BTEC NATIONAL IN APPLIED SCIENCE

6TH FORM INDUCTION DAY 2026

WELCOME TO

BOURNE ACADEMY

INTRODUCTION TO BTEC APPLIED SCIENCE

Course Structure

Qualification title	Size and structure	Summary purpose
Pearson Level 3 Alternative Academic Qualification BTEC National in Applied Science (Extended Certificate)	360 GLH (500 TQT) Equivalent in size to one A Level. 4 units mandatory units, of which 3 are externally assessed. 2 optional units, of which one must be selected. Mandatory content (75%). External assessment (50%).	The Extended Certificate is for students who are interested in learning about the Applied Science sector alongside other fields of study, with a view to progressing to a wide range of higher education courses, not necessarily in Applied Science - related subjects. It is designed to be taken as part of a programme of study that includes A Levels.

WHAT WILL YOU BE DOING IN YEAR 12?

Unit 1 – Principles and Applications of Biology (Externally assessed June year 12)

This unit explores the key components of biological science. It will examine cells and tissues, their varied structures and functions and the biological components that interact with their existence.

Unit 2 – Principles and Applications of Chemistry (Externally assessed June year 12)

Students will explore some of the fundamental concepts which underpin the chemistry and chemical reactions of the world around them.

Unit 4 – Practical Scientific Procedures and Techniques (Internally assessed)

Students will be introduced to quantitative laboratory techniques, including chromatography, colorimetry and laboratory safety, which are relevant to the scientific laboratory environments.

WHAT WILL YOU BE DOING IN YEAR 13?

Unit 3 – Principles and Applications of Physics (Externally assessed January year 13)

Students will explore the use of practical and mathematical skills in the study of waves, motion and electricity.

Unit 6 – Contemporary Issues in Science (Internally assessed)

This unit will explore contemporary science issues and their impact on the world we live in. It will develop the students' skills of analysis and interpretation across a broad range of scientific issues while exploring how they are reported in the media and in publications.

WHAT YOU WILL NEED TO BRING IN SEPTEMBER 2026?

1st lesson, 1st week

- 2 A4 ring binder files
- 10 file dividers
- Normal class room equipment, pen, pencil, calculator etc

1st lesson, 2nd week

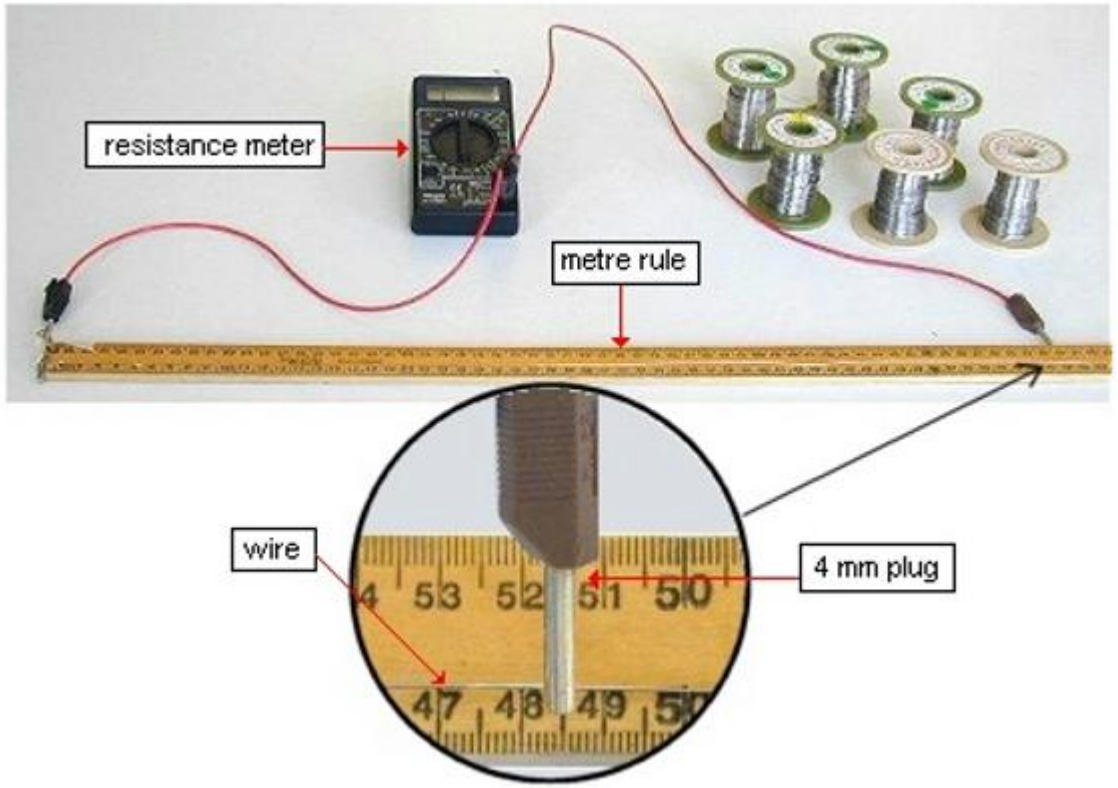
- ✓ Induction day – Resistance of a wire
- ✓ Home learning
  - Cell biology
  - Chemical bonding
  - Waves PPT
  - Research activity

RESISTANCE IN A WIRE- CHANGING THE LENGTH OF THE WIRE

- In this activity you are going to measure the resistance of the wire using an ohmmeter to measure the resistance of the wire.
- You could use an ammeter and a voltmeter and then calculate the resistance using Ohm's Law equation

$$V = I \times R$$

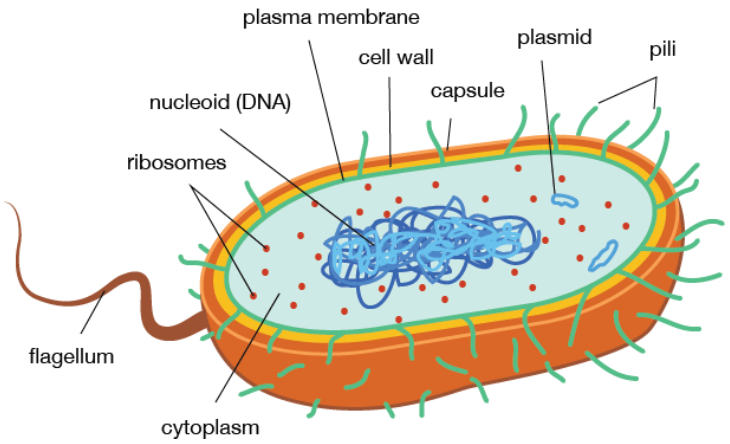
- You will be doing this investigation as a part of Unit 4 in Year 12.
- It will be extended to include other factors such as how the diameter of the wire or type of wire affects its resistance.

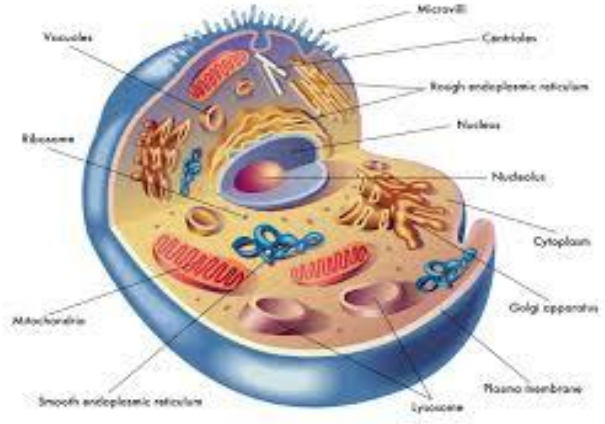


TASK 1 - BIOLOGY

1. Create and complete a table listing the structure and function of different organelles in a cell.
2. You will need to carry out some independent research to complete this task to the required standard.

All work must be your own (not copied and pasted) and all sites used need to be referenced, including any diagrams you may wish to include.

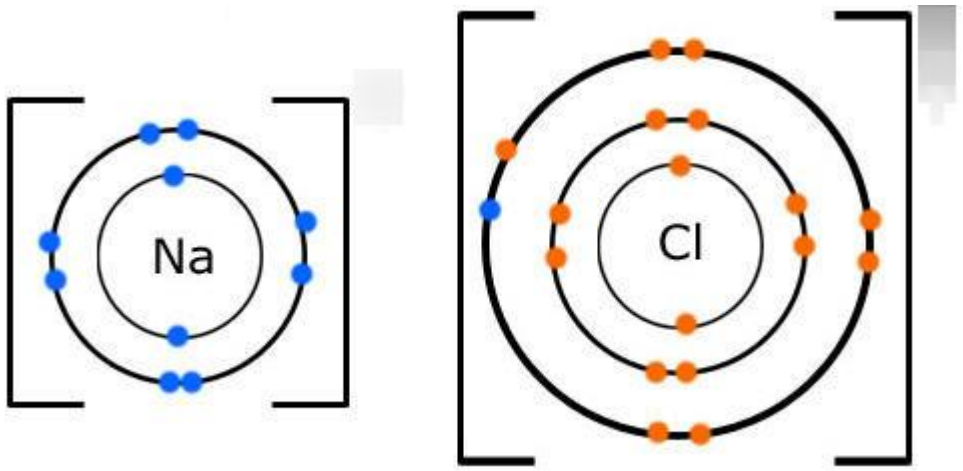


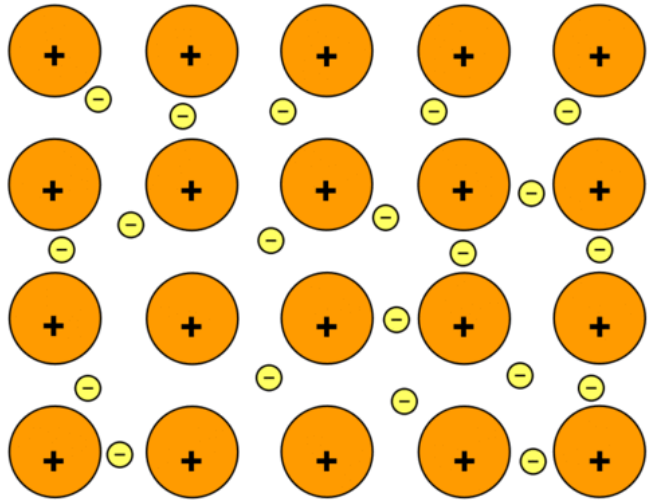


TASK 2 - CHEMISTRY

1. Think back to your GCSE work – then using the internet or other resources complete the worksheet describing the different types of bonding.

All work must be your own (not copied and pasted) and all sites used need to be referenced, including any diagrams you may wish to include.

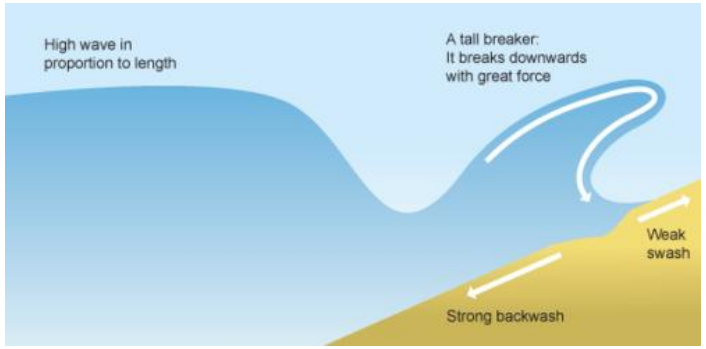


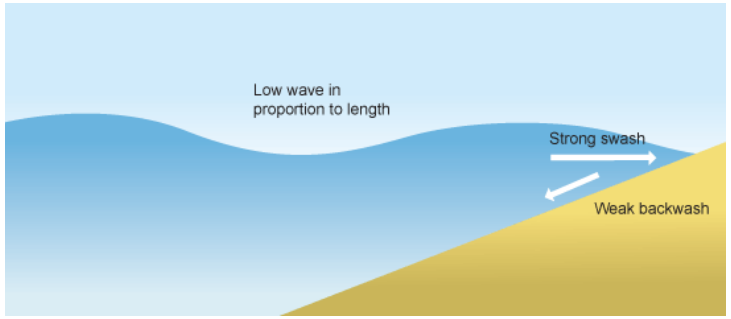


TASK 3 - PHYSICS

1. Produce a PowerPoint presentation describing constructive and destructive interference of waves.
2. Print the PPT slides - 2 slides per page
3. This needs to include clear diagrams of the phenomena as well as complete written descriptions.

All work must be your own (not copied and pasted) and all sites used need to be referenced, including any diagrams you may wish to include.





TASK 4 – RESEARCH

- **What was the history of the discovery of aspirin, how do we manufacture aspirin in a modern chemical process?**

1. Research, reading and note making are essential skills for BTEC Level – 3 Applied science study.
2. For the following task you are going to produce 'Cornell Notes' to summarise your reading.

All work must be your own (not copied and pasted) and all sites used need to be referenced, including any diagrams you may wish to include.

A WORD TO STUDENTS

- "Today's BTEC Nationals will require commitment and hard work, as you would expect of the most respected applied learning qualification in the UK. You will have to complete a range of units, be organised, take some assessments that will be set and marked externally and undertake practical tasks and assignments. But you can feel proud to achieve a BTEC because, whatever your plans in life – whether you decide to study further, go on to work or an apprenticeship – your BTEC National will be your passport to success in the next stage of your life.
- Good luck, and we hope you enjoy your course."