Callow End CE Primary School Curriculum

'Building a foundation for love and learning.'

Science Curriculum Statement

Intent

At Callow End CE Primary School we believe that STEM is an education for life. Through the Developing Experts scheme, we have a mission to enable children to access high-quality STEM education that is linked directly into the real-world career progression pathways.

We aim to ensure that all of the students that study through Developing Experts become exceptional critical thinkers and problem solvers; the essential skills that are needed in the world of work. They are never too young to start with STEM. We have addressed this by designing and implementing schemes of learning that offer breadth and depth, respect the National Curriculum and build progressively across the Key Stages; lesson-by-lesson, and unit by-unit.

Through well-structured and engaging science lessons, we enable children to:

- Be curious and explore their world building a wealth of scientific knowledge and skills.
- Become effective problem solvers using science to answer the challenges that the world is facing.
- Develop excellent skills in maths to enable data handling and analysis.
- Emerge as effective exponents of STEM through the disciplines of biology, chemistry and physics.
- Challenge themselves to address every question with investigation, prediction, observation, data collection, synthesis, analysis, and a thorough evaluation of their findings.
- Communicate their understanding and ideas with a wide technical vocabulary.

Implementation

At Callow End CE Primary School we understand that every child is individual and every child learns at their own speed. Through the use of Developing Experts resources, we aim to ensure that all children have the opportunity to learn science knowledge and vocabulary, revisit knowledge and science vocabulary, and to apply it in meaningful experiments across each year group. We use child friendly indicative assessment opportunities, through; Mission Assignments, quizzes, comprehensive handouts and a range of other activities that interweave with prior learning, as well as end of unit assessments. This blend of assessments grants teachers the necessary tools to ensure pupils make good or better progress in science.

The Developing Experts curriculum revisits and builds upon the national curriculum objectives with extra lessons to really strengthen and make links between science units.

We feel that it is important that the opportunity is offered to extend higher achieving pupils beyond the limits of a key stage of National Curriculum, as well as catering for those that need extra support. As such, our Developing Experts scheme has included additional lessons and resources that carry 'signpost' to extended learning capability, which is used at the discretion of the class teachers.

Key Stage 1

At Key Stage 1 pupils are exploring and making sense of the world around them; naming things and understanding how they fit in their environment. Developing Experts apply the National Curriculum programmes of study by helping children to identify what makes, animals and humans, materials and their uses, plants and seasonal change. There is a clear progression pathway from Year 1 to Year 2 and children are encouraged to work scientifically, investigating, observing, recording and sharing, using simple equipment increasing their curiosity for their surroundings. We believe that the acquisition of 4 Developing Experts Ltd. © 2022 knowledge, concepts, skills and positive attitudes builds strong foundations. Our emphasis on keywords reinforces their learning and understanding. In each lesson experts explain things and relate them to the world outside home and education, enabling children at a young age to begin to form the relationships of the working world within their own conceptual understanding.

Key Stage 2: Lower

Having established the foundational scientific concepts, we now add depth to their understanding of the areas from KS1 and broaden the range of topics and concepts studied; rocks, human impact on living things - conservation and pollution, and eventually, states of matter, sound, and electricity. Children are immersed and progressively build on their foundational scientific knowledge and vocabulary. Our indicative assessment provides clear guidance as to where each pupil is in their individual learning journey, enabling teachers to adjust the style of delivery or repeat a resource if required. Children become more conversant with the world of work through our expert dialogue that applies STEM knowledge to the professional context. We continue to encourage children to be inquisitive through real life experiences where possible such as: pond dipping or investigating dead trees for life, or testing material resistance to glass paper, or impact testing to list characteristics; then to chart and classify their data and form narratives from their findings developing their skills to work scientifically.

Key Stage 2: Upper

We ensure topics are visited at each key stage progressively, adhering to the National Curriculum, this is reinforced through revisiting each topic and strand. By Year 5 and Year 6, pupils are becoming confident and independent young scientists. Through their explorations, they raise questions, make simple hypotheses that they test, collect data for, then subject to analysis and report from. The breadth of study now includes the solar system, forces, light and evolution. They have developed their language and communication through their study of our key words and the dialogue of our experts in the field.

Impact

Through Developing Experts, our Science curriculum is high quality, well thought out and is planned to demonstrate progression in knowledge, working scientifically skills and enquiry types (different types of experiment). The impact of our Science curriculum is that the majority of children, in our school, are able to;

- Demonstrate knowledge and scientific vocabulary in the core areas of science taught each year.
- Recall, make links to and build upon previously taught science vocabulary and knowledge.
- Use scientific vocabulary and skills to help them to work scientifically when planning, conducting, recording, reporting and understanding (evaluating) scientific enquiries (experiments).
- Know about science and scientists in real life.
- By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

We measure the impact of our curriculum through the following methods:

- Summative assessment of pupil discussions about their learning.
- Formative assessments provided by the Developing Experts scheme.
- Images and videos of the children's practical learning.
- Interviewing the pupils about their learning (pupil voice).
- Moderation staff meetings where pupil's books are considered and discussed and there is the opportunity for a dialogue between teachers to understand their class's work.
- Annual reporting of standards across the curriculum.
- Marking of written work in books.