

"The whole of science is nothing more than a refinement of everyday thinking" - Albert Einstein



Department of
Science

"To develop a complete mind: study the science of art; Study the art of science. Learn how to see. Realise that everything connects to everything else" - Leonardo da Vinci

Curriculum Intent

Science is particularly pertinent to students who are educated in Sheffield – a city that thrives on industry. With clear links that weave through many other subjects, Science can sometimes provide more questions than answers for our learners. Therefore, the main purpose of our curriculum is to provide the scope to be able to nurture the confidence and independence of everyone in our school community so that they can query the world around us and answer the most important question: Why?

To facilitate this, the curriculum within the Department of Science is:

- ⇒ **Enabling**
- ⇒ **Sequenced**
- ⇒ **Accessible**
- ⇒ **Enjoyable**

Enabling

Confidence and independence are two attributes that we aim to instil in all learners. We want everyone – regardless of age and stage – to be able to have the opportunity to experience what success feels like. Our curriculum provides numerous opportunities using practical work and in-class activities where learners can develop and nurture these skills. Because if learners are empowered, we firmly believe that the chances of experiencing success dramatically increase. We allow students opportunities to explore and think independently; using mistakes as a learning point moving forwards.

We want to instil a love for Science in all our learners; and our curriculum is one of the main drivers for this vision. We aim to inspire and encourage more learners to make the most of the opportunities outside of lesson times. Our Extra-Curricular offer allows to view Science in a different context and look at some more in-depth concepts whereas our Year 11 revision program provides a chance for learners to receive extra support to increase their confidence and independence. In turn, it is our goal to encourage more students to study Sciences Post-16 and we aim to increase our extra-curricular offer to include visits that link to our curriculum; showing Science in the world outside of Stocksbridge.

Sequenced

Our curriculum uses the body of knowledge of learners have gained from Primary school and builds upon this throughout their time with us. The journey learners make is clearly signposted and shared across the department. We make links with prior learning, wherever possible as well as with other subjects through embedding recall opportunities right the way through to Year 11.

For example, we have begun working with our Primary schools to ensure that they teach the same definitions to key words that we use. This includes independent, dependent and control variables. We also are phasing out the use of 'Fair test' and working with our Feeder Schools to introduce the concept of reproducibility and repeatability so that students are more comfortable using them when they start with us.

There are numerous key Scientific and Mathematic skills that underpin the bodies of knowledge learners must know and remember. They are constantly practised and revisited throughout the curriculum whenever completing practical work. Our Schemes of Learning identify these skills that are to be developed within each topic area so that there is scope to hone and refine each one frequently.

Accessible

Our curriculum contains key teaching points that all staff cover; ensuring that all learners leave each lesson with a consistent body of knowledge. However, it does not dictate a method of delivery as it is the job of the Class Teacher to adapt the approach for individual classes and learners. There are examples of support and challenge activities that can be used to ensure that everyone experiences appropriate challenge within lessons.

We offer three courses at GCSE. These begin midway through Year 9.

- ⇒ AQA Separate Science
 - *This was an option subject but will be returning to the standard block in 2020. This will become the default course for the majority of students.*
- ⇒ AQA Combined Science
 - *The most popular option for students historically; but it will be used for students who Separates Science is not suitable.*
- ⇒ AQA Entry Level Science
 - *Exclusive to learners on the AL Pathway, it sits alongside the main courses and aims to focus on the fundamental knowledge and skills required to be successful in mainstream GCSE courses. Learners are still entered for GCSE Science.*

The way in which the curriculum is sequenced means that it spirals across the 5-year journey on all courses. We aim to allow SEND students to feel success and make progress on whichever course they follow; revisiting content frequently and systematically to ensure that we embed the body of knowledge students need to remember. Our Schemes of Learning highlight key Scientific vocabulary that staff then explicitly teach in their sequence of lessons, which aims to increase students' chances of success by expanding their range of Tier 3 vocabulary.

Enjoyable

None of the above can happen if learners are apathetic and unmoved by the awe and wonder of Science. Our curriculum must be enjoyable and motivating to everyone, regardless of their personal challenges and barriers. The empowering notion that we want all students to have the chance to know what success feels like is key - If the other three aims above are all consistently embedded and reflected in the curriculum that shapes our everyday practice, students will be motivated to learn. They will want to think and explore independently. In turn, it is with harnessing all these attributes in our learners that we will create the Scientists of tomorrow.

Paul Schuller

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