

Curriculum Statement: Science

“Scientists have become the bearers of the torch of discovery in our quest for knowledge.” Stephen Hawking

Whole-School Vision:

At Quest Primary School, we work collaboratively with The Collegiate Trust schools to deliver the shared vision of an **‘exceptional education for all.’** We passionately believe that **‘Learning Changes Lives’** and are determined that through our school values of **excellence, responsibility and aspiration**, all children will develop to their full potential during their time at Quest Primary.

Science Curriculum Vision:

At Quest Primary School, the Science curriculum sets out foundational skills, knowledge and aspiration for children to become scientists, doctors, nurses, vets and dentists. Our vision is to develop the natural curiosity of the child, encourage respect for living organisms and the physical environment and provide opportunities for critical evaluation of evidence. We want to nurture tomorrow’s scientists.

It is our intention to provide a high-quality science education that provides children with the foundations they need to recognise the importance of science in every aspect of daily life. The Scientific area of learning is concerned with increasing pupils’ knowledge and understanding of our world, and with developing skills associated with science as a process of enquiry. Scientific learning experiences will hook the children’s interest, enabling them to develop a sense of excitement and curiosity about natural phenomena. They will be encouraged to ask questions about the world around them and work scientifically to further their conceptual understanding and scientific knowledge. Pupils will be immersed in key scientific vocabulary, which supports in the acquisition of scientific knowledge and understanding.

At Quest Primary School, we recognise that for our pupils to aspire and be successful academically and in the wider areas of their lives, they need to be given rich and sustained opportunities to develop their cultural capital. Analysis and discussion about our pupils’ backgrounds, life experiences and culture has helped us to design a curriculum which places our school values at the heart of our curriculum.

The Quest Primary Values, as realised through our Curriculum

Excellence	Responsibility	Aspiration
Our curriculum is designed to promote excellence in all that we do and learn. Our high expectations of what every child can achieve, ensure that children are given opportunities throughout the planned curriculum, to achieve excellence in their subject knowledge and skills, so that they are ready to move on to the next stage of their learning. Excellence is valued, promoted and celebrated every day at Quest Primary and can be seen in our learning, behaviours and attitudes to all we do.	Our curriculum promotes children developing as responsible learners, taking responsibility for their own learning through their behaviour and actions, as well as supporting the learning of others. Subject curriculums promote how to take responsibility for our physical and mental health, as well as online safety and support our children to be well-rounded individuals and a school community, who understand the impact their words and actions have on others, and their own futures.	Our curriculum is aspirational for all our children, including those with SEND and from disadvantaged backgrounds. It is our intent that all children leave Quest Primary well-prepared for the next stage in their academic careers and with the knowledge and skills required to ensure they can partake successfully in the world around them. Our curriculum supports them to become confident, respectful and well-informed young citizens who believe they can achieve their dreams.

Intent, Implementation and Impact in Science		
Intent (What will take place before teaching in the classroom? What do we want our children to know and be able to do?)	Implementation (What will this look like in the classroom?)	Evidence of Curriculum Impact (How will this be measured?)
<ul style="list-style-type: none"> It is our intention for science to develop in all children a lifelong curiosity and interest in the sciences, which contributes to their personal development and ability to contribute in the future to the advancement of the sciences. Children are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future. The acquisition of key scientific knowledge is an integral part of our science lessons. When planning our science curriculum, we intend for children to have the opportunity, wherever possible, to learn through varied investigations, leading to them being equipped for life to ask and answer scientific questions about the world around them. As children progress through the year groups, they build on their skills in working scientifically, as well as on their scientific knowledge, as they develop greater independence in planning and carrying out fair and comparative tests to answer a range of scientific questions. Each science unit taught, has an accompanying knowledge organiser 	<ul style="list-style-type: none"> The Science Programme of Study for KS1 and KS2 is used to deliver learning in line with the National Curriculum expectations for Science. The local area is used to support the delivery of science lessons, in all year groups. All children develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. Children 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. Key vocabulary is explicitly taught to children as part of quality-first teaching. Specialist scientific vocabulary is clearly modelled on knowledge organisers. Knowledge Organisers enable children to learn and retain the key vocabulary and basis of expected knowledge contained within each unit and are used throughout lessons, guided and independently, at home and at school. The progression of skills for working scientifically are developed through the year groups and scientific enquiry skills are of key importance within lessons. Scientific concepts are integral to our curriculum and taught throughout KS1 and 2, these include Scientific questions, Scientific Apparatus and techniques, Scientific data and Scientific evidence. Scientific knowledge and enquiry skills are developed with increasing depth and challenge as children move through the year groups. They complete investigations and hands-on 	<p>Children:</p> <ul style="list-style-type: none"> Children will be able to speak confidently about their learning in science and use their books to support explanations of what they have learned. Children who feel confident in their science knowledge and enquiry skills will be excited about science, show that they are actively curious to learn more and will see the relevance of what they learn in science lessons to real-life situations and also the importance of science in the real world. Children will speak about science lessons and learning with enthusiasm and more will leave primary school with a positive experience of and enthusiasm to continue studying science at secondary school. <p>Children's Work:</p> <ul style="list-style-type: none"> Ready-to-Progress assessments in science will reflect progression of knowledge, skills and understanding. <p>Teachers:</p> <ul style="list-style-type: none"> Progress in science is measured through a child's ability to know more, remember more and explain more. This includes

<p>which can be used to help reinforce the key knowledge for each unit as set out in the science national curriculum, as well as additional vocabulary.</p> <ul style="list-style-type: none"> • Our science curriculum map ensures children have a varied, progressive and well-designed science curriculum that provides the opportunity for progression across the full breadth of the Science National Curriculum for EYFS, KS1 and KS2. 	<p>activities while gaining the scientific knowledge for each scientific unit.</p> <ul style="list-style-type: none"> • Sequences of lessons help to embed scientific knowledge and skills, with each lesson building on previous learning. There is also the opportunity to regularly review and evaluate children's understanding. Learning will be recorded in science books. • Authentic learning links are made to the wider curriculum, that revisit and help secure knowledge in the long-term memory, for example making electrical circuits in DT. • Foundational knowledge is planned for, to fill gaps in children's cultural capital and ensure children have a broad range of experiences of the world, to be able to make sense of new learning and build existing schema. 	<p>both subject specific knowledge and scientific enquiry skills.</p> <p>Parents:</p> <ul style="list-style-type: none"> • Whole-school and parental engagement with science as a subject discipline, will be improved through the use of science-specific home learning tasks and shared use of knowledge organisers.
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Working Scientifically National Curriculum Objectives (taught throughout all strands of Science)

EYFS (Development Matters)	KS1	LKS2	UKS2
<ul style="list-style-type: none"> • Understanding the World (3 & 4 Year Olds) <ul style="list-style-type: none"> • Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. • Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. 	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions. 	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying 	<p>Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables,

<ul style="list-style-type: none"> • Talk about the differences between materials and changes they notice. <p>(Reception) UtW</p> <ul style="list-style-type: none"> • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them. <p><u>PSED</u></p> <ul style="list-style-type: none"> • Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> • regular physical activity • healthy eating • toothbrushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian 		<p>and presenting data in a variety of ways to help in answering questions</p> <ul style="list-style-type: none"> • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings. 	<p>scatter graphs, bar and line graphs</p> <ul style="list-style-type: none"> • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments.
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Our SEND children are supported to achieve well in science through:



A shared culture of **AMBITION** and **ASPIRATION** for all SEND pupils



ADDITIONAL ADULTS SKILLFULLY SUPPORT pupils with SEN needs to access learning in all lessons



SCAFFOLDS, PROMPTS and STRATEGIES used, as recommended by **EXTERNAL PROFESSIONALS**, to ensure SEND pupils can access learning and **MAKE PROGRESS**

Daily opportunities for **RETRIEVAL PRACTICE** through Flashback 4, Knowledge Organisers and teacher questioning



T&L Pedagogy & Curriculum Focus: SEND PUPILS

SEN pupils access a **BROAD and BALANCED CURRICULUM**, that is not narrowed, with opportunities to experience all the curriculum offers

Lessons are **SEQUENCED** coherently, to allow SEND pupils to **MAKE CONNECTIONS** and build-up learning in **SMALL STEPS**



PRECISION TEACH INTERVENTIONS are used to close gaps in learning

PRE-TEACH sessions support **OVER-LEARNING**, consolidation, correcting misconceptions and acquiring **vocabulary**



INTERVENTIONS for SEND children have **FLEXIBLE TIMINGS** to ensure the curriculum is not narrowed

READING FLUENCY lessons and intervention, support SEND children to **MAKE MEANING FROM TEXT**, thereby allowing access to the wider curriculum



Using a **'TEACH TO THE TOP'** approach to ensure that all SEND pupils have opportunities to consistently access **HIGHER LEVEL IDEAS and CONCEPTS**. Concepts are revisited in the curriculum.

