



# Physics ( AQA )

## Physics (AQA)

Physics is at the heart of everything – making it the basis of all modern science and technological developments. You'll delve inside the nucleus to discover sub-atomic particles, consider the true nature of light and how its properties may be exploited, and develop a deeper understanding of the laws of physics underpinning the workings of the universe. It's a course to develop your imagination, investigative skills and mathematical ability – attributes that are recognised as an asset for a successful career in any field.

### Core content

- 1 Measurement and their errors
- 2 Particles and radiation
- 3 Waves
- 4 Mechanics and materials
- 5 Electricity
- 6 Further mechanics and thermal physics
- 7 Fields and their consequences
- 8 Nuclear physics
- 9 Astrophysics
- 10 Medical Physics
- 11 Engineering Physics
- 12 Turning points in physics
- 13 Electronics

In these sections you will be introduced to the fundamental properties and nature of matter and radiation. You will learn about quantum phenomena and develop previous GCSE studies on electrical phenomena.

You will also develop your understanding of forces, momentum and energy. Learning how materials behave under stress and discover more about wave behavior.

There are required practical activities throughout the year that cover a wide range of the topics above and this will form 15% of the total exam based assessment. There will be no separate investigative skills assessment it will be tested within the other exams.

**Assessment** There are 3x 2 hour-papers to sit at the end of Y13:

**Paper 1**, assesses sections 1-5 and 6.1 (Periodic motion). This paper represents 34% of their A level and it's worth 85 marks, 60 of which will be short and long answer questions and 25 multiple choice.

**Paper 2**, assesses sections 6.2 (Thermal Physics), 7 and 8, and assumes knowledge of sections 1-6.1. This paper represents 34% of their A level and it's worth 85 marks, 60 of which will be short and long questions and 25 multiple choice on content.

**Paper 3**, assesses practical skills and data analysis in Section A and the optional topic chosen out of 9-13 in Section B. It is worth 32% of their A level and will have 80 marks, of which 45 will be short and long answer questions on practical experiments and data analysis and 35 will be short and long answer questions on the optional topic.

There are also 12 required practicals the students will perform over the two years, collecting a practical endorsement certificate along with their A level Physics.

### Teaching

Lessons will be varied and allow students to work both independently and within groups. The majority of lessons will have some practical element. Students may lead some parts of lessons as well as share in the assessment of their own work and that of their peers. Subject matter will be placed in context wherever possible so that you can see how physics relates to real life.

### The Future

Physicists are in demand throughout the world. A Physics A-level can open the doors to many different careers; from teaching, through industrial applications, to the healthcare professions. The skills, knowledge and understanding developed during the course make the qualification highly desirable for medics and essential for all kinds of engineers. The qualification can lead to pure Physics at university or a specialist degree such as Physics with Astrophysics.



# Independent Learning

## Independent learning tasks in Physics

<p>1. Read the relevant chapter in the textbook either before or after the lesson. Make a glossary of precise definitions; learn symbols, laws and derivations. Create a section of your file where you keep all your revision materials. Test yourself and each other.</p>	
<p>2. Do extra practice questions from the course text and from other texts e.g. Advanced Physics for You. It is better to use ones which have mark schemes so you can check your answer. Ask for help if you need it or attend drop in sessions where you can talk to a teacher or other students.</p>	
<p>3. Write a list of things you are given as feedback when you've had a piece of work marked, even if you've checked the answer yourself. Use the list to record your progress and refer to your table when you complete tasks and before you have a test.</p>	
<p>4. Join in Isaac Physics (<a href="https://isaacphysics.org/">https://isaacphysics.org/</a>). That's a website designed by Cambridge University that aims at helping you stretch your thinking skills.</p>	
<p>5. When you are struggling, ask for help - attend drop in sessions. Assess what you are good at, and what you need to improve. Know what you need help with before you arrive at drop in, be specific and clear so you can say which area you need to work on.</p>	
<p>6. Read around the subject by signing up to the BBC News emails or magazines like:</p> <ul style="list-style-type: none"><li>• BBC Focus Magazine and</li><li>• New Scientist (free with the school subscription).</li></ul> <p>Copies of these and other journals can be found in the library. You could also read popular science books about areas that you are studying.</p>	