



# St. John's C of E Primary School Science Curriculum



## Intent

At St John's, our science curriculum aims to nurture curiosity, inspire a love of discovery, and equip pupils with the knowledge and skills to explore and understand the world around them. We are committed to providing a high-quality science education that lays the foundations for understanding the scientific principles shaping our daily lives and our planet's future.

Through an engaging, inclusive, and carefully planned curriculum, we will:

- **Develop Knowledge and Understanding:** Ensure pupils gain a secure and progressive understanding of key scientific concepts in biology, chemistry, and physics, building a solid foundation for future learning.
- **Foster Enquiry and Investigation Skills:** Encourage pupils to ask questions, carry out practical investigations, and use scientific methods to observe, predict, test, and draw conclusions.
- **Inspire Curiosity and Wonder:** Provide opportunities for pupils to explore the natural world and understand the impact of science on society, linking their learning to real-world contexts and problems.
- **Promote Environmental Responsibility:** Instil an appreciation of the importance of sustainability and environmental stewardship, encouraging pupils to consider their role in caring for our planet.
- **Support Holistic Development:** Strengthen cross-curricular skills, including communication, mathematics, and digital literacy, while fostering resilience, critical thinking, and teamwork.

We believe that science should be an inclusive and empowering subject that helps all pupils develop the confidence to engage with scientific ideas, make informed decisions, and embrace the challenges of an ever-changing world. By embedding our school values into the science curriculum, we will prepare our pupils to become thoughtful, inquisitive, and responsible citizens who recognise the importance of science in their lives and their future.

## Implementation

### EYFS Curriculum

Our Primary Curriculum builds on the strong foundations for learning developed in Reception. In Reception the objectives below are taught within the 'Understanding the World' specific area

Development Matters

Early Learning Goals



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<b>EYFS</b>	<ul style="list-style-type: none"> <li>Explore the natural world around them</li> <li>Describe what they see, hear and feel whilst outside.</li> <li>Understand the effect of changing seasons on the natural world around them.</li> </ul>	<ul style="list-style-type: none"> <li>Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> <li>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.</li> <li>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter</li> </ul>
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## Primary Curriculum

Year	Autumn 1	Autumn 2	Spring	Summer 1	Summer 2
1	Animals, including Humans	Materials	Plants	Seasonal changes	
2	Animals, including Humans	Living Things and their Habitats	Materials	Plants	
3	Animals, including Humans	Forces and Magnets	Light	Rocks	Plants
4	Animals, including Humans	Living Things and their Habitats	Electricity	States of Matter	Sound
5	Animals, including Humans	Living Things and their Habitats	Materials	Earth and Space	Properties and Changes of Materials
6	Animals, including Humans	Light	Electricity	Evolution and Inheritance	Living Things

## National Curriculum for KS1 and Ks2

### Animals, including Humans

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identify and name a variety of common animals including fish,	Understand that animals, including humans, have offspring which grow into adults.	Identify that animals, including humans, need the right types and amount of nutrition, and	Describe the simple functions of the basic parts of the digestive system in humans.	Describe the changes as humans develop to old age.	Identify and name the main parts of the human circulatory system, and describe the functions of



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amphibians, reptiles, birds and mammals.		that they cannot make their own food; they get nutrition from what they eat.			the heart, blood vessels and blood.
Group animals according to what they eat.	Describe the basic needs of animals, including humans, for survival (water, food and air).	Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Identify the different types of teeth in humans and their simple function.		Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
Identify and name a variety of common animals that are carnivores, herbivores and omnivores.	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		Construct and interpret a variety of food chains, identifying producers, predators and prey.		Describe the ways in which nutrients and water are transported within animals, including humans.
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					

## Living Things and their Habitats

Year 2	Year 4	Year 5
Explore and compare the differences between things that are living, dead and things that have never been alive.	Recognise that living things can be grouped in a variety of ways.	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.



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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	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.	Describe the life process of reproduction in some plants and animals.
Identify and name a variety of plants and animals in their habitats including microhabitats.	Recognise that environments can change and that this can sometimes pose dangers and have an impact on living things.	
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.		

## Materials

Year 1	Year 2	Year 5
Distinguish between an object and the material from which it is made.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	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.
Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.	Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Recognise that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
Describe the simple physical properties of a variety of everyday materials.		Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.
Compare and group together a variety of everyday materials on the basis of their simple physical properties.		Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.
		Demonstrate that dissolving, mixing and changes of state are reversible changes.



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		Explain that some changes result in the formation of new material, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.
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## Plants

Year 1	Year 2	Year 3
Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (six to eight examples)	Observe and describe how seeds and bulbs grow into mature plants.	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.
Identify and describe the basic structure of a variety of common flowering plants, including trees. (leaves, flower, petals, roots, stem, trunk, branches, fruit)	Describe how plants need water, light and a suitable temperature to grow and stay healthy, and describe the impact of changing these	Explore and describe the requirements of plant life for growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.
		Investigate the ways 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

## Seasonal Changes

Year 1
Observe changes across the four seasons.
Observe and describe weather associated with the seasons and how day length varies.

## Rocks

Year 3
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 (Mary Anning)
Recognise that soils are made from rocks and organic matter.



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## Light

Year 3	Year 6
Recognise that he/she needs light in order to see things and that dark is the absence of light.	Recognise that light appears to travel in straight lines
Notice that light is reflected from surfaces.	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.
Recognise that light from the sun can be dangerous and that there are ways to protect eyes.	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.
Recognise that shadows are formed when the light from a light source is blocked by a opaque object.	Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Find patterns in the way that the size of shadows change.	

## Electricity

Year 4	Year 6
Identify common appliances that run on electricity.	Compare and give reasons for variations in how components function, including the brightness of a bulb, the loudness of a buzzer and the on/off position of switches.
Construct a simple series electrical circuit, identifying and naming its basic arts, including cells, wires, bulbs, switches and buzzers	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
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.	Use recognised symbols when representing a simple circuit in a diagram
Recognise some common conductors and insulators, and associate metals with being good conductors.	
Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	

## Forces and Magnets



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Year 3	Year 5
Compare how things move on different surfaces.	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
Notice that some forces need contact between two objects, but magnetic forces can act as a distance.	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
Observe how magnets attract or repel each other and attract some material and not others.	Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
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 two poles	
Predict whether two magnets will attract or repel each other, depending on which poles are facing	

## States of Matter

Year 4
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

## Evolution and Inheritance

Year 6
Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago
Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
Identify how animals and plants are adapted to suit their environment in different ways and that adaption may lead to evolution.

## Earth and Space



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## Year 5

Describe the movement of the Earth, and other planets, relative to the Sun in the solar system

Describe the movement of the Moon relative to the Earth

Describe the Sun, Earth and Moon as approximately spherical bodies.

Use the ideas of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

## Sound

## Year 4

Identify how sounds are made, associating some of them with something vibrating

Recognise that vibrations from sounds travels 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 fainters as the distance from the sound source increases.

## Working Scientifically

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand, moreover, 'working scientifically' is embedded within the content of the individual units, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry include observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.

Enquiry Skill Stem	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Questioning	Ask simple questions and recognise that they can be answered in different ways.	Ask simple questions and recognise that they can be answered in different ways including the use of scientific language from the National Curriculum.	Ask relevant questions and use different types of scientific enquiries to answer them.	Ask relevant questions and use different types of scientific enquiries to answer them.	Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary.



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Predicting	Use his/her ideas of the world to say what they think will happen.	Talk about their ideas and using their everyday experience they make simple predictions	Make predictions using his/her ideas of the world to suggest answers to questions referencing similarities, differences and patterns.	Make predictions using their scientific knowledge to suggest answers to questions referencing similarities, differences, patterns and properties	Make predictions using established scientific knowledge to suggest answers to questions referencing similarities, differences, patterns and properties.	Justify their predictions by making multiple links between scientific models, theories and systems
Fair testing	N/A	N/A	Recognise, with support, the variables to change and measure and those to be kept the same.	Identify key variables and distinguish between independent and dependant variables and those they will keep the same.	Plan how to control the variables that they need to keep the same and make decisions about the range and values of the independent variables	Identify key variables that may not be readily controlled explaining why this is the case.
Experimenting	Perform simple tests.	Perform simple comparative tests.	Set up simple practical enquires, comparative and fair tests and use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Set up simple practical enquires, comparative and fair tests recording findings using simple scientific language, drawing, labelled diagrams, keys, bar charts, and tables	Set up a range of practical enquires, comparative and fair tests recording data and results of using scientific diagrams and labels, classification keys, tables, bar and line graphs.	Set up a range of practical enquires, comparative and fair tests of recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
Observing	Observe simple features of organisms, objects, materials and events	Make enough observations to be able to sort, group and compare organisms, objects, materials and events.	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units. Make	Make careful observations following a planned method making qualitative observations and where appropriate,	Select measuring instruments that allow for measurement with fine divisions and precision, taking	Systematically observe and measure using a range of scientific equipment, with accuracy and precision, taking



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			some decisions about the basic equipment/ observations they might use/make when setting up an enquiry.	take accurate measurements using standard units using a range of equipment, including thermometers and data loggers.	repeat readings when appropriate.	repeat readings when appropriate
Recording	Gather and record data to help in answering questions in oral, pictorial or written form	Gather and record data to help in answering questions in pictorial, numerical or written form within a given table format	Gather and begin to organise their data in a constructed table format.	Organise their findings using relevant scientific language with a constructed table format.	Record and present findings from enquiries in a variety of ways fit for purpose.	Record and present findings from enquiries in a pre-organised system and calculate results where appropriate.
Presenting Results	Describe simple features of organisms, objects, materials and events through talking, drawing or simple words.	Make simple records of their findings by talking, drawing, writing simple sentences, constructing tally charts or pictograms.	Display results in a given format to including tables and bar charts	Organise and communicate their findings using relevant scientific language and display these in tables, bar charts and simple line graphs when the axis and scales are given.	Use appropriate axis and scales for graphs to show data effectively.	Use lines of best fit in line graphs. Use some quantitative definitions and perform calculations using the correct units.
Analysing	Use his/her observations and ideas to suggest answers to questions.	Use straightforward scientific evidence to answer questions or to support his/her findings	Identify simple patterns and trends, and distinguish between scientific facts, beliefs and opinions.	Report on findings from enquires, including oral and written explanations, displays or presentations of results and conclusions.	Identify results and scientific evidence that has been used to support or refute ideas or arguments.	Identify and explore uncertainties and explain anomalies and using test results to make predictions to set up further comparative and fair tests.
Drawing conclusions and	Referring back to the prediction, discuss accuracy and begin to reason why.	Communicate his/her ideas. What he/she did and what	Say what they have found out from their work and make their own decisions by	Use results to draw simple conclusions, make predictions for new values, suggest	Draw conclusions that are consistent with the findings and consider others'	Using appropriate scientific language, explain, evaluate and communicate



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communicating findings		he/she found out in a variety of ways.	weighing up pros and cons.	improvements and raise further questions.	views to inform opinions and decisions.	his/her methods and findings. Describe how they might collect more information in order to check the validity of their conclusions
Classifying	Identify and classify.	Identify, group and classify.	Gather, record, classify and present data in a variety of ways to help in answering questions.	Identify differences, similarities or changes related to simple scientific ideas and processes.	Gather, record, classify and present data in a variety of ways to help in answering questions.	Gather, record, classify and present data in a variety of ways to help in answering questions.

## Impact

The impact of our science curriculum will be evident in the knowledge, skills, and attitudes that pupils develop as they progress through the school. By the time they leave St John's, pupils will have gained a deep understanding of key scientific concepts, a sense of curiosity about the world, and the confidence to apply their learning to new and varied contexts.

### Impact on Pupils

- **Secure Knowledge Base:** Pupils will leave with a solid foundation of scientific knowledge and vocabulary, enabling them to build on their learning in secondary education and beyond.
- **Developed Enquiry Skills:** Pupils will be confident in using scientific methods to ask questions, carry out investigations, analyse data, and draw evidence-based conclusions.
- **Curiosity and Enthusiasm:** Pupils will demonstrate a sustained interest in science and a desire to explore the natural and physical world further, both in and out of the classroom.
- **Environmental Awareness:** Pupils will have a strong understanding of environmental issues and sustainability, empowering them to make informed choices and take responsibility for their impact on the planet.



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## Impact on the School Community

- **Culture of Scientific Exploration:** A vibrant and engaging science curriculum will create a culture where pupils see science as an exciting, accessible, and essential subject.
- **Increased Confidence:** Pupils will develop critical thinking and problem-solving skills that contribute to their overall academic and personal development.
- **Preparation for the Future:** Pupils will be equipped with transferable skills such as resilience, teamwork, and analytical thinking, which are essential for navigating future learning and life challenges.

Ultimately, our science curriculum will ensure that pupils leave St John's as confident, inquisitive, and reflective individuals who appreciate the role of science in understanding the past, improving the present, and shaping the future.