'At Holywell Village First School we have high aspirations for our children to become well-rounded and responsible future citizens. They are happy, independent and have positive self-esteem. Our children have a thirst for learning. They are curious about the world around them and are confident to 'have a go'. They are reflective learners who persevere and demonstrate good communication and social skills. They are thoughtful, caring and kind.'

Science Policy

Aims and Objectives:

Our Science Intent

Holywell First School's Science curriculum is designed with the **intent** of nurturing happy, independent learners who are curious and have a thirst for knowledge. Our intent in teaching Science is that all children will develop and maintain a positive and enthusiastic attitude towards science lessons. Through our creative curriculum, they will be confident in their own ability to make important and relevant contributions. They will have an awareness of the diversity and open-endedness of scientific enquiry and an appreciation of its relevance to everyday life. The children of Holywell First School will acquire scientific knowledge to solve problems in their community and within in their own lives through exploring, observing, comparing and discussing findings to their own experiments. We encourage children to express their own ideas, question the ideas of others and develop enquiring minds.

Science is important because:

- It is a body of knowledge essential to our understanding of the world around us.
- It builds a methodology for thinking which today forms the basis of most intellectual enquiry.
- The skills and knowledge of science have wide applicability in everyday life.

Our Implementation of Science

In line with our creative curriculum, Science at Holywell Village First School is **implemented** though fun and engaging cross curricular work. At times, children may study a discrete science unit, but enquiries are usually set in a relevant context. The emphasis, in our teaching of science, is largely on first-hand experience and the development of skills. We encourage the children to take control of their own learning through the planning and development of their own scientific enquiry to proposing their own scientific questions. The children are also encouraged to make their own self assessments, alongside peer and teacher, against learning outcomes and success criteria.

Children are encouraged to communicate their findings in a variety of ways:

- written explanations (letters, speech bubbles, reports, newspaper articles)
- drawings and diagrams
- graphs, tables, charts, Venn and Carroll diagrams
- posters
- oral presentations
- drama

- relevant discussion

Our Curriculum
Children in the Foundation Stage:
At Holywell First School we follow the Development Matters guidance where children learn through their own child initiated learning. The children will explore science through the following topics:

Understanding
Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.

Speaking
Children express themselves effectively, showing awareness of listeners' needs. They use past, present and future. They develop their own narratives and explanations by connecting ideas or events.

Moving and Handling
They handle equipment and tools effectively, including pencils for writing.

Health and Self-care
Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully.

Maths
They solve problems,

Space, Shape and measure
Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Understanding 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.

Technology
Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

Exploring Using Media and Materials
Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

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Being Imaginative

Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

KS1 Curriculum:

Working scientifically

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

- 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

Year 1

Plants

Pupils should be taught to:

- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.
- Identify and describe the basic structure of a variety of common flowering plants, including trees.

Animals Including Humans

Pupils should be taught to:

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Everyday Materials

Pupils should be taught to:

- Distinguish between an object and the material from which it is made.
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
- Describe the simple physical properties of a variety of everyday materials.
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.

Seasonal Changes

Pupils should be taught to:

- Observe changes across the 4 seasons.

- Observe and describe weather associated with the seasons and how day length varies.

Year 2
Living Things and Their Habitats
Pupils should be taught to:

- Explore and compare the differences between things that are living, dead, and things that have never been alive.
- 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.
- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Plants
Pupils should be taught to:

- Observe and describe how seeds and bulbs grow into mature plants.
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Animals, Including Humans
Pupils should be taught to:

- Notice that animals, including humans, have offspring which grow into adults.
- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
- Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Uses of everyday materials
Pupils should be taught to:

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

KS2 Curriculum

Working Scientifically

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- 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 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.

Year 3

Plants

Pupils should be taught to:

- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.
- 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.
- Investigate the way in which water is transported within plants.
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Animals, Including Humans

Pupils should be taught to:

- 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 for support, protection and movement.

Rocks

Pupils should be taught to:

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock.
- Recognise that soils are made from rocks and organic matter.

Light

Pupils should be taught to:

- Recognise that they need light in order to see things and that dark is the absence of light.
- Notice that light is reflected from surfaces.
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.
- Recognise that shadows are formed when the light from a light source is blocked by an opaque object.
- Find patterns in the way that the size of shadows change.

Forces and Magnets

Pupils should be taught to:

- Compare how things move on different surfaces.
- Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.

- 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.
- Describe magnets as having 2 poles.
- Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.

Year 4

Living Things and Their Habitats

Pupils should be taught to:

- Recognise that living things can be grouped in a variety of ways.
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.
- Recognise that environments can change and that this can sometimes pose dangers to living things.

Animals Including Humans

Pupils should be taught to:

- 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.
- Construct and interpret a variety of food chains, identifying producers, predators and prey.

States of Matter

Pupils should be taught to:

- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Sound

Pupils should be taught to:

- Identify how sounds are made, associating some of them with something vibrating.
- Recognise that vibrations from sounds travel through a medium to the ear.
- Find patterns between the pitch of a sound and features of the object that produced it.
- Find patterns between the volume of a sound and the strength of the vibrations that produced it.
- Recognise that sounds get fainter as the distance from the sound source increases.

Electricity

Pupils should be taught to:

- Identify common appliances that run on electricity.
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- 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.
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- Recognise some common conductors and insulators, and associate metals with being good conductors.

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What makes our science unique to Holywell Village First School?

At Holywell First School we pride ourselves on providing children with a range of experiences. Holywell First School works closely with their dedicated Parent Governor to develop and arrange exciting science activities throughout the year in association with Churchill Community College and their Science Ambassadors. Throughout the Year, the children have many opportunities to take part in a range of experiences such as British Science Week and trips to local museums. Lessons are planned and delivered with high quality and engaging resources using the Capital Science approach to teaching. The children use a range of ICT for research as well as gathering and recording findings to their own questions.

Equal Opportunities:

All children are given equal access to the teacher's time and to the science resources. They are encouraged equally to develop their scientific skills and knowledge according to the whole school Equal Opportunities Policy

Inclusion:

In order to provide all children with relevant and appropriate work at each stage through the 'low threshold, high ceiling' approach to lesson design.

- We set suitable learning challenges
- Respond to children' diverse needs
- Endeavour to overcome potential barriers to learning

Our Science Curriculum Impact

Children will be become creative, critical thinkers and reflective learners, who have a web of knowledge, vocabulary and skills linked to Science and the world around them. Children will begin to acquire the skills and understanding to prepare them for life in the 21st century. Each lesson builds on the previous and children's skills and knowledge are developed throughout each topic. Each Year group's skills and technical knowledge build upon the last to show a clear progression of skills throughout the school.

Subject and school leaders monitor the impact of our curriculum provision through completing:

- Regular monitoring
- Book Scrutiny
- Assessment monitoring
- Data analysis
- Pupil Voice

Health and Safety:

Children should be taught the correct and safe use of equipment and the carrying out of simple safety procedures as an intrinsic part of their science lessons. Children are encouraged to consider their own safety and the safety of others at all times. A risk assessment should be carried out in line with school policy in regards to any school trips or experiments out of school grounds. Safety equipment is available in the science cupboard. It is the teacher's responsibility to ensure any investigations carried are done so in a safe way for the protection of their class.

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Signed Headteacher:_____

Chair of Committee:_____

Date: 27th January 2022
This policy will be reviewed Spring 2024