



## **Overton St Helen's CE Primary School**

Surrounded by God, we inspire hearts and minds through learning, faith and love.

*'Let your light shine before others, that they may see your good deeds and glorify your Father in heaven' (Matthew 5: 16)*

### **SCIENCE POLICY**

#### **School Vision**

We encourage children to be respectful, forgiving and compassionate. We are a nurturing, inclusive and safe community built on Christians Values that inspire positive trusting relationships between school, families and the wider world.

We aim high, engaging children in a dynamic and diverse curriculum with opportunities and experiences that allow them to excel, through discovering their unique talents, relishing challenges with courage and perseverance, knowing that God is with them.

### **INTENT**

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. (The National Curriculum Document 2014)

#### **Rationale**

At Overton St Helen's Church of England Primary School, we aim to provide all children with a broad and balanced curriculum which prepares them for life beyond primary education. In Science we encourage our children to continue to deepen their respect, care and appreciation for the natural world and all its phenomena. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes.

We will nurture our children's knowledge, understanding, respect and pride in the place where they live, and with this in mind we aim to incorporate the principles of the

Morecambe Bay Curriculum in our approach to the teaching and learning of Science in our school.

This vision will be achieved by:

- providing teaching and learning experiences based on the national curriculum and the EYFS framework that sparks scientific enquiry.
- ensuring that children's understanding of Science is sequential and progressive which enables children to understand the implications of Science, today and for the future.
- exploring key scientific concepts through a range of strands which will encourage the development of an open minded and inquisitive scientist.
- enabling the acquisition of sufficient scientific knowledge so that children can think scientifically through asking questions and drawing their own conclusions.
- To develop a wider range of scientific vocabulary to communicate their knowledge eloquently.
- To explore Science beyond the classroom environment, making use of our local area, through inspiring educational visits, trips and visitors and people from the local community to enhance learning.

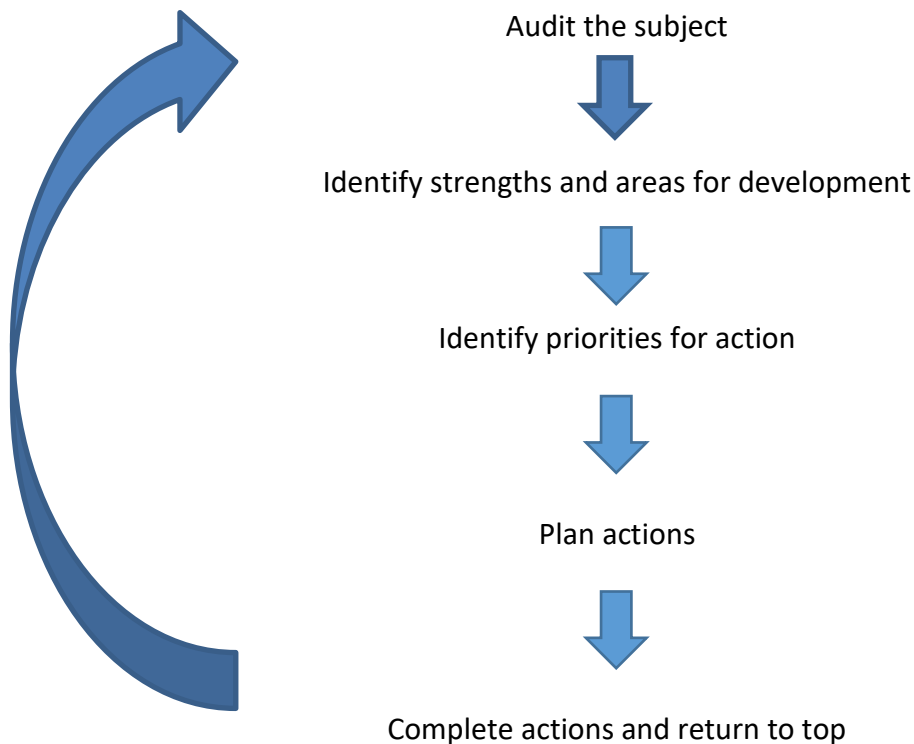
### **Aims and Objectives**

Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Knowledge and Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

### **Role of Subject Leader**

The Science Subject Leader is responsible for:

- Ensuring progression and continuity through and across the Key Stages.
- Motivating and supporting colleagues in the implementation of their planning and providing guidance on where to find suitable resources for each unit of work – including museum visits, local support groups, sources and artefacts
- Monitoring progress and standards within History, identifying strengths, weaknesses and priorities for development.
- Keeping up to date with the developments in History and cascading this information to colleagues
- Liaise with the delegated governor and report to the Curriculum Lead and Head teacher through action planning, subject discussions and staff meetings



## **IMPLEMENTATION**

### **EYFS Statutory Educational Programme:**

Understanding the world involves guiding children to make sense of their physical world. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension. (Development matters July 2021)

In the Early Years Foundation Stage (EYFS) children will be given a variety of opportunities to:

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

This aspect of the EYFS will be supported and delivered through a range of child initiated and adult led play-based experiences.

### **KS1 and KS2**

The teaching of Science focuses on the key knowledge, skills and intent set out in the National Curriculum (2014).

“The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary.”

“‘Working scientifically’ specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand... These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.”

### **Key Stage 1 –**

By the end of Key Stage 1 children will have acquired knowledge and working scientifically skills in the following stands:

- Plants
- Animals including humans
- Everyday materials
- Seasonal changes
- Living things and their habitats
- Uses of everyday materials

### **Key Stage 2**

By the end of Key Stage 2 children will have acquired knowledge and working scientifically skills in the following stands:

- Plants
- Animals including humans
- Rocks
- Light
- Forces and magnets
- Living things and their habitats
- States of matter
- Sound
- Electricity
- Properties and changes of materials
- Earth and Space
- Forces
- Evolution and inheritance

### **Approaches to learning**

- Within the teaching of Science a variety of teaching strategies are employed to ensure all learners are included and able to be active learners. These strategies include whole class, ability and mixed ability groupings and pairings.

- The learning in science will incorporate practical investigations, discussions and a variety of ways for the children to communicate knowledge and understanding including: written work, diagrams, drawings, charts, tables, science enquiry games and presentations.
- Science forms a key part of the creative cross-curricular approach adopted at Overton St. Helen's C of E Primary School. Clear, purposeful links are made where appropriate to other subjects to make learning meaningful and relevant to the children, strengthening the children's understanding of science within a wider content; and creating connections in their learning. These will include:

**English** – age appropriate, high quality texts – non-fiction and fiction; study of significant scientists and scientific concepts

**Maths** – measuring, comparing, representing data

**Geography** – comparing different habitats and how plants and animals have adapted to the features of their changing environments.

**Art** – careful observational drawings and diagrams

**DT** – properties of materials, changes of materials, forces

**Music** – sound

**Computing** – representing, recording and analysing data

**PE** – circulatory system, the effects of exercise on the body, nutrition

**PSHE** – changing and growing up.

**Spiritual, moral, social and cultural development** - Science teaching will offer children many opportunities to examine some of the fundamental questions in life, e.g. the evolution of living things and how the world was created. Children will develop a sense of awe and wonder regarding the nature of our world. Pupils will be given the chance to reflect on the way people care for the planet, and how science can contribute to the way in which we manage the Earth's resources.

Both staff and children have agreed on the principles of science at our school. We know that Science is good in our school because:

- the children are excited, motivated and enthusiastic about their learning.
- children have the opportunity to explore and conduct their own investigations.
- children are working practically.
- children are using scientific language to explain what is happening.
- children are asking questions.
- children are recording what they find in different ways.
- teachers are enthusiastic about what they are teaching.
- children have the opportunity to talk about what they are doing.
- children take risks, they learn from things that go wrong.
- When the 'outcome' is real and relevant to the children.

These principles are displayed in every classroom and referred to when teaching science.

- At Overton St. Helen's we provide a 'menu' of homework activities. Each term there will be a Science aspect included within the menu. This allows parents to know which period of history the children will be covering and broadens their family discussions and experiences outside of the school day.

## **Planning**

### Long term plan

At Overton St. Helen's C of E we have developed a clear program of study which takes into account the uniqueness of our KS2 children and their journey through Overton St. Helen's Primary School. In EYFS and Key Stage one we have an annual overview but due to the mixed age classes within our Key Stage 2 classes we run a two year rolling programme. This ensures we meet the requirements of the National Curriculum.

### Medium term plan

- Medium term planning is developed by the class teacher and ensures key knowledge, working scientifically skills and key vocabulary development are planned for (see medium term plan document). A communication outcome is also planned for each unit.
- The PLAN primary science detailed medium term plans form the basis of our planning and these are then adapted to incorporate various creative contexts. Plans are reviewed in discussion with the class teacher and subject leader. Any necessary changes are reflected in future planning.

## **Resources**

We will ensure our pupils have access to the following resources:

- practical equipment for observing, measuring, recording and conducting a variety of practical investigations across the different strands of the Science curriculum.
- websites such as EXPLORIFY ....
- visits and visitors from local STEM ambassadors

## **Equal Opportunities**

At Overton St. Helen's C of E Primary School we provide a broad and balanced curriculum for all our pupils so that they all make progress. Learning challenges are matched to the needs of all the children including children with SEND, AGT and PP.

## **Working Walls**

Each classroom / resource area should have a Science display relating to current work. The Science display should be updated regularly to reflect the pace of learning. Displays can include: key vocabulary, children's work, teacher modelling, visual prompts and questions.

## **IMPACT**

### **Success Criteria**

The successful approach at Overton St Helen's results in a fun, engaging, high-quality science education, that provides children with the foundations and knowledge for understanding the world.

Children will know more, remember more and understand more about Science. Children retain prior-learning and explicitly make connections between what they have previously learned and what they are currently learning.

Our Science curriculum will be successful because:

- Most children **will** achieve age related expectations in Science at the end of their cohort year.
- Children will retain knowledge that is pertinent to Science with a real life context.
- Children will be able to question ideas and reflect on knowledge.
- Children will work collaboratively and practically to investigate and experiment.
- Children will be able to explain the process they have taken and be able to reason scientifically.

### **Assessment and Record Keeping**

- Evidence of children's work will be recorded in the children's own books, on video, in photographs, posters, displays or floor books- It is also important to draw on the verbal skills of the children, encouraging description, explanation, questioning and opinion.
- Rich formative assessment data collected by teachers in the course of ongoing classroom work in science also serves summative reporting purposes. Assessment information flows from classroom practice to whole school reporting.
- Assessment is carried out:
  - Orally through questioning and discussions
  - By observation of children at work
  - Marking of children's work
  - Through planned assessment activities linked to the key learning
  - Informal assessment takes place continuously
  - Teachers make and record an end-of-term assessment for each child.
- Every half term each class will contribute to a whole school science display showcasing the science learning that has taken place in each class.
- A portfolio of work will be collated by the Subject Leader to show progression and evidence of work across the school. This will be added to after each unit of Science has been studied and will be the joint responsibility of the class teacher and the subject leader.

### **Reporting to Parents**

Information on children's progress in Science will be communicated home at Parent's Evenings and in a written report at the end of each year. Learning within the classroom will also be shared via the school's Facebook page and school website.

**Date of policy:** November 2022

**Next review date:** November 2024

### **Appendix:**

Long term plan – Program of study

Example of the schemes of Work from PLAN

Medium term planning document (blank)

Progression of knowledge document

Progression of Working scientifically skills document