

Year 11 into 12 Bridging the Gap

Summer Work for 2020 Entry



St Philip Howard
SIXTH FORM
Learn, Grow, Achieve

We want you to be really successful and what it takes to be successful at GCSEs is different from being successful at A-Levels. Although you have fewer subjects there are different skills at A-Level and the volume of work is greater because the depth and detail is more demanding.

Bridging the Gap Work will reassure you that the subject you have selected is for you, or allow you time to change your choice of subject at enrolment, as long as there is space and you meet the entry criteria. We want you to study a course that interests you and you are sufficiently qualified to study.

Subject: PHYSICS

Head of Subject: MR WATSON

Aim of Bridging Work:

To recap and extend the most relevant (often high level) parts of the GCSE which will help in A-level physics next year.

In this first week's work you will look at **Units, Prefixes and Vector Quantities**

Equipment List :

Scientific (Maths) calculator
Pens, Pencils
Ruler, Protractor, Compass
A4 Note paper or an exercise book
File or folder (to keep your work organised!)

Textbook(s) for September:

[New A-Level Physics for AQA: Year 1 & 2 Student Book](#) (These can be purchased from the science department in September at a reduced price)

Reading List:

(see below)

Tasks

1 Download Textbook

To prepare you for the A-level the following textbook will be very useful. It is available FREE as a download (works on Kindle or iPad kindle app) **Please download it!**

Head Start to Physics (CGP) <https://www.amazon.co.uk/gp/product/B00VE2NII4/>

Over the next few weeks I will be setting work from it regularly, along with activities and stretch and challenge questions.

2 Quantities and Units (page 1)

- Read the page about quantities and units. Make sure you can remember all of the symbols and units.
- Prefixes: you need to learn all of the prefixes and their symbols (kilo, mega, milli, pico)

TASK 2: Make a set of flash cards with, say, five units, quantities or prefixes on one side, and their symbol or meaning on the other, so you can test yourself until you know them off by heart.

Tasks

3.A Vectors and Scalars

- All quantities can be either vectors or scalar quantities.
- Look up the meaning of **vectors** and **scalars**.
- Write a brief definition for each and give several examples of each

3.B Using scale drawings to represent vector quantities and solve problems (page 3 and top half of 4)

- Read the pages about vector drawings (p3 to 4)
- Make notes and think about how you would draw these accurately (practise questions below)

3.C Finding Components of Vectors (page 5)

- Read the pages about using Pythagoras to add vectors that are at right angles (bottom half of page 4)
- and using trigonometry to split a diagonal vector into components (page 5)

Further resources: take a careful look at the following

- Have a look at the following site for further help:
<http://alevelphysicsnotes.com/mechanics/vectors.html>
- Watch this video explaining how you use scale drawings:
<https://www.youtube.com/watch?v=WxDogIJXKaY>
- Slightly higher level example: <https://www.youtube.com/watch?v=sXKiAKn0WCM>

4. Practise Questions

Complete the exam questions (28 marks). You will need to print them out as they contain scale drawings.

Try to do the questions properly like you would in an exam. Physics is about solving problems, so treat them like puzzle questions: think, try, try again, be persistent!

Try to complete each question fully before looking at the mark scheme. If you get stuck persevere for a while - perhaps go back to the textbook or videos for help or phone a friend. There are tips throughout the booklet if you need them.

If you get totally stuck or if you get an answer wrong, spend time looking carefully at the mark scheme and try to understand the correct method, or find out where you went wrong.

Do not panic if you find some of the questions hard - they are A level standard after all!

Keep a tally of your marks. Here are some grade boundaries to aim for:

10 E 13 D 16 C 19 B 22 A

TIP: A couple of the questions require GCSE Physics formulae – feel free to look these up. At A-level you will be given a formula sheet and do not need to memorise them.