Highdown School and Sixth Form Centre

Physics Induction Course Information and Pre-Course Task Instructions

PHYSICS – Course Information

Subject content

3.1 Measurements and Errors

- 3.1.1 Use of SI units and their prefixes
- 3.1.2 Limitation of physical measurements
- 3.1.3 Estimation of physical quantities

3.2 Particles and Radiation

- 3.2.1 Particles
- 3.2.2 Electromagnetic radiation and quantum phenomena

3.3 Waves

- 3.3.1 Progressive and stationary waves
- 3.3.2 Refraction, diffraction and interference

3.4 Mechanics and materials

- 3.4.1 Force, energy and momentum
- 3.4.2 Materials

3.5 Electricity

- 3.5.1 Current Electricity

3.6 Further mechanics and thermal physics

- 3.6.1 Periodic motion
- 3.6.2 Thermal physics

3.7 Fields and their consequences

- 3.7.1 Fields
- 3.7.2 Gravitational fields
- 3.7.3 Electric fields
- 3.7.4 Capacitance
- 3.7.5 Magnetic fields

3.8 Nuclear Physics

- 3.8.1 Radioactivity

3.11 Engineering Physics (Options topic)

- 3.11.1 Rotational dynamics
- 3.11.2 Thermodynamics and engines

LEARNING & ASSESSMENT:

A Level

Paper 1- Sections 3.1-3.5 and 3.6.1 (2 hours) 85 marks, 34% of the total marks.
Paper 2- Sections 3.6.2-3.8 (2 hours) 85 marks, 34% of the total marks.
Paper 3- Part A: *Compulsory Section*: Practical skills and data analysis
Part B: *Options Section:* Engineering Physics
(2 hours) 80 marks, 32% of the total marks.

In the new specifications, there are no separate practical assessments, however, there are 12 core practicals that cover the 12 practical techniques that candidates are expected to know. Students must show secure competence across 11 Core Practical Assessment Criteria.

COURSES & CAREERS:

Physics remains a popular choice of A Level at Highdown School and a highly respected one by universities and employers worldwide.

We hold the highest expectations for your commitment and success and have a tradition of good results at A2 Level. In the last few years, students have gone on to study a range of Physics and Engineering-based degrees, among others.

Studying sciences gives many opportunities for further study. Science related degree courses are a natural choice, but Physics can also lead to Finance, Data Science, Law and Design.

What we offer you:

- Learning schedule for the year so you know what to expect in your lessons and what to revise
- Weekly afterschool drop-in sessions for homework or exam help
- Regular homework that is either self-marked or marked by your teacher
- Regular assessment so you can track your own progress
- Revision help and exam technique
- Help with practical skills and techniques
- Enthusiastic teachers with a passion and love for Physics!

How will I study A level Physics?

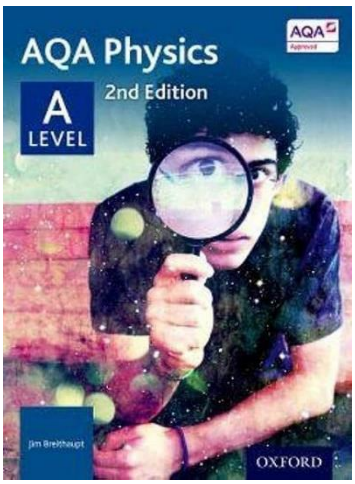
Your teachers will lead you through the course material, involving a variety of different teaching and learning styles. These will include many hands-on activities including: practical work; derivations of laws and principles; using software to demonstrate physical phenomena; presentations; and researching topics using textbooks and the internet.
You will be assessed regularly so that you can identify areas of strength and those for further development in your independent study periods.

Why choose Physics?

Physicists attempt to understand the fundamental mathematical relationships that govern natural phenomena and apply those relationships to interesting problems. The main reason to study physics is because you are curious about how the world works.
Studying Physics will not only equip you with understanding of physical concepts but you will be trained to think logically, and become red-hot at problem solving. Because of this, universities and employers hold those who tackle Physics in highest regard.

What we expect from you:

- A can-do attitude
- Hard work, in and out of the classroom
- A willingness to try new things and stretch yourself
- Good time management to get homework in on time
- Independence so you always strive to do your best
- Enthusiasm for Physics



Pre-Course Task Instructions

To help you prepare for beginning the course in September you will complete some transition activities on Isaac Science (www.isaacscience.org).
To access these:

1. Go to Isaac Science (www.isaacscience.org) and sign up for an account.
2. Log in if not already logged in.
3. Go to 'My Account'
4. Click on 'Teacher connections'
5. Enter the code: M2VAWA – you should find a group called 'A Level Transition 2026'
6. Click on 'My Isaac', then 'My Assignments'
7. Find the **3 gameboards that are set for you to complete**.
8. You can also play around on Isaac Physics to see:
    a. How to access gameboards
    b. How to find questions
    c. How to find lesson videos

    There will be a prize for the greatest number of questions completed by September.

There are additional resources online that we commend, including "Physics Online"'s Daily Workout booklet, and videos which can be found via physicsonline.com. These are optional, however we recommend exploring the wealth of resources available to students ahead of the course, whatever form this may take.

Textbook access is necessary from September, going hand-in-hand with lesson content and for you to complete your independent study tasks. Access will be available online, and if you have laptop access during the school day, this is sufficient. If necessary or if preferred, the Year 1 and Year 2 textbooks can be ordered on Amazon.

You will need the Year 1 book from September, and we normally move onto the Year 2 content in around June of Year 12. There is also a combined Year 1 and Year 2 book that contains all the content in 1 (pictured at the top of the page)! Finally, there is a recommended 'Oxford Revise' Revision book which current A Level students have found very useful. An image is at the top of the page on the right.

I hope that this does not sound too scary – it will help give you the best possible start to your studies.

We hope you have enjoyed your Physics induction on the 22nd June and have a fantastic holiday.

The Physics Team

A Level Physics

Expectations of students taking A level Physics (In addition to the general expectations of Highdown Sixth Form)

Students are expected to:

- Attend all lessons
- Be on time
- When absent
    - Notify staff by email in advance if they know they will be absent or late
    - Copy notes from other class members
    - See staff if they have a problem with these notes
    - Find out what the homework is
- No food or drinks allowed in lessons
- Have a positive and collaborative attitude in all lessons
- Contribute to the classroom when they feel able
- Take a full part in the practical work throughout the course
- Regularly check Teams for homework and other announcements
- Attempt homework on the night it's set
- Seek help in advance of the deadline if they do not understand it
- Make full use of the drop in sessions
- Hand in all homework on time
- Keep a set of notes at home in a file/folder that is:
    - Organised on a unit and/or teacher basis
    - Kept neat and tidy at all times
- Update a copy of the specification as a Personalised Learning Checklist
- Complete independent study tasks after each lesson to include from the following list:
    - Uplearn assignments
    - Exam question sets
    - Complete classwork questions
    - Glossary of key terms
    - Workbook questions
- Write up required practicals as soon as possible in your required practical book

Teacher signature: _____ Student signature: _____