

Year 12 into Year 13

Physics Summer 2021

There are three activities are compulsory which **must** be completed as part of your transition work. They must be submitted to your teacher in **your first lesson** in Year 13. Activities 1 and 2 are to be completed in an exercise book. **Satisfactory completion of this work is a condition of you progressing onto the year 13.**

You will be examined on all the material studied so far in the first week back.

The results will be used to support your UCAS applications.

Activity 1: Practical activities

- Hand write all twenty sets of experiments below into an exercise book, writing no more than half a page of A4 for each. If applicable you can also include diagrams **in addition to** half a page of writing. The write ups must be in your own words.
- For each practical with an asterisk (*) include the following:
 - A list of measurements to be taken and what measuring instruments to use.
 - A formula which connects the independent and dependent variable.
 - How you would use a graph of any results taken to produce a gradient, and the physical quantity that the gradient represents.

Please ensure that your work is neat and handed in your first lesson back.

1. * Describe an experiment using an electromagnet, trapdoor and a ball bearing to find the value of the acceleration due to gravity.
2. Describe an experiment to find the centre of gravity of an irregularly shaped piece of card.
3. Describe an experiment to investigate how the velocity of an object changes when it falls in a fluid.
4. Describe an experiment to find the density of an irregular piece of rock.
5. * Describe an experiment to check if the force applied to a spring is proportional to the extension of the spring.
6. * Describe an experiment to find the Young modulus of a wire.
7. Describe an experiment using a potentiometer to investigate the IV characteristic of (a) a filament bulb (b) a diode
8. * Describe an experiment to find the resistivity of a wire.
9. Describe an experiment to find how the resistance of an LDR changes with the intensity of light.
10. Describe an experiment to investigate Kirchhoff's first law.
11. Describe an experiment to investigate Kirchhoff's second law.
12. Describe an experiment to find the internal resistance of a battery.
13. Describe an experiment to show that light is polarised.
14. Describe an experiment to show that microwaves are polarised.
15. Describe an experiment to find the refractive index of glass and its critical angle.
16. Describe an experiment to show the interference of sound.
17. Describe an experiment to determine the wavelength of light from a laser.
18. Describe an experiment that can be used to determine the wavelength of microwaves.
19. Describe an experiment to determine the value of Planck's constant.
20. Describe the three key observations from the photoelectric effect experiment and how they are different to the wave model of light.

Activity 2: Reviewing Chapter 14 and 15

You must have a physical copy of both the OCR Physics AS and A2 textbooks OR the combined textbook. The digital textbook can also be accessed on Kerboodle via your individual Kerboodle login. For Chapter 14 - Thermal Physics and Chapter 21 - Capacitance, you must produce revision notes no longer than three pages for each chapter in an exercise book. Your notes must include equations, definitions, and a description of the relevant practical from the textbook. Bring this book into your **first lesson back**.

Activity 3: Kerboodle and Practice Exam

Physics online learning tasks have been set on the online platform Kerboodle. You **must** complete all checkpoint tasks by 6th September 2021.

If there are any issues with logging in, you should contact **Mr Potts** using the school email.

Please complete the practice exam in the final week before Autumn Term 2021

Suggested outline for completing work:

Week beginning	Activity 1, and 2	Activity 3
26.07.20	Activity 1: Write up Practical 1 to 4.	Complete Kerboodle tasks on Practical activities.
2.08.20	Activity 1: Write up Practical 5 to 8.	Complete Kerboodle tasks on Practical activities.
9.08.20	Activity 1: Write up Practical 9 to 12.	Complete Kerboodle tasks on Chapters 2 to 5.
16.08.20	Activity 1: Write up Practical 13 to 16.	Complete Kerboodle tasks on Chapters 6 to 9.
23.08.20	Activity 1: Write up Practical 17 to 20.	Complete Kerboodle tasks on Chapters 10 to 13.
30.08.20	Activity 2a: Produce summarised notes for Chapter 14 and 21. Activity 2b: Ensure all notes for Chapter 1 to 13 are organised in an exercise book.	Complete Practice A level paper which includes AS work and questions from Chapters 14 and 21.