

Year 11 Physics

Subject and Year Group	Autumn Year 11	Autumn 2 Year 11	Spring 1 Year 11	Spring 2 Year 11	Summer 1 Year 11	Summer 2 Year 11
Topic/Unit to be studied	Magnetism & Electromagnetism	Forces I (Forces in equilibrium)	Waves	Forces II (Forces and Motion)	Space (separate only)	
Core Knowledge (Substantive knowledge)	 Permanent and induced magnetism Magnetic materials Magnetic Fields The Motor Effect and DC motors (HT only) The generator effect and generators (separate only) Transformers (separate only) 	 Types and examples of forces Scalars and vectors Resultant forces Finding resultant vectors and resolving vectors (HT only) Work done and energy transfers Hooke's law and elastic forces RP6: Extension of a spring Moments, centre of mass and gears (separate only) Upthrust and fluid pressure (separate only) 	 Types of wave Describing waves The wave equation RP8: wavespeed, frequency and wavelength on a string and ripple tank. The electromagnetic spectrum RP10: emission & absorption of IR radiation. Wave behaviour (reflection and refraction) RP9: reflection and refraction. (separate only) Sound and seismic waves (separate only) Lenses and ray diagrams (separate only) 	 Describing, calculating and graphing motion in a line Circular motion (HT only) Acceleration Newton's laws of motion RP7: Force, mass and acceleration Forces and braking Momentum (HT only) Impact Forces (separate only) 	 Lifecycle of a star (separate only) Big Bang Theory and evidence (separate only) Satellites (separate only) 	



Curriculum Map: Science

Success for Everyone



Core Skills (Disciplinary knowledge)

- Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety.
- Identify anomalies and apply mathematical concepts to calculate means.
- Present data using appropriate methods, including tables and graphs including straight lines of best fit.
- Recognise mathematical relationships, including directly proportional and linear.
- Understand, use, and convert prefixed and SI units.
- Complete calculations making use of standard form.
- Apply mathematical concepts to substitute in/ rearrange equations to calculate relevant physical quantities.

- Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety.
- Identify anomalies and apply mathematical concepts to calculate means and uncertainty in
- repeated readings.
 Present data using appropriate methods, including tables and graphs including straight lines of best fit.
 Recognise
- Recognise mathematical relationships, including directly proportional and linear.
- Understand, use, and convert prefixed and SI units.
- Complete calculations making use of standard form.
- Apply mathematical concepts to substitute in/ rearrange equations

- Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety.
 Identify anomalies
- and apply mathematical concepts to calculate means and uncertainty in repeated readings.
- Present data using appropriate methods, including tables and graphs including curved lines of best fit. Recognise
- relationships, including directly proportional, inversely proportional, and linear.

mathematical

- Understand, use, and convert prefixed and SI units.
- Complete calculations making use of standard form.
- Apply mathematical concepts to

- Use appropriate techniques, apparatus, and materials during laboratory work, paying attention to health and safety.
- Identify anomalies and apply mathematical concepts to calculate means and uncertainty in repeated readings.
- Present data using appropriate methods, including tables and graphs including straight and curved lines of best fit.
 Recognise
- mathematical relationships, including directly proportional, inversely proportional, and linear.
- Understand, use, and convert prefixed and SI units.
- Complete calculations making use of standard form.
- Apply mathematical

- Use models to develop understanding and an appreciation of how scientific thinking and theories develop over time.

- Understand the

- limitations of scientific evidence.
 Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas, together with the importance of publishing results and peer review
- Present data using appropriate methods, including tables and graphs including straight lines of best fit. Understand, use, and convert prefixed and SI units.
- Complete calculations making use of standard form.
- Understand, use, and convert non- SI



Curriculum Map: Science

Success for Everyone



	-Interpret data to	to calculate relevant	substitute in/	concepts to	units (AU, lightyear,		
	draw accurate	physical quantities.	rearrange equations	substitute in/	parsec).		
	conclusions.	- Make predictions	to calculate relevant	rearrange equations	- Apply		
	- make use physical	using scientific	physical quantities.	to calculate relevant	mathematical		
	representations of	knowledge and	- Make predictions	physical quantities.	concepts to		
	abstract concepts to	understanding.	using scientific	- Make predictions	substitute in/		
	solve problems	- Select, plan and	knowledge and	using scientific	rearrange equations		
	(Fleming's left hand	carry out the most	understanding.	knowledge and	to calculate relevant		
	law)	appropriate types of	- Select, plan and	understanding.	physical quantities.		
		scientific enquiries	carry out the most	- Select, plan and	- Interpret data to		
		to test predictions,	appropriate types of	carry out the most	draw accurate		
		including identifying	scientific enquiries	appropriate types of	conclusions.		
		independent,	to test predictions,	scientific enquiries			
		dependent and	including identifying	to test predictions,			
		control variables.	independent,	including identifying			
		- Make and record	dependent and	independent,			
		observations and	control variables.	dependent and			
		measurements using	- Make and record	control variables.			
		a range of methods;	observations and	- Make and record			
		and evaluate the	measurements using	observations and			
		reliability of	a range of methods;	measurements using			
		methods and	and evaluate the	a range of methods;			
		suggest possible	reliability of	and evaluate the			
		improvements.	methods and	reliability of			
		-Interpret data to	suggest possible	methods and			
		draw accurate	improvements.	suggest possible			
		conclusions.	-Interpret data to	improvements.			
			draw accurate	-Interpret data to			
			conclusions.	draw accurate			
				conclusions.			
ment	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units						