

BTEC Applied Science Extended Certificate

TRANSITION WORK 2019-2020

Independent research is a key part of your course.

The following 3 tasks will help to bridge the gap between the knowledge required at GCSE and that required at level 3 BTEC. Research the topics using your GCSE exercise books, GCSE revision guides, GCSE textbooks and revision websites to produce a detailed poster or a PowerPoint presentation for each task.

The work will need to be handed in at the beginning of Year 12 and will be reviewed and returned with feedback within two weeks.

We will be assessing the quality of the resources produced as well as the level of understanding shown.

You should give references throughout.

Task 1 – Research Techniques

You must:

- Research and briefly describe;
 - 3 types of chromatography.
 - 3 methods of measuring temperature (types of thermometer).
 - 2 methods of measuring pH.

You should:

- State the main advantages and disadvantages of each of the method you have described.

You could:

- Explain how thin layer chromatography works.
- When a substance cools and changes from a liquid to a solid the behaviour of the particles change. Describe what happens to the particles in a substance;
 - As the liquid cools.
 - As the liquid changes to a solid.
 - As the solid cools.
- Acids have a low pH and alkalis have a high pH. Explain what causes pH.

Task 2 – Atomic Structure

You must:

- Research and briefly describe:
 - The work of Mendeleev on the development of the structure of the modern Periodic table.
 - The separate work of Thomson, Rutherford and Bohr on the developing structure of an atom.

You should:

- Include the lay out of the periodic table, using terms like group, period, metals and state.
- Explain why elements are grouped in a certain way and give some examples of reactions.

You could:

- Include the current theory for the structure of an atom, including sub atomic particles and electrons shell configuration.

Task 3 - Working in the Science Industry

Understanding how to complete practical work safely and professionally is a key part of the course.

You Must:

- Research the following roles in the science industry:
 - a) Scene of Crime Officer/forensic laboratory technician
 - b) laboratory technician in haematology department of a hospital

You should:

- Use your notes to write a job description for one of the roles which could be included in a job advert. Include the following:
 - what qualifications the role would need
 - what day to day tasks are involved
 - any equipment the technician would use
 - what safety precautions they would need to use

Reading List Books, newspapers and magazines

- Any A-level, Biology, chemistry and physics book
- BTEC Level 3 applied science textbook Heinemann, ISBN 978-1-846906-80-0
- BTEC Nationals Applied Science: Student Book Level 3 (BTEC Nationals Applied Science 2016) by Joanne Hartley
- Other good sources to read: New scientist
- Physics for you by Keith Johnson
- Chemistry for you by Lawrie Ryan
- Biology for you by Gareth Williams

Websites

<http://www.biologymad.com/>
www.sparknotes.com
www.s-cool.co.uk