



Research Task – Part 1

Applied Science BTEC requires students to be able to effectively plan an experiment, safely execute the plan, gather results and process them to a conclusion. These are skills that you will have already learned over your time at Bluecoat school.

For this assignment you will be required to study a selection of experimental procedures which you will be performing in year 12.

This piece of work should be written on Word. Font Calibri, size 12, spacing 1.5.

Please include your full name in the heading and page number in the footer. You will be assessed on how well you have followed these guidelines and completed the task.

Research and answer the following questions.

1. Explain the difference between the terms accuracy, precision and reliability.
2. Define the independent variable, dependent variable and control variable.
3. Create a list of health and safety rules important in science lab.
4. Describe how to calibrate a balance, a pH meter and a thermometer.
5. Describe what a titration is and explain why scientists use them.
6. State what a bulb pipette is and explain how to use it.
7. Describe what a burette is and give an example of when they are used.
8. Define the process 'calorimetry'.
9. Draw a diagram to show a simple calorimeter.
10. Describe what a 'bomb calorimeter' is and its applications.
11. Describe what heating and cooling curve graphs show.
12. Give 3 examples of when chromatography is useful.
13. Explain how 'TLC' is different to paper chromatography
14. Explain how to use chromatograms to calculate 'Rf values'.
15. Identify three skills you already possess that will help you in BTEC applied science lessons and three skills you need to improve.



**Plan, perform and write-up your own experiment –
Part 2**

Unit 3 of the Applied Science BTEC requires students to be able to effectively plan an experiment, safely execute the plan, gather results and process them to a conclusion. These are skills that you will have already learned over your time at Bluecoat school.

For this assignment you will be required to devise your own experiment that can be performed at home. You will gather data and present it in a full write-up.

This piece of work should be written on Word. Font Calibri, size 12, spacing 1.5.

It is easy to find inspiration for an experiment but you will need to test a hypothesis. Examples of some simple activities are on this site, but do not restrict yourself to just these ideas.

<https://momypoppins.com/kids/50-easy-science-experiments-for-kids-fun-educational-activities-using-household-stuff>

You will need to:

- Choose a suitable experiment
- Gather background information
- Identify variables
- Set a hypothesis
- Risk assess
- Perform the experiment and gather data
- Process data
- Present data in a suitable format
- Justify a conclusion
- Evaluate your experiment
- Reference any materials that you have used from other authors



The quality and quantity of work presented will give an indication of how likely you are to succeed on the course.