

BEING A SCIENTIST AT THE WEALD

A space to learn; a space to grow.

At The Weald, we support all members of our school community – our children, our staff and our families—to make and keep this pledge so that our children learn, grow and achieve their very best.

Our curriculum:

- Puts the mental and physical wellbeing of our children at the heart of all that we do;
- Connects our learners as local citizens of today with the ideas, knowledge and skills they will need as the global citizens of the future;
- Applies National Curriculum content through real world contexts;
- Encourages our learners to be curious, ask probing questions and be brave in finding solutions;
- Enacts the core Christian values of our school '*Respect, Responsibility, Love, Trust and Forgiveness*', which promote respect for others, responsibility for ourselves and mutual trust.
- Promotes diversity and inclusion;
- Is enriched by well-planned, outdoor learning opportunities, off-site experience days and immersive workshops.

At The Weald, our intention is to create a culture of enquiry, curiosity and challenge that runs through our whole curriculum. Our school is developing a local, bespoke version of the Curious-city™ framework which supports our teachers to create contextually relevant, enquiry-led experiences. This enquiry-led approach is enabling The Weald to create a bespoke, locally focused curriculum for our learners that goes beyond the current National Curriculum.

How is the curriculum taught at The Weald?

Our enquiry-led curriculum supports our pupils to explore subjects through a sequence of 'key questions' which build up children's knowledge and skills over time. Through our curriculum, our children see themselves as different states of being, for example, as Authors, Mathematicians and Artists – rather than simply learning about English, Mathematics or Art. Author (English) and Mathematicians (Maths) lessons are explicitly taught daily. Enquiries are planned to ensure a broad and balanced range of learning across each phase. The curriculum is enhanced by locally rich and relevant experiences, which weaves in faith, community, and culture.

We support learners to master both the *know of* and *know-how* of a subject, not just remember it. For instance, we want our learners to be Scientists, not just learn about science. It is also important to make logical links between subjects. We want our learners to discover for themselves that they can be an Author, Scientist, Geographer and Philosopher at the same time and that some adults combine these states to become Archaeologists, for instance. You will see these around our school buildings, on visual timetables, on school displays and our online learning platform. It is important that the children see the connection between the subjects they are learning and how this knowledge can be applied. At The Weald our excellent outdoor environment and the local community are an opportunity for active learning for all our pupils. The school grounds are evolving to enrich different curriculum areas, and outdoor learning is actively promoted and planned for. We ensure in-school learning is enhanced by relevant educational visits and visitors, overnight residential visits which take place in Year 4 and 6, assemblies, charity days and responding to events in the news. A range of clubs and enrichment activities such as concerts, sports matches, gardening competitions, arts assemblies, music, and dance festivals are a regular occurrence in our school. These are a vital part of the children's development as lifelong learners and ensure individual talents are nurtured and celebrated.

How is the impact of our curriculum measured?

The impact of our enquiry curriculum can be seen and heard as well as represented in outcomes. Real learning can be seen through the children's books, displays and the challenges that the children produce. In classrooms, working walls demonstrate the learning journey; States of Being characters feature in books, classroom displays and visual timetables as well as on our website and newsletters.



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Intent: Our Vision

Scientists at The Weald use their curiosity to develop the skills to: ask questions, make predictions and investigate in a variety of ways; about the world around them. They develop scientific knowledge about the impact of science on our lives today, and how it shapes our future.

Implementation: How we plan and teach for being a Scientist

Scientific knowledge and skills are developed over time through our enquiry led curriculum. Knowledge is sequenced throughout the enquiries and is organised to build upon prior learning. The curriculum has been developed to support a two-year cycle, where teachers plan in phases to ensure full coverage of the National Curriculum 2014. Teachers will use progression documents, which outline what children have learnt in a previous phase, to ensure learning is progressive and meets the needs of all.

Working scientifically skills are also sequenced through our enquiries to build upon skills previously taught. Experimental and investigative tasks and challenges have a clear purpose and provide children with the opportunity to become Scientists.

Impact: How we evaluate our learning as Scientists

The impact of being a Scientist within our enquiry curriculum can be seen and heard as well as represented in outcomes. Impact can be seen through the children's books, displays and the challenges that the children produce. In classrooms, working walls demonstrate the learning journey; States of Being characters feature in books, classroom displays and visual timetables as well as our website and newsletters.

Science lead subject Science supporting subject

2022-2024: The Weald C of E Primary School WHOLE SCHOOL ENQUIRY CURRICULUM OVERVIEW

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Lower KS2 (Year 3 & 4) 2022-2023	Where does the darkness come from?	How can we find out about people in the past?	What's underneath our feet?	What is the difference between surviving and being healthy?	How can you feel the force? How do plants die?	How do plants die? Why did people travel in the past?
Lower KS2 (Year 3 & 4) 2023-2024	What is the difference between noise and sound?	Why do we live here?	Where does our water come from? What should we flush down the loo?	What should we flush down the loo? What is creativity?	Why are more people becoming vegetarian? Who stood here before us?	Who stood here before us? How can we switch off?
Upper KS2 (Year 5 & 6) 2022-2023	How are lives saved?	Who were the greater engineers? The Victorians or the Ancient Britains?	Linnaeus and Darwin – how are they connected?	Where does our food really come from?	Who is trading with whom? Why are shadows important?	Why are shadows important? How big is your footprint?
Upper KS2 (Year 5 & 6) 2023-2024	What does the Earth look like from the solar system?	How can we show what we believe in?	Where is our twin?	What do forces actually do? How can Science help the homeless?	How do we all live together?	How are you helping to save the planet? What makes a good performance great?

	KNOW OF - By the end of Year 4	KNOW OF - By the end of Year 6
Forces and Magnets (The World)	<p>How can we feel the force?</p> <ul style="list-style-type: none"> ➤ To compare how things, move on different surfaces. ➤ To notice that some forces need contact between two objects, but magnetic forces can act at a distance. ➤ To observe how magnets, attract or repel each other and attract some materials and not others. ➤ To compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. ➤ To describe magnets as having two poles. ➤ To predict whether two magnets will attract or repel each other, depending on which poles are facing. 	<p>What do forces actually do?</p> <ul style="list-style-type: none"> ➤ To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object ➤ To identify the effects of air resistance, water resistance and friction, that act between moving surfaces ➤ To recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.
Earth and Space (The World)		<p>What does the Earth look like from the solar system?</p> <ul style="list-style-type: none"> ➤ To describe the movement of the Earth, and other planets, relative to the Sun in the solar system ➤ To describe the movement of the Moon relative to the Earth ➤ To describe the Sun, Earth and Moon as approximately spherical bodies ➤ To use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.
Light (The World)	<p>Where does the darkness come from?</p> <ul style="list-style-type: none"> ➤ To recognise that they need light in order to see things and that dark is the absence of light. ➤ To notice that light is reflected from surfaces. ➤ To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. ➤ To recognise that shadows are formed when the light from a light sources blocked by as solid object ➤ To find patterns in a way that the size of shadow change. 	<p>Why are shadows important?</p> <ul style="list-style-type: none"> ➤ To recognise that light appears to travel in straight lines ➤ To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye ➤ To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes ➤ To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Electricity (The World)	<p>How can we switch off?</p> <ul style="list-style-type: none"> ➤ To identify common appliances that run on electricity. ➤ To construct a simple series electrical circuit, identifying and naming its basic parts, including cell, wires, bulbs, switches and buzzers. ➤ To identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamps is part of a complete loop with a battery ➤ To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. 	<p>How big is your footprint?</p> <ul style="list-style-type: none"> ➤ To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. ➤ To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. ➤ To use recognised symbols when representing a simple circuit in a diagram.

	<ul style="list-style-type: none"> ➤ To recognise some common conductors and insulators, and associate metals with being good conductors. 	
Sound (The World)	<p>What is the difference between noise and sound?</p> <ul style="list-style-type: none"> ➤ To identify how sounds are made, associating some of them with something vibrating. ➤ To recognise that vibrations from sound, travel through a medium to the ear. ➤ To find pattern between the volume of a sound and the strength of the vibrations that produced it. ➤ To find patterns between the pitch of a sound and features of the object that produced it. ➤ To recognise that sound get fainter as the distance from the sound increases. 	
Rocks (Materials)	<p>What's underneath our feet?</p> <ul style="list-style-type: none"> ➤ Compare and group together different kinds of rocks on basis of appearance and physical properties ➤ Describe in simple terms how fossils are formed when things were trapped ➤ Recognise that soils are made from rocks and organic matter 	<p>Linnaeus and Darwin – how are they connected?</p> <ul style="list-style-type: none"> ➤ To describe how earth and living things changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.
States of matter Properties and changes of materials (Materials)	<p>Where does our water come from?</p> <ul style="list-style-type: none"> ➤ Compare and group materials together according to whether they are solids liquids or gases ➤ To measure or research the temperature at which this happens in degrees Celsius. ➤ To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation. ➤ Observe that some materials change state when they are heated or cooled 	<p>How can Science help the homeless?</p> <ul style="list-style-type: none"> ➤ To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets ➤ To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution ➤ To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating ➤ To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic ➤ To demonstrate that dissolving, mixing and changes of state are reversible changes ➤ To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda
Plants	<p>How do plants die?</p> <ul style="list-style-type: none"> ➤ To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. 	<p>Linnaeus and Darwin – how are they connected?</p> <ul style="list-style-type: none"> ➤ To describe how living things are classified into broad groups according to common observable characteristics and based on

	<ul style="list-style-type: none"> ➤ To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. ➤ To investigate the way in which water is transported with plants. ➤ To explore the part that flowers play in the life cycle of a flowering plants, including pollination, seed formation and seed dispersal. ➤ Function of different parts. 	<p>similarities and difference, including micro-organisms, plants and animals.</p> <ul style="list-style-type: none"> ➤ Give reasons for classifying plants and animals specific characteristics.
Living things and their habitats	<p>What should we flush down the loo?</p> <ul style="list-style-type: none"> ➤ To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. ➤ Recognise that living things can be grouped in a variety of ways. ➤ To recognise that environments can change and that this can sometimes pose dangers to living things. 	<p>How are you helping to save the planet?</p> <ul style="list-style-type: none"> ➤ To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird ➤ To describe the life process of reproduction in some plants and animals <p>Linnaeus and Darwin – how are they connected?</p> <ul style="list-style-type: none"> ➤ To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and difference, including micro-organisms, plants and animals. ➤ Give reasons for classifying plants and animals specific characteristics
Animals including humans	<p>What is the difference between surviving and being healthy?</p> <ul style="list-style-type: none"> ➤ Identify that animals including humans need the right types and amount of nutrition and that they cannot make their own food. ➤ They get nutrition from what they eat. ➤ Identify that humans and some other animals have skeletons and muscles to support, protect and movement. 	<p>How are lives saved?</p> <ul style="list-style-type: none"> ➤ To identify and name the main human circulatory system. ➤ To describe the function of heart, blood vessels and blood. ➤ To recognise the impact of diet, exercise and drugs and lifestyles on the way their bodies function. ➤ To describe the ways in which nutrients and water are transported in animals and humans
Evolution and Inheritance (Animals including humans)		<p>Linnaeus and Darwin – how are they connected?</p> <ul style="list-style-type: none"> ➤ To give reasons for classifying plants and animals based on specific characteristics. ➤ To describe how earth and living things changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. ➤ To recognise that living thing produce offspring of the same kind, but normally offspring vary and are not identical to their parents ➤ To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evaluation.

WORKING SCIENTIFICALLY – Programme of Study Objectives (Statutory requirements)

Pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

KNOW HOW Working scientifically	
By end of Year 4 Investigating with variable	By end of Year 6 Experimenting as ‘fair tests’ and interpreting
<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 and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 	<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 • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs
KNOW HOW Findings as Data	
By end of Year 4 Presenting data	By end of Year 6 Analysing data
<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • using test results to make predictions to set up further comparative and fair tests • using simple models to describe scientific ideas • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of 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

