

Transition Pack for AAQ Applied Science Level 3

**A guide to help you get ready for
AAQ Applied Science Level 3**

You are expected to produce 3 pieces of work, 1 for each scientific discipline. Each one should be in the region of 500 words or equivalent and will be about the following topics. This work is linked directly to the content specified in unit [F180](#), examined this year. .

Chemistry – Bonding

Carry out research into how atoms and molecules are bonded together. What is a bond? How do you know what bond exists between them? Make sure you include Ionic, covalent, van der Waals, dipole – dipole bonding and hydrogen bonding. You can include diagrams to help you explain the different bonding as well as references to show your research.

Biology

Draw out 3 detailed cell diagrams (each should be A4) for a plant, animal and bacterial cell. They should be labelled with the following structures:

Bacterial cell – nucleoid, plasmids, 70S ribosomes, capsule, cell wall.

Plant and animal cells – plasma membrane, cytoplasm, nucleus, nucleolus, endoplasmic reticulum (smooth and rough), Golgi apparatus, vesicles, lysosomes, 80S ribosomes, mitochondria, centriole

Plant cells only – cell wall, chloroplasts, vacuole, tonoplast, amyloplasts, plasmodesmata, pits.

You need to add brief explanations to your diagrams to explain the function of all of the cell components.

Physics

Give an overview of the electromagnetic spectrum, this can be written but would be enhanced with a labelled diagram. You should make it clear how the electromagnetic spectrum is grouped according to the frequency. You also need to know a bit about the general mechanical side of physics. To get started on this you need to know what the difference is between a vector and a scalar. You should write a definition for both a vector and a scalar and list at least 6 vector and scalar quantities.