Science at Delta

Delta Primary School

At Delta we aim to develop a sense of excitement and curiosity about natural phenomena and an understanding of how the scientific community contributes to our past, present and future. We want pupils to develop a complex knowledge of Biology, Chemistry and Physics, but also adopt a broad range of skills in working scientifically and beyond. We want all of our pupils to experience the joy of science and make associations between their science learning and their lives outside the classroom. Studying science allows children to appreciate how new knowledge and skills can be fundamental to solving arising global challenges.

Our Science lessons encourage critical thinking and empower pupils to question the hows and whys of the world around them.

What do we want our children to learn?

We want our children to:
● develop their knowledge alongside scientific skills across Biology, Chemistry and Physics.
● have curiosity and excitement about familiar and unknown observations.
● challenge misconceptions and demystifying truths.
● build on practical and investigative skills across all units.
● think critically, with the ability to ask perceptive questions and explain and analyse evidence.
● Develop their scientific literacy using wide-ranging, specialist vocabulary

Pupils explore knowledge and conceptual understanding through engaging activities and an introduction to relevant specialist vocabulary.

How do we implement our Science curriculum:

We follow the Kapow Primary's Science scheme of work which is a spiral curriculum, with essential knowledge and skills revisited with increasing complexity, allowing pupils to revise and build on their previous learning. A range of engaging recall activities promote frequent pupil reflection on prior learning, ensuring new learning is approached with confidence.

The following 4 key strands have been identified:

- **Scientific knowledge and understanding of**:
  - Biology - living organisms and vital processes.
  - Chemistry - matter and its properties.
  - Physics - how the world we live in 'works'
- **Working scientifically** - processes and methods of science to answer questions about the world around us.
- **Science in action** - uses and implications of science in the past, present and for the future.

The Science in action strand is interwoven throughout the scheme to make the concepts and skills relevant to pupils and inspiring for future application. Cross-curricular links are included throughout each unit, allowing children to make connections and apply their Science skills to other areas of learning. Each unit is based upon one of the key science disciplines; Biology, Chemistry and Physics and to show progression throughout the school we have grouped the National curriculum content into six key areas of science:

- Plants
- Animals, including humans
- Living things and habitats
- Materials
- Energy Forces, Earth and space.

The 'working scientifically' skills are integrated with conceptual understanding rather than taught discretely. This provides frequent, but relevant, opportunities for developing scientific enquiry skills. The scheme utilises practical activities that aid in the progression of individual skills and also provides opportunities for full investigations.

EYFS:

- In the EYFS children are provided with opportunities to explore, problem solve, observe, predict, think, make decisions and talk about the world around them. They develop scientific knowledge through experimental play.
- Asking key 'how' and 'why' questions children are given the opportunity to discuss basic scientific principles in a fun and stimulating way.
- Children learn about their bodies, healthy eating and basic human and animal needs, linking in to an uncomplicated approach to learning biology.

Planning

- The science curriculum map identifies the units to be covered each term alongside the assessment pieces.
- Teachers link prior knowledge to the new learning to deepen children's thinking. They plan sequences of lessons across the unit that will build on and develop the children's knowledge and skills.
- We use short term plans to set out the learning objectives for each lesson as well as the activities and resources that will be used to achieve the LO.
- Consideration is given about how to challenge children within each lesson, as well as how learners need to be supported.
- Teachers are able to use the Kapow scheme of work as well as the Association for Science documents to support their planning, resourcing and subject knowledge.
- We have high-quality science resources to aid and support the teaching of all units and topics taught from EYFS to Y6. We keep these in a central store, where they will be labelled and easily accessible to all staff.
- We also have a selection of science topic books to support children's individual research.
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Teaching:

Lessons incorporate various teaching strategies from independent tasks to paired and group work, including practical, creative, computer-based and collaborative tasks. This variety means that lessons are engaging and appeal to those with different learning styles. Lessons are adapted to ensure that all pupils can access learning, and opportunities to stretch pupils' learning are available when required. Knowledge organisers for each unit help to identify prior and future curriculum links to make the scheme as meaningful as possible and reinforce key technical terms.

Assessment and feedback:

Each unit has a unit quiz and a knowledge and skills catcher, which can be used at the beginning and/or end of the unit to provide a summative assessment. Opportunities for children to communicate using scientific vocabulary will also form part of the assessment process in each unit.

Class teachers use the children's books and assessments, along with observations of their skills when carrying out experiments and investigations, to make a judgement as to whether each child is working towards, at or above the expected level.

- Children's work is always looked at and assessed before the next lesson.
- Children sometimes self/peer assess aspects of the science work.
- Scientific vocabulary is corrected in green pen alongside common exception words for that year group.
- Teachers conference children in science to address misconceptions or to extend the children's learning. Children indicate this with 'PC'.

How do we evaluate learning in Science?

Delta school provides engaging, high-quality science learning that ensures our children understand the world and are equipped with scientific skills and knowledge that will enable them to be ready for the curriculum at Key Stage 3 and to support future careers which will undoubtedly involve scientific processes.
The impact of our Science curriculum can clearly be seen in the children's books.
Our rich science curriculum is also evident in the texts that we have selected for our children to read, science displays and class assemblies where children share their knowledge with their parents.
SLT and the Science subject leader monitor the impact of the science curriculum using a variety of strategies.

- Scrutiny of books
- Progress within assessment tasks/quizzes
- Pupil voice
- Learning walks
- The priorities set out in the science action plan are monitored and the targets set are reported upon to ensure the desired impact upon our pupils is achieved.
- Moderation staff meetings where pupil's books are scrutinised and there is the opportunity for a dialogue between teachers to discuss the impact of our science curriculum.

All of this information is gathered and reviewed. It is used to inform further curriculum developments and provision is adapted accordingly.