Tuition, Medical and Behaviour Support Service

Curriculum Policy - Primary

Science

Harlescott Education Centre

Reviewed:	September 2024
Next Review:	September 2025
Responsibility:	Ashley Francis

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AIMS and PRINCIPLES

Our Science Policy follows The National Curriculum 2014 for Science Guidelines and aims to ensure that all students:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of Biology, Chemistry and Physics;
- develop understanding of the **nature, processes and methods of Science** through different types of Science enquiries that help them to answer scientific questions about the world around them;
- are equipped with the scientific knowledge required to understand the **uses and implications** of Science, today and for the future.

SCIENCE OFFER

The 'Tuition, Medical and Behaviour Support Service' (TMBSS) exists to meet the needs of students aged between 5 and 16 across Shropshire who cannot be taught in school for a short period of time. Our key purpose is to provide a high-quality learning experience appropriate to the needs of the individual student. Ultimately, we are a short-term intervention.

TMBSS Primary operate from Harlescott Education Centre which caters for students in Years 1 to 6. Children can access two different models at Harlescott, depending on their circumstances. These are the Sixth Day Provision Model (for permanently excluded students) and the Shared Placement Model (alongside a mainstream school) accessed via the Inclusion Advice Forum.

The Shared Placement Model is for morning and afternoon students who attend for 4 sessions weekly and have a partner school. Shared Placements are 16 weeks in length. The Sixth Day Provision Model is full-time and these placements are 13 weeks in length. Due to the short-term nature of placements at TMBSS Primary, we strive to provide a broad, balanced Science curriculum although it is not covered in the same depth as it would for a student accessing fulltime mainstream/specialist education.

Details of both offers are contained within the Medium and Long-Term Curriculum Plans. Students will access at least 1 weekly session of Science regardless of which Model they access.

Once Shared Placement and Sixth Day Provision students are on a short integration plan, attending their mainstream school for full days, they may not be attending TMBSS on the day Science is taught.

PURPOSE OF STUDY

A high-quality Science education provides foundations for understanding the world. Science has changed our lives and is vital to the world's future prosperity. Through building key foundational knowledge and concepts, students should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This understanding should be consolidated through their appreciation of applications of Science in society and the economy.

In teaching Science, we are developing in our children:

- a positive attitude towards Science and an awareness of its fascination;
- an understanding of Science through a process of enquiry and investigation;
- confidence and competence in scientific knowledge, concepts and skills;
- an ability to reason, predict, think logically and to work systematically and accurately;
- an ability to communicate scientifically;
- the initiative to work both independently and in co-operation with others;
- the ability and meaning to use and apply Science across the curriculum and real life.

PLANNING

School curriculum

The programmes of study for Science are set out year-by-year for KS1 and KS2 at Harlescott Education Centre (HEC). We are only required to teach the relevant programme of study by the end of the key stage. At HEC we have the flexibility to introduce content earlier or later than set out in the programme of study and we may introduce key stage content during an earlier key stage, if appropriate. It is on this basis we have planned our 'Long Term Plan' over a 'Two Year Cycle'.

CYCLE A

KS1 (Year 1 to Year 3)

Term 1	Term 2	Term 3
Materials	Investigations	Sound
Light	Humans & Keeping Healthy	Plant Growth
Across the year we will learn about Seasonal changes		

KS2 (Year 3 to Year 6)

Term 1	Term 2	Term 3
Rocks	Humans & Keeping Healthy	Properties and Changes of Materials
Light	Sound	Plant Growth

CYCLE B

KS1 (Year 1 to Year 3)

Term 1	Term 2	Term 3
Animals including humans	Investigations	Sound
Electricity	Changing Materials	Plants
Across the year we will learn about Seasonal changes		

KS2 (Year 3 to Year 6)

Term 1	Term 2	Term 3
Humans as Animals	States of Matter	Electricity
Earth & Space	Forces	Plant & Animal Habitats

SCIENTIFIC KNOWLEDGE AND CONCEPTUAL UNDERSTANDING

The programmes of study describe a sequence of knowledge and concepts. It is important that students make good progress and, where possible, that they develop secure understanding of each key block of knowledge and concepts in order to be ready to succeed in the next stage of their education.

We focus on developing Science skills through practical, hands on learning experience. Through quality first teaching, we ensure that each individual student makes good progress in their ability to work scientifically. This is regardless of their level of knowledge of the Science concepts within the topic taught. This focus impacts positively on engagement and individual student's ability to engage and succeed in their science lessons in the mainstream school or next educational setting.

We adapt our questioning and differentiation precisely, constantly evaluating and looking for opportunities to push students to the next level of understanding. Our students are different ages and abilities with varying experience of Science learning in mainstream schools and our specialist teaching takes account of every individual in the classroom.

Students should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of Science, including collecting, presenting and analysing data.

WORKING SCIENTIFICALLY

'Working scientifically' specifies the understanding of the nature, processes and methods of Science for each year group. This should be fundamental in the teaching of all programmes of study. At HEC we provide as much opportunity for practical Science as possible to teach all students to work scientifically. Through quality first teaching, we have high expectations of all students as they refine their skills in reasoning, predicting, thinking logically, working systematically and measuring accurately. Above all we foster enquiring minds and the confidence and interest to ask more questions, increasing their 'Science Capitol'.

ATTAINMENT TARGETS

By the end of each key stage, students are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

KS1:

The main focus of Science teaching Key Stage 1 is to enable students to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them. They should be encouraged to be curious and ask questions about what they notice. They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests and finding things out using secondary sources of information. They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about Science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.

Students should read and spell scientific vocabulary at a level consistent with their reading and spelling knowledge at Key Stage 1.

Lower Key Stage 2

The main focus of Science teaching in Lower Key Stage 2 is to enable students to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

‘Working scientifically’ must **always** be taught through and clearly related to substantive Science content in the programmes of study. Students should read and spell scientific vocabulary correctly and with confidence, using their growing reading and spelling knowledge.

Upper Key Stage 2

The main focus of Science teaching in Upper Key Stage 2 is to enable students to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena and planning their own investigations; they will be analysing functions, relationships and interactions more systematically and independently.

At Upper Key Stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer Science questions using different types of scientific enquiry, including observing changes over periods of time, noticing patterns, grouping and classifying things. They need be measuring with increased accuracy, record data independently and be able to create scientific diagrams and graphs. students should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. students need to be confident enough to identify scientific evidence that has been used to support or refute ideas or arguments and go on to make further predictions and suggest new fair tests.

‘Working and thinking scientifically’ must **always** be taught through and clearly related to substantive Science content in the programmes of study.

ASSESSMENT

This is achieved through:

- discussion with students;
- observation of students;
- marking work using the TMBSS Marking Policy;
- students presenting their results and reporting on investigations they have carried out;
- Teachers use ongoing assessment for learning to inform planning and next steps.
- A simple self-assessment is used at the beginning and end of each unit of science to evidence learning over time.

MONITORING AND EVALUATION

This is achieved by the Science coordinator through;

- monitoring and evaluation of students' work;
- lesson observations;
- monitoring of planning.
- production of a science scrutiny evaluation at least twice a year which is shared with staff.
- student and staff science survey once a year.