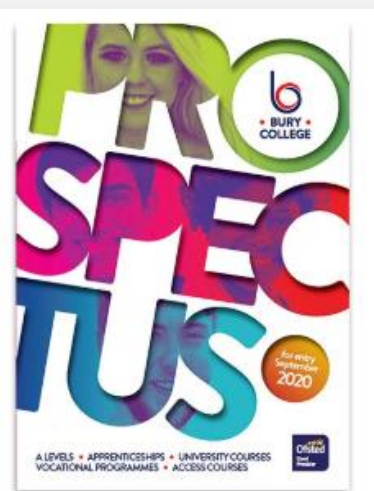


Bury College

Pre – enrolment information

BTEC Level 3 Applied Science Physics



Preparation for college

Pens

Pencils

Eraser and Sharpener

Ruler

Scientific Calculator-(the one from GCSE maths is ideal)

Notepad

Other essential resources will be provided



Waves

Waves and the Electromagnetic spectrum is something that you will have studied for your GCSE Science. We will recap this topic and build upon it during your first term at Bury, and it will form a large part of your first exam in January.

This short workbook is intended to ensure you are confident with the content covered at GCSE, which is needed for the new topics introduced on the Physics part of the BTEC Applied Science course.

Checklist of GCSE Topics you should be familiar with.

- Properties of waves (including any equations)
- Transverse and longitudinal waves (with examples of each)
- Reflection and refraction of waves
- Use of waves for detection e.g. ultrasound and P-waves/S-waves
- The electromagnetic (EM) spectrum
- Black body radiation

Tick off the topics you feel confident with. Use your GCSE notes/revision guide to go over any areas you are unsure about.

- **Useful videos:**

- Here are some links to videos which you might find useful if you need to recap any of the topics in the checklist above (the videos are all short: under 10 mins):
- <https://www.youtube.com/watch?v=aCu4VRKMstA> – Covers the basics on wave properties, and longitudinal and transverse waves
- <https://www.youtube.com/watch?v=7v2gs8rdQzU> – Covers the EM spectrum
- https://www.youtube.com/watch?v=h4jvZ_zHKYY&list=RDCMUCaGEe4KXZrjou9kQx6ezG2w&index=3 – Covers P-waves and S-Waves
- <https://www.youtube.com/watch?v=KnIualWf6Rs&list=RDCMUCaGEe4KXZrjou9kQx6ezG2w&index=4> – Covers visible light and colour
- <https://www.youtube.com/watch?v=s9wZkP64rAc> – Covers sound waves and hearing
- <https://www.youtube.com/watch?v=WDBtOeXUdWQ> – Covers reflection
- <https://www.youtube.com/watch?v=UUc44Vg5pCl> – Covers refraction
- (BBC Bitesize is also a great resource for recapping topics!)

Tasks

Complete these questions to recap/consolidate what you have previously covered at GCSE (topics are mentioned in the checklist above).

1. a) Draw a diagram of a wave and label:
 - i) Amplitude
 - ii) Wavelength

- b) Explain what is meant by:
 - i) frequency
 - ii) time period

2.
 - a) What are the differences between longitudinal and transverse waves?
 - b) Give an example of a longitudinal and transverse wave

3.
 - a) What is the equation for wave speed?
 - b) What is the speed of a wave travelling with a frequency of 10Hz and with a wavelength of 2m
 - c) What is the frequency of a wave travelling at 100m/s and with a wavelength of 50cm

4. What does the colour of green plants suggest about what light is reflected from them, and what light is absorbed?
5.
 - a) What are P-waves and S-waves?
 - b) P-waves and S-waves have been used to provide evidence about the structure on the earth. Explain why they were used for this
(Hint: draw a diagram of the earth's structure, and the path of the waves to help...)

6.
 - a) Label a diagram of the electromagnetic spectrum, starting with the shortest wavelength and going to the longest.
 - b) Write one use of each type of wave on the electromagnetic spectrum

7. Write a sentence and draw a diagram to explain:
 - a) What is meant by reflection?
 - b) What is meant by refraction