Science at Darnhall Primary School

Intent:

At Darnhall Primary School, science should be fully inclusive to every child. Our aims are to fulfil the requirements of the National Curriculum programmes of study for science. By doing this we endeavour to provide our pupils with a coherently planned and sequenced science curriculum that is ambitious and designed to give all learners, no matter their abilities, the knowledge and skills that will help them as they progress in science from Early Years onwards. In a world that is changing rapidly, an effective science curriculum will provide our pupils with the skills and knowledge they will need in the future and hopefully inspire them to pursue careers in STEM industries.

We ensure that all children are provided with rich learning experiences that aim to:

- Prepare our children for life in an increasingly scientific and technological world today and in the future.
- Build on our children's natural curiosity by encouraging them to critically question the world around them and develop a scientific approach to solving problems.
- Help develop and extend a body of scientific knowledge and understanding which will serve as a foundation for future enquiry.
- Develop understanding of the nature, processes and methods of science through different types of science enquires that help them to answer scientific questions about the world around them.
- Encourage open-mindedness, self-assessment, perseverance and develop the skills of investigations – including: observing, measuring, predicting, experimenting, communicating, interpreting, explaining and evaluating.
- Make appropriate links between science and other subjects.
- Inspire in pupils a curiosity and fascination about the natural and man-made world and a respect for the environment and living things that will remain with them for the rest of their lives.
- Equip children with the language to be able to discuss their learning and confidently explain their understanding using a range of scientific vocabulary, facts and data.
- Develop our children's science capital through their lessons as well as through the other experiences they are offered, such as educational visits, STEM visitors and enrichment days.

Implementation:

To ensure high standards of teaching and learning in science, we implement a curriculum that is progressive throughout the whole school. Science is taught weekly using both a combination of discrete lessons and through cross-curricular topics when appropriate. The science curriculum at Darnhall Primary School is based upon the 2014 Primary National Curriculum in England, which provides a broad framework and outlines the knowledge and skills taught in each Key Stage. To achieve this, we do the following:

- Children begin their science education in Nursery. This involves them learning foundational knowledge mainly through the 'understanding the world' area of learning. We ensure that children are provided with a range of opportunities and contexts for them to start to learn a range of scientific vocabulary.
- Before planning a unit of work, teachers assess children's prior knowledge and understanding and use this as the starting point from which to move forward, ensuring that connections are made, and previous knowledge is built upon.
- In KS1 and KS2, teacher's plan the learning for each unit using curriculum content maps and gain relevant information from the knowledge matrix documents. This is used as a medium-term plan to ensure progression and sequencing of lessons whilst also incorporating working scientifically objectives.
- Learning objectives for each lesson are presented as a question ("Can I…") and children self-assess their learning using a traffic light system at the end of a lesson. Children will also self-assess their understanding at the end of a unit using our 'self-assessment grids'. They will consider what they learnt, enjoyed and would like to learn more about in the future.
- Children will focus on at least one specific scientist per term which links to their current topic. Links can also be made to the STEM industry and future carers ensuring we are inspiring our children.

Darnhall Primary School Science Intent, Implementation and Impact Document

- Knowledge organisers have been created for each topic. These are used to assess children's prior knowledge. The children add to these using 'purple pen' at the end of a unit to show the progress and learning that has taken place. They are also used as a point of reference throughout the topic to support the children's learning. Knowledge Organisers are shared on the school website and Class Dojo. Key scientific vocabulary for each topic is clearly identified on all knowledge organisers.
- Teachers in all classes use the matrix document to identify previous learning and identify any common misconception before they begin teaching a unit of work.
- 'Explorify Enquiry Maps' and the matrix document are used by all teachers to help them make links to the working scientifically objectives throughout the science curriculum. Teachers use this document to ensure there is an equal coverage of all the areas of enquiry throughout the year.
- Storybooks and non-fiction texts are used to support children's learning in science when appropriate from Reception through to Year 6.
- Staff take part in CPD to develop and extend subject knowledge. All staff have registered with Reach Out CPD and are encouraged to complete the relevant units when planning science topics.
- Lesson starters are used to develop children's recall of science knowledge and vocabulary, making changes to long term memory.
- Chris Quigley – Greater Depth in Science document is used to support teachers when differentiating their lessons. It includes lesson examples to support teachers with challenging children of a higher ability, delving deeper into their understanding by applying areas of learning in different contexts.
- Where necessary, some children will be supported by Teaching Assistants during lessons. Their role is to support learning, rather than solve problems for the children. Relevant information should be fed back to the class teacher.
- Where appropriate, teachers should plan opportunities to learn science outside the classroom. This is often achieved through our forest school sessions lead by our Footprints in the Forest practitioner.
- Regular monitoring of science provision across the school by the science subject leader.

Impact:

In measuring the impact of this we will be looking for evidence that:

- Children enjoy, are enthusiastic and motivated about science at Darnhall. This is monitored by collecting lesson feedback and listening and acting upon pupil voice.
- Children talk about science confidently and using the correct and accurate vocabulary.
- There is clear progression demonstrated in children's work from nursery to Year 6.
- Lessons are sequenced and there is full coverage of the curriculum.
- Children become increasingly independent in science, selecting their own tools and materials, completing pupil-led investigations and choosing their own strategies for recording.
- Children can make links with how science is used in the real world and develop a sense of how this can apply to them.

The science subject leader as well as the SLT will monitor the impact of science, which is evidenced through book looks, lesson observations, pupil voice and teacher discussions, teacher assessments and moderation meetings.