

Crabtree Farm Primary School

Science Intent, Implementation and Impact

At Crabtree Farm, we ignite curiosity in science by exploring the world through diverse practical tasks and engaging enquiries which develop transferrable skills (STEM) and long-term retention of knowledge. This is done so that our children understand the importance and prominence of science in the modern world.

Intent

- To ensure our children have covered the objectives required to meet the aims of the National Curriculum
- To develop a love and curiosity for science in all children.
- To develop self-guided and self-motivated learners who can over time develop their own scientific enquiries to be explored using scientific methods.
- To develop learners who retain key scientific knowledge that supports their understanding of the world and helps them to establish clear links between different areas of science and wider curriculum areas – STEM.

Implementation

One science lesson per week with a clear lesson objective which must be shared and used as the title of each piece of work.

- Lessons are planned with the National Curriculum statutory objectives guiding their intended outcomes – this is key for both working scientifically skills and substantive knowledge within science.
- Developing Experts will be used as the platform to teach the national curriculum objectives in a logical sequence that ensures coverage and progression throughout the key stages. Developing experts will also be used to assess students via assessments for each topic.
- Working scientifically must be taught and explicitly referred to in lessons and planning to ensure procedural knowledge is developed alongside substantive knowledge. A working scientifically butterfly poster will be completed by each child to record their skill development and coverage.
- All topics will have practical sessions. Practical elements may include – each child taking part, small groups or the teacher demonstrating an example i.e. example of a method etc. Practical elements must demonstrate a clear emphasis on developing knowledge or skill and have links directly to a substantive knowledge objective or working scientifically objective.
- Two linked text reading sessions related to science per half term should be planned using quality science materials linked to the current topic of study. Questions should be answered fully in science books and titled. Teachers should refer to the English lead documents to support adequate planning of reading sessions.
- KWHL (what I know, what I want to know, how I will find out and what have I learned) grids to be used throughout a topic as a guided process. These should be updated and reviewed throughout a topic. Children should have a KWHL grid for each topic in their book – these support the assessment of knowledge, development of enquiry and understanding of skill development.
- Knowledge organisers to be used in books and sent home with each child and referred to frequently during lessons – these are designed to support independent reading of the topic, monitoring of progress/coverage and retention of key facts. Children may choose to tick or highlight when an objective statement has been covered.
- Mini quizzes at the start of each lesson (no more than 3 questions) – mini quizzes to include questions from previous lessons and/or topics from previous years to ensure progression and

Assessment for Learning throughout a topic. A quiz may include answering questions, cloze procedures, diagram labelling, diagram construction.

- STEM events one per term - STEM ambassador visitors, science visits, a cross curricular project (DT etc) with explicit reference to science objectives and skill development. These will also include those organised via the subject leader e.g. Festival of Science and Curiosity.
- British Science Week to be observed each year.
- One art project to be science related per year i.e. seasons , properties of materials, shadows etc
- One scientist or inventor to be read/studied in each year group per year – these work in conjunction with our Design Technology curriculum.
- Training for both teachers and the subject leader where need or desire is apparent/requested.
- A STEM club/science club after school to support children who are identified by assessment as WTS or below.
- Assessment of units will be undertaken each half term. Review lessons must be facilitated at the end of each half term to support any National Curriculum Objectives that are deemed to need revision. Lessons can be assigned to learners on Developing Exports to support learners recover any lost learning or misunderstandings. Assessment scores will be recorded on the spreadsheets for monitoring by subject leader.
- Assessment of working scientifically skills will be introduced from Autumn 2 2022/23. These will assess each skill individually for each phase of school. This practical is not an assessment of substantive knowledge but an opportunity to observe their skills practicing as a scientist. Observation sheets for these assessments must be completed and kept with assessment forms from unit tests. TAPS Focused assessments of Working Scientifically provided by the Primary Science Teaching Trust are linked to each strand of working scientifically and are also planned to link to each topic of knowledge. Teachers are to use the overview grid to determine which WS assessment must be used to link to the current topic.
- Science texts books are distributed to each phase of school. Class teachers must give children the opportunity to read from the high-quality selection of books no less than twice per half term. Book boxes must rotate to each class throughout each half term. Additional Science books are available outside Class Loxley which children may sign out via subject leader.
- Science is monitored regularly by the science subject leader. This may take the form of observations of lessons, monitoring planning, pupil voice, staff voice and other. This is to ensure quality teaching is maintained and the prominence of science within our school continues to be prioritised.

Impact

The impact of our science curriculum is reflected in children:

- who enjoy and love science.
- who recognise a future in the careers that science has to offer.
- who understand how important science is to everyday life at home, work and educational settings.
- are curious to develop their own critical understanding of science and appreciate other curriculum areas that have broad and varied connections (STEM).
- who can write and speak coherently about science as a subject – giving facts, make connections, draw conclusions and make observations.
- who have confidence to explain their thinking and support those around them to share their ideas in different formats.
- who can present their scientific work in a variety of ways – presentations, diagrams and written/oral reports.
- who actively seek out to learn more about science in their own time with their own enquiry lines in mind.
- are ready for the next year/key stage of their education.