Curriculum Intent: Science

Genius is 1% talent and 99% hard work. – Thomas Edison

Curriculum Rationale

The KS3 science curriculum enables students to improve their ability to problem solve and develop their skills in both maths and literacy. We have produced a curriculum that will build the foundation knowledge required to enable success at GCSE, alongside providing opportunities for pupils to discover the application of science in the real world. The topics produced give students an opportunity to explore real life science applications, therefore making the subject more relevant to them. Students will be able to transfer skills learnt in science across to other subjects, such as being able to analyse sources of information, interpreting graphical representation of data, planning their own questions for investigations and evaluating models. Students are also encouraged to recognise the importance of peer review in the scientific community as well as considering ethical issues in science.

The order of teaching has been selected as it builds on the skills and knowledge attained in Key Stage 2 and makes for a logical progression whilst building a core foundation of knowledge ready for GCSE study. We teach more explicit GCSE content to year 9 students to enable us to build time in to practise retrieval skills and retention of knowledge.

Students should finish KS3 having developed the necessary skills to carry out an investigation and analyse their results from this. This is to prepare them for the required practical component of GCSE. We also look to develop their written communication through creative writing as this will prepare them for extended answer questions in which require a more in-depth explanation. The curriculum allows students to develop their maths skills and by the end of KS3 we would expect students to have graph drawing and interpreting skills, calculations, and be able to rearrange equations as well as having a rudimentary understanding of significant figures and standard index units. This will help prepare students for the maths content at GCSE.

Curriculum Progression & Strategies

Progress in science is seen by the accumulation of knowledge and improvement of key skills such as carrying out, analysing and evaluating an investigation. Students that are making exceptional progress are able to do this independently by creating their own question to investigate.

Progress is also seen in the development of students' ability to explain the science behind a particular phenomenon. When students first start to explain they tend to use simplistic language. When they are making exceptional progress there is a movement to academic and correct scientific language. The topics taught become progressively challenging, in year 7 students secure the knowledge to support them in year 8, content is then further developed as well as the skills as students move forward into year 9.

Lessons have an element of retrieval practise through questioning. The department is now moving forward by embedding this in a more formal, written manner. Revision time is planned into the curriculum to revisit topics prior to assessment. Assessments produced also have a synoptic element so students are also assessed on both prior and current knowledge. The curriculum is interleaved where the content covered in year 7 is followed up in year 8 and revisited and further developed again in year 9.

Curriculum Enrichment

We have taken students to Birmingham University to attend workshops and lectures to help them understand key science concepts. The cultural capital trip to the Big Bang Fair was specific to science. EPAs are designed to be in line with the content delivered. This helps to consolidate understanding and address misconceptions.
Knowledge organisers have been provided for all students, these provide the students the key information students need to be able to recall in the topics they are studying. This is also addressed in lessons where pupils are given study checks to assess their recall of the content covered.