



## Knowledge, Skills and Understanding Progression

**National Curriculum Requirements of Science at KS2**

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

**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.

**Our Intent**

At Stanley Park Junior School, we recognise the important role science plays in our everyday lives, today and for the future. Children have a natural curiosity about the world around them and we endeavour to develop skills associated with scientific enquiry in order to foster these interests. These include questioning, research, observation and evaluation.

Our science lessons involve children getting hands-on with experiments and investigations to ensure they are not only fulfilling their own curiosities and questions, but also enjoying their learning and increasing their enthusiasm for the subject and their own findings. The children are constantly encouraged to use scientific vocabulary that is built upon as topics are revisited during their primary school experience. This increases their confidence and prepares them for their next stage of education and life experiences.

All children will have equal opportunity to reach their full potential across the science curriculum regardless of their race, gender, cultural background, ability or of any physical or sensory disability.

		Autumn Term		Spring Term		Summer Term
	Main Theme Of Learning	ANIMALS INCLUDING HUMANS - TEETH	ELECTRICITY	SOUND	LIVING THINGS AND THEIR HABITATS	STATES OF MATTER
Disciplinary Knowledge	<b>Working Scientifically</b>	<ul style="list-style-type: none"> <li>asking relevant questions and using different types of scientific enquiries to answer them</li> <li>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> </ul>	<ul style="list-style-type: none"> <li>setting up simple practical enquiries, comparative and fair tests</li> <li>making systematic and careful observations</li> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>	<ul style="list-style-type: none"> <li>asking relevant questions and using different types of scientific enquiries to answer them</li> <li>setting up simple practical enquiries, comparative and fair tests</li> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>Using straightforward scientific evidence to answer questions or to support their findings.</li> </ul>	<ul style="list-style-type: none"> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>identifying differences, similarities or changes related to simple scientific ideas and processes</li> <li>Using straightforward scientific evidence to answer questions or to support their findings.</li> <li>Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> </ul>	<ul style="list-style-type: none"> <li>making systematic and careful observations and, taking accurate measurements using of equipment, including thermometers and data loggers</li> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>setting up simple practical enquiries, comparative and fair tests</li> <li>using results to draw conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>

Substantive Knowledge	<b>Biology</b>	<ul style="list-style-type: none"> <li>• Describe the simple functions of the basic parts of the digestive system in humans;</li> <li>• Identify the different types of teeth in humans and their simple functions</li> <li>• Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>			<ul style="list-style-type: none"> <li>• 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;</li> <li>• Give reasons for classifying plants and animals based on specific characteristics.</li> </ul>	
	<b>Chemistry</b>					<ul style="list-style-type: none"> <li>• Compare and group materials together, according to whether they are solids, liquids or gases</li> <li>• 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);</li> <li>• Identify the part played by evaporation</li> </ul>

						and condensation in the water cycle and associate the rate of evaporation with temperature.
	Physics		<ul style="list-style-type: none"> <li>• Identify common appliances that run on electricity</li> <li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>• 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</li> <li>• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>• Recognise some common conductors and</li> </ul>	<ul style="list-style-type: none"> <li>• Identify how sounds are made, associating some of them with something vibrating</li> <li>• Recognise that vibrations from sounds travel through a medium to the ear</li> <li>• Find patterns between the pitch of a sound and features of the object that produced it</li> <li>• Find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>• Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>		

			insulators, and associate metals with being good conductors.				
<b>Snap Science</b>	<b>Lesson topic and numbers</b>	<b>Where does all that food go?</b> 8 - How is food broken down? 3, 4 - different types of teeth 6 - animal food chains	<b>Switched on</b> 1 - What makes it work? Looking at appliances. 2, 3 - Simple circuits 5 - What does a switch do? 6 - Materials which conduct electricity	<b>Good Vibrations</b> 1, 2 - How sound is made 3, how sound travels to the ear 4, 5 - changing the volume of sound	<b>Who am I?</b> 1 - Who are you? How are things classified? 3, 4 - How to classify and group vertebrates and invertebrates	<b>In a State</b> 1 - Properties 2, 3, 4, 7, 8, 9 - Materials changing state 10, 11 - Evaporation and condensation	
<b>Vocabulary</b>	<b>New Vocabulary</b>	<b>Year 4</b>		<b>Year 4</b>		<b>Year 4</b>	
		Digestion, Oesophagus, Stomach, Intestines, Acid, Saliva, Incisors, Canines, molars	appliance, circuit, battery, bulb, switch, buzzer, motor, conductor, insulator	vibration, wave, volume, pitch, tone, insulation	Organism, habitat, vertebrate, invertebrate, predator, prey, herbivore, carnivore, omnivore	Solid, liquid, gas, melting, freezing, condensation, evaporation	
	<b>Review of Previously Learnt Vocabulary</b>	<b>Review Year 3</b>		<b>Review Year 3</b>		<b>Review Year 3</b>	
		Animal, Omnivore, Carnivore, Herbivore, Diet, Balance, Muscle, Skeleton, Bones, movement, support	<b>All new vocabulary</b>	<b>Light</b> Light, Dark, Shadow, Transparent, Opaque, Translucent, Material, Light source, Straight	<b>Living Things Year 2</b> Living, Dead, Habitat, Food chain, Sun, Warmth, Air, Food, Shelter	<b>Using everyday materials Year 2</b> squash, bend, twist, stretch, material, suitable,	