Science at Pearson Primary School

Intent

- At Pearson, the Science topics we explore are informed by the Science Primary National Curriculum. We use this to plan science units of work that support clear skills and knowledge progression. We are also informed by documents created by an HCAT working party to develop a clear progression of skills, pre-loading, key knowledge and coverage.
- The whole school science overview ensures children begin their science journey in EYFS by looking at 'Understanding the world' which is a precursor to many of the KS1 and KS2 science topics. KS1 children learn about seasonal changes, materials, animals including humans, living things and their habitats and plants. Working Scientifically runs throughout and should complement the science topics, covering all five types of inquiry – pattern seeking, researching using secondary sources, observation over time, comparative and fair testing, and identifying, and classifying and grouping. This should be repeated into KS2 using the working scientifically skills from each phase. KS2 also cover animals including humans, plants, living things and their habitats and materials. They also learn about electricity, sound, light, rocks, forces, Earth and space, states of matter and evolution and inheritance. Every class from Year 1 upwards teaches animals including humans. All the other topics are covered in the specific year groups that the National Curriculum lays out.
- Through each topic we develop our three key drivers: language, community and possibilities. This is also underpinned by the five pillars of the HCAT signature.
- We develop strong subject knowledge amongst all staff through comprehensive middle leader development, a focus on developing teachers' subject knowledge and Scientific pedagogy, and the provision of high-quality planning resources. Key grants and funding is sought yearly and ring-fenced for new resources and appropriate science related visitors.

Implementation

- At Pearson Primary School, teachers create a medium-term plan for each unit. This includes a sequence of lessons that carefully plan for clear skills, vocabulary and knowledge progression. It also clearly identifies opportunities to develop the idea of communities and possibilities.
- Pupils build on these skills year on year to achieve depth in their learning. At the beginning of a new unit, pupils are able to convey what they already know, as well as what they would like to find out, which is used by teachers to support planning and come back to at the end of the unit.
- Consideration is given to how greater depth will be taught, learnt and demonstrated over the unit. This includes through specific questioning, extra challenges and applying learning into a different context.
- Learning is carefully planned and structured to ensure that current learning is linked to previous learning, both within a unit and across units, using the pre-loading HCAT documents.
- Scientific vocabulary develops and evolves from EYFS to KS1 and through to KS2. The promotion of a language rich science curriculum is essential to the successful acquisition of knowledge and understanding in science. Vocabulary includes words that are needed for the unit knowledge but also specifically identified Tier 2 vocabulary that we want the children to learn throughout their time at our school. This is important due to the high EAL numbers at Pearson Primary School and the low level of vocabulary many have on entry to Pearson.
- High-quality educational experiences (visitors and trips) develop pupils' confidence and deepen understanding. Classes visit Densholme Farm throughout Foundation, Key Stage One and Lower Key Stage Two so children can build on their knowledge and understanding year on year. Upper Key Stage Two visit the Driffield Show to develop this further. Other trips and visits are organised by classes depending on their topic, and the needs of the children, including the knowledge gaps they have. This is important due to a lack of opportunity to visit farms with their families and with some, a fear of animals.
- Each year Pearson has a dedicated Science week. This is a key opportunity to deepen some of the skills each class has been developing and open their understanding of careers at the earliest appropriate age. This is important due to an increase of science careers in the city because of companies like Siemens and the Ron Dearing UTC. It is also an opportunity to showcase our children's enthusiasm and excitement around science, as we have parent workshops in each class or phase and a science showcase or assembly to end the week. We are developing standalone Science days that can further develop the strand of possibilities, as well as undertaking a whole school differentiated investigation.

Impact

- We use a variety of strategies to evaluate the knowledge, skills and understanding that our pupils have gained in each unit: end of unit quizzes; skilful questioning lesson by lesson; summarising learning at end of topics; and science investigations.
- Evidence of this learning will be recorded within pupils' books and will form the basis of moderation within the year at school.
- Leaders will monitor the quality and impact of the Science Curriculum through regular book looks, pupil voice and learning walks, to assess the extent to which pupils know more and remember more. This will also evaluate the impact of prior learning.

SEND

Our ambition is for all our pupils at Pearson to be able to access the full Science Curriculum. These pupils will be supported to provide them with full accessibility to the knowledge and skill-based science Curriculum. Pupils will have access to adapted work to allow them to work with increasing independence in their lessons. Other forms of recording are also used to allow children to develop their scientific thinking and answers, such as adults scribing, photographs, videos, adapted equipment and differentiated work. This is because progress in science should not been held back due to low levels of literacy.

Sequence – Unit	**Sequence – Lesson**
○ **Immersion** – students become engaged in a new topic, they activate prior knowledge, and teachers share the key unit objectives (knowledge, skills and vocabulary that will be addressed) where appropriate by year group. They also develop key questions they want to investigate during the topic. ○ **Content delivery** – age related subject specific knowledge, skills and vocabulary is taught in discrete subject lessons ensuring working scientifically is developed within each topic. ○ **Reflect** – at the end of the unit children and teachers reflect on learning to inform future lessons. They reflect to the areas they wanted to investigate and what answers they found. They will develop the understanding of how questions can be answered and not all will provide an answer. This will develop better scientific questioning.	○ **Starter** – This may be a knowledge retention task, introduction or review of Tier 2 and Tier 3 vocabulary. ○ **Main Task** – This may be a stimulus given to allow for pupil observation, exploration and discussion. It is often direct teaching and modelling of knowledge and/or skills. Some lessons will contain independent or collaborative work for children to practice key skills or application of knowledge, such as investigations. ○ **Plenary** – This may be an oral reflection on learning which has taken place. It may also be recording an answer or conclusion to a question they have investigated.