

## Science Subject Intent

### Intent

Science at Oswaldtwistle School is delivered at both Key Stage 3 and Key Stage 4. The KS3 curriculum follows the AQA Activate scheme of work, this allows the KS3 and KS4 courses to complement each other into the AQA GCSE. At KS4 science is delivered in 2 different ways; as a GCSE and through WJEC pathways, which is a selection of modules that are more vocational than academic.

Pupils can also gain a CREST Award through hands on STEM sessions, where pupils are given the opportunity to design, research and create a project that will be assessed for either a Discovery or Bronze Crest Award.

The AQA Activate course allows younger pupils to access all 3 sciences; biology, chemistry and physics, which is seen in mainstream settings, enabling them to fit back into mainstream school when they are ready to return. Accessing all the sciences gives pupils the basic knowledge to move onto a triple science course at GCSE on return to mainstream.

Science at Oswaldtwistle is flexible and changes depending on the pupils needs and abilities. Initially, GCSE Biology is delivered to year 10 through to year 11 however, if pupils have already gained a GCSE in biology then either GCSE Chemistry or Physics is taught. To ensure that each pupil in KS4 has access to all 3 sciences, all GCSE Biology students will also complete the chemistry and physics pathways modules.

The rationale behind the use of the Pathways programme of study for some pupils, is to allow a wide variety of subjects to be taught so that those with a part time timetable or lower ability can access a science curriculum that may help with vocational courses and BTEC at college level. The content is delivered in a series of modules that are chosen by the teacher with pupil input. The possible modules chosen are as follows;

- *Science and the human body,*
- *Introduction to animal care,*
- *Science and the Universe,*
- *Plant world,*
- *Making useful compounds,*
- *Food and health,*
- *Introduction to land maintenance,*

These modules incorporate all 3 sciences; biology, chemistry and physics, which gives a range of GCSE topics to be taught in preparation for mainstream GCSE classes. The modules chosen reflect the broad range of science topic seen in the National Curriculum throughout Key Stage 3 and within the combined science course at GCSE. They are more practical based to instil a love and enjoyment of the subject. This is also implemented for those of a lower ability that may struggle with the classroom setting. Science is a challenging subject that many pupils fail to fully engage with. It is hoped that a more 'hands on' approach is seen as less challenging than the traditional GCSE. This course has been chosen to allow pupils to appreciate that science influences everyday life in many ways and to open the minds of young people to the vast array of careers science can enable. To do this in a more engaging way, students have access to animals and land to be able to put their plans and ideas into action. Some pupils have access via Harwes Farm with others caring for class pets and maintaining school land. The course has no final exams which also appeals to the nature of the pupils at Oswaldtwistle School. Instead the course is assessed through classwork by the teacher and a sample

will be assessed externally. The success criteria can be seen in the form of the end points, academic trackers and exam board criteria. These outline the key ideas the pupils should be able to recall or apply at the end of each module. The National Curriculum aims are to develop scientific knowledge and develop an understanding of the processes and methods of all 3 science disciplines, the use of the pathways enables this by asking scientific questions to help understand the world.

Unlike a mainstream setting, the pupils at Oswaldtwistle School do not have enough time on their timetables to complete a combined science scheme of work as outlined in the KS4 National Curriculum. This, along with the subject specialism of the teacher, is one of several reasons why the science offered in the first instance is AQA single biology. In addition to time, as each new pupil arrives at the school it becomes apparent that, as a majority, science basic knowledge is low and often KS3 science must be covered before the GCSE content can be approached. Pupils tend to have a block on accessing science, possibly as this is one of the first lessons pupils are banned from during their stay at mainstream, possibly also because it is both literacy and numeracy based and does contain challenging concepts. Pupils believe they will find the lesson difficult before learning the subject of the lesson. Due to these barriers, a single science seems the best fit, with biology being the least complex of the three and the most suitable for the pupils of the school. Throughout the learning pupils are expected to reach a set of targeted end points to ensure that the aims of the National Curriculum are met, at both KS3 and KS4.

The intent of the science curriculum is to increase fluency with scientific key word vocabulary and content, to increase ability in evaluation, application and analysis, to introduce pupils to a wider range of 'everyday life' science and the career possibilities for scientists and to also use practical experiments to develop employability skills.

The wider school intent is to develop pupil reading, writing and oracy, and to some extent the use of maths, for example costing and budgeting, conversions and graph skill. As well as literacy and numeracy skills, SMSC is also a large part of the scientific curriculum; looking at the ethics behind cloning and genetic modification, to increase knowledge on science based careers and to see science as an everyday occurrence. The science curriculum, whether Pathways or GCSE, will aid personal development and culturally enrich pupils as they learn about their own bodies, historical developments that propelled the world forward, the interaction and importance of all organisms on our only planet and visit or read about how things are made and how science has shaped that change.