Science Expectation Document 2022-2023

Intent

At Broadway Infant School, we recognise the importance of Science in every aspect of daily life. As one of the core subjects taught in Primary Schools, we ensure the teaching and learning of Science builds on children's previous knowledge whilst developing curiosity and excitement in the subject, giving them the desire to explore further. First hand experiences beginning in the EYFS and continuing through KS1 will enable them to answer scientific questions about the world around them. The Scientific area of learning is concerned with increasing pupils' knowledge and understanding of our world, and with developing skills associated with Science as a process of enquiry.

In conjunction with the aims of the National Curriculum, our Science teaching offers opportunities for children to:

- develop scientific knowledge and conceptual understanding through a wide range of scientific enquiries that help them to answer 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 pupils' enjoyment and interest in science.
- use a range of investigations and practical activities to give pupils a greater understanding of the concepts and knowledge of science.
- build on pupils' curiosity and sense of awe in the natural world.
- use cross curricular teaching whenever possible to enable them to make links between subjects.
- develop an enthusiasm and enjoyment of scientific learning and discovery.

Implementation

The National Curriculum provides a structure and skill development for the science curriculum being taught throughout the school, which is linked, where possible to the wider topics each term.

Teachers follow the curriculum breakdown document and the progression of knowledge and skills to ensure coverage and a sequence of lessons and skills which begins in the Early Years, feeds through to Key Stage One and prepares the children for the next stage of their education.

Our whole school approach to the teaching and learning of science involves the following;

- Science is taught, planned and arranged in topic blocks in each year group. This aims to enable the achievement of a greater depth of knowledge.

- Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and investigations to discover the answers.
- Teachers create engaging lessons, using practical resources to aid understanding of conceptual knowledge.

Teachers begin using questioning as a starting point in Early Years to test conceptual knowledge and understanding. This allows everybody to demonstrate their full scientific knowledge without the constraints of recording. This continues throughout KS1 where children will be confident to explain their learning and understanding. Teacher assess children regularly to identify those children with gaps in learning, so that these can be minimised. The progression of skills document ensures that we build upon the learning and skill development of the previous years.

Working scientifically skills are embedded into lessons to ensure these skills are being developed as they move through the school from Early Years to Year Two.
Children are offered a range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class.

Parents are involved with the teaching and learning of Science through participation in our Science Fair and at Stay and Investigate sessions which enable them to share the learning with their children.

Presentation and Recording

- Observations of the children's learning are used in EYFS and are recorded on Target Tracker and Science Books are used in KS1 that are passed from Year 1 to Year 2 to ensure continuity.
- Any written or recorded work will be in the science books and will have a learning objective (may be added by the children) and the strand of enquiry that the children are using.
- Work that is not recorded in books will be put on Target Tracker as an observation.
- All books should have a marking policy stuck in the inside cover.
- Teachers should make use of a range of methods to capture children's learning, including: photos, observation; and children's written work.
- Stem sentences will be used to support children during the lesson when speaking and writing. They will be used to extend the children's reasoning and will support children to form a sentence. Staff can scribe children's responses where writing is a challenge. We want children to use this vocabulary and staff will model it in their explanations.

Coverage:

- Curriculum breakdown and the progression of knowledge and skills show how the subject is planned and sequenced.
- The equivalent of approximately 1 hour per week is used for the teaching of science, however teachers can use their professional judgement on how best to deliver this , e.g. in a block of time.
- When planning, the Working Scientifically Skills need to be referred to where the learning objectives are and throughout the sequence of lessons the strands of enquiry (Comparative/fair testing, Research, Observing over time, Pattern

Seeking, Identifying, Grouping and Classifying and Problem Solving) need to be covered. Problem Solving is a KS2 focus but can be touched upon where appropriate in KS1. Starting points for these strands of enquiry will be at the top of the planning.

Environment:

- The KS1 classrooms will have a science display with the title of the science topic that they are covering and it will have the working scientifically poster on it as well as examples of what they have been teaching that term. In KS1 the stem sentences will also be used on displays.
- Children will have a STEM sentence mat readily available to use as support.
- In Reception there is an investigating area which includes an interactive station and a display of learning.
- Resources are stored in the DT room and in Purple Class.
- The forest and outside environment is also used for Science lessons where appropriate.

Assessments:

- **At the beginning of each topic:** the children will be given an opportunity to show what they already know about the topic and the teacher will use this, alongside their knowledge of prior learning in the subject to adjust planning and next steps.
- **At the start of each lesson:** Children will participate in a review, recall and remember discussion which support the children to recall and discuss learning from the previous year, term and lesson. In Y2 children may complete a quiz which includes up to 3 questions based on the core knowledge identified in the curriculum breakdown (if a quiz is used the review grid will not be used).
- **Within each lesson:** Assessment for learning strategies (questioning, oral feedback, self-assessment, peer assessment, observations) are used to adjust the teaching and learning for both individual pupils and the class as a whole. Class teachers will note areas of difficulty/misconceptions and make adjustments within the lesson or the following sequence of lessons to address these.
- **At the end of each lesson / unit:** teachers will use a tracker to identify children who have not met the learning objective within lessons and those who have demonstrated mastery. This tracker gives an overall assessment of the children within the topic assessed against the learning objectives covered.
- **At the end of the year:** In the summer term, teachers use their assessments from all the units of work to make an overall judgement upon whether each pupil is working at, above or below the expected level and reports this to parents.

  In Reception, the children are assessed at a data point at both mid-year and end of year.

SEND / Vulnerable Pupils

- SEND Strategies for use in Quality First Teaching and Support Plans document details support for SEND / vulnerable pupils in all curriculum areas.
- Individual SEN pupils have their own support plans and targets.

Impact

To gain an overall picture of attainment in Science across the school, the subject leader regularly undertakes a range of monitoring including pupil voice, learning walks, book scrutiny and a review of planning. They also analyse the assessment data and identify areas where the subject needs to be further developed.

Our Science Curriculum results in a fun, engaging, high-quality science education for all that provides children with the foundations for understanding the world around them. Our use of the local environment ensures that children learn through varied and first hand experiences.

The assessment data produced by teachers demonstrates that progress is being made and highlights any gaps in learning that may need addressing. We will know how successful the implementation has been by close analysis of the data throughout the year.

Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.