## A-Level Physics

# **Reading List and Further Research**



### Bridging to A-Level Physics at Edgbarrow School

Here is a reading list and selection of activities that can be found online for those intending to study A-level Physics at Edgbarrow School. Please note we follow the Edexcel Physics course, delivered using a concept-based course structure.

**If you studied the Combined Science course at GCSE:** Go to Kerboodle online and find the GCSE Physics textbook.

Read the following sections that are in **GCSE Physics** but not the Combined Science course, and make careful notes.

- P2 Energy Transfer by heating P2.2 and P2.3 (infrared radiation)
- P4 Electrical Circuits P4.1 (Electrical Charges and Fields)
- P6 Molecules and Matter P6.7 (Gas Pressure and Volume)
- P7 Radioactivity P7.6 (Nuclear radiation in medicine); P7.7. (Nuclear Fission);
  P7.8 (Nuclear Fusion); P7.9 (Nuclear Issues)
- P8 Forces in Balance P8.4 (Moments at work); P8.5 (More about levers and gears); P8.7 (Moments and equilibrium)
- P10 Force and Motion P10.5 (Using Conservation of Momentum); P10.6 (Impact Forces); P10.7 (Safety First)
- P11 Force and Pressure all the content is unique to the GCSE Physics course.
- P12 Wave Properties P12.5 (Sound Waves); P12.6 (The uses of ultrasound); P12.7 (Seismic Waves)
- P14 Light all the content is unique to the GCSE Physics course.
- P15 Electromagnetism P5.3 (electromagnets in devices); P15.5 (the generator effect); P15.6 (The alternating current generator); P15.7 (Transformers); P15.8 (Transformers in Action).
- P16 Space all the content is unique to the GCSE Physics course.

#### For all prospective A-level Physics students.

Go to Amazon and download a free Kindle copy of CGP's "New Head Start to A-level Physics (CGP A-Level Physics)". Free! Honestly! Or you could splash out £4.95 for a paper copy.

We are going to make extensive use of an online test site called "Isaac Physics". I'd like to start setting you some GCSE-level exercises on there so that you can get used to using it. Once I know who is planning to take Physics at A-level I will set up a group. If that includes you, send me an email andrew.kishkar@edgbarrowschool.co.uk and I'll send you some instructions. I will also include you in our Google Classroom.

#### Maths Skills

A-level Physics doesn't require any maths skills beyond those you have learned at GCSE – well, until Y13, when we make some use of logarithms. For the moment, you need to make sure that you are comfortable with:

- Rearranging equations to make any term the subject
- Using and manipulating numbers in standard form

- Understanding prefixes (milli-, micro- etc.)
- Expressing length, area and volume in different units (e.g. converting between mm<sup>3</sup>, cm<sup>3</sup> and m<sup>3</sup>)
- Understand that a straight-line graph obeys the formula y = mx + c

#### **Other resources**

- Virtual simulations of Physics processes: <u>https://phet.colorado.edu/</u>
- TED talks just browse the extensive selection. Search for particle physics, or cosmology, or energy, just about anything
- Horizon programs on BBC iPlayer (these will come and go so keep your eyes open)
- <u>www.iop.org</u> as a student of physics you can get free membership of the IOP, and access to a lot of material on their site. Some of it up to date and glossy, some of it not.
- <u>https://home.cern/</u> just go and have a look around the website. We'll be talking a lot about particle accelerators over the next couple of years, so you might as well take a look at one of the best.

Thanks – and I look forward to working with you

Mr Kishkar