



Hoylake Holy Trinity Primary School

A Hoylake Holy Trinity Historian

*Learning for Life
Caring for All
Living each Day to the Full
Together as a Community
With Jesus by our Side*

We want our curriculum to be

- enjoyable - engaging - meaningful - relevant - progressive - risky - empowering- memorable - develop a love of learning -challenging -accessible/inclusive - creative -knowledgeable -experiences

We want our learners to be

-curious- obsessed - inspired - invested - engaged - happy - safe - confident- risk-takers - comfortable in failure - reflective - collaborators - resilient - bothered - global citizens -empathetic

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Why is Science important?

Hoylake Holy Trinity's vision for Science

Early Years Foundation Stage: Understanding the World



Why is Science important?

Science stimulates and excites pupils' curiosity about phenomena and events in the world around them. It also satisfies this curiosity with knowledge. Because science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is a spur to critical and creative thought. Through science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving quality of life. Pupils recognise the cultural significance of science and trace its worldwide development. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

Hoylake Holy Trinity Vision for Science

On completion of the Science curriculum at Hoylake Holy Trinity, pupils will have developed:

- The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.
- Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.
- Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.
- High levels of originality, imagination or innovation in the application of skills.
- The ability to undertake practical work in a variety of contexts, including fieldwork.
- A passion for science and its application in past, present and future technologies.

National Curriculum for Science

The National Curriculum for Science at Key Stages 1 and 2 can be downloaded from the 'Curriculum' tab of the Hoylake Holy Trinity school website.



Early Years: Understanding the World

Early Learning Goal (ELG): People and Communities:

Children talk about past and present events in their own lives and in the lives of family members. They know that other children don't always enjoy the same things, and are sensitive to this. They know about similarities and differences between themselves and others, and among families, communities and traditions.

Early Years:

The most relevant statements for science are taken from the following areas of learning:

- Communication and Language
- Personal, Social and Emotional Development
- Understanding the World

<u>Science in the Early Years</u>		
Three and Four-Year-Olds F1	Communication and Language	• Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"
	Personal, Social and Emotional Development	• Make healthy choices about food, drink, activity and toothbrushing.
	Understanding the World	• 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. • Begin to make sense of their own life-story and family's history. • Explore how things work. • 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. • Talk about the differences between materials and changes they notice.



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F2	Communication and Language		• Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts.
	Personal, Social and Emotional Development		• Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian
	Understanding the World		• Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
ELG	Communication and Language	Listening, Attention and Understanding	• Make comments about what they have heard and ask questions to clarify their understanding.
	Personal, Social and Emotional Development	Managing Self	• Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.



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	Understanding the World	The Natural World	• Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
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	EYFS	Year 1 and Year 2	Year 3 and Year 4	Year 5 and Year 6
Working Scientifically	Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. Make comments about what they have heard and ask questions to clarify their understanding.	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.	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. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Using results to draw simple	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, scatter graphs, bar and line graphs. 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



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			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.	ideas or arguments.
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	EYFS	Year 1	Year 2	Year 3	Year 5	Year 6
Plants	I can explore the natural world around them, making observations and drawing pictures of animals and plants	I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. I can identify and describe the basic structure of a variety of common flowering plants. Identify and name the roots, trunk, branches and leaves of trees.	I can observe and describe how seeds and bulbs grow into mature plants. I can find out and describe how plants need water, light and warmth to grow and stay healthy.	I can identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers I can explore the part flowers play in a flowering plant's life cycle, including pollination, seed formation and seed dispersal. I can explain the requirements of plants for life and growth (air,	I can describe the life process of reproduction in some plants and animals.	I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. I can give reasons for classifying plants and animals based on specific characteristics.



				light, water, nutrients from soil, room to grow) and how they vary between plants Know the way in which water is transported between plants.		
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	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans Living things and their habitats	I can explore the natural world around them, making observations and drawing pictures of animals and plants	I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. I can identify and name a variety of common animals that are carnivores, herbivores and omnivores I can describe and compare the structure of a variety of common animals (fish,	I can notice that animals, including humans, have offspring which grow into adults. I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air) I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	I can identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat. I know how nutrients, water and oxygen are transported within animals and humans. I know about the importance of a	I can recognise that living things can be grouped in a variety of ways. I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. I can recognise that environments can change and that this can sometimes pose dangers to living things.	I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I can describe the life process of reproduction in some plants and animals. I can describe the changes as humans develop to old age.	I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. I can give reasons for classifying plants and animals based on specific characteristics. I can identify and name the main



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		amphibians, reptiles, birds and mammals including pets) I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	I can explore and compare the differences between things that are living, dead, and things that have never been alive I can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. I can describe how animals obtain their food from plants	nutritious, balanced diet. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement:	I can describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. I can construct and interpret a variety of food chains, identifying producers, predators and prey.		parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. I can describe the ways in which nutrients and water are transported by animals, including humans.
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			and other animals, using the idea of a simple food chain, and identify and name different sources of food.				
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	Year 6
Evolution and inheritance	I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5
Materials	I can understand some important processes and changes in the	I can distinguish between an object and the material from	I can identify and compare the suitability of a variety of everyday	I can compare and group together different kinds of rocks	I can compare and group materials together, according to	I can compare and group together everyday materials on



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	natural world around them, including the seasons and changing states of matter.	which it is made. I can identify and name a variety of everyday materials, including wood, metal, plastic, glass, water and rock, I can describe the simple physical properties of a variety of everyday materials. I can compare and group together a variety of everyday materials on the basis of their simple properties	materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. I can find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	on the basis of their appearance and simple physical properties I can describe in simple terms how fossils are formed when things that have lived are trapped within rock I can recognise that soils are made from rocks and organic matter	whether they are solids, liquids or gases. I can observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius. I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
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						I can demonstrate that dissolving, mixing and changes of state are reversible changes. I can 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 burning and the action of acid on bicarbonate of soda.
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	Year 4
Rocks	I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties I can describe in simple terms how fossils are formed when things that have lived are trapped within rock I can recognise that soils are made from rocks and organic matter.

	EYFS	Year 1
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Seasonal changes	I understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	I can observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.
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	Year 3	Year 6
Light	I can recognise that they need light in order to see things and that dark is the absence of light. I can notice that light is reflected from surfaces. I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes. I can recognise that shadows are formed when the light from a light source is blocked by a solid object. I can find patterns in the way that the sizes of shadows change.	I can recognise that light appears to travel in straight lines. I can 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. I can 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. I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. I know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.

	Year 4
Sound	I know how sound is made associating some of them with vibrating. I know what happens to a sound as it travels from its source to our ears. I know the correlation between the volume of a sound and the strength of the vibrations that produced it. I know how sound travels from a source to our ears.



	I know the correlation between pitch and the object producing a sound.
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	Year 5
Earth and Space	I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. I can describe the movement of the Moon relative to the Earth Describe the Sun, Earth and Moon as approximately spherical bodies. I can use the idea of the Earth's rotation to explain day and night, and the apparent movement of the sun across the sky.

	Year 3	Year 5
Forces	I can compare how things move on different surfaces. I can notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. I can observe how magnets attract or repel each other and attract some materials and not others. I can 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. I can describe magnets as having 2 poles. I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect



	Year 4	Year 6
Electricity	I can identify common appliances that run on electricity. I can construct a simple series of electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. I can recognise some common conductors and insulators, and associate metals with being good conductors.	I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. I can 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. I can use recognised symbols when representing a simple circuit in a diagram.