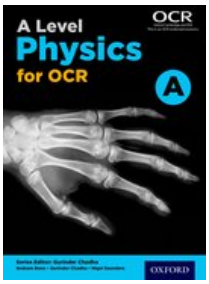
Coombe Wood Year 12 Bridging Work 2026/27

SUBJECT: Physics
HEAD OF DEPARTMENT NAME: Mr Watkins
TEACHER EMAIL: rwatkins@coombewoodschool.co.uk

We recommend you purchase the following textbook for this subject area:



A Level Physics A for OCR Student Book
Author: Series Editor Gurinder Chadha, Author Graham Bone, and Author Nigel Saunders
ISBN: 9780198352181

All bridging work must be completed by 25/9 and forms part of your Pupil Passport at Coombe Wood Sixth Form.

Suggested reading	Suggested Podcasts	Useful Websites
Seven Brief Lessons on Physics by Carlo Rovelli Six Easy Pieces by Richard Feynman How to Teach Quantum Physics to Your Dog by Chad Orzel The Particle at the End of the Universe by Sean Carroll Astrophysics for People in a Hurry by Neil deGrasse Tyson Thing Explainer: Complicated Things in Simple Words by Randall Munroe	The Infinite Monkey Cage (BBC Radio 4) StarTalk Radio Why This Universe? For the Love of Astrophysics The Life Scientific (BBC Radio 4) Physics World Weekly A-level Physics Revision Bites (by SnapRevise)	The Official OCR Website A Level Physics Online (alevelphysicsonline.com) GorillaPhysics (YouTube / website) Physics & Maths Tutor (PMT) Isaac Physics (isaacphysics.org) PhET Interactive Simulations (phet.colorado.edu)

BRIDGING TASKS

Solve the following:

1. How many metres in 2.4 km?
2. How many joules in 8.1 MJ?
3. Convert 326 GW into W.
4. Convert 54600 mm into m.
5. How many grams in 240 kg?

6. Convert 0.18 nm into m.
7. Convert 632 nm into m. Express in standard form.
8. Convert 1002 mV into V. Express in standard form.
9. How many eV in 0.511 MeV? Express in standard form
10. How many m in 11 km? Express in standard form.

At A level quantity will be written in standard form, and it is expected that your answers will be too.

This means answers should be written as ….x 10^{y}. E.g. for an answer of 1200kg we would write 1.2 x 10^{3}kg.

1. Write 2530 in standard form.
2. Write 280 in standard form.
3. Write 0.77 in standard form.
4. Write 0.0091 in standard form.
5. Write 1 872 000 in standard form.
6. Write 12.2 in standard form.
7. Write 2.4 x 10^{2} as a normal number.
8. Write 3.505 x 10^{1} as a normal number.
9. Write 8.31 x 10^{6} as a normal number.
10. Write 6.002 x 10^{2} as a normal number.
11. Write 1.5 x 10^{-4} as a normal number.
12. Write 4.3 x 10^{3} as a normal number.

2. At GCSE you studied forces and motion and at A level you will explore this topic in more detail so it is essential you have a good understanding of the content covered at GCSE. You will be expected to describe, explain and carry calculations concerning the motion of objects. The website below cover Newton's laws of motion and have links to these in action.
http://www.physicsclassroom.com/Physics-Tutorial/Newton-s-Laws

Sketch a velocity-time graph showing the journey of a skydiver after leaving the plane to

reaching the ground. Mark on terminal velocity.

3. To get the best grades in A Level Physics you will have to get good at completing independent research and making your own notes on difficult topics. Below are links to 5 websites that cover some interesting Physics topics.
   Using the Cornell notes system: http://coe.jmu.edu/learningtoolbox/cornellnotes.html make 1 page of notes from each site covering a topic of your choice.

   1. http://home.cern/about
   CERN encompasses the Large Hadron Collider (LHC) and is the largest collaborative science experiment ever undertaken. Find out about it here and make a page of suitable notes on

the accelerator.

2. http://joshworth.com/dev/pixelspace/pixelspace_solarsystem.html

The solar system is massive and its scale is hard to comprehend. Have a look at this award winning website and make a page of suitable notes.

3. https://phet.colorado.edu/en/simulations/category/html

PhET create online Physics simulations when you can complete some simple experiments online. Open up the resistance of a wire html5 simulation. Conduct a simple experiment and make a one page summary of the experiment and your findings.

4. http://climate.nasa.gov/

NASA's Jet Propulsion Laboratory has lots of information on Climate Change and Engineering Solutions to combat it. Have a look and make notes on an article of your choice.

5. http://www.livescience.com/46558-laws-of-motion.html

Newton's Laws of Motion are fundamental laws for the motion of all the object we can see around us. Use this website and the suggested further reading links on the webpage to make your own 1 page of notes on the topics.

MATHS SPECIFIC QUESTIONS (IF APPLICABLE IN YOUR SUBJECT)

This is something you will have done at GCSE and it is crucial you master it for success at A level. For a recap of GCSE watch the following links:

www.khanacademy.org/math/algebra/one-variable-linear-equations/old-school-equations/v/solving-for-a-variable

www.youtube.com/watch?v=_WWgc3ABSj4

Rearrange the following:

1. E=m x g x h to find h
2. v = u + at to find a
3. Q= I x t to find I
4. $v^2 = u^2 + 2as$ to find s
5. $E = \frac{1}{2} m v^2$ to find m
6. $v^2 = u^2 + 2as$ to find u
7. $E = \frac{1}{2} m v^2$ to find v
8. v = u + at to find u