

Department Information:

Physics, Biology and Chemistry are popular and successful subjects at Furze Platt. The Department aims to provide a supportive, stimulating, dynamic and academically challenging experience for all students. Over recent years, the Department has gone from strength to strength, and standards and students' results are high.

In Year 9, students begin the fundamental content that will build towards their GCSE. They will receive 9 hours of science each fortnight, 3 of which will be Physics lessons, with all students studying content that will form part of the AQA exam board's GCSE Physics specification.

Curriculum Aims & Intent:

The Year 9 Physics curriculum is designed to foster an appreciation and understanding of the role of Physics in every aspect of our lives, and a sense of awe at the wider foundational ideas of Physics.

The curriculum aims to allow students to develop their scientific skills particularly through practical tasks, as well as enhancing their maths skills to allow them to complete the subject beyond GCSE.

The key aspects of the Year 9 curriculum are the fundamental building blocks of conservation of energy, heat transfer, energy resources, and states of matter

How we keep parents informed:

Year 9 - Progress reports are published 4 times per year, in October, December, March and July, with a face-to-face parents' evening in January. GCSE Options Evening is also in January.

ACHIEVE in the curriculum:

Ambitious – aiming for the highest grades possible, and giving opportunities for students to celebrate their own successes.

Regular inclusion of careers and higher education information in lessons

Collaboration – making use of the scientific method and grouped practical work.

Versatility - students will develop their versatility through the use of class practical activities, as well as through paired and group theory work.

Integrity – students develop integrity through their completion of independent home learning and through self-marking and peer-marking their work.

Endurance – students taught valuable revision strategies and repetition and a route to success at GCSE

Resources:

Textbooks and revision guides: Oxford University Press GCSE Chemistry for Combined Science (Trilogy) textbook (available online via Kerboodle), Oxford University Press GCSE Chemistry for Combined Science (Trilogy) revision guide, Oxford University Press GCSE Chemistry for Combined Science (Trilogy) workbook (Foundation and higher tier editions available).

Websites: BBC Bitesize, GCSEPod, Focus eLearning, Physics and Maths Tutor

How parents can help their child:

Regularly check Class Charts to keep track of homework that has been set and make sure that test dates are noted.

Assist with homework where possible and make sure that students are revising for tests using revision guides, Kerboodle and BBC Bitesize.

Liaise with teachers and attend Parents' evening.

Secure copies of the Oxford University Press GCSE Chemistry for Combined Science (Trilogy) revision guide and workbook, available through the school via parentmail.

Encourage students to create and use revision resources for their current and previous learning, such as flash cards, and to source and attempt past paper questions via the Physics and Maths Tutor website.

What we study and when:					
Term	Unit, Topic Or Summary Of Work Covered	Knowledge, Understanding & Skills Developed	ACHIEVE / Personal Development Focus	How The Work Is Assessed	Careers Links
1	P3 Energy resources (+ introduction to energy stores)	<ul style="list-style-type: none"> Identify the energy stores and transfers in a variety of different scenarios Apply law of conservation of energy Explain why the world needs to move away from fossil fuels Describe the energy changes in a power station Describe how the National grid works Explain how the National grid meets the needs of consumers when demand changes Evaluate the pros and cons of seven renewable energy resources including solar, geothermal, wind, wave, tidal, biomass, hydroelectric power 	Versatility – evaluate pros and cons of the world’s energy alternatives	<p>P3 six-mark question</p> <p>P3 end of topic assessment</p>	Climate scientists use this knowledge to understand global warming, and the best energy sources for the future
2	P2 Energy transfer by heating	<ul style="list-style-type: none"> Describe methods of heat transfer through solids, liquids and gases Define thermal conductivity Explain how heat transfers through metals by conduction Describe heat transfer by infrared radiation Describe how different surfaces affect the amount of infrared radiation absorbed, emitted, and reflected Define specific heat capacity Explain factors affecting how different materials increase in temperature Calculate specific heat capacity Describe different methods of insulation in buildings, and their impact on the environment 	Collaboration – complete required practical using group work	<p>P2 six-mark question</p> <p>P2 end of topic assessment</p>	Civil engineers need a good understanding of how different materials conduct heat to ensure structures don’t buckle, for example bridges expand on hot days
3 & 4	P1 Energy stores and transfers	<ul style="list-style-type: none"> Identify the energy stores and transfers in a variety of different scenarios Calculate kinetic energy and gravitational potential energy using equations (FIFA method) Define power and calculate using an equation Describe how energy is wasted in devices 	Ambitious – Use complex calculations to solve physics problems (FIFA method)	<p>P1 calculation question</p> <p>P1 end of topic assessment</p>	Architects designing sustainable homes to reduce unwanted heat loss as much as possible and improve efficiency

		<ul style="list-style-type: none"> • Understand the concept of efficiency, and use an equation to calculate it • Describe how to improve efficiency in devices 			
5	P6 Molecules and matter	<ul style="list-style-type: none"> • Define density, and explain how materials have different densities • Calculate density using an equation • Describe how particles are arranged in different states of matter • Explain properties of states of matter such as compressibility, shape using kinetic theory • State and apply conservation of mass • Define internal energy and describe how it changes when a substance is heated • Define and calculate latent heat of fusion and vaporisation • Describe and explain the effect of increasing temperature on pressure of a gas • Describe and explain the effect of changing volume on pressure of a gas • Make calculations involving $P \times V = \text{constant}$ 	Collaboration – complete required practical using group work	<p>P6 calculation question</p> <p>P6 end of topic assessment</p>	Food scientists need to understand how different substances change state in the manufacture of different foods such as confectionary
6	Practical skills	<p>Develop practical skills in preparation for starting GCSEs properly in Year 10. In particular develop:</p> <ul style="list-style-type: none"> • Graph drawing • Identifying errors • Planning methods • Interpreting data 	Collaboration – complete required practical using group work	Six mark question	