Science

All students follow the National Curriculum for Years 7 and 8. They are tested regularly and also do end-of-year examinations. Tests and examinations are all internally assessed and no external qualifications are gained.

For Years 9 to 11, we currently offer the following GCSE qualifications: AQA Science A (Core Science), AQA Additional Science, AQA Biology, AQA Chemistry and AQA Physics. We also currently offer BTEC Applied Science. Due to circumstances beyond our control, changes to curricula can and do occur; we make public any such changes if and when they arise. Students' set, pathway and grades determine *which* qualifications are undertaken, *when* the relevant examinations are taken and the *tier* on which examinations are taken.

GCSE Qualifications and equivalents:

AQA Science A (Core Science)

This qualification is made up of 4 units- Biology Unit 1, Chemistry Unit 1, Physics Unit 1 and a Controlled Assessment. Each unit counts 25% of the total. Students may have up to three attempts at Controlled Assessments, with the best score out of 50 raw marks being submitted. The Biology, Chemistry and Physics units are each assessed via a one hour written examination, out of 60 raw marks. Each unit's raw score is converted by AQA into a Unified Mark Scheme (UMS) mark, out of 100, giving a total out of 400.

AQA Additional Science

The course make-up is identical to that for Core Science; however, all the written examinations are for Unit 2.

AQA Biology

This qualification is also made up of 4 units- Biology Unit 1, Biology Unit 2, Biology Unit 3 and a Controlled Assessment. Each unit counts 25% of the total. Students may have two attempts at Controlled Assessments, with the best score out of 50 raw marks being submitted. The first three units are each assessed via a one hour written examination, out of 60 raw marks. Each unit's raw score is converted by AQA into a Unified Mark Scheme (UMS) mark, out of 100, giving a total out of 400.

AQA Chemistry

This qualification follows the same format as AQA Biology; however, the written units are Chemistry Unit 1, Chemistry Unit 2 and Chemistry Unit 3.

AQA Physics

This qualification again follows the same format as AQA Biology and AQA Chemistry; however, the written units are Physics Unit 1, Physics Unit 2 and Physics Unit 3.

BTEC Applied Science

This qualification is primarily coursework based, with students completing assignments in class or for homework throughout the year. They also complete a written examination, which counts for 25% of the total. A pass in this course is regarded as equivalent to a GCSE C grade.

Setting:

We believe that setting should be fair, transparent and objective in order to place students in sets that best suit their pace and style of learning. Students are taught in tutor groups in years 7 and 8. They are set for Years 9, 10 and 11 according to an amalgamation of all their previous year's assessments, within the pathway that they are assigned to on a whole-school basis. A small number of set changes are done after Christmas each year in order to re-set any students whose grades for the current year are significantly out of line with their set. At the end of each year students are completely re-set based on all the assessments for that year.

Examination entries

Currently, students on the E (Extended) pathway will be entered for AQA Biology, AQA Chemistry and AQA Physics, with all nine written examinations being taken at the end of Year 11. This would earn them three separate GCSE grades- one in Biology, one in Chemistry and one in Physics. At the end of Year 9, after re-setting, students in set 9E4 may be converted to the double award programme described below.

Currently, students on the H (Higher) pathway study AQA Science A (Core Science) in Years 9 and 10, completing the three written examinations at the end of Year 10. This earns them one GCSE. Most H pathway students then move on to study AQA Additional Science in Year 11. This earns them a second GCSE. This is often referred to as the "double award" programme. However, a small number (for whom GCSE proves to be unsuitable) may be entered for BTEC Applied Science in Year 11.

Currently, students on the N (Foundation) pathway study AQA Science A (Core Science) in Year 9 before moving on to the BTEC Applied Science for Years 10 and 11.

Tiers of entry

All GCSE qualifications are available on higher tier (grades A* to D available) or foundation tier (Grades C to G available). It is expected that the majority of students on the E pathway will take their examinations on the higher tier and all E pathway sets are taught to a higher tier level. Students who are struggling to maintain work at a C grade standard on higher tier will be moved to foundation tier. Students in H pathway are taught to foundation tier level (the naming of the pathway should not be confused with the tier of entry) and it is expected that the majority of students in this pathway will take their examinations on foundation tier. If an H pathway student is excelling on foundation tier, they will be given an opportunity to take a mock examination on higher tier. If the student achieves a better grade by doing higher tier than they did on foundation tier, then we will enter them for the examination on higher tier.

Course content

Biology Unit 1- this covers the following topics

- Keeping healthy
- Co-ordination and Control
- Medicine and Drugs
- Adaptation for survival
- Energy in biomass
- Variation, reproduction and new technology

- Evolution.

Biology Unit 2- this covers the following topics

- Cells, tissues and organs
- Organisms in the environment
- Enzymes
- Energy from respiration
- Simple inheritance in plants and animals
- Old and new species

Biology Unit 3- this covers the following topics

- Exchange of material
- Transporting materials
- Keeping internal conditions constant
- How humans affect the environment

Chemistry Unit 1- this covers the following topics

- Fundamental ideas
- Rocks and building materials
- Metals and their uses
- Crude oils and fuels
- Products from oil
- Plant oils
- Our changing planet

Chemistry Unit 2- this covers the following topics

- Structure and bonding
- Structure and properties
- How much?
- Rates and energy
- Salts and electrolysis

Chemistry Unit 3- this covers the following topics

- The periodic table
- Water
- Energy calculations
- Analysis and synthesis
- Organic chemistry

Physics Unit 1- this covers the following topics

- Energy transfer by heating
- Using energy
- Electrical energy
- Generating electricity

- Waves
- Electromagnetic waves

Physics Unit 2- this covers the following topics

- Motion
- Forces
- Work, energy and momentum
- Current electricity
- Mains electricity
- Radioactivity
- Energy from the nucleus

Physics Unit 3- this covers the following topics

- Medical applications of physics
- Using physics to make things work
- Using magnetic fields to keep things moving