Science

Intent



At Mapperley Plains Primary School, we encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in children about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes.

We offer a Science curriculum which equips our children with key skills, knowledge and vocabulary motivated by our curriculum drivers:

- **Initiative -** We encourage our children to develop their independence, empowering them to act and be responsible for their own learning about which they can clearly state and explain their opinions.
- **Inclusivity -** We pride ourselves on being an inclusive school that cares for every individual child. In doing so, we promote and deliver a range of strategies to ensure that we value everyone. We want the children to recognise and celebrate diversity existing in our world, instilling pride in individuality.
- **Resilience -** We relentlessly focus on developing children who are resilient, who can adapt to and recover from tough or challenging situations. We encourage the children to try their best in all that they do.
- **Possibilities -** We encourage the children to build aspirations, identify talents and know possibilities for their future lives.

We ensure the curriculum is **Relevant and Memorable.** The unique needs of our children, along with our culture, climate and events shape our curriculum. When planning lessons, we consider the following: 'Because our children...we…'

Our aim is to ensure that a scientist leaving Mapperley Plains will:

- Have a developed scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- have a developed 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 skills required to understand the uses and implications of science, today and for the future.
- Have a curiosity to continue to learn about the world around them and have high aspirations in themselves as scientists.
- Be able to correctly and confidently use and write scientific vocabulary.
- Have a respect for the world around them and be inspired to preserve life on Earth
- Have a thorough grounding in our broad, balanced and differentiated curriculum

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- Be skilled at drawing upon their previous knowledge due to our progressive curriculum in scientific concepts, knowledge and skills.
- Be provoked to ask their own questions and the skills in which to answer them.

Implementation

As a school, we follow our Progression Map for Science, devised from the Early Years Framework and National Curriculum Guidelines. This ensures all aspects, knowledge and skills of Geography are taught across all year groups.



We ensure our children leave us not only with the skills needed for the next part of their journey, but with a rich body of knowledge both **substantive** (the factual knowledge for each subject) and **disciplinary** knowledge (working scientifically).

We have adopted a thematic approach to our curriculum. The particular 'theme' chosen is always relevant to the children and is designed to be exciting and engaging for that particular cohort. To prevent the creation of tenuous links, discrete subjects are taught where necessary.

In all phases, there are some terms where science is taught as a discrete subject which is separate to the theme. Other terms however, science will be the driver subject and the theme for the term. We start our themes with an exciting big question to develop curiosity and help children to lead their own learning e.g. 'Who eats who and how?' or 'What does a journey through the human body look like?' By the end of the topic, the children will be able to answer this question.



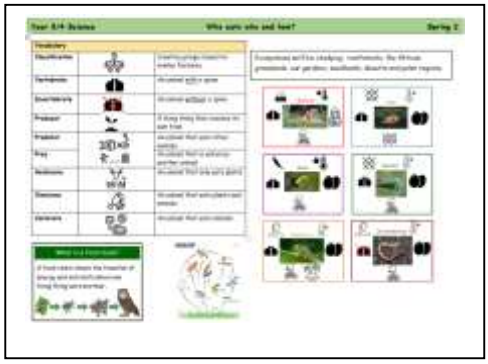
To engage, immerse and 'hook' the children into a new topic, a special 'entry point' is usually planned, followed by an 'exit point', often involving parents which marks the end of the topic.

Here at Mapperley Plains, we believe that children are their best learners when they are able to actively participate in scientific discoveries and concepts. Due to this, wherever possible, we use experiments and memorable demonstrations to enhance learning and aid retention of learning. This might also include visitors, workshops and visits to excite and intrigue our children.

Science Capital is an important element of the science curriculum. It is essential that children understand why they are learning something and the impact it could have on their lives. Teachers will often make links between the subject matter and how this knowledge is used in the wider world. E.g. jobs in renewable energy would be explored during the electricity topic.

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This will promote knowledge retention as well as encourage more people to go into STEM-related careers after they have left school.



When science is the driver subject for a term, a Knowledge Organiser which includes essential key knowledge, is shared with both children and families. The Knowledge Organiser is used frequently in lessons to support with the transference of knowledge from the working memory into the long term memory. Key knowledge is re-visited as part of regular retrieval opportunities throughout the theme and across the year.

Developing the use and spelling of the correct vocabulary in science is crucial and so key vocabulary is identified and listed for each unit of learning. The progression maps ensure progression of vocabulary across the school. This is then used to assess knowledge and enables pupils to express and communicate their understanding and knowledge clearly and effectively.

Ongoing formative assessment is used to ensure all lessons are relevant and supports with planning next steps. Children are given lots of opportunities to visit prior learning through low stakes mini-quizzes and other revisit tasks which allow teachers to measure their level of understanding. End of year assessments state whether children are working towards, expected or exceeding age-related expectations.

Impact

Through the high quality teaching of science, we will see:



- Children who are engaged and excited scientists, with develop scientific knowledge and skills to enable them to explore, navigate and understand the world around them.
- Engaging lessons which will develop inquisitive learners who aspire to research and explore new learning further.
- Children who are scientists, developing not only knowledge but skills that give meaning to their lives today.
- Children who can make links to prior learning and connections to other areas of the curriculum.
- Children who are adding 'Sticky Knowledge' to their long-term memory and who are able to talk confidently about the skills and knowledge they have acquired. Work will display the range of topics covered and clear cross-curricular links.

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- Children who will complete research independently to further their own enjoyment about the subject or topic.
- A school environment that is scientific rich through use of the outdoor environment, displays, resources, vocabulary etc.
- Assessments and monitoring that show high standards in Science.

Science and SEND

For children with SEND, adaptations may be made in Science which are based on the child's individual needs. We ensure that children with SEND are appropriately challenged in Science by:

- Using teaching methods which match the needs of children.
- Chunking content into smaller steps and ensuring the curriculum is designed to reduce excessive or unhelpful demands on working memory.
- Ensuring adaptations are based on individual needs and aim to retain ambition for children with SEND.
- Understanding that, for children with more complex SEND needs, it may be appropriate to have different curriculum expectations.