CALVERLEY PARKSIDE

Ready Respectful Responsible

Subject Rational: Science

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.

Curriculum Intent

The Science curriculum will enable children to learn and practice the key skills and knowledge as set out in the National Curriculum. Through Science at Calverley Parkside Primary School, pupils will:

- 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

In addition to the National Curriculum aims, our school vision sets out the following aims which will be achieved through the teaching of high-quality Science sequences of learning:

- Pupils who are able to demonstrate independence and effective team-working skills, understanding the importance of taking ownership of their own learning journey.
- Pupils who have access to an engaging, ambitious and inclusive Science curriculum.
- Pupils who are prepared for modern-life – equipped with the scientific knowledge of Science today, and for the future.
- Pupils who are happy in their learning.
- Pupils who are challenged in a supportive environment.
- Instilling a lifelong love of learning in Science.

The Science curriculum reflects our school values in the following ways:

Ready: *We keep going when things get difficult*- it is vital that pupils develop a secure scientific understanding of each key block of knowledge and concepts in order to progress, therefore pupils will be taught and supported throughout their Science journey at Calverley Parkside, to enable students to overcome obstacles and barriers they may face in lessons and at each transitional Key Stage.

We prepare for the future by setting high expectations of ourselves –We want to ensure that all our students are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. Teachers' beliefs about their students and what they can achieve have a substantial impact on students' learning and progress. Therefore, our school focuses on setting high expectations in Science such as; creating a warm and supportive classroom climate, giving students the responsibility for their own learning and investigations, communicating effectively the Learning Challenge each lesson, having pupils set their own goals and targets, setting activities for a variety of levels of attainment and encouraging reflective thinking after completing Science investigations.

We are ready to learn and are positive about new challenges – In our Science lessons we foster a 'can do' attitude in our students, we deliver content with curiosity, we encourage children to ask questions and enable them to develop a deeper understanding of scientific ideas through the use of a wide range of first-hand practical experiences, where appropriate.

Respectful: *We look after our environment and equipment* – Children will be taught how to use a wide range of equipment safely and effectively.

We always listen when others are talking – We endeavour to persistently and relentlessly catch learners demonstrating the desired behaviours and give reminders about our expectations when listening to others.

Responsible: *We follow instructions first time, every time* - The importance of listening carefully to instructions will be constantly revisited, particularly in instances where specialist equipment is being used.

How is our Science curriculum implemented?

Children experience weekly science lessons, this allows them sufficient time to become fluent in their knowledge, vocabulary and skills, and recalls will ensure this is embedded in their long-term memory. We focus on the types of enquiry skills (observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing and researching using secondary sources) and link these into each of the units for each year group. Children are becoming more aware of the science around them and how it has an impact on everyday life.
Throughout the key stages, children will be taught units through a specific discipline; Biology, Physics and Chemistry. Each unit has been planned in such a way that each one builds on the key skills and knowledge from earlier years. Teachers are provided with planning guidance which outlines a suggested structure for planning a sequence of learning in Science. Science is very cross-curricular and draws upon subject knowledge and skills within a range of other subjects including maths, English and computing.

What is the intended impact of Science?

What are the main aims of the subject?

Our Vision for Science learning at Calverley Parkside, aims to inspire children's natural curiosity and encourage an appreciation of the incredible world around them; they will develop an understanding of the nature, processes and methods of science through different types of science enquiries. Children learn through asking questions, discussing ideas and engaging in practical activities to develop their scientific knowledge and conceptual understanding, through the specific disciplines of biology, chemistry and physics. When learning science, children engage in meaningful tasks that link to their own lives and the uses and implications of science in the wider world.

Throughout the school, teachers will assess whether children are working at, above or below the expected level for their age based on their understanding and application of the content of the National Curriculum 2014. Progress and attainment is reported to parents through parents' evenings and end of year reports.

Much of the work done in science lessons is of a practical or oral nature and, as such, recording will take many varied forms. It is, however, important that written work is marked regularly and clearly, as an aid to progression and to celebrate achievement. When appropriate, pupils may be asked to self-assess or peer assess their own or other's work. Marking for improvement comments in a child's book are relevant to the learning challenge to help children to better focus on future targets. Children's work is recorded in their individual Science books which are passed up each year, allowing children and teachers to track the progression of pupils' development. Children are encouraged to be

reflective and evaluate their findings after investigations and to review the type of scientific enquiry at the end of each lesson, these are referred to throughout the year and are clearly displayed in each classroom on the Science Working wall.

At the beginning of each unit of work, children will have an opportunity to demonstrate their prior knowledge through the use of pre-assessment vocabulary sheet which is then reflected upon after the unit, showing the progression they have made throughout the unit that year, and where appropriate, in previous years. For example, in year 6, at the start of the Electricity unit, the children will complete a pre-assessment vocabulary sheet which will include previous vocabulary from Year 4 and new vocabulary which they will learn throughout the unit. Our Science curriculum provides sufficient opportunities for planned revisits of previously learned knowledge, methods, vocabulary and concepts. This is to ensure that, once learned, knowledge becomes embedded in pupils' memories. In addition, the teaching of Science will support the school's vision and values in the ways previously described.

Special Educational Needs and Disability

We recognise that pupils with SEND have a range of different needs and starting points. Some of our pupils have severe, complex or profound needs that have a significant impact on their cognitive development, especially the way that they are able to make alterations to their long-term memory. Teachers are ambitious for all pupils including those with SEND, developing and adapting the curriculum so that it is coherently sequenced to all pupils' needs, starting points and aspirations for the future; acquiring the knowledge and cultural capital they need to succeed in life.

How is Science enabled in the Early Years?

Children are given opportunities to play, explore, create, engage in active learning, and think critically in the Early Years Foundation Stage.

Early learning goal – Understanding the World: The World.

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.