Severnbanks Primary School

Where STARS Shine

Intent

The Science curriculum is an ambitious curriculum meeting the needs of all learners and contextualised in the community we serve.

Our aim is to foster a sense of excitement and curiosity about science whilst increasing our pupils' awareness and understanding of the world around them. We believe that science is central to many aspects of life and that children should be encouraged to look at the world as scientists**.**

At Severnbanks, we actively plan for children to make connections in their learning, providing choice and challenge in enjoyable lessons to encourage children to lead and flourish in the learning process. We aim for children to become fluent and confident in scientific concepts and skills. Children work to apply their learnt skills and knowledge to solve scientific problems and develop understanding by looking for relationships and generalisations to follow a line of enquiry..

Our Science curriculum provides opportunities for our children to experience and demonstrate our values, vision and curriculum drivers. Science lessons enable pupils to show **teamwork** and **independence**; be **curious** about the world around them; question facts and evidence and demonstrate **resilience**; Science is using evidence to make sense of the world. It has the ability to make us feel both enormously insignificant (compared to the scale of the visible universe) and enormously significant (we are genetically unique). It helps us understand our relationship with the world around us (how the physical world behaves, the interdependence of all living things) and be r**espectful** to our world and others. Making new discoveries increases our sense of awe and wonder at the complexities and elegance of the natural world, and enhances our **curiosity.** We aim for all children to **aspire** to be scientists and a**chieve** this.

Implementation

At Severnbanks Primary School, we are building our own Science scheme for the Science lessons. This is based on the Plan resources. The full Science programme is designed as a series of year frameworks, made up of several modules to ensure full coverage of the National Curriculum.

At the beginning of each module in a year, there are clear statements of what children will know by the end and which skills they will have developed.

The full Science frame work is built on a clear progression of conceptual knowledge in science, which has been used to structure the content within key ideas, from year to year and within each year group and module, and to identify conceptual gaps in the National Curriculum. This ensures that children systematically develop their knowledge of big ideas and their scientific skills.

All Science lessons are planned to ensure that all children in a class can access and master the intended knowledge and skills, with each lesson offering differentiated tasks. Most science lessons are practical lessons. Access to everything is ensured as all resources are cheap and easily accessible.

The lessons we teach have the intention of providing a high-quality, coherent and progressive experience of the subject, with scope for cross-curricular learning.

Children have weekly lessons in Science throughout Key Stage 1 and 2. In the early years, Science is taught through the children learning about the world around them and in their learning through play.

All Science units have an introduction which provides teachers with a clear explanation of the science they need to understand and in each lesson key information is provided at relevant points.

All science lessons provide clear guidance to teachers for describing and explaining scientific ideas with helpful diagrams, images, animations and videos, plus with questions to stimulate discussion.

All Science includes a section in the introduction where commonly held misconceptions are listed so that teachers can ensure that they are addressed.

Science units are designed to ensure that key ideas and the vocabulary to express them are revisited over the course of a series of lessons and are built on as topics progress between years and Key Stages. Key vocabulary is displayed and taught at the start of every Science unit.

Our pupils are taught a balance of scientific knowledge and essential skills as we encourage them to work scientifically in their work. This means that they learn to use a variety of approaches to answer relevant scientific questions. Through working scientifically, our pupils are encouraged to: make observations over time; seek patterns; identify, classify and group; make predictions, carry out comparative and fair tests (controlled investigations); and research using secondary sources.

We aim to embed cross-curricular opportunities within our science curriculum. Through writing explanations, reports and instructions our pupils are building on the skills taught as part of our English curriculum. They are also encouraged to apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. Making these cross curricular links puts the learning in context and gives a real life reason for writing or analysing data.

Impact

The impact of the Science scheme can be constantly monitored through both formative and summative assessment opportunities. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives and any relevant scientific enquiry skills. Furthermore, each unit has a unit quiz and a knowledge and skills catcher, which can be used at the end of the unit to provide a summative assessment. Opportunities for children to communicate using scientific vocabulary will also form part of the assessment process in each unit.

After implementing Science Scheme, pupils should leave school equipped with the requisite skills and knowledge to succeed in key stage 3 Science. They will have the necessary tools to confidently and meaningfully question and explore the world around them as well as critically and analytically experiencing and observing phenomena. Pupils will understand the significance and impact of Science on society.

The expected impact of following the Severnbanks Science scheme of work is that children will:

● Develop a body of foundational knowledge for the Biology topics in the National curriculum: Plants; Animals, Including Humans; Living Things and Their Habitats; Evolution and Inheritance.

● Develop a body of foundational knowledge for the Chemistry topics in the National curriculum: Everyday Materials; Uses of Everyday Materials; Properties and Changes of Materials; States of Matter; Rocks.

● Develop a body of foundational knowledge for the Physics topics in the National curriculum: Seasonal Changes; Forces and Magnets; Sound; Light; Electricity; Earth and Space.

● Be able to evaluate and identify the methods that 'real world' scientists use to develop and answer scientific questions.

● Identify and use equipment effectively to accurately gather, measure and record data.

● Be able to display and convey data in a variety of ways, including graphs.

● Analyse data in order to identify, classify, group, and find patterns.

● Use evidence to formulate explanations and conclusions.

● Demonstrate scientific literacy through presenting concepts and communicating ideas using scientific vocabulary.

● Understand the importance of resilience and a growth mindset, particularly in reference to scientific enquiry.

● Meet the end of key stage expectations outlined in the National curriculum for Science.

Inclusion, Quality First Teaching, Support and Assessment

Effective formative assessment is built into every Science lesson so that teachers are aware of children's developing knowledge and understanding, and their use of skills. They are supported to identify any gaps in learning and provide appropriate feedback to consolidate and build on key knowledge and skills. Children are encouraged to summarise what they have learnt.

The scheme is intended to promote inclusion within classrooms because it emphasises full-class instruction and varied challenges. Some children will need a higher level of adult support to access the teaching material and to demonstrate their learning and this is indicated on work through the use of marking codes. We can use pre-teaching of Scientific vocabulary to support pupils with their Scientific understanding.

At Severnbanks, we recognise that all Science teachers are SEND Science teachers and we plan for and deliver inclusive Science lessons, using scaffolds, questioning and support where appropriate to enable all students to access the learning and to achieve.

Extra-Curricular Provision

Severnbanks prides itself on its ability to foster and support a love of Science and champions students who demonstrate a passion or talent for the subject. Children are given opportunities to try out and

exhibit their work and the school celebrates students' creativity and enthusiasm for Science knowledge and skills.

In addition to Science lessons, there are opportunities for our children to engage with and to pursue Art projects through opportunities such as our KS2 workshops, Science sessions at the local secondary school, extra-curricular clubs.

Developing the skills of Reading, Writing, Speaking and listening through PSHE

The Science units we teach at Severnbanks School have the intention of providing a high-quality, coherent and progressive experience of the subject, with scope for cross-curricular learning. We recognise the rich vocabulary and literacy opportunities that the learning and discussion of the design and creation cycle can provide. Within our Science teaching and learning, children are encouraged to use correct terminology and to speak in full sentences when discussing and evaluating their work and that of their peers. The children have regular opportunities to critique, evaluate and reflect on their Science projects and we appreciate how this can contribute to both their written and oral literacy skills.