

# Our vision and principles for Science



***“ I have come in order that you might have life – life in all its fullness,”***

John 10:10

## **Our Vision and Mission**

St. Peter's CE Primary School has been at the heart of the community for over 200 years and continues to play an important role in the lives of children and their families in Heysham. Our vision is to see our children go out into the world with the skills and confidence to succeed and the love, compassion and advocacy to make a positive impact on the world around them.

It is our aim to enable every member of our school family to flourish and live *life in all its fullness* by:

- Teaching a broad and balanced curriculum
- Holistically nurturing and developing our children
- Helping those in need through loving service
- Confronting injustice in our world
- Caring for creation

In order to achieve this, we will continually ask ourselves:

- What is the source of our fullness?
- What will I be like if I am flourishing?
- What will we be like as a community, and how will we affect those around us, if we are flourishing?



## What do we want children to learn? How will they flourish?

At St. Peter's, we strive to grow active, knowledgeable and curious young scientific minds which are confident to explore and investigate the world around them. Our children are encouraged to take the lead in their own learning by asking questions, taking risks and learning from mistakes, so that they feel inspired to become the next generation of scientists.

We intend for children to:

- 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
- be equipped with the scientific skills required to understand the uses and implications of science, today and for the future.
- develop 'science capital' – promoting more positive perceptions of, attitudes towards and aspirations within the sciences.

## How do we teach our Science Curriculum – what does Science look like at St Peter's?

At St Peter's, we teach science through a broad, engaging and well-structured curriculum that ensures there is clear progression of knowledge, concepts and skills taught across a year and key stages. Our curriculum ensures children in EYFS are provided with the full coverage of the learning and development requirements linked to scientific understanding set out in the Statutory Framework for the Early Years Foundation Stage. For children in KS1 and KS2, our curriculum encompasses all aspects of the science programmes of study set out in the National Curriculum. The two curriculums are carefully dovetailed to ensure progression and depth.

Our whole school approach to the teaching and learning of science involves the following;

- Children are taught through a series of sequential lessons for each topic, carefully planned to ensure children build, over time, their knowledge of key concepts and skills.
- Teachers elicit children's knowledge and understanding of a particular science topic before planning new learning experiences to ensure that learning and skill development of the previous years are successfully built upon and any misconceptions are challenged.
- Spaced retrieval questions are planned into lessons to help children create a deeper level of processing any previously learned content into long-term memory
- Teachers use a range of AfL strategies within a topic to test conceptual knowledge and skills, identify those children with gaps in learning, so that all children keep up.
- Children are guided through the phases of child-led enquiry in order to become more independent and investigative scientists. From making first hand observation to collecting real data; from identifying similarities and differences to investigating similarities and differences, patterns and change; from recognising a fair test to designing and carrying out a fair test
- Working scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's time at school. Lessons often have a skills-based focus, where we identify that the knowledge can be taught through this
- Enquiry skills and enquiry types symbols are used in the classroom to help the children identify and recall the particular science skills and enquiry types they are using in their science investigations
- A wide range of teaching strategies and age- appropriate resources (including digital) are used to provide opportunities for children to explore, discuss their ideas, work as a team, develop higher order thinking and engage in open problem-solving challenges.
- Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning whenever possible
- Children are offered a wide range of trips, extra-curricular activities and visitors to complement and broaden the curriculum. These are purposeful and link with the knowledge being taught in class
- Regular events, such as STEM Week, allow all pupils to come off-timetable, provide broader provision and allow for the acquisition and application of knowledge and skills. These events often involve families and the wider community
- Children are introduced to a diverse range of scientists and the transferable skills used by those working in STEM-related jobs in order to strengthen positive attitudes, reduce stereotypes of those working in the field and make science more relevant to them.

#### How do we know what children have learnt? How do we know learning has 'stuck'?

The successful approach to the teaching of science at St Peter's CofE Primary School will result in a fun, engaging, high quality science education, that provides children with the foundations for understanding the world that they can take with them once they complete their primary education.

Assessment at St Peter's CofE Primary School is teacher based and formed using formal strategies (e.g. TAPS focussed assessment plans) and informal strategies (use of concept maps, verbal/written outcomes, reflection tasks/presentations). Formative assessment is used as the main tool for assessing the impact of Science at St Peter's CofE Primary school as it allows for misconceptions and gaps to be addressed immediately, rather than building on insecure scientific foundations. Attainment in knowledge and working scientifically skills are tracked throughout each year and across the key stages.

Children at St Peter's CofE Primary School will:

- demonstrate a love of science work and an interest in further study and work in this field
- retain knowledge that is pertinent to science with a real-life context
- be able to question ideas and reflect on knowledge
- be able to articulate their understanding of scientific concepts and be able to reason scientifically using rich language linked to science
- work collaboratively and practically to investigate and experiment
- achieve age related expectations in science at the end of their cohort year.