



STEETON PRIMARY SCHOOL

SCIENCE CURRICULUM



PROGRAMME OF STUDY



WORKING SCIENTIFICALLY
STRAND



WORKING SCIENTIFICALLY
SKILLS

SCIENCE CURRICULUM AT STEETON PRIMARY SCHOOL

INTENT

The foundations of science are introduced in EYFS. We have selected the Early Learning Goal that links most closely to the Science National Curriculum taught in the rest of the school. These are then built upon in KS1 and KS2. The end goals taken from the Natural World ELG are:

- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

The 2014 National Curriculum for science aims to ensure that all children in KS1 and KS2:

- 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

Our curriculum has been developed to ensure the emphasis on 'Working Scientifically' and 'Subject Knowledge' are equal. We intend for children to see the two parts of the curriculum to be integrated and not taught explicitly. We believe this is key to a successful curriculum as it mirrors the subject outside of the classroom. We intend for all activities within 'Working Scientifically strands' to deepen pupils understanding of a scientific concept using appropriate resources. Children will be developing enquiry skills progressively through school, which will enable success when Working Scientifically. Children will make connections between the theory and the practical. This allows for children to progress within the subject and for children to be able to apply their skill and knowledge to a new context.

Children will be taught a sequence of lessons from the 'National Curriculum Programme of Study'. Our curriculum allows for children to develop Science Literacy through the thorough learning of specific scientific vocabulary which will also progress throughout the years.

It is our intention that our curriculum allows for a 'Science Capital' to be developed. This will consider our needs of the school and children. We intend to ensure science has a high profile within school through relevant visits and visitors. We will inspire and motivate children to aspire to work in the field of science. We want children to have a contemporary view towards 'What a scientist is' and for children to disregard any misconceptions as to 'What science is'.

We have high expectations of our children in science and provide suitable challenges for all abilities. Children are given the tools to create their own investigations and are given the freedom to develop their own scientific explanations. Children are challenged to explore their results further, through thorough questioning from either themselves, adults or peers.

IMPLEMENTATION

Teaching of science at Steeton Primary School ensures that the National Curriculum is followed in KSI and KS2. EYFS do not have a Year A and a Year B as they follow a one-year LTP. Science is not taught in weekly blocks it is incorporated daily through continuous provision in a week. All aspects of the provision are mapped into each term, as can be seen in the EYFS overview. The topics lend themselves to the KSI Curriculum, for example Plants are taught through provision in Spring 2, at the same time as KSI are learning about Plants. There are no set 'Enquiry' skills in the 'Development Matters' that the children need to learn but they are constantly making observations and identifying similarities and differences.

In KSI and KS2 science lessons are timetabled as whole school weeks. This allows for 15 hours of direct teaching time each half term. Teaching the subject in this way allows for the learning to be uninterrupted and allows children to gain a more in-depth understanding of the programme of study being covered. When appropriate, an extra afternoon session of 2 hours has been allocated for cross curricular learning objective. This objective has been selected to enhance long term memory for children as it will have been taught previously in their science week. The first week of every year will be 'Enquiry Week' this allows for children to have a deeper understanding of each of the strands and skills needed to 'Work Scientifically'. Activities have been carefully selected to enhance prior subject knowledge. Enquiry strands are:



COMPARATIVE/FAIR TESTING



RESEARCH



OBSERVING OVER TIME



PATTERN SEEKING



IDENTIFYING, GROUPING
AND CLASSIFYING

The curriculum is taught by implementing one programme of study, for two different year groups, over two half terms (please see 'Science Overview'). This is in-line with the National Curriculum 'schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage if appropriate'. It allows us to develop a curriculum that suits the needs of our school which in turn embeds our 'Science Capital' approach. We have found that the overview has enhanced progression in particular programmes of study. The 'Science Progression' documents ensure progression is clear within the programme of study. The objectives provide an 'end point' for the programme of study that they are currently studying. It also explicitly explains what children will have learnt previously and what they will learn in the future.

Science lessons are planned by teachers in their phases, they use the 'Science Progression' document to access the correct learning objectives for that programme of study. These documents also show prior learning and future learning within that programme of study. The prior statements for KSI include the Early Learning Goals for EYFS. Teachers are also expected to source relevant and meaningful activities to teach at least 3 of the Working Scientifically strands linked to the programme of study. Teachers are expected to make cross curricular links, especially through the use of ICT and Literacy.

Children will record their work in their 'Learning for Life' book. They will place a sticker on any of the work that they complete that is Science, this includes other work that has been completed in lessons to provide evidence of cross curricular links. Children will record their ideas in-line with the National Curriculum using a range of tables, graphs, diagrams, written explanations and photos. Progression can be seen throughout the years in the 'Learning for Life' books through more detailed explanations and diagrams. Children will also become more analytical in their writing as their science develops.

IMPACT

Pupils at Steeton Primary School have a positive and enthusiastic attitude towards science. When walking around school, you can hear children talking about the science work that they have completed. When monitoring the subject, pupils can give an in-depth explanation as to what they have learnt in the lesson and why they enjoyed it. Pupil voice provides evidence that children are enthusiastic towards Working Scientifically as they enjoy a practical approach to their Science lessons. Visitors and visits have given children someone or something to aspire to and they are constantly asking for more opportunities. Children are beginning to provide more in-depth explanations stating the reason 'why' something has happened. Children are beginning to provide more in-depth conclusions. Children are gaining confidence in planning their own enquiries. A science working wall has also been implemented throughout the school with key vocabulary for the children to use in the topic and a record of which enquiry strands have been taught.

Teachers use both summative and formative assessment in order to identify gaps, weaknesses and misconceptions in children's learning. Children are then given the necessary support through different strategies in Science weeks and dedicated half an hour lessons to address these. Subject knowledge and enquiry strands are assessed individually every 12 weeks. Subject knowledge assessments for KS2 are provided through LBQ. They are asked 20 questions related to the Programme of Study. Subject Knowledge data is collated in KSI through teacher knowledge as to whether the child has understood the objective that has been taught. 'Working Scientifically' assessments for KSI and KS2 use teacher knowledge as to whether the child has understood the objective that has been taught. Teachers will meet with the Science Lead at the end of the year for a summative assessment to discuss whether the child is 'Working At' or 'Working Below' age related expectations. This information is then collated as a whole school and is shared to parents on the End of Year school report.

If progress is not being made, support is provided to ensure all pupils achieve and make progress. Teacher assistants have been supported through CPD to allow them to guide the children when they need assistance. Parents are kept informed of their child's progress at parents' evenings.

STEETON PRIMARY SCHOOL SCIENCE OVERVIEW

YEAR A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KSI	Enquiry Week	Enquiry Week	Y1 Animals, including humans Name common animals Name carnivores, herbivores and omnivores	Y2 Animals, including humans Animals have offspring, basic needs for survival. Importance of exercise, food hygiene.	Y2 Living Things and their habitats Living and dead, describe habitats, basic food chains.	Y1 Seasonal Changes Observe weather and changes across seasons
LKS2	Enquiry Week	Y3 Rocks Group different rocks How are they formed Fossils	Y3 Animals including humans Need for right amount of nutrition Skeletons and muscles	Y4 Animals including humans Basic function of digestive system Teeth Food Chains	Y4 Living things and their habitats Group living things, use classification keys. Change in environment can threaten life.	Y3 Light We need light to see. How shadows are formed - size
UKS2	Enquiry Week	Y6 Light Travels in straight lines, how light enables us to see. How shadows are formed - shape	Y5 Animals including humans How humans change with age	Y6 Animals including humans Human circulatory system. Exercise, drugs and lifestyle.	Y5 Living things and their habitats Animal - different life cycles, reproduction in plants and animals	Y6 Living things and their habitats Classifications including microorganisms, plants and animals

YEAR B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KSI	Enquiry Week	Enquiry Week	Y1 Plants Name basic parts - identify common plants.	Y2 Plants Seed/bulb grow into plants. What plants need	Y1 Everyday Materials Name. Describe and sort everyday materials	Y2 Everyday Materials Uses of materials Changing shape of materials
LKS2	Enquiry Week	Y4 Electricity Simple circuits, switches Conductors and Insulators	Y3 Plants Function - including how water is transported Life cycle of plants	Y3 Forces and magnets Compare different surfaces. Magnets	Y4 States of matter Solids, Liquids, gases change state, evaporation and condensation	Y4 Sound How sound is made, travels. Pitch and volume
UKS2	Enquiry Week	Y6 Electricity Brightness of lamp, volume of buzzer. Symbols circuit diagrams.	Y6 Evolution and inheritance Fossils Offspring to parents. Animal adaptation	Y5 Forces Gravity, air/water resistance, friction. Levers, Pulleys and gears	Y5 Properties and changes of materials Dissolve, separating, reversible changes. Change that produce new materials.	Y5 Earth and space Movement Earth, planets & moon. Night and Day

STEETON PRIMARY SCHOOL EYFS OVERVIEW

The EYFS overview considers the Year 1/2 objectives of:

Every day materials (Summer 1)

Seasonal changes (Autumn 2 and Spring 1)

Plants (Spring 2)

Living things and their habitats (Summer 2)

Animals and Humans (Autumn 1)

EYFS		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
The Natural World ELG	<ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 	<p>Talk about features of the environment they are in and learn about different environments.</p> <p>Walk around school. Walk around the village identifying features.</p> <p>How have I changed?</p> <p>Oral health.</p>	<p>Know some important processes and changes in the natural world including states of matter.</p> <p>Baking.</p> <p>Signs of Autumn.</p>	<p>Know some similarities and differences between the natural world around them and contrasting environments. Make observations about animals discussing similarities and differences.</p> <p>Compare, and contrast Steeton, Poles, Serengeti.</p>	<p>Make observations about plants discussing similarities and differences.</p> <p>Grow plants.</p> <p>Life cycle of a sunflower.</p> <p>How to plants grow?</p> <p>Signs of Spring.</p> <p>Oral Health.</p>	<p>Make observations about materials discussing similarities and differences.</p> <p>Waterproof/ not water proof.</p> <p>Metal/not metal</p>	<p>Understand the terms 'same' and 'different'.</p> <p>What is the same/different between minibeasts.</p> <p>The life cycle of moths/ butterflies/ladybirds etc</p>