

## All Saints CE Primary School and Nursery

### Science Curriculum-Progression in Knowledge and Skills

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Nursery</b>	<b>What can you see outside?</b>	<b>What is an owl? How do you know?</b>	<b>What is a bear?</b>	<b>How does a flower grow?</b>	<b>Which materials should the pig's use?</b>	<b>How do you stay healthy?</b>
<b>Ongoing: Seasonal Changes</b> know how to dress for seasonal changes - observe changes in the natural environment and comment on changes observed - know it is 'today' and understand 'now' and 'next' -know the days of the week in order	Use all their senses in hands-on exploration of natural materials.  Explore and respond to natural phenomena.	Begin to understand the need to respect and care for the natural environment and all living things runs through all terms.	Talk about what they see using a wide range of vocabulary.	Plant seeds and care for growing plants. Understand the key features of a life cycle. Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"  Make healthy choices about food, drink, activity and toothbrushing.	Explore collections of materials with similar/different properties. Talk about the differences between materials and changes they notice.	Explore how things work. Explore and talk about different forces they feel. Show interest in different occupations
<b>Vocabulary:</b>  Predict Investigate Observe Stir Measure Fill Mix Safety Pour Test Scientist Materials Record	Season, Autumn, rain, sun, wind, smell, taste, touch, hear, look, nature, senses, head, eyes, nose, mouth, ears, hands, fingers, feet, toes, arm, leg, animal	Owls, nest, feathers, beak, baby, tree, woods, winter, frost, cold, snow, ice, frozen, night, day, stars, nocturnal, woodland, branch, star, moon.	Woods, forest, bear, cold, icy, snow, melt, storm, oozy, squelch, deep, sink, float, dark, light, rough, smooth, cold, hot, loud, quiet.	Spring, plant, seed, grow, care, life cycle, eggs, caterpillar, cocoon, butterfly, wings, change, grow, seed, stalk, plant, flower, petal, rain, sun, water, Seeds, grow, change, water, light, stem, petal, leaf.	Materials, hard, soft, feel, touch, rough, smooth, shiny, dull, wood, glass, paper, hard, soft.	Summer, hot, stop, go, feel, move, up, down, fire, hot, water, light.
<b>Reception</b>	<b>Senses</b>	<b>Seasonal Changes</b>	<b>Similarities and Differences</b>	<b>Animals and Living Things</b>	<b>Environments</b>	<b>Working Scientifically</b>

	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.	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.	Explore the natural world around them, making observations and drawing pictures of animals and plants.	Recognise some environments that are different to the one in which they live.	Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
<b>Core vocabulary</b>	Season, change, explore, smell, taste, touch, hear, look, nature, head, eyes, nose, mouth, ears, hands.	Autumn, leaves, changing colour, woods, Winter, cold, snow, ice, freeze, night, day, stars, moon, animals, woodland, Spring, flowers, growing, Summer, hot, warm, sunny.	woods, forest, cold, icy, snow, melt, cold, hot, beach, sand, sea, grass, mountains, hills, rivers, towns, cities, countryside.	Spring, living things, plant, seed, grow, care, life cycle, eggs, caterpillar, cocoon, butterfly, wings, change, grow, seed, stalk, plant, flower, petal, rain, sun, water, Seeds, water, sun, light, stem, flower, plant, petal.	Differences, weather, wildlife, houses, maps, globe.	Changes, hotter, colder, seasons, push, pull, materials, magnetic, liquids, solids, 3D, flat, fire, water, ice.

By the end of EYFS children as **Scientists** will:

- Show curiosity and ask questions.
- Make observations using their senses and simple equipment.
- Make direct comparisons.
- Use equipment to measure.
- Record their observations by drawing, taking photographs, using sorting rings or boxes and, in Reception, on simple tick sheets.
- Use their observations to help them to answer their questions.
- Talk about what they are doing and have found out.
- Identify, sort and group.
- Explore during their play and repeat an action/test making it obvious they are trying to find something out and see if it always results in the same result.
- Recognises when a simple comparison is unfair.
- Observe closely using all their senses.
- Compare 2/3 things by direct observation.
- Say what happened.
- Order results.
- Spot similarities and differences.
- Understand how to stay healthy including healthy food.
- Understand and talk about a life cycle.
- Talk about different forces they feel.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 1</b>	<b>How can we keep our bodies healthy?</b>	<b>What is it made from?</b>	<b>How do the seasons change?</b>	<b>How much fun can you have in science? Science Week</b>	<b>What animal could it be?</b>	<b>What do plants need to grow?</b>
	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	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.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.	See Science Week programme	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.	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.
<b>Core vocabulary</b>	Sight, hearing, smell, touch, see, taste.	Materials, wood, plastic, paper, stone, fabric, glass, cardboard, object, waterproof, bendy, smooth, bumpy, hard, soft.	Seasons, weather, autumn, spring, summer, winter, daylight.		Animals, reptiles, mammals, birds, fish, amphibians, herbivores, omnivores.	Tree, flower, plants, petal, soil, stem, root, evergreen.
<b>Working Scientifically</b>	<ul style="list-style-type: none"> <li>• Asking simple questions and recognising that they can be answered in different ways</li> <li>• Observing closely, using simple equipment</li> <li>• Performing simple tests</li> <li>• Identifying and classifying</li> <li>• Using their observations and ideas to suggest answers to questions</li> <li>• Gathering and recording data to help in answering questions</li> </ul>					
<b>Year 2</b>	<b>What materials would you use?</b>	<b>What can a super scientist do?</b>	<b>Where do these animals live and why?</b>	<b>How much fun can you have in science? Science Week</b>	<b>How do you look after plants?</b>	<b>What do we need to grow and survive?</b>
	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses	Comparing the uses of everyday materials in and around the school with materials found in other places observing closely, identifying and classifying the uses of different materials, and	Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify and name a variety of plants and	See Science Week programme	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.	Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals,

	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	recording their observations.	animals in their habitats, including micro-habitats. 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			including humans, for survival. Describe the importance for humans of exercise, eating and hygiene
Core vocabulary	hard, soft, rough, smooth, shiny, dull, bendy, stiff, property, solid, waterproof, absorbent, opaque, transparent, squash, bend, flexible, twist, stretch push, pull, roll, slide, bounce.	Investigate, fair test, experiment, explain	Alive, dead, living, birds, animals, reptiles, Food chain, hedgerow, pond, meadow.		growth, germinate, light, temperature reproduce, lifecycle	Chick, chicken, caterpillar, pupa, butterfly, tadpole, frog, lamb, sheep, baby, hygiene, survival, water, air, shelter, food, reproduce.
<b>Working Scientifically</b>	<ul style="list-style-type: none"> <li>• Asking simple questions and recognising that they can be answered in different ways.</li> <li>• Observing closely, using simple equipment.</li> <li>• Performing simple tests.</li> <li>• Identifying and classifying.</li> <li>• Using their observations and ideas to suggest answers to questions.</li> <li>• Gathering and recording data to help in answering questions.</li> </ul>					
By the end of Key Stage 1 children as <b>Scientists</b> will:						
<ul style="list-style-type: none"> <li>• ask simple questions and recognise that they can be answered in different ways.</li> <li>• observe closely, using simple equipment.</li> <li>• perform simple tests.</li> <li>• identify and classify.</li> <li>• use their observations and ideas to suggest answers to questions.</li> <li>• gather and record data to help answer questions.</li> </ul>						

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 3</b>	<b>What's beneath our feet? Rocks &amp; Soils</b>	<b>How can we stay fit and healthy? Health and Movement</b>	<b>How does it move? Forces and Magnets</b>	<b>How much fun can you have in science? Science Week</b>	<b>How do plants grow? How Plants Grow</b>	<b>What is a circuit? Circuits and Conductors</b>
	<p>Making systematic and careful observations Set up simple practical enquiries, comparative and fair tests 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</p>	<p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 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.</p>	<p>Set up simple practical enquiries, comparative and fair tests compare how things move on different surfaces predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p>See Science Week programme</p>	<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Identify and describe the functions of different parts of flowering plants Explore the requirements of plants for life and growth 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</p>	<p>Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>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</p> <p>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> <p>Recognise some common conductors and insulators, and associate metals with being good conductors</p>

<b>Core vocabulary</b>	Rock, soil, fossil, sedimentary, metamorphic, igneous, permeable, impermeable.	Nutrition, skeleton, balanced, muscles, support, protection, movement	Magnetic, force, poles, repel, attract		Classification, flowering plants, non-flowering plants, vertebrates, invertebrates, pollution	Bulb, switch, battery, light, circuit, insulator, conductor, motor, electricity
<b>Working Scientifically</b>	<p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>Using straightforward scientific evidence to answer questions or to support their findings.</p>					
<b>Year 4</b>	<b>Changing Sounds</b>	<b>Eating and Digestion</b>	<b>States of Matter</b>	<b>How much fun can you have in science? Science Week</b>	<b>Living in Environments</b>	<b>How can I see you? Light and Shadow</b>
	<p>Identify how sounds are made, associating some of them with something vibrating</p> <p>Recognise that vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound and features of the object that produced it</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of</p>	<p>See Science Week programme</p>	<p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group,</p> <p>Identify and name a variety of living things in their local and wider environment</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>recognise that shadows are formed when the light from a light source is blocked by an opaque object</p>

	distance from the sound source increases		evaporation with temperatures			
<b>Core vocabulary</b>	Pitch, sound, vibrations, volume, medium, faint, insulator.	Predator, producer, consumer, prey, digestive system, mouth, tongue, teeth, stomach, small intestine, large intestine, carnivores, herbivores, decay, canines, molars.	States of matter, liquid solid, gas, evaporation, condensation, water cycle, particles, freeze, melt.		Habitat, environment, organism, classification key, vertebrate, invertebrate, mammal, bird, insect, fish, reptile, amphibian, predator, producer, consumer, prey.	Light source, opaque, translucent, transparent, shadow, reflect, protection.
<b>Working Scientifically</b>	<p>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.</p>					
By the end of Lower Key Stage 2 children as <b>Scientists</b> will:						
<ul style="list-style-type: none"> <li>• Have broadened their scientific view of the world around them.</li> <li>• Have explored, talked about, tested and developed ideas about everyday phenomena and the relationships between living things and familiar environments.</li> <li>• Have begun to develop their ideas about functions, relationships and interactions.</li> <li>• Be able to ask their own questions about what they have observed and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them.</li> <li>• Be able to observe changes over time, notice patterns, group and classify things, carry out simple comparative and fair tests and find things out using secondary sources of information.</li> <li>• Be able to draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.</li> <li>• Be able to 'Work scientifically'.</li> <li>• Be able to read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.</li> </ul>						

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	What holds us and moves us? Forces in Action	Do all animals have offspring? Animals including humans – Life Cycles	Where are we in our solar system? Earth and space	How much fun can you have in science? Science Week	How do animals grow and change?	How to find your way out? Electricity – Changing Circuits

					<b>Animals, including humans – Changes and Reproduction</b>	
	<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Describe the movement of the Earth and other planets relative to the sun in the solar system.</p> <p>Describe the movement of the moon relative to the Earth.</p> <p>Describe the sun, Earth and moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	See Science Week programme	Describe the changes as humans develop to old age.	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>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.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
<b>Core vocabulary</b>	gravity, friction, air resistance, upthrust, weight, measuring forces: Newton meter, Newtons (N), particles, surface area, push, pull, balance, mass	Reproduction, pollination, stigma, ovary, anther, stamen carpel.	Earth, sun, moon, relative, shadows, rotation, axis, night, day, sunrise, sunset, orbit, year, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Lunar Cycle	Experiment, scientific method, fair test, prediction, hypothesis, conclusion, results, data, record.	puberty, gestation period, reproduction, infant, embryo, adolescent, hormones, physical changes, sperm, menstruation.	Volts, series circuit, cell, bulb, (lamp) holder, buzzer, crocodile clip, leads, wires, component, resistance, voltage
<b>Working Scientifically</b>	<ul style="list-style-type: none"> <li>• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>• Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>• Using test results to make predictions to set up further comparative and fair tests.</li> <li>• 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.</li> <li>• Identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>					
<b>Year 6</b>	<b>How can we keep our bodies healthy? Healthy Bodies</b>	<b>How can we see the wonders of the world? Light</b>	<b>What makes an organism unique? Living things and their habitats – Classifying Organisms</b>	<b>How much fun can you have in science? Science Week</b>	<b>Why has the living world changed over time? Evolution and inheritance</b>	<b>Why does it change? Properties and changes of materials</b>



	<p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans</p>	<p>Recognise that light appears to travel in straight lines</p> <p>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</p> <p>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</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p> <p>Find out about a naturalist and animal behaviourist e.g. Jane Goodall</p>	<p>See Science Week programme</p>	<p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>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</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>Explain that some changes result in the formation of new materials, and that this</p>
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						kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda
<b>Core vocabulary</b>	Disease, deficient, food groups, protein, carbohydrate, minerals, fibre, fat, energy, sugar, growth, circulatory system, heart, muscles.	Light, shadow, travel, source, natural, man-made, reflect, straight line, eye, optic nerve, retina, pupil, lens, cornea, iris, mirror, surface, opaque, transparent, absorb.	Organisms, plants, animals, vertebrate, invertebrate, mammals, land, carnivore, herbivore, omnivore, plants, flowering, non-flowering, seed.	Experiment, scientific method, fair test, prediction, hypothesis, conclusion, results, data, record.	Inherit, offspring, environment, characteristics, adapted, variation, evolution, species, offspring, generation.	Material, dissolve, particles, solution, substance, react, reversible, irreversible, investigate, soluble, insoluble.
<b>Working Scientifically</b>	<ul style="list-style-type: none"> <li>• Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</li> <li>• Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</li> <li>• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>• Using test results to make predictions to set up further comparative and fair tests.</li> <li>• 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.</li> <li>• Identifying scientific evidence that has been used to support or refute ideas or arguments.</li> <li>• Evaluate and summarise.</li> </ul>					
By the end of Upper Key Stage 2 children as <b>Scientists</b> will:						
<ul style="list-style-type: none"> <li>• Have broadened their scientific view of the world around them.</li> <li>• Have explored, talked about, tested and developed ideas about everyday phenomena and the relationships between living things and familiar environments.</li> <li>• Have begun to develop their ideas about functions, relationships and interactions.</li> <li>• Be able to ask their own questions about what they have observed and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them.</li> <li>• Be able to observe changes over time, notice patterns, group and classify things, make reasonable predictions based on scientific evidence they have acquired, carry out comparative and fair tests and find things out using secondary sources of information.</li> <li>• Be able to draw simple conclusions and use correct scientific language, to talk about and write about what they have found out.</li> <li>• Record data and results using scientific diagrams, labelled drawings, classification keys, tables and a range of appropriate graphs.</li> <li>• Be able to 'work scientifically'.</li> <li>• Be able to read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.</li> </ul>						