

A-Level Physics

Welcome to A-Level Physics. Throughout the 2 years of A-Level Physics you will have the opportunity to study some familiar topics such as forces, motion, energy and work. A-Level Physics will allow you to apply some of your knowledge from GCSE science to a range of different fields of physics to develop your ability to describe and explain how the universe works using logic, critical thinking, reasoning and mathematics. I am really excited to start this journey with you in September.

Mr Lucas- Deputy Head of Science

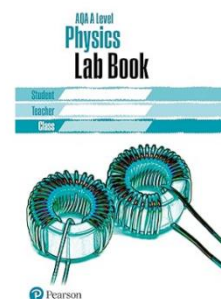
Understanding the course

Specification	AQA Physics A Level
Exams	All exams are at the end of Y13 Paper 1: AS content 2 hours Paper 2: A2 content 2 hours Paper 3: All content including optional unit 2 hours In-class practical endorsement of skills in practical science
Teacher	Mr Lucas llucus@yateacademy.co.uk

Course requirements

Please come prepared to your first lesson with the following materials:

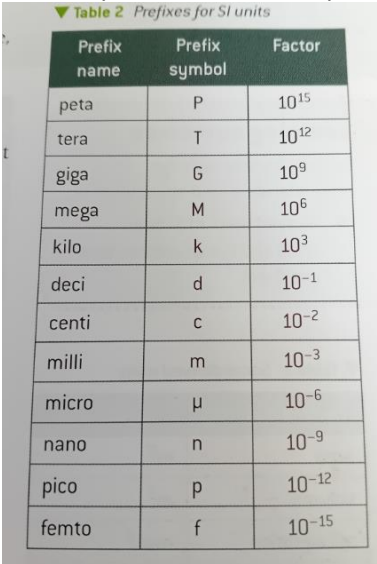
- Pencil case with black pens, pencils, ruler, rubber
- A scientific calculator
- 2 lever arch folders
- AQA A-Level lab book
- 1 blank, lined exercise book for independent study
- A diary or planner



Summer bridging work

To ensure you start the year as successfully as possible, please come to your first lesson having completed the following tasks.

Consolidate

Task	Time expected	Complete
<p>Foundations in Physics:</p> <p>Create a table that shows SI units that will be used in calculations.</p> <p>Example: Quantity: Length SI unit: Meters (m)</p>	30 minutes	
<p>Foundations in Physics:</p> <p>Use the prefix table to complete the following unit conversions:</p>  <p>1) Convert 1.25kA into A 2) Convert 234mm in m 3) Convert 0.567s into ms 4) Convert 10nm into pm 5) Convert 12Gm into Mm 6) Convert 32 Kg into g</p>	30 minutes	
<p>Create a comparison table which outlines the differences between:</p> <p>a) Vector and Scalar quantities with examples b) Atoms and isotopes c) Stable and unstable nuclei</p>	30 minutes	

Extend

Pick one of the videos or podcasts in the list to listen to or watch. Summarise the key points.

Topic	What is it about?	Link
Quantum Physics	<p>Quantum Physics for 7-Year-Olds</p> <p>In this light-hearted talk Dominic Walliman gives us four guiding principles for easy science communication and unravels the myth that quantum physics is difficult to understand, it's all in how it's explained. Dominic Walliman is a physicist, and award-winning science writer. He received his PhD in quantum device physics from the University of Birmingham and currently works at D-Wave Systems Inc., a quantum computing company in Vancouver.</p>	<p>https://www.youtube.com/watch?v=ARWBdfWpDyc</p> <p>Watch time: 15 minutes</p>
Time and Space	<p>Does time exist?</p> <p>The earliest time measurements were observations of cycles of the natural world, using patterns of changes from day to night and season to season to build calendars. More precise time-keeping eventually came along to put time in more convenient boxes. But what exactly are we measuring? Andrew Zimmerman Jones contemplates whether time is something that physically exists or is just in our heads.</p>	<p>https://www.youtube.com/watch?v=R3tbVHIsKhs</p> <p>Watch time: 6 minutes</p>
Schrodinger's cat- Quantum Mechanics	<p>A thought experiments</p> <p>Austrian physicist Erwin Schrödinger, one of the founders of quantum mechanics, posed this famous question: If you put a cat in a sealed box with a device that has a 50% chance of killing the cat in the next hour, what will be the state of the cat when that time is up? Chad Orzel investigates this thought experiment.</p>	<p>https://www.youtube.com/watch?v=UjaAxUO6-Uw</p> <p>Watch time: 6 minutes</p>