

KS4/3 Physics

Year Group 9

Intent Statement: The year 9 physics curriculum at St Anthony's Girls Catholic Academy is designed to secure the knowledge of KS3 and build upon these skills to continue to develop all girls to become the next generation of scientist. We use prior learning and the crossover of curriculum areas together with hands on practical work to support a challenging journey to the world of critical thinking and work.

Half Term 1

Number of Hours	Topic
6	<u>Particle Model of Matter</u> Changes of state and the particle model
As available	Revision work
Reasons behind order of topic in this half term	
This topic builds on KS3 work and the practical work in the topic secures engagement at start of Y9. The knowledge gained in this topic is essential for future topics such as energy transfers, particle model and pressure.	

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Half Term 2

Number of Hours	Topic
6	Internal energy and energy transfers
As available	Revision work
Reasons behind order of topic in this half term	
Calculation work (e.g. on specific heat capacity) and unit conversions can be linked to required practical's, both of which need revising several times to ensure students have fluent recall. This topic draws on knowledge of particle model and ideas from it are needed for energy stores work later in the year.	

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Half Term 3

Number of Hours	Topic
7	Particle model and pressure
As available	Revision work
Reasons behind order of topic in this half term	
This topic requires understanding of the particle theory, it supports work on breathing done in Biology later in Y9.	

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Half Term 4

Number of Hours	Topic
6	<u>Energy</u> Energy changes in a system, and the ways energy is stored before and after such changes
As available	Revision work
Reasons behind order of topic in this half term	
Allows pupils to explain every day observations in terms of energy changes so ensures engagement with Y9 physics, lends itself to practical work and demonstration. Builds on knowledge from KS3 about types of energy and electrical charge etc. Allows formulae and calculation work to be covered which can then be revised several times over the course of Y10 and Y11, which pupils often need	

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Half Term 5

Number of Hours	Topic
6	Conservation and dissipation of energy
As available	Revision work
Reasons behind order of topic in this half term	
Studied at this point in Y9 as it builds on energy transfer work. Formulas and calculation introduced at early stage of GCSE study so they can be revisited several times.	

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Half Term 6

Number of Hours	Topic
4	National and global energy resources
4	End of year revision, exam, exam review
Reasons behind order of topic in this half term	
This topic underpins ideas built on later in GCSE Chemistry (recycling) and Biology (biodiversity/pollution) and allows Y9 pupils to develop awareness of environmental and ethical issues. Revision work allows pupils to revisit key Y9 work as the end of Y9 assessment is important in determining sets and pathways in KS4 Science	

Year 10

Half term 1/2

Number of Hours	Number of Hours		Topic
	Separate groups	Combined Group	
3	5		Atoms and Isotopes
3	5		Atoms and Radiation
2	0		Hazards and uses of radioactive emissions and background radiation (Physics only)
2	0		Nuclear fission and fusion (physics only)
2	2		RP1 Specific Heat Capacity
			Prep for key assessment
Reasons behind order of topic in this half term			
<p>Atoms and Isotopes draws on previous topics covered in KS3 Science and KS4 Chemistry work</p> <p>Atoms and Radiation draws on previous topics covered in KS3 Science and KS4 Chemistry.</p> <p>Required Practical from y9 as lab from Recovery Plan</p>			

Half term 2/3

Number of Hours	Number of Hours		Topic
	Separate groups	Combined Group	
3	5		Waves in air, fluids and solids
3	5		Electromagnetic waves
2	2		RP 2 Insulators
			Prep for key assessment
Reasons behind order of topic in this half term			
<p>Wave topic builds on KS3 work.</p> <p>Waves is one of the easier concepts in physics to access so we do it y10 rather than y11</p> <p>Required Practical from y9 as lab from Recovery Plan</p>			

Half term 4

Number of Hours Separate groups	Number of Hours		Topic
	Separate groups	Combined Group	
5	7		Forces and their interactions
5	0		Moments, levers and gears (physics only)
2	5		Forces and Motion
As available	As available		Revision work
Reasons behind order of topic in this half term			
Moments draw on KS3 knowledge and knowledge from previous topic (forces and interactions) and KS3. Forces and motion topic requires knowledge and skills from Forces and Interaction			

Half term 5/6

Number of Hours Separate groups	Number of Hours		Topic
	Separate groups	Combined Group	
4	6		Forces and elasticity
3	6		Momentum
4	0		Revision Particle model and Pressure And pressure differences in fluids (Physics)
As available	As available		Revision work
Reasons behind order of topic in this half term			
Forces and elasticity topic requires knowledge and skills from Forces and Interaction topic and allows links to be made. Pressure topic draws on Y9 work of particle theory allowing for revision and retrieval.			

Year 11

Half Term 1 Z and Y (Half term 1b X)

Number of Hours Separate groups	Number of Hours		Topic
	Separate groups	Combined Group	
3	6		<u>Electricity</u> Static Electricity (Physics only) Current, potential difference and resistance
2	6		Series and parallel circuits
As available	As available		Revision work
Reasons behind order of topic in this half term			
Electricity work provides many opportunities for practical work that help engage students and make a good start to Y10 physics. The topic builds on KS3 knowledge and allows calculation work to be revisited and new formulae to be introduced. Knowledge from this topic is needed for energy transfer topic.			

Half Term 1a X

Number of Hours Separate groups	Number of Hours		Topic
	Separate groups	Combined Group	
2	0		Moments, levers and gears (physics only)
3	3		Forces and elasticity
2	0		Pressure and pressure differences in fluids (Physics)
Reasons behind order of topic in this half term			
Moments draw on KS3 knowledge and knowledge from previous topic (forces and interactions) and KS3. Allows retrieval of matter and particle model from y9 physics and chemistry			

Half Term 2

Number of Hours Separate groups	Number of Hours		Topic
		Combined Group	
2		3	Domestic uses and safety
8		8	Energy transfers
As available		As available	Revision work
<p>Reasons behind order of topic in this half term</p> <p>Domestic uses and safety need to be covered after ideas such as voltage and charge have been introduced. Forces topic is a major GCSE topic and needs to be covered in Y10 to allow type to revisit it. Forces and interactions needs to be covered before momentum, forces and motion, forces and elasticity.</p>			

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Half Term 3

Number of Hours Separate groups	Number of Hours Combined Group	Topic
8	6	<u>Magnetism and electromagnetism</u> Permanent and induced magnetism, magnetic, forces The motor effect
5	0	Induced potential, transformers, national grid (Physics)
2	As available	Revision work, mock exams (2), review of mock exams
Reasons behind order of topic in this half term		
Magnetism topic draws on forces work covered in Y10. Mock exam used to check FT/HT and separate/ combined decisions. Revision for this exam provides a good opportunity to consolidate Y9 and Y10 work		

KS4 Physics

Year Group 11

Half Term 4

Number of Hours Separate groups	Number of Hours Combined Group	Topic
8	0	<u>Space physics (Physics only)</u> Solar system; stability of orbital motions; satellites (Physics only) Red-shift (Physics only)
As available	As available	Revision work, past papers
Reasons behind order of topic in this half term		
Space physics finishes separate physics syllabus, less conceptually difficult than other topics so needs less review and revision. Revision work to consolidate Y9, Y10 and Y11 work, exam paper practice needed to prepare for GCSE exams		

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Half Term 5

Number of Hours	Number of Hours	Topic
Separate groups	Combined Group	
As available	As available	Revision work and past papers
Reasons behind order of topic in this half term		
Revision work to consolidate Y9, 10 and 11 work, exam paper practice needed to prepare for GCSE exams		