



The Sixth Form at George Abbot

'Academic excellence within a vibrant community.'

Subject: Applied Science (BTEC)

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Pre Sixth Form Tasks

The following tasks are to be completed and brought to your first BTEC Science lesson. The links below will be useful in enabling you to complete the tasks effectively:

Atomic and electronic structure

<https://www.youtube.com/watch?v=H0rFDakTI-0>

Ionic and Covalent bonds

<https://www.youtube.com/watch?v=wQ3NJUKKcTU>

History of the microscope

<https://www.youtube.com/watch?v=Ue-86MDmjns>

Cell structure

<https://www.youtube.com/watch?v=URUJD5NEXC8>

Specialised cells

<https://www.youtube.com/watch?v=RqbkTT63yeE>

Structure and function of the blood

<https://www.youtube.com/watch?v=noMsCGRkwSE>

Longitudinal and transverse waves

<https://www.youtube.com/watch?v=ZADaRGEUCDw>

Electromagnetic spectrum

<https://www.youtube.com/watch?v=HPcAWNIVI-8>

Resources to be used

Any A Level/GCSE Chemistry textbooks are a good start point, as are any revision guides. Many, many internet resources are available but BBC Bitesize is always a good place to start.

What equipment will be needed for the subject?

Students will be expected to provide basic stationery and a scientific calculator. A course textbook will be provided but students may wish to purchase additional study guides. This may be available for students to purchase at a lower price from George Abbot School during the first academic term.

TASK 1: History of the microscope

Draw and label a diagram of a microscope.

Describe what microscopes are used for:

Research the history of the microscope

- Produce a timeline showing the main developments in the microscope
- Identify the scientists involved in the development of the microscope
- Describe how the microscope has changed over the years

TASK 2: Cells

Using the website <http://www.cellsalive.com/> Produce a diagram of an animal and a plant cell including all of the subcellular structures.

TASK 3: Structure of the Atom

Draw a diagram of an atom:

Describe the structure of an atom:

Complete the table below:

Particle	Relative mass	Charge
Proton		
Neutron		
Electron		

TASK 4: Separation Techniques

Draw a diagram and annotate to describe the separation technique: paper chromatography:

Research a 2nd method of chromatography called thin layer chromatography (TLC) and explain how it is different to paper chromatography:

Explain what R_f values are and how they can be calculated:

TASK 5: The Periodic Table

Produce a poster on the periodic table, include descriptions of:

- The groups
- The development of the periodic table
- Atomic mass
- Transition elements
- Rows

TASK 6: Waves

Research and compare longitudinal and transverse waves. Include:

- A labelled diagram
- A description
- Examples

Longitudinal

Transverse

Draw a diagram of a wave. On the diagram label the amplitude and wavelength.

In musical instruments, how does changing the frequency effect the sound of the wave? How does changing the amplitude effect the sound of the wave?

TASK 7: The Electromagnetic Spectrum

Research the electromagnetic spectrum and produce a leaflet on its properties. Include,

- All of the waves
- The frequency and wavelength of each wave
- Uses of each type of wave
- What all the waves have in common

TASK 8: Uses of E-M Spectrum

What is an endoscope? Explain the use of an endoscope in medicine

Research what Bluetooth is, and how is it used in communication.

What is broadband? How does it work?