Our Science Curriculum at Deeping St. James

Intent Statement

The importance of developing an enquiring mind and a culture of natural curiosity is at the heart of the science teaching here at Deeping St James. We recognise the importance of science as a core curriculum subject and its significance in all aspects of daily life. Our science curriculum intends to prepare our children with the skills, curiosity and knowledge to understand our world. We aim to have an exciting and engaging curriculum from EYFS to year six that encourages respect for all living things and the environment. The science teaching and learning experiences at DSJ prepare our pupils with experiences and the critical thinking skills for future learning and appreciation of the world around them.

Our Science curriculum is planned to deliver a curriculum which is accessible to all and that will maximise the outcomes for every child and achieve the following

- develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics;
- develop 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;
- be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future.
- Develop an enthusiasm and enjoyment of scientific learning and discovery

Implementation

Science in EYFS

At Deeping St. James, the 'Understanding the World' area of learning is an integral part of the EYFS curriculum and planned experiences. The EYFS team plan practical hands on teacher-led and play experiences throughout the environment and across different topics to give opportunities for self-discovery, observations and vocabulary development in each of these three areas; The World, People and Communities and Technology. High quality continuous provision in the EYFS environment allows children to engage in child initiated scientific learning. There is also a specific 'investigation area' in the classroom which encourages children to investigate, test and explore. The theme/activities in this area changes at least weekly. As the children progress through the relevant ages and stages of development towards the achievement of ELGs, observations are recorded on 'Tapestry'. This forms a developing learning journey for individual pupils and tracks progress. Progress is also tracked on the school assessment system; Educator, for each of the three areas within 'Understanding the World'. Recorded work by the reception children is developed as the year progresses in preparation for the transition into key stage one learning.

Science in KS1& KS2

Each term or half term the classes at DSJ have a planned topic and where possible the science learning links with this to make the science meaningful.

Class teachers plan weekly science lessons in line with the national curriculum expectations for their year group and ensure that the teaching and learning shows progression. Teachers ensure that the learning is accessible to all by adapting where necessary for different abilities.

The learning builds on prior knowledge to link ideas together and ensure progression across the school.

At DSJ class teachers prepare pre and post assessment tasks to establish children's prior knowledge and attainment. This ensures that our teaching and learning is relevant to the children. Our post assessments are being developed across the classes as at DSJ we intend to make them even more informative for future learning and for the tracking of attainment.

Teachers promote enquiry-based learning encouraging children to ask questions about their learning and their observations. Teachers plan for the children to have access to a range of first-hand experiences when carrying out practical investigations. This investigative approach is planned for and develops the children's skills in working scientifically.

The children have planned opportunities to learn new scientific vocabulary that is progressive and offers challenge. Teachers ensure that the children can embed their understanding of the relevant vocabulary for their year group. There is a variety of approaches to learning in the science lessons that give pupils the opportunity to use their scientific vocabulary in a meaningful context as they learn. This includes a good use of talk partners, group discussions and opportunities to describe methods and findings.

The termly planning specifies the key age appropriate scientific vocabulary; this supports the class teacher and curriculum monitoring.

Children will also use a range of secondary resources to develop the knowledge and understanding that is integral to their scientific knowledge. This is planned for by class teachers to be in line with the national curriculum requirements and matches where possible the class topic.

As a school we encourage the learning to be outside the classroom whenever this is beneficial to the class. We have a large outdoor area for learning as well as an environmental area that has a woodland habitat and pond. In addition to this an environmental classroom is being developed. This houses some larger equipment and the practical space and resources for plant-based investigations. The use of the whole school environment illustrates the way we aim to encourage an enthusiasm for scientific knowledge and enquiry and also make the science learning meaningful and enjoyable for the children.

Impact

The impact of our science curriculum can be seen by the good progress that is made by the pupils in all year groups and the children's positive attitude about science learning in our school.

Also, the range of work in science books shows a very good balance of knowledge, investigative science learning and progression.

At DSJ we promote and track four key learning behaviours which all underpin our belief in hands on investigative science learning in which the children are challenged and encouraged to question, explore and persevere with a line of enquiry. These learning behaviours are; persistent problem solvers, resilient risk takers, cooperative group workers and determined self-improvers. We also teach children the skills of working with a good level of independence through our SILT learner approach. These key learning behaviours and attitudes towards learning support and promote the children's attainment is science.

Monitoring Impact:

- **Teaching & Learning:** The teaching and learning of science is monitored by leaders through learning walks, book scrutiny and pupil-voice interviews.
- **Formative Assessment:** During science lessons formative assessment takes place through questioning and a range of tasks. Feedback is given to the children in a variety of ways, these include: verbal conversations, marking, consolidation tasks and affirming stampers.
- Teachers use their knowledge of the children's attainment and understanding to inform future learning for all of the children.
- Teachers also ensure that pupils who find reading and writing more challenging are able to demonstrate their achievements and understanding and plan science learning so that the science knowledge can be measured and assessed for all pupils.
- Teachers use this assessment to inform planning to ensure that future science learning will enable all children to progress in both scientific knowledge and skills.
- **Summative Assessment:** Post-assessments are completed for each unit of science taught to show the progress made and the new knowledge that each child had acquired on that specific area of science.
- The results from both formative and summative is used to determine children's progress and attainment. Teachers input this data, using stars, into the Stat online Assessment Package (Educator) used by the school 3 times a year.
- Data analysed then forms the basis for questions/discussions which take place in termly pupil progress to support progress for all groups of pupils.
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How science interacts with other curriculum subjects.

Reading:

Children are required to use their reading skills frequently during Science lessons. Children are encouraged to read about scientists and understand the impact they have their lives today. When possible, guided reading texts are linked to our learning in Science

and children have the opportunity to access Science books in the school library, classroom reading areas and around the school environment. Children are also expected to use the specific Scientific vocabulary as shown on the Science Progression grid and on classroom displays.

Mathematics: Children are able to demonstrate and apply their mathematical skills during scientific investigations and practical opportunities. Children across Key stages collect and analyse data, enabling them to understand and generate curiosity. Children in upper KS2 must apply their maths skills to accurately measure and record data in variety of ways such as; tables, graphs and diagrams.

History: Children are required to research influential Scientists and understand events and people of the past. Pupils are then able to reflect on their knowledge to become inquiry-based learners.

Applying what they have discovered in History to their own investigations or questions they have in Science. In order for children to know more and remember more connections between Science and History are frequently revisited during our Key Stage assemblies. For example, in KS1 children link their understanding of "The Great Fire of London" with their learning about materials.

Geography: It is important for children to make connections between Science and Geography which occur naturally, for example children learn about the Water Cycle and are able to reflect on their knowledge of evaporation and condensation. Children in Year 3 identify and compare different kinds of rocks and are able to make connections with their learning about volcanoes.

SMSC: Children are able to demonstrate their Scientific skills and understanding through a range of cultural capital experiences such as walks in the community and educational visits. Children have the opportunity to research and discuss influential scientists and reflect on their impact on our lives today. Pupils are able to use their imagination and creativity when experimenting and questioning Science and gain a sense of enjoyment and fascination in learning about themselves and the world around them.

Assemblies and themed days: The annual science day that is planned to reflect science in the wider world through the National Science Week enables all children to immerse themselves in additional investigations and learn from other classes.

Eco Club: The care of our environment and sustainability are reinforced by the topics and whole school events planned and carried out by the school's Eco club.