

Subject: *BTEC National Extended
Certificate in Applied Science*

Exam Board: *Pearson*

Welcome to BTEC Applied Science. We are delighted that you are considering this BTEC as an option in Year 12 and 13. To demonstrate your commitment to the course and to prepare you for September, you must complete the following tasks to the best of your ability. These tasks are compulsory and must be completed by Friday 15th July.



We expect you spend at least 3-4 hours completing the tasks outlined in this pack. The activities have been designed to help you begin to develop some of the key skills you will need for BTEC Applied Science

Learning Objectives:

1. Recap how to use a microscope and prepare a microscope slide during a practical to identify gram positive and gram negative bacteria
2. Complete a research task to explain why gram negative bacteria are less susceptible to antibiotics
3. Recap formulas for mole calculations and use these to complete real life examples
4. Carry out a titration and use results to calculate molar concentrations

Contacts for Support:

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What is Applied Science?



The BTEC Applied Science course is for learners who want to continue their education through applied learning. It provides a vocational context in which learners can develop the knowledge and transferable skills required for employment or higher education. These include; reading scientific and technical texts, effective writing, analytical skills and practical skills.

The course will cover fundamental elements of biology, chemistry and physics, practical laboratory skills as well as how to carry out a scientific investigation.

Skills you will have learnt upon completion of Applied Science:

- How to research, present and reference an extended piece of written work
- How to be competent and confident when carrying out practical laboratory skills
- How to present a practical report
- How to interpret, analyse and evaluate higher level responses to scientific questions

Overview of lessons:

Lesson 1: Carry out a gram stain. This will include staining two different types of bacteria, observing them under a microscope and determining what they are

Lesson 2: Learn the theory behind gram staining and how gram positive and gram negative bacteria differ. Write up this work as a fully referenced research task.

Lesson 3: Learn how to carry out mole calculations and complete examples of questions on this topic

Lesson 4: Carry out a titration and use mole calculations to determine the concentration of solutions

Homework Tasks to be completed:

Task 1: Complete a practical write up for the gram stain technique with a detailed explanation of why each stage was carried out

Task 2: Complete a fully referenced research task on why gram negative bacteria are less susceptible to antibiotics

Task 3: Complete a practical write up of a titration with accompanying relevant mole calculations



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