

Science Handbook

Approved by: Headteacher & SLT

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Rationale

Learning is a change to long-term memory and the development of strong schema links. We want our children to develop a positive attitude towards Science; to see it as an interesting, enjoyable and exciting subject. We want to inspire and challenge the children's understanding of everyday systems and processes and develop their scientific skills to enable them to gain a better understanding of the world they live in.

Encouraging the children to ask questions, conduct investigation and analyse data helps them to develop an analytical way of thinking with an emphasis on precision and accuracy. Through investigation, the children are able to question and conclude findings to science's most interesting topics and allows confident communication of the subject.

Intent

Our Science policy aims to give the children a Science curriculum which enables them to confidently explore and discover the world around them so that they have a deeper understanding of the world they live in through child led investigations.

Implementation

Why has the specific content knowledge been selected?

The National Curriculum provides the foundations for understanding the world through the specific disciplines of Biology, Chemistry and Physics. Through questioning, investigating and analysing, the children at Gaskell Primary School will develop the skills needed to become inquisitive learners whilst learning about key scientific processes. In order to expand our children's vocabulary, encourage divergent thinking and provide opportunities for child-lead investigations, we have put together a curriculum that is well-sequenced, with clear progression and end points which will inspire and enhance long term memory.

Why is it taught in the order that it is?

The Science curriculum at Gaskell Primary School, follows a sequence of knowledge and concepts. A gradual build-up across years allows these scientific concepts to become more embedded in our children's long term memory whilst also avoiding misconceptions. Our Science curriculum focuses on many topics linked to the three strands on science. In EYFS/KS1, the children are encouraged to explore, observe and question through topics such as Plants, Animals and Materials. This naturally progresses through to KS2 where the children are taught to explain, conclude and predict scientifically; learning about topics such as Electricity, Forces and Space. Animals and Humans is a topic which runs through the Gaskell Primary School curriculum and has a focus in every year.

How are Science lessons taught at Gaskell Primary School?

At Gaskell Primary School, Science lessons are taught in such a way that by the end of each topic, the children are confident with their key vocabulary, have learnt and explored different scientific knowledge and have had an opportunity to investigate this learning. Through constant questioning and recapping, the children can confidently progress through school developing each concept.

Impact

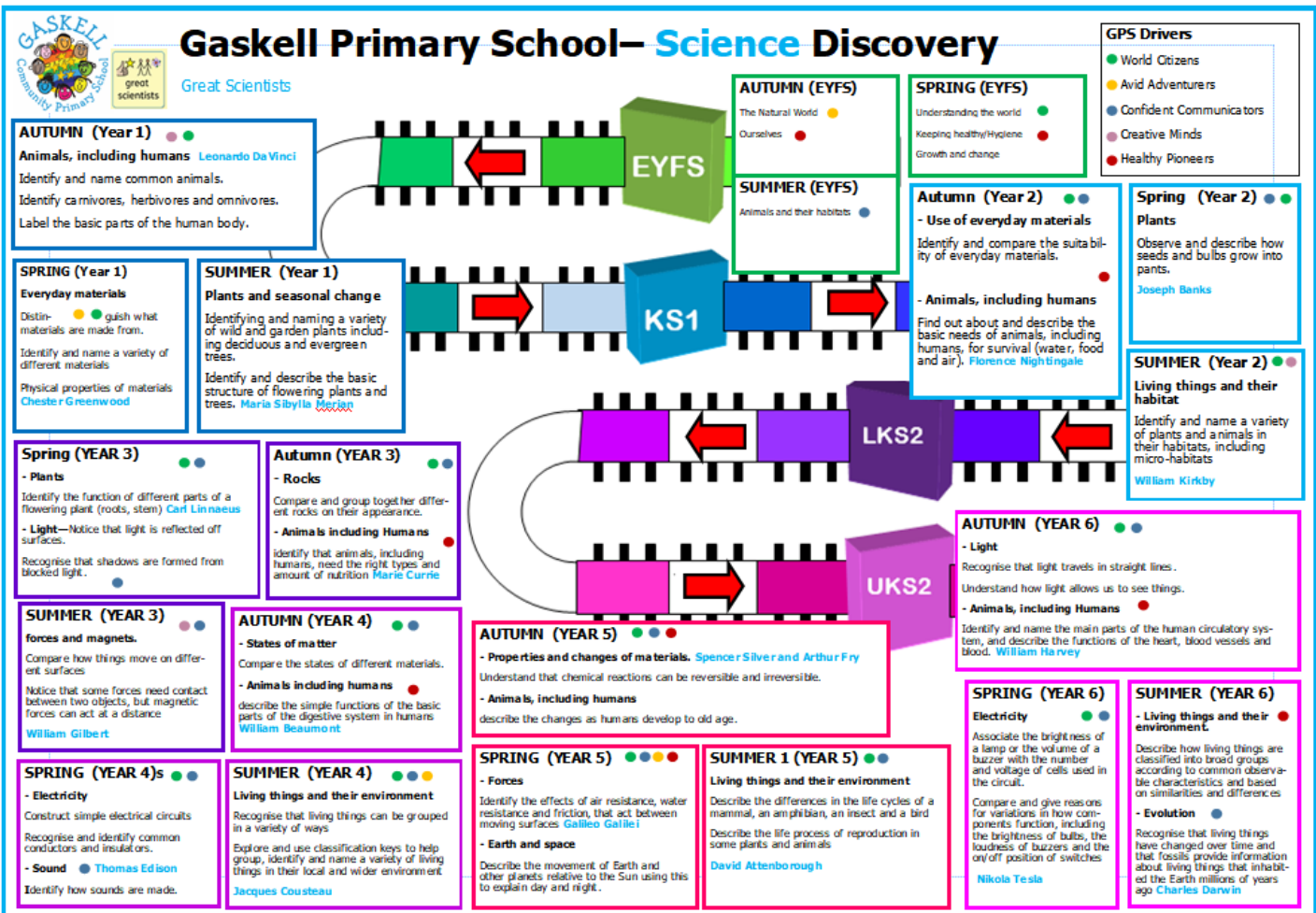
We ensure that the children at our school are equipped with the scientific skills and knowledge that will enable them to be ready for the curriculum at Key Stage 3 and for life as an adult in the wider world. We want our children to have a passion for Science, and to understand the prospect that they could have a career in this particular field. By the end of year 6, we want our children to be able to confidently question, analyse and investigate scientifically and apply these skills to all areas of science.

Curriculum Structure

By designing a curriculum that is concept-based, inquiry-driven, and focused on investigation, the children will not only acquire knowledge but also develop the skills and attitudes needed to apply that knowledge effectively in a variety of contexts. This approach fosters a deeper and more meaningful understanding of the Science and empowers them to 'know more, remember more and do more.'

Through explicit scientific concepts, the children are able to make schema links and retain the knowledge in their long-term memory. Previous knowledge is recapped at the start of each new unit and lesson allowing the children to make connections and remember more.

We introduce and explain vocabulary specific for each unit so that the children are able to apply the vocabulary within their Science lessons. Children use a knowledge organiser and classroom displays to help them recall key information quickly.



There are key themes that run through the Science curriculum including: Living things and their environments, Plants and Animals (including humans), Materials and Light and Electricity. Throughout each year, content from each of these topics are appropriately taught in such a way that the children are able to build their understanding both academically and through learning specific scientific skills.

Planning

Our lesson plans are designed by the Subject Leader, who makes sure that the teaching of Science is sequenced and progressive and that key knowledge and skills are built upon each year. In Science, knowledge is taken and appropriately sequenced from the Science National Curriculum. Our concepts focus on working scientifically and help build schema links, which allow the children to 'know more, remember more and do more'. We ensure that that we are continuously re-visiting previous learning. We do this by embedding the Gaskell Principles of Learning. We also make explicit links to our school drivers to ensure the children understand that when they leave Gaskell Primary School, they have experienced essential life skills such as being a Healthy Pioneer or a Confident Communicator.

We use the knowledge organisers to support knowledge retrieval in each unit of work.

Assessment

We assess Science in three ways: through Assessment for Learning (AFL), Formative and Summative assessment.

	Assessment for Learning (AFL)	Formative	Summative
Definition	Any activity that is primarily designed to improve learning	Gives the teacher previously unknown information about the children's achievements that is used to inform next steps	Allows us to draw conclusions about the children's attainment in relation to agreed standards
Purpose	To help the children to remember, apply facts to build knowledge and to develop reasoning	To check what the children remember and understand in the short to medium term, to determine the efficacy of teaching methods, and to decide what to do in response to this information	To check what the children remember and understand in the long term and to decide whether this meets agreed standards
Audience	Teachers, children	Teachers, children, subject leaders and parents	Teachers, children, subject leaders, school leaders, governors, parents and (where applicable) other schools and government departments
Frequency	Every lesson, every day	From the mid-point of a topic onwards, with variable time-scales	End of unit
Types	Questioning, checking, feedback, Gaskell Principles of Learning, Metacognition, Retrieval Practice	Learning By Questions LBQ Feedback to learners' policy	Teacher judgement against the key knowledge (INSIGHT)

Children are assessed against their year group key knowledge, which are split into the following strands:

- Plants
- Animals including Humans
- Materials
- Earth & Beyond
- Living things and their habitats
- Energy
- Working Scientifically

The information we gather during each unit about the performance of individual children and groups will enable the teacher to provide carefully tailored feedback, questioning, explanation and support, according to their needs. When each unit has been completed, teacher assessments are updated on **INSIGHT**. Subject work books and (where appropriate) Seesaw will be used to support objectives and showcase evidence.