Science Curriculum

Intent

Our science curriculum is designed with the intent that all children will become a competent scientist who are inquisitive about the world around them. We intend to provide children with first-hand scientific investigative experiences which inspires children's curiosity and builds their science capital. Our thematic lessons will provide children with numerous opportunities to take their learning across year groups by pre-teaching and revisiting skills and knowledge. This progression within our science curriculum ensures that children can make links to prior learning, develop deeper knowledge of key skills, and master their learning with repetition through stimulating and challenging experiences.

Implementation

Core scientific concepts will be taught during **discrete** science lessons each week. However, there will be further opportunities through our thematic curriculum for pupils to demonstrate their science understanding.

The curriculum provided through the discrete science sessions to allow pupils to embed and recall the key scientific knowledge principles and working scientifically skills needed for pupils to achieve the end of year expectations. Using discrete sessions for the teaching of science, ensures we are providing clear progression by allowing the children to look back on previous learning and apply what they have learnt to new situations. This approach directly coincides with Ofsted's inspection framework which states:

"People learn new knowledge when new concepts are connected in their minds with what they have already learned. It is more appropriate, therefore, to understand the way knowledge is stored as a complex, interconnected web or 'schema'. Every time a pupil encounters a word they have previously learned, but applied in a new context, it adds to the complexity of their understanding of that concept. In other words, they develop a deeper understanding of that concept and enhance their capacity to use that concept in their own thinking"

Our discrete science curriculum enables children to access learning already taught in previous year groups for example – plants. The children are assessed in what they already know in order for the learning to be pitched correctly

Collectively build skills and understanding across the school, explicit connections to prior scientific learning through the use of 'in year___'

Reviewing

Our discrete curriculum enables children to recap their science knowledge and retain what they have learnt. For instance, in year two science lessons they will learn about how animals including humans have offspring which grow into adults Then, in year 5, they will recap the human life cycle and build on how humans develop to old age and what happens to them.

Progression document

Our new progression document clearly shows staff what prior learning has occurred before new concepts are taught and whether the topic learning is a pre-teach or a review of a scientific concept. This will enable staff, to pitch lessons correctly and challenge pupils beyond the curriculum where necessary. KWL activities will continue, however, they will show more evidence of prior learning as children can dip into the memorable experiences they have had previously.

Year 4 ***Science*** *Lesson*

- Group living things in a variety of ways
- Use classification keys
- Identify and name a variety of living things in my local and wider environment
- Recognise that environments can change and this can be dangerous for living things

Year 5 ***Science*** *Lessons*

Children would take this learning further by:

- Describing the difference in the life cycles of mammals, amphibians, insects and birds
- Describe the life process of reproduction in some plants and animals

IMPACT

The science curriculum is designed to ensure pupils can recall and embed scientific skills and knowledge throughout their time at primary school and prepare them for the future. The progression document provides clear end points for pupils at each stage of their learning and enables teachers to provide opportunities for pupils learning which are pitched appropriately.

For teachers to be able to plan and adapt learning to meet the needs of pupils they regularly assess the pupils recall of their knowledge during starter lessons, KWL grids, quizzes and key questioning. Pupil's 'knowledge' understanding is teacher assessed at the end of **each unit**. Teachers use the age-related expectations to establish whether in the knowledge aspect of the unit children are working below at the expected level or above. This is then shared with the receiving teachers at the end of the year to ensure future planning is reflective of pupil's knowledge especially when units are revisited.

Scientific enquiry is the aspect of the science curriculum that we use as the key indicator to assess pupils' science ability. This is embedded in all science units. Teachers collate evidence from a variety of sources such as floor books, science books, questioning, marking and planning to make teacher assessment judgements **each term**. There are also opportunities across the Trust and within school for shared moderation sessions to ensure the accuracy of these judgements.

However, alongside the summative assessments, teachers use daily formative assessment to identify and address any misconceptions. This is reflected through marking, questioning and differentiated activities where teachers will offer further support to pupils who require further reinforcement but also provide challenge to those pupils who need activities which require them to apply 'deeper thinking' in order to apply their learnt skills and knowledge in a variety of ways.

By the time pupils leave Key Stage 2, their Science Capital will be developed sufficiently for them to gain an understanding of future opportunities and careers.

ELSTON HALL
Learning Trust

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