A Curriculum with HEART….

Our forest/rural surroundings encourage curiosity and wonder and therefore our curriculum is an adventure that allows our children to explore new things, discover more about themselves and the world around them and create a toolkit of knowledge and skills that mean they are well equipped to face the next stage of their adventure.
Our values run through everything we do and mean we face adventures with HEART.

Science Subject Statement 2023-2024

"Remember to look up at the stars and not down at your feet. Try to make sense of what you see and wonder about what makes the universe exist. Be curious. And however difficult life may seem, there is always something you can do and succeed at. It matters that you don't just give up."
Stephen Hawking

We believe that science is vital to our understanding of the world around us - everything we know about the universe is the result of scientific research and experiment. We aim to instil in our children a sense of awe, wonder and curiosity about the world, whilst enabling them to understand and apply the fundamental principles and concepts of science through the disciplines of biology, chemistry and physics. We believe that children need to grasp the 'Big Picture' and understand the context and story before delving into the details.

In line with the National Curriculum, we ensure that our children:

- 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

While not all children will follow a career in science or related disciplines, we believe that developing science literacy will influence their lives daily: for example, in managing their health, and understanding issues such as climate change and therefore in turn it is of vital importance both to individuals' and nations' well-being. A rich science curriculum will also enhance learning within maths and literacy and its natural links with geography.

Our curriculum is underpinned by the following 'Big Ideas' of science created by Christopher Such:

THE BIG IDEAS OF SCIENCE

Physics
P1: The universe follows unbreakable rules that are all about forces, matter and energy.
P2: Forces are different kinds of pushes and pulls that act on all the matter that is in the universe. Matter is all the stuff, or mass, in the universe.
P3: Energy, which cannot be created or destroyed, comes in many different forms and tends to move away from objects that have lots of it.

Chemistry
C1: All matter (stuff) in the universe is made up of tiny building blocks.
C2: The arrangement, movement and type of the building blocks of matter and the forces that hold them together or push them apart explain all the properties of matter (e.g. hot/cold, soft/hard, light/heavy, etc).
C3: Matter can change if the arrangement of these building blocks changes.

Biology
B1: Living things are special collections of matter that make copies of themselves, use energy and grow.
B2: Living things on Earth come in a huge variety of different forms that are all related because they all came from the same starting point 4.5 billion years ago.
B3: The different kinds of life, animals, plants and microorganisms, have evolved over millions of generations into different forms in order to survive in the environments in which they live.

Earth science
E1: The Earth is one of eight planets that orbit the sun.
E2: The Earth is tilted and spins on its axis leading to day and night, the seasons and the climate.
E3: The Earth is made up of several layers, including a relatively thin rocky surface which is divided into tectonic plates, and the movement of these plates leads to many geologic events (such as earthquakes and volcanoes) and geographical features (such as mountains.)

Across the Federation of Burley and Sopley, science is taught weekly. Teachers plan using Hampshire schemes supported by resources from the Primary Science teaching Trust and PLAN. Lessons begin with retrieval practice ensuring that children embed prior learning and review vocabulary regularly. Concepts are revisited throughout the science journey following a clear progression allowing for links to be made and key ideas revisited. Children are introduced to each new learning journey through an overarching 'Big Question' which they revisit in each session. Development of substantive and disciplinary knowledge is carefully sequenced so that children begin to think scientifically and apply skills in a range of contexts, explaining their understanding through the use of precise vocabulary. The key knowledge and skills are revisited as the children journey through each discipline of science and the making of links and connections is prioritised.

The study of key scientists has now been mapped to allow children to be inspired by key individuals both historic and modern day. Understanding the influence and roles of these scientists in our lives now and in the future enables science to be given real contexts.

Through recent developments of our school grounds, we endeavour to ensure that our children see the environment as an outdoor classroom where science is all around us. Plans are in place to develop teacher pedagogy to fully utilise the outdoors to teach many of the objectives within the programmes of study.

The science curriculum is enhanced through the choice of texts used within our English reading journeys allowing for key ideas to be revisited. Teachers are also encouraged to display a range of books linked closely to the science curriculum within their classroom environments.

Assessment

We believe that assessment in Science should be based on more than just knowing facts. Alongside ongoing Assessment for Learning which enables staff to ensure all children catch up and keep up, we are developing final assessment pieces at the end of each project to assess the children's ability to apply their knowledge. These will provide information on the children's ability to use a combination of procedural and substantive knowledge and be used by teachers to provide information on how well the children are learning the curriculum. This can then be used to inform future retrieval practice and starting points when strands are re-visited.