Discovery Multi-Academy Trust

Science Curriculum Statement

Quotes that guide us:

'It is important to view knowledge as sort of a semantic tree – make sure you understand the fundamental principles, i.e. the trunk and big branches, before you get into the leaves/details or there is nothing for them to hang on to.' Elon Musk

Why is it important to teach Science? (Intent)

The National curriculum is our main driver for MAT curriculum supported by the promotion and engagement of STEM, ensuring that we capture the natural curiosity of young children. We nurture this curiosity and allow children to ask questions and develop the skills they need to answer those questions. We aim to prepare the children for life in an ever-changing world in which they live in. They can discover, explain, and develop skills of inquiry through working scientifically, experimenting and observing. Science plays a crucial role in developing our understanding of the world around us.

Key Concepts:

EYFS – exploring the natural world, seasons, materials, solar system, growing, life cycle of a butterfly.

Year 1 – animals including humans, the body and senses, seasons, materials, plants and trees, comparing characteristics of animals (Kenyan Animals)

Year 2 – animals including humans, living things and habitats, plants and life cycles, materials and their properties, ocean habitats, food chains.

Year 3 – materials and properties, rocks and fossils, dinosaurs, forces, light, plants and life cycles, animals including humans (skeletons and muscles)

Year 4 – water cycle, states of matter, irrigation, sound, digestive system, skeletal system, living things and their habitats, classification, circuits.

Year 5 – sundials and water clocks, solar system, forces, living things and their habitats, classification and adaptation, environmental changes, life cycles (Amazon), testing temperature.

Year 6 – light, electricity, circuits, evolution and inheritance, living things and their habitats, classification, animal adaptations, biomes, animals including humans (health and lifestyle), nutrients and water.

Underpinning the knowledge are the following processes of science –

- Asking questions
- Designing experiments
- Reasoning and arguing with scientific evidence.
- Analysing and interpreting data

Curriculum Design (Implementation)

With STEM as a supporting element, many topics throughout the school year are Science based. We carry out the curriculum planning for science in two phases, long-term and medium-term planning. The long-term plan maps the scientific topics studied in each term for each year group. The medium-term plans are based on the scientific topics listed on the long-term plan. They ensure an appropriate balance and distribution of work across each term. Planning is annotated by the class teacher and used for reference in future teaching. To ensure clear sequences of learning, staff have knowledge of the progression of teaching throughout the school. For example, Year 4 know that their class will have covered the skeletal system in Year 3, Term 4 in their topic 'Farming for Food'. Vocabulary is a key focus and is identified for each topic. Retrieval techniques are used to embed vocabulary, and in the following term to ensure deeper learning and understanding.

Enquiry-based approaches enable pupils to enhance their scientific knowledge, understanding, skills and attitudes and further develop their curiosity about the world around them. Pupils have regular access to appropriate hands-on practical activities that: support the development of motor, manipulative and age-appropriate technical skills, underpin their understanding of key scientific concepts, encourage them to ask productive questions, explore and investigate possible answers and communicate their findings to others and provide opportunities for developing both independent learning and team working skills.

Science in Early Years is taught through the Understanding the World part of the Foundation Stage Curriculum. The strands link into to termly topics as well as crossing into other areas of the curriculum. Children are provided with hands on opportunities to investigate, observe, ask, and answer questions, become inquisitive and to further their knowledge and understanding of the world. All these skills help to prepare them for Science in KS1 and beyond.

Knowledge Focused

Learning during the academic term is shared with parents in each of the schools e.g. through learning maps. These include the main aim of the term's topic and how this is explored through each subject. This is also available to access on each of the school's websites. Websites and books are also shared with parents to support learning and topic knowledge. Social media (school Facebook pages) regularly shows parents any Science learning that has taken place in school, within each year group.

What we do well as a Trust (Impact)

The long-term plans were implemented in September 2022 and ensure that all areas of science are covered in each year group. The learning is generally the focus of the whole term topic, so Science teaching is fundamental to lessons each week, for most year groups. Children indicate the focus of their lessons in their Science which are used to show the progression of learning throughout the term. The Trust use many outside businesses to deepen children's knowledge and understanding of specific science topics. This is magnified in our three science weeks throughout the school year. This is where an area of science is decided upon and taught in each year group through the school with an outcome that can be shared. This is generally in an A3 year group celebration page, an assembly, or links with the parallel year groups across the MAT schools.

STEM heads were introduced in January 2022 to maintain a link between learning styles and learning behaviours to the STEM skills. An action plan was created to embed those into the curriculum and the children's understanding of their learning, not just in Science and STEM, but across subjects.

The Science Coordinators liaise across the MAT to build relationships between the schools and plan parallel activities, with guidance from the Trust Science Coordinator. The individual Science Coordinators signpost staff to any relevant courses, useful websites, and age-appropriate competitions.