Isaac Physics 	 possibilities of science Leading others in 	KS5 o Nuclear physics
	 Nuclear equations Half-lives and the random nature of radioactive decay 	 risk in relation to data and consequences Plan experiments or devise procedures to make observations 			pursuit of justice when planning and carrying out a practical	
	 Radioactive decay Radioactive contamination 	produce or characterise a substance, test hypotheses, check			 Service and sacrifice when we 	
	 Background radiation Different half-lives 	 Apply a knowledge of a range of techniques, instruments, 			recognise the scientific work that has been done	
	of radioactive isotopes	apparatus, and materials to select those appropriate to the			 before us Loving and 	
	 Oses of nuclear radiation Nuclear fission Nuclear fusion 	 Carry out experiments appropriately having due regard for the correct manipulation of 			when we consider how scientific	

Sequencing of	What knowledge	What skills will students develop?	Assessment	Homework	Personal	Curriculum links
topics	will students	(Including literacy & numeracy)	opportunities	opportunities	development	
	develop? (Including				(Ursuline Values,	
	key terminology)				Catholic Social	
					Teaching, Cultural	
					Capital, Cross-	
					curricular, Careers)	
		apparatus, the accuracy of			be used to help	
		measurements and health and			others	
		safety considerations			 Dignity of God's 	
		 Make and record observations and 			people	
		measurements using a range of			 Community and 	
		apparatus and methods			participation	
		 Evaluate methods and suggest 			• Care for creation	
		possible improvements and further			 Dignity in work 	
		investigations			• Peace and	
		 Presenting observations and other 			reconciliation	
		data using appropriate methods			 Solidarity 	
		 Interpreting observations and 			• Personal	
		other data (presented in verbal,			• Social	
		diagrammatic, graphical, symbolic			• Moral	
		or numerical form), including			• Cultural	
		identifying patterns and trends,			○ Art	
		making inferences and drawing			 Geography 	
		conclusions			• Maths	
		 Presenting reasoned explanations 			0	
		including relating data to				
		nypotneses Daina akia stiwa awakustina data in				
		 Being objective, evaluating data in terms of accuracy, president 				
		terms of accuracy, precision,				
		and identifying notential sources				
		of random and systematic error				
		\circ Use scientific vocabulary				
		terminology and definitions				
		\circ Becognise the importance of				
		scientific quantities and				

Sequencing of	What knowledge	What skills will students develop?	Assessment	Homework	Personal	Curriculum links
topics	will students	(Including literacy & numeracy)	opportunities	opportunities	development	
	develop? (Including				(Ursuline Values,	
	key terminology)				Catholic Social	
					Teaching, Cultural	
					Capital, Cross-	
					curricular, Careers)	
		understand how they are				
		determined				
		mm: kl. J) and IUPAC chemical				
		nomenclature unless inappropriate				
		 Use prefixes and powers of ten for 				
		orders of magnitude (eg tera, giga,				
		mega, kilo, centi, milli, micro and				
		o Interconvert units				
		 Use an appropriate number of 				
		significant figures in calculation				

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 Ha	alf Term 2		1	1
Magnetism and electromagnetism Poles of a magnet Magnetic fields Electromagnetism Fleming's left-hand rule Electric motors Loudspeakers (physics only) Induced potential Uses of the generator effect Microphones Transformers	 Understand how scientific methods and theories develop over time 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 Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences Use scientific theories and explanations to develop hypotheses Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select 	 Targeted questioning Mid-topic assessment End of topic assessment 	 Worksheets Flipped learning activities Past exam questions Research Practical write-ups Isaac Physics 	 United in harmony when planning and carrying out a practical Discerning when analysising data and joyful at the possibilities of science Leading others in pursuit of justice when planning and carrying out a practical Service and sacrifice when we recognise the scientific work that has been done before us Care for creation Community and participation Dignity of God's people Solidarity Personal Social 	KS1/2 Magnets KS3 Electromagnetism KS4 KS5 Forces Fields Turning points in physics

Sequencing of	What knowledge	What skills will students develop?	Assessment	Homework	Personal	Curriculum links
topics	will students	(Including literacy & numeracy)	opportunities	opportunities	development	
	develop? (Including				(Ursuline Values,	
	key terminology)				Catholic Social	
					Teaching, Cultural	
					Capital, Cross-	
					curricular, Careers)	
		those appropriate to the			• Physical	
		experiment			 Moral 	
		 Carry out experiments 			• Cultural	
		appropriately having due regard			o Geography	
		for the correct manipulation of			0 PE	
		apparatus, the accuracy of			o Food Tech	
		measurements and health and			o Maths	
		safety considerations				
		 Make and record observations and 				
		measurements using a range of				
		apparatus and methods				
		 Evaluate methods and suggest 				
		possible improvements and further				
		Investigations				
		o Presenting observations and other				
		 Interpreting observations and 				
		other data (presented in verbal				
		diagrammatic graphical symbolic				
		or numerical form), including				
		identifying patterns and trends.				
		making inferences and drawing				
		conclusions				
		 Presenting reasoned explanations 				
		including relating data to				
		hypotheses				
		 Being objective, evaluating data in 				
		terms of accuracy, precision,				
		repeatability and reproducibility				
		and identifying potential sources				
		of random and systematic error				

Sequencing of	What knowledge	What skills will students develop?	Assessment	Homework	Personal	Curriculum links
topics	will students	(Including literacy & numeracy)	opportunities	opportunities	development	
	develop? (Including				(Ursuline Values,	
	key terminology)				Catholic Social	
					Teaching, Cultural	
					curricular Caroors)	
		 Use scientific vocabulary, 				
		terminology and definitions				
		 Recognise the importance of countifie quantities and 				
		understand how they are				
		determined				
		$\circ~$ Use SI units (eg kg, g, mg; km, m,				
		mm; kJ, J) and IUPAC chemical				
		 Use prefixes and powers of ten for 				
		orders of magnitude (eg tera, giga,				
		mega, kilo, centi, milli, micro and				
		nano)				
		 Interconvert units Use an appropriate number of 				
		significant figures in calculation				
		5 5				

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
		Carring Up	lf Torm 1		curricular, Careers)	
Magnoticm and		 Use a variaty of models such as 	o Targeted	o Warkshoots	c. Cratoful for wayor	VS1/2
electromagnetism	 Loudspeakers (physics only) Induced potential Uses of the generator effect Microphones Transformers 	 Ose 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 Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment Carry out experiments appropriate to the experiment Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of 	 Targeted questioning Mid-topic assessment End of topic assessment 	 Worksheets Flipped learning activities Past exam questions Research Practical write-ups Isaac Physics 	 Graterul for waves enabling us to be able to communicate Discerning when analysing data presented to us and joyful at the possibilities of science Leading others in pursuit of justice when planning and carrying out a practical Service and sacrifice when we recognise the scientific work that has been done before us Loving and compassionate when we consider how scientific advancements can be used to help others 	 KS1/2 Light Sound KS3 Observed waves Sound waves Energy and waves Light waves Light waves KS4 Y10 Waves KS5 Waves

Sequencing of	What knowledge	What skills will students develop?	Assessment	Homework	Personal	Curriculum links
topics	will students	(Including literacy & numeracy)	opportunities	opportunities	development	
	develop? (Including				(Ursuline Values,	
	key terminology)				Catholic Social	
					Teaching , Cultural	
					Capital, Cross-	
					curricular, Careers)	
		measurements and health and			• Dignity of God's	
		safety considerations			people	
		 Make and record observations and 			 Community and 	
		measurements using a range of			participation	
		apparatus and methods			• Care for creation	
		 Evaluate methods and suggest 			 Dignity in work 	
		possible improvements and further			• Peace and	
		investigations			reconciliation	
		 Presenting observations and other 			 Solidarity 	
		data using appropriate methods			• Personal	
		 Interpreting observations and other data (presented in verbal) 			 Social Morel 	
		diagrammatic graphical symbolic				
		or numerical form) including			\circ Art	
		identifying natterns and trends			• Geography	
		making inferences and drawing			• Maths	
		conclusions				
		• Presenting reasoned explanations				
		including relating data to				
		hypotheses				
		 Being objective, evaluating data in 				
		terms of accuracy, precision,				
		repeatability and reproducibility				
		and identifying potential sources				
		of random and systematic error				
		 Use scientific vocabulary, 				
		terminology and definitions				
		 Recognise the importance of according to the second second				
		scientific quantities and				
		understand now they are				
		aeterminea				

Sequencing of	What knowledge	What skills will students develop?	Assessment	Homework	Personal	Curriculum links
topics	will students	(Including literacy & numeracy)	opportunities	opportunities	development	
	develop? (Including				(Ursuline Values,	
	key terminology)				Catholic Social	
					Teaching , Cultural	
					Capital, Cross-	
					curricular, Careers)	
		 Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano) Interconvert units Use an appropriate number of significant figures in calculation 			curricular, Careers)	

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					Capital, Cross- curricular, Careers)	
		Spring Ha	lf Term 2			
Space physics	 Our solar system The life cycle of a star Orbital motion, natural and artificial satellites Red-shift 	 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 Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of 	 Targeted questioning Mid-topic assessment End of topic assessment 	 Worksheets Flipped learning activities Past exam questions Research Practical write-ups Isaac Physics 	 Grateful for waves enabling us to be able to communicate Discerning when analysing data presented to us and joyful at the possibilities of science Leading others in pursuit of justice when planning and carrying out a practical Service and sacrifice when we recognise the scientific work that has been done before us Loving and compassionate when we consider how scientific advancements can be used to help others 	KS1/2 • Earth & space KS3 • Earth & space KS4 KS5 • Fields

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	key terminology)				Catholic Social	
					Teaching , Cultural	
					Capital, Cross-	
					curricular, Careers)	
		measurements and health and			• Dignity of God's	
		safety considerations			people	
		 Make and record observations and 			 Community and 	
		measurements using a range of			participation	
		apparatus and methods			• Care for creation	
		 Evaluate methods and suggest 			 Dignity in work 	
		possible improvements and further			• Peace and	
		investigations			reconciliation	
		 Presenting observations and other 			 Solidarity 	
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		diagrammatic graphical symbolic				
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		identifying natterns and trends				
		making inferences and drawing			 Maths 	
		conclusions				
		 Presenting reasoned explanations 				
		including relating data to				
		hypotheses				
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	develop? (Including				(Ursuline Values,	
	key terminology)				Teaching Cultural	
					Canital Cross-	
					curricular Careers)	
		I Summe	r Term		carriedar, carcers,	
			I			
Revision		 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 Evaluate risks both in practical science and the wider societal context, including perception of risk in relation to data and consequences Plan experiments or devise procedures to make observations, produce or characterise a substance, test hypotheses, check data or explore phenomena Apply a knowledge of a range of techniques, instruments, apparatus, and materials to select those appropriate to the experiment Carry out experiments appropriately having due regard for the correct manipulation of apparatus, the accuracy of 	 Targeted questioning Past papers 	 Worksheets Flipped learning activities Past exam questions Research Practical write-ups Isaac Physics 	 Grateful for waves enabling us to be able to communicate Discerning when analysing data presented to us and joyful at the possibilities of science Leading others in pursuit of justice when planning and carrying out a practical Service and sacrifice when we recognise the scientific work that has been done before us Loving and compassionate when we consider how scientific advancements can be used to help others 	

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	key terminology)				Catholic Social	
					Teaching , Cultural	
					Capital, Cross-	
					curricular, Careers)	
		measurements and health and			• Dignity of God's	
		safety considerations			people	
		 Make and record observations and 			 Community and 	
		measurements using a range of			participation	
		apparatus and methods			• Care for creation	
		 Evaluate methods and suggest 			 Dignity in work 	
		possible improvements and further			• Peace and	
		investigations			reconciliation	
		 Presenting observations and other 			 Solidarity 	
		data using appropriate methods			• Personal	
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		diagrammatic graphical symbolic				
		or numerical form) including			\circ Art	
		identifying natterns and trends			• Geography	
		making inferences and drawing			• Maths	
		conclusions				
		• Presenting reasoned explanations				
		including relating data to				
		hypotheses				
		 Being objective, evaluating data in 				
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