

Science

Firsy Foundation

Intent

What are the aims for your subject?

National Curriculum

The national curriculum for science aims to ensure that all pupils:

- 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.
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

How do we tailor it to the needs of our pupils?

Vocabulary

For each science unit, key vocabulary is identified and is split in to three sections: tier 1, tier 2 and tier 3. Throughout the unit, it is expected that children build a good understanding of these key words and can use them in context. We have also planned for progressive vocabulary within the element of "Working Scientifically."

Cultural Capital

We build cultural capital by providing opportunities for children to experience science beyond the classroom, linking closely with businesses and providing hooks and memorable experiences linking to science where appropriate.

Oracy

Children have opportunities to develop oracy skills through practical activities and scientific investigations. The 'Speakwell Toolkit' can be used to support lessons when children are predicting/hypothesising and concluding. Concept cartoons are also used to initiate discussion and to develop a mastery level of vocabulary that children also practise in other subject such as maths.

Other Opportunities

Children have previously had the opportunity to take part in a STEAM club 'Destination Imagination' whereby children have the chance to work scientifically outside of the classroom, with other children and in different settings. Children have also previously taken part in the "Big Bang Fair" where they have had the chance to work scientifically in a group to develop a design to meet set criteria.

Implementation

How EYFS, KS1 and KS2 develop throughout schooling

The EYFS "Development Matters" grids have been linked clearly to the KS1 National Curriculum to map progression. This shows what knowledge from "Understanding of the World" for a "Good Level of Development" (GLD) child should have when they enter KS1.

As we follow the National Curriculum, we know that there is progress and coverage across the school. This can be seen in more detail in the whole school overview and the topic booklets for each half term.

Assessment

Assessment for learning is carried out throughout every lesson by the teaching using key questioning. At the end of every lesson self-assessment and teacher-assessment is completed to assess whether each individual child has met the required learning objective by achieving the success criteria. This can then be used to tailor and support future learning such as follow-up interventions or addressing the objective in another context. End of unit assessment (attainment) is monitored across the school using the assessment sheets provided within the topic booklets.

Retention and Adaptation

To monitor retention in 2020, pre-unit quizzes have been introduced to assess prior knowledge of pupils and to allow teachers to identify the required starting points.

SEND and disadvantaged children receive a broad and balanced curriculum through tailored visual resources, practical activities and scaffolded support.

Knowledge of Staff

Teachers receive appropriate CPD when needed, this may be done in house by members of the STEM team or they are done outside of school from external providers. STEM team to keep a look out for course opportunities- this should ensure that all members of staff, including support staff, have a good understanding of the science curriculum. The topic booklets provide clear guidance of what must be taught in that unit and are provided to staff with enough time to do any self-study or ask support from other members of staff.

Timetable and Rationale

Science, where possible is linked to the topic of that half term. Through mapping the national curriculum, science isn't taught every half term. Science is taught progressively through the topics and half term, not through "science weeks" although this may be used as an opportunity to extend their learning further, past the national curriculum or complete more complex projects.

Timetabling is flexible throughout the school and therefore science may not always be taught in the same slot. This ensures that interventions or other opportunities such as family learning, boxing for well-being do not replace the learning of science for some pupils. Science may also be taught in the morning or the afternoon and this is carefully planned for and decided by the teacher.

How it is taught

Teaching science can be done practically or through written work. A minimum of 1 practical lesson per unit must be taught - this could be an investigation or it might be an interactive task to support the children's learning e.g. melting chocolate for states of matter.

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Impact

Monitoring

Progress and attainment are monitored through book scrutinies, lesson visits, pupil voice and teacher voice. The assessments from the topic booklets are also shared at the end of every half-term throughout the school

Retention

Pupil voice allows for the retention of knowledge to be checked by the STEM team, as well as the pre-unit quizzes by the class teacher which is recorded in books and can be monitored in book scrutinies. Some elements of science such as adaptation and habitats is also re-visited in other curriculum areas such as geography.

Teaching

Teaching science can be done practically or through written work.

A minimum of 1 practical lesson per unit must be taught – this could be an investigation or it might be an interactive task to support the children's learning e.g. melting chocolate for states of matter.

Each of year group team will be working on a 2 year cycle to ensure all science objectives are covered.



Science FIRSY Foundations



Planning

Our science is linked to the current Cornerstones topic where appropriate. Where the science doesn't link, or there is no science for that unit of work, the subject will be taught discretely instead. A science long-term overview has been created for the whole school to ensure that all areas are covered.

CPD

Teachers receive appropriate CPD when needed, this may be done in house by members of the STEM team or they are done outside of school from external providers. STEM team to keep a look out for course opportunities– this should ensure that all members of staff, including support staff, have a good understanding of the science curriculum.

We will endeavour to have links with secondary schools to provide transition for our older children and to also provide further opportunities for children to explore and develop a better understanding of science.

Links to businesses

We are maintaining links with businesses to provide children with opportunities to see science in the real world and to boost the profile of science.