Science

Intent

At Holland Moor, it is our intention to recognise the importance of identifying the impact Science has in every aspect of our daily lives. We give the teaching and learning of Science the stature and weighting it requires within the curriculum and wider community of the school. The Science journey at Holland Moor is intended to increase the substantive knowledge of the pupils allowing them to build schema, understanding and make scientific links in the world around them. Furthermore, we advance the development of disciplinary knowledge of science, year on year, as a process of enquiry and investigation. Throughout the year, all five areas of scientific enquiry are either blocked or interleaved throughout the year to supplement the knowledge being taught. We aim to deliver the Science curriculum in a way that it will naturally increase the curiosity of the children, encourage an understanding and respect for the living and changing world around them, and provide the children with an opportunity to explore the opportunities Science provides. We want children at Holland Moor to better understand the world around us, be able to use their scientific schema to be able to explain phenomena and have the ability to investigate and as enquiry-based learners.

Implementation

The Science curriculum at Holland Moor has been developed around the children and the seasons. The scientific journey the children embark on, from Early Years Foundation Stage through to Year 6, builds on knowledge and scientific skills from the previous units taught. Every unit taught includes new scientific knowledge as well as using disciplinary skills that would complement the learning which ensures deep understanding and coverage. Teachers create a positive attitude and an excitement about science within their classrooms to reinforce the high levels of expectations and standards.

- Topics are blocked to allow children to focus on developing their knowledge and skills, studying each topic in depth.
- Every year group will build upon the learning from prior year groups therefore developing depth of understanding and progression of skills.
- Teachers promote enjoyment and foster interest of the scientific disciplines; Biology, Chemistry and Physics.

Science

- Children explore, question, predict, plan, carry out investigations and observations as well as conclude their findings.
- The children will have many opportunities to use equipment and perform practical investigations in each unit making good use of the equipment through independent selection and automaticity as they will have a good disciplinary knowledge.
- Children present their findings and learning using science specific language, observations and diagrams (in line with year group mathematics statistics)
- In order to support children in their ability to 'know more and remember more' there are opportunities to use retrieval activities to revisit the learning that has taken place in previous topics as well as previous lessons.
- At the start of each topic children will review previous learning and will have the opportunity to share what they already know about a current topic to help build on previous knowledge.
- Staff are given a knowledge organiser at the start of each topic which details all key learning and vocabulary for the unit. Staff use these knowledge organisers to ensure full coverage and to support teaching.
- Effective CPD and standardisation opportunities are available to staff to ensure high levels of confidence and knowledge are maintained.
- To support teaching, teachers access a range of resources from an exhaustive Science resource cupboard and planning from Developing Experts.
- Effective use of education visits and visitors are planned, to enrich and enhance the pupil's learning experiences within the Science curriculum.
- Teachers use current scientific news stories to keep children up to date with scientific developments.
- Subject lead organises scientific events to deliver first hand, high quality scientific experiences.
- An accessible STEM Club is available to all pupils at the school through an online platform allowing families and friends to be included in fun and inspiring non-curriculum based science from home.
- Teachers use highly effective assessment for learning in each lesson to ensure misconceptions are highlighted and addressed.

- Effective modelling by teachers ensures that children are able to achieve their learning intention, with misconceptions addressed within it.
- Through using a range of assessment tools, scaffolding is facilitated by teachers, to ensure that each pupil can access the Science curriculum.
- Children are given clear and appropriate support in order to achieve the learning intention with differing elements of independence.
- Pupils are regularly given the opportunity for self or peer assessment, which will then be used to inform planning, preparation, differentiation and address misconceptions within that lesson, or for the next lesson.
- Cross-curricular links are incorporated into learning to help build schema across other subjects such as Maths, English, Computing and Design and Technology.

Impact

The impact of Holland Moor's Science journey and our specific curriculum design will lead to outstanding progress over time across key stages, relative to a child's individual starting point and their progression of knowledge/skills. Children will therefore be expected to leave Holland Moor reaching at least age-related expectations for Science in both substantive and disciplinary knowledge. As our children progress along their Science journey, they develop a deep knowledge, understanding and appreciation of the world around them and a skill set that is transferable. In addition to the development and application of key knowledge, the child will have theories, laws and models supported by a bank of completed investigations and enquiries. Our curriculum will produce inspired and knowledgeable Scientists. This can be evidenced in a variety of ways including children's books, immersive displays, pupil interviews and assessments.

Vertical Concepts in Science

At Holland Moor, we use *vertical concepts* from Nursery to Year 6. These are big ideas or themes that grow in depth and complexity as our children move up through the school. Vertical concepts provide a structured approach to learning, helping children connect ideas across different subjects and understand how topics develop as they progress through each year. Our Vertical concepts in Science are as follows:

Inquiry and Investigation
Children learn to ask questions, plan investigations, and analyse results.

Life and Physical Science
Pupils explore living things and their needs, how they interact with their environments, and study the properties of materials, forces, and basic changes in matter.

Working Scientifically
Children develop skills in observation, measurement, data analysis, and critical thinking in scientific contexts.

Sustainability and Environmental Awareness
Recognising the importance of caring for the environment and understand human impacts on nature.