Science vision statement

1. Subject: Science

2. Subject Leader: Mrs Rees

3. Link Governor: Jackie Lamb

4. Why is science important?

Our intent: At St Helens Primary, we encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity about our universe and promotes respect for the world. We believe science encompasses the acquisition of knowledge, concepts, skills, and positive attitudes. Throughout our programmes of study, the children will acquire and develop key knowledge, in accordance with NC expectations. Key skills are also mapped for each year group and are progressive throughout the school. This ensures systematic progression in accordance with the Working Scientifically skills expectations of the national curriculum. We believe learning is memorable when children are actively engaged so our curriculum is designed to ensure that children can acquire key scientific knowledge and skills through a range of exciting, fun and inspiring activities. The school's approach to science takes account of our own unique context, ensuring access to people with specialist expertise and a commitment to practical hands-on learning outside. Cross curricular opportunities are also identified, mapped, and planned to ensure contextual relevance. A love of science is nurtured through a whole school ethos, enrichment cross curricular opportunities and a varied exciting science curriculum.

Our Principles

- Children are engaged and keen to make good progress with their learning.
- Science is memorable as lessons are exciting and fun
- Science lessons promote talking, questioning and deeper thinking.
- Pupil experience practical 'hands on' science.
- Science is relevant and lessons make links to the "real world" wherever possible.

5. How do we teach science at St Helens Primary School?

Our Implementation: Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all pupils can achieve high standards in science. Our whole school approach to the teaching and learning of science involves the following.

- Science will be taught in planned and arranged two year rolling topic blocks by the class teacher, to have a project-based approach. This is a strategy to enable the achievement of a greater depth of knowledge.
- Existing knowledge is checked at the beginning of each topic, as part of the KWL strategy (What I know, What I would like to Know and What I have Learned). This takes account of pupil voice, incorporating children's interests.
- Through our planning, we involve problem solving opportunities that allow children to apply their knowledge, and find out answers for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Tasks are selected and designed to provide appropriate challenge to all learners, in line with the school's commitment to inclusion.
- We build upon the knowledge and skill development of the previous years. As the children's knowledge and understanding increases, they become more proficient in selecting, using scientific equipment, collating and interpreting results and making conclusions based on real evidence.
- Working Scientifically skills are embedded into lessons to ensure that skills are systematically developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching.
- Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.
- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum.
- Regular events, such as Science Week or project days, such as space camps, beach school and Primary Engineer allow all pupils to come off-timetable, to provide broader provision and the acquisition and application of knowledge and skills. These events often involve families and the wider community.
- At the end of each topic, key knowledge is reviewed.

Science enrichment

There are many other enrichment and wider opportunities provided to enable children to engage with science and to promote and enthuse the passion for science across the school. Annual events include science themed trips, science enrichment visits and workshops, involvement in national and Island science projects and programs such as Primary Engineer, Noel Science festival, Lego League. Other events have included a 6-

week beach school for all children in KS1 and lower KS2; space camps (overnight camping) and links with Vectis astronomical society to educate on the use of telescopes.

6. The national curriculum and Science coverage

The national curriculum for science aims to ensure that all pupils:

- 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

Please click on the following link for more information on the National Curriculum

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/425618/PRIMARY_national_curriculum_-_Science.pdf

7. Early Years Foundation Stage

We teach Science in EYFS as an integral part of the topic work covered during the year. Ongoing scientific experiences and opportunities are planned from the objectives set out in the Early Year Framework, which underpin the curriculum planning for children age 3 - 5. Knowledge and Understanding of the World ensures children develop early scientific ideas and processes through hands on activities, practical exploration and outdoor experiences.

8. Links with other subjects

English

There are many opportunities across all year groups for children to further develop their English skills through their science learning. Speaking and listening is an integral part of the way that science is taught at St Helens and children are encouraged to ask and answer questions and discuss observations made. Writing opportunities are planned to enable children to apply their skills for a range of purposes. For example:

Writing non chronological reports about the topic studied, writing explanations of phenomena observed, recording findings using scientific vocabulary with accuracy, designing fact files for animals, writing in response to a letter received asking for advice, writing a diary to record the growth of a plant.

Mathematics

Maths naturally has clear scientific links, and through their learning, children are using and applying mathematical knowledge in examples such as:

Creating tally charts to collect data, presenting data through block graphs and bar charts, using Venn diagrams to sort and classify objects/animals/materials, sing measures to carry out investigations, reading scales when using scientific equipment, understanding temperatures and negative numbers, producing line graphs from the collection of continuous data

Computing

Computing enhances our teaching of Science wherever appropriate in all key stages. The children use computing in a variety of ways such as researching using secondary sources, word processing, and presenting information via PowerPoint. Collection of data using data loggers is also used in KS2.

Design and Technology

As part of our curriculum planning, science and DT links are increasingly evident. Many science objectives are now being developed and applied through the DT projects within in each year group. Examples of these links include: applying knowledge of a healthy eating through the food technology projects, considering properties of materials when working with structures mechanisms and textiles in KS1. KS2 links include: applying their understanding of the nutritional value of foods, observing reversible and irreversible changes and considering balanced diets during food projects, applying their understanding of circuits during the electrical systems projects and understanding the properties of materials when designing and making structures. We have also taken part in many STEM activities which support links with science, technology, engineering and mathematic for example Lego League, Primary Engineers and Jaguar Primary competition. In many causes our STEM activities also draw on art and design too.

Geography

Children reinforce their geographical knowledge and understanding when learning about topics in Science including habitats and climates, states of matter and the water cycle, Earth, sun and moon and time zones and seasons, including the northern and southern hemisphere.

History

As part of each unit of science, children are introduced to significant scientists from the past who have contributed and worked in that particular area of science. They learn about the impact individuals from the past have had on developments in science and that scientific ideas are constantly changing as time passes.

9. British Values

At St Helens Primary School we ensure that the teaching of Science links directly to our British values by giving the children the opportunities to;

Democracy

- Take the views and opinions of others into account • Take turns and instructions from others

The rule of law

- Understand the importance of safety rules when working scientifically
- Know that there are consequences in rules are not followed

Individual liberty

- Make choices when planning an investigation
- Others may have different points of view as to where to start

Tolerance

- Scientific discoveries have come from other cultures
- Religious beliefs often compete with scientific understanding

Mutual respect

- Work as a team
- Discuss findings
- Offer support and advice to others

10. The impact of our science curriculum

The successful approach at St Helens Primary results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world. Our engagement with the local environment ensures that children learn through varied and hands on experiences of the world around them. Frequent, continuous, and progressive learning outside the classroom is embedded throughout the science curriculum. Through various workshops, trips and interactions with experts and local charities, children have the understanding that science has changed our lives and that it is vital to the world's future prosperity. Children learn the possibilities for careers in science, as a result of our community links and connection with national agencies such as Primary Engineer, Lego League and Ogden Trust. They learn from and work with professionals, ensuring access to positive role models within the field of science from the immediate and wider local community. From this exposure to a range of different scientists from various backgrounds, all children feel they are scientists and capable of achieving. Children at St Helens enjoy science and this results in motivated learners with sound scientific understanding. The school's science provision is recognised by the achievement of the nationally recognised 'Space Science Quality Mark', which the school currently holds at silver level. We are also taking part the "Primary Science GILT Quality Mark" for 2021-2022.