

Subject: Physics

Exam Board: OCR-Physics A

Welcome to A-Level Physics. We are delighted that you are considering this A-level as an option in Year 12 and 13. To demonstrate your commitment to the course and to prepare you for September, you must complete the following tasks to the best of your ability. These tasks are compulsory and must be completed prior to your first lesson in Year 12.

Learning Objectives:

- To consolidate key mathematical techniques needed for A-Level Physics
- To understand the range of support available to support your progression as independent learners of Physics.
- To familiarise yourself with the A-Level course.

Contacts for Support:

- Mr Melland
- Miss Thorley

What is Physics?



Physics is the study of the fundamental behaviour of the universe. Together we will study how objects interact through forces and how this influences their motion. We will study energy and how energy transfers can be used to understand how the world behaves. We go on to look at how energy can be transferred through electrical circuits and in waves and how the wave model of light is challenged by the rise of quantum physics. Finally, in year 12, you will investigate how forces influence the behaviour of materials.

In Year 13, you will build on your prior work on forces to investigate more complex motion including circular and harmonic motion. You will then use these ideas of circular motion along with an understanding of gravitational fields to explain the motion of the stars, planets and satellites and then extend this to a broader study of astrophysics. You will study thermal physics and gases which provides a vital foundation for further study in many engineering fields. You will go on to study electromagnetism and capacitors, using your foundations on electricity from Y12. Finally, you will study nuclear and particle physics and look at the application of these to medical physics.

Task 1:

The platform that we use for most of your homework throughout the course is Isaac Physics. You will need to sign up at isaacphysics.org. Once you have created an account, click on 'My Account' near the top of the page and then 'Teacher Connections'. In this box enter the code below to join the 2023-2025 A-Level Physics Group.

FZ2BG2

You now need to complete the three question sets (A1, A6 and A10) covering the maths skills which will support your Y12 Physics. You should answer these on file paper, including full working to be handed in during the first lesson in September. You should also enter your answers electronically into the Isaac Website.

Task 2:

This task is to help you familiarise yourself with the range of resources able to support you.

1. Watch the video from Physics Online Youtube about resolving Vectors:
<https://www.youtube.com/watch?v=2kHCvtTjOJs>
2. Watch this video on resolving vectors from Science Shorts Youtube:
<https://www.youtube.com/watch?v=0TGTSLn3dsc>
3. Read page 16-17 in the Kerboodle text book and complete questions 1-3:
<https://www.kerboodle.com/app/courses/73080>

To login to your Kerboodle, you'll need the following:

Username: first initial of your first name followed by your surname as one word (Ben Smith becomes bsmith)

Password: Same as your username if you've not logged in before

Institution code: ni5

Task 3:

Visit the OCR website and download a copy of the specification for OCR Physics A. You should read through section 2 to identify the topics you are covering and the exams that you will sit in Y13.

You also need to organise your folder. This should be a ring binder or lever arch file with the following sections (use dividers to separate these):

1. Equation Sheet and Overview
2. Topic 2 – Foundation of Physics Class work
3. Teacher 1 Homework and Assessments. (*Task 1 should be filed here*)
4. Topic 3 – Force and Motion Class Work
5. Teacher 2 Homework and Assessments
6. Sixth Form Seven Work. (*Task 2 should be filed here*)