



Science Policy

2023-2024

At Cromwell Learning Community Multi Academy Trust we believe that learning without limits means we do not put a ceiling on children's achievement.

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Our School Vision

Our vision is to nurture unique individuals who are enthusiastic learners of science, demonstrating wisdom, responsibility and kindness within their communities.

Science teaching at CLC MAT aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future.

Rationale

A high quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology; a practical way of finding reliable answers to questions we may ask about the world around us. It is about developing pupils' ideas and ways of working that enable them to make sense of the world in which they live through investigation. Through the teaching of Science, we would like to:

- Prepare our pupils for life in an increasingly scientific and technological world.
- Help our pupils to see the relevance of Science to the world around them, using practical experiences (including use of the school grounds) as often as possible.
- Build on our pupils' natural curiosity about the world around them.
- Develop a scientific approach to answering scientific questions.
- Provide our pupils with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study Science further.

Aims

All pupils:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- Develop an 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 Overview

Intent:

Science teaching at CLC MAT aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of Science, today and for the future.

At CLC MAT, scientific enquiry skills are embedded in each topic the children

study and these topics are revisited and developed throughout their time at school. Topics, such as: humans and animals are taught from years 1 to 6 ensuring progression of skills and knowledge incrementally increases from one-year group to the next. This model allows children to build upon their prior knowledge and increases their enthusiasm for the topics whilst embedding this procedural knowledge into the long-term memory.

All children are encouraged to develop and use a range of skills including observations, planning and investigations, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions. Specialist vocabulary for topics is taught and built up, and effective questioning to communicate ideas is encouraged. Concepts taught should be reinforced by focusing on the key features of scientific research, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

Implementation:

As part of our planning process, teachers are provided with a range of resources to support their planning for the following:

- A knowledge organiser which outlines knowledge (including vocabulary) all children must master;
- A cycle of sequential lessons for each subject, which carefully plans for progression and depth;
- A low stakes quiz which is tested regularly to support learners' ability to block learning and increase space in the working memory;
- Challenge questions for pupils to apply their learning in an evaluative/open manner.
- Prior knowledge at the beginning of each lesson, to support learners recall skills of knowledge which has previously been taught.
- Explorify task at the beginning of lessons to deepen scientific understanding and knowledge.

Impact:

Our Science Curriculum is well thought through and is planned to demonstrate

progression. If children are keeping up with the curriculum, they are deemed to be making good or better progress. In addition, we measure the impact of our curriculum through the following methods:

- A reflection on standards achieved against the planned outcomes;
- An evaluation of learning for each term which demonstrates progression across the school in form of pre and post learning quizzes.
- Pupil viewpoints about their learning to inform future planning.

At Cromwell Learning Community we aim that all pupils:

- Have the opportunity to achieve their full potential in their knowledge, skills and understanding, through their scientific experiences.
- Develop the ability to work independently and also co-operatively in scientific activities.
- Be curious about things they observe and experience, through sensory exploration of the world around them.
- Use their experiences to develop their understanding of key scientific ideas and make links between different phenomena.
- Develop the skills of predicting, asking questions, making inferences, concluding and evaluating, based on evidence.
- Develop a respect for living things and the environment, and for their own health and safety.

Delivering The Curriculum

In the Foundation Stage, science (which is embedded in the learning area 'understanding the world') is delivered through a range of child-initiated and adult initiated activities in the indoor and outdoor learning environment. It is planned for as a specific subject through discussion and regular collaboration with KS1 staff. This is to ensure children's exposure to vocabulary, knowledge, skills and learning outcomes hold them in good stead to access age-related learning in Science in Key Stage 1. Throughout Years 1 and 2, science is taught through a weekly science lesson, which may relate to a theme or topic. To ensure consistent coverage of science in line with the National Curriculum, CLC MAT staff from years 1 to 6 are guided towards using Collins Snap Science scheme of work as a main resource.

Through devising the whole school curriculum map, science has a key role in helping to make thematic links in subject areas where it is relevant.

Progression

The teaching in Key Stage 1 builds upon the Early Learning Goals achieved at the end of the Foundation Stage. Our units of work for Year 1 through to Year 6 follow the progressive sequence of key scientific teaching and learning that is outlined in the National Curriculum. Therefore, taught skills, knowledge and understanding are built upon, unit on unit, year on year. Investigative skills that develop children's ability to work scientifically are fostered throughout all scientific learning.

Resources:

A wide range of equipment and resources are kept in the locked science cupboard. The key is available from the Subject Leaders. Perishable resources need to be ordered prior to teaching.

Displays and Vocabulary

Developing a good knowledge of scientific vocabulary is key to success in Science. Pupils often find Science challenging because they do not have a good enough grasp of the vocabulary needed to explore their ideas. Key vocabulary should be displayed on topic working walls, if there is space. This should be referred to throughout the teaching of each topic. Pupils should have the opportunity to explore ideas orally first and teachers should model and encourage pupils to use vocabulary correctly. Teachers should consider making use of diagrams and other ways of graphically representing complex information to support their pupils' understanding. Vocabulary lists for each topic are available on the knowledge organisers.

Pupils' Knowledge Organisers and Teachers' Science Medium Term Plan/Overview

Each year group will be provided with an overview of the science units focusing on the content and the sequence of lessons to be taught, and also a Medium Term Plan, which also highlights the knowledge musts. Teachers are to use the Overview and the Medium Term Plan to create their individualised weekly planning to meet the needs of the children whilst in line with progression.

To support the knowledge of the children throughout the unit, they have been provided with a knowledge organiser, which is to be fastened into their books, prior to the unit being taught. The knowledge organiser will have subject specific vocabulary and the meanings, engaging images to support their visual understanding, interesting facts about their specific learning and other relevant information to support their knowledge and understanding during that unit.

Health and Safety

Activities are planned with the health and safety of the pupils and staff in mind. Risk assessments are taken where appropriate.

When working with tools, equipment and materials in practical activities and in different environments, pupils should be taught:

- To recognise hazards, assess consequent risks and take steps to control risks to themselves and others.
- To use information to assess the immediate and cumulative risks.
- To manage their environment to ensure the health and safety of themselves and others.
- To explain the steps, they take to control risks.

Assessment and Recording

- Lessons will be taught in sequence. Each week's content is presented on a termly science overview prepared by subject leaders. These plans are adhered to chronologically.
- The CLC MAT planning pro forma for science is used to summarise the forthcoming learning and is checked by subject leads prior to delivery.
- Children's books show:
 - ✓ Children's knowledge organiser in prior to the unit being taught.
 - ✓ The beginning of each lesson will consist of prior knowledge, where the children will recall aspects of learning previously taught. As well as an Explorify activity to deepen the children's scientific knowledge and understanding.
 - ✓ A diagnostic test is carried out before lesson 1 being taught and an end of topic assessment to close the unit. Results are analysed using electronic tools to inform future planning.

Monitoring and Evaluating

Teaching and learning is monitored through lesson observations, learning walks and work scrutiny. These are led by the Subject Leader and/or the Senior Leadership Team.

Feedback is given to individual teachers, and patterns may be used to inform the school improvement plan or develop any action points for the Subject Leader.

Assessments are monitored by the Subject Leaders and/or the Senior Leadership Team. Again, patterns identified from the assessment data may inform the school improvement plan or Subject Leaders' actions (subject action plan).