

Progression of Skills In Science Working Scientifically

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	<ul style="list-style-type: none"> Choose the resources they need for their chosen activities and say when they do or don't need help. Know about similarities and differences in relation to places, objects, materials and living things Make observations of animals and plants Explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Select and use technology for particular purposes Represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories Talk about the features of their own immediate environment and how environments might vary from one another Explain why some things occur and talk about changes 	<ul style="list-style-type: none"> Ask simple questions and recognise they can be answered in different ways Observe closely Use simple equipment Perform simple tests Identify and classify Use observations to suggest answers to questions Gather and record data 	<ul style="list-style-type: none"> Ask relevant questions Use different types of scientific enquiry to answer questions Set up simple practical enquiries Carry out comparative and fair tests Make systematic and careful observations Take accurate measurements (using standard units where appropriate) Use a range of equipment Gather, record, classify and present data in different ways Record findings using simple scientific language drawings, labelled diagrams, keys, bar chart tables Report on findings and results (oral and written) Use results to draw simple conclusions Make predictions Suggest improvements and raise further questions Identify differences, similarities or changes related to scientific ideas Use scientific evidence to answer questions or support findings 	<ul style="list-style-type: none"> Raise different kinds of questions Plan different types of scientific enquiry Recognise and control variables Take measurements using a range of equipment with increasing accuracy and precision Record data using scientific diagrams, labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further tests Carry out comparative and fair tests Report and present findings – draw conclusions, causal relationships, explanations (oral, written and presentations) Identify scientific evidence that has been used to support or refute ideas 			
Examples & guidance	<ul style="list-style-type: none"> Explore the world around them e.g. walks, visitors to talk about different jobs related to STEM (e.g. a vet to talk about animal care), local area work Ask questions about resources that they come into contact with/the world around them – I wonder/why Opportunities for child-led enquiry within provision to allow them to ask and answer their own questions. Grouping and comparison tasks to encourage them to make connections/identify differences. Look for seasonal changes and identify weather using age-appropriate vocabulary (it is a sunny day, it is cold, etc). Have opportunities to explore and use simple equipment within provision. Use their senses to talk about their experiences. Talk about what they are doing/what they have found 	<ul style="list-style-type: none"> Explore the world around them e.g. walks, longitudinal studies, study local area, understand how to take care of animals in their local environment Raise questions e.g. <i>Why is this material more bendy? Is a deciduous tree dead in winter?</i> Practical activities where they can experience different types of scientific enquiry Compare objects, materials and living things e.g. rough/ smooth, wings/no wings, compare materials found on different buildings Sort and group objects, materials and living things e.g. classify things according to whether they are living, dead or never alive Observe changes over time e.g. trees through the seasons, insects found in local habitat, plants growing, weather changing, animals growing (chicks, butterflies) Begin to notice patterns and relationships e.g. plants need light and water to grow Perform simple tests e.g. <i>What is the best (define best) material for an umbrella?</i> 	<ul style="list-style-type: none"> Start to make own decisions about the type of scientific enquiry needed to answer their questions e.g. Compare the effect of different factors on plant growth Observe how water is transported in plants (coloured water travelling up stem) Identify and group animals with and without skeletons and observe and compare their movement Compare and contrast the diet of different animals Looking for patterns in what happens to shadows Compare teeth of herbivores and carnivores Explore the effect of temperature on substance Observe and record evaporation over time Find patterns in sounds made by different instruments Make earmuffs/sound proof boxes Make and play own instruments Observe what happens to the circuit when more bulbs are added Recognise where a simple fair test is needed e.g. how far 	<ul style="list-style-type: none"> Select and plan the most appropriate type of enquiry needed to answer their questions e.g. Observe and compare life cycles of animals in local habitat and around the world Grow new plants from cuttings Observe changes in an animal over a period of time Record the length and mass of a baby as it grows Fair tests: Which material is the most effective for making a warm jacket? Which parachute design is the most effective? Which boat is the most water resistant? Observe and compare changes when burning different materials Research chemical changes and their impact such as Polymers/ the relationship between diet, exercise and health Compare the time of day at different places on Earth through direct communication Create models of the solar system or sundials Design and make products that use levers, gears, pulleys/ a periscope 			

		<ul style="list-style-type: none"> • Use simple equipment e.g. hand lenses, egg timers, ruler • Record simple data e.g. photos, videos, grouping, tables, charts • Use their senses to compare textures, sounds, smells • Talk about what they have found out e.g. describe conditions in different habitats • Communicate findings using simple scientific vocabulary e.g. rough, smooth, absorbent, waterproof 	<p>things move on different surfaces, which material is most absorbent? Strength of different magnets</p> <ul style="list-style-type: none"> • Make decisions about how to set up an enquiry • Use simple keys e.g. local plants and animals • Make decisions about what observations to take and for how long • Make decisions about the types of equipment needed e.g. use a hand lens or microscope to help identify and classify rocks • Learn how to use new equipment e.g. data loggers, thermometers • Find ways to improve what they have already done and raise new questions • Consider how secondary sources may help them answer questions when an investigation cannot e.g. research different food groups and design healthy meals, research the temperature at which different materials change state • Present data in different ways e.g. draw digestive system, record in table, draw a graph, venn diagram • Use relevant scientific language to discuss their ideas and communicate findings e.g. carnivores have canines because... 	<p>Investigate the relationship between light source, objects and shadows/ the effect of changing one component at a time in a circuit</p> <ul style="list-style-type: none"> • Recognise when and how to set up a fair test, decide which variables need to be controlled and why e.g. How does the duration of exercise affect heart rate – control type of exercise, person doing exercise, length of time doing exercise etc. • Make keys and other records e.g. classify living things and materials • Make decisions about observations needed, measurements to use and for how long, whether to repeat them • Choose the most suitable equipment (give children a range and they select what they think is most appropriate) and explain how to use it accurately • Make decisions about how to record data from a choice of familiar approaches • Find evidence that supports or refutes their ideas • Use results to identify when further tests and observations might be needed • Take repeated measurements/readings if needed, understand the value of this and where it might be useful to find an average • Use scientific language and illustrations to discuss, communicate and justify their scientific ideas • Talk about how scientific ideas have developed over time
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