







Working scientifically in science

	Plan	Do			Review	
	Ask questions and plan enquiry 	Set up enquiry 	Observe and measure 	Recording data 	Interpret and communicate results 	Evaluate 
Key Stage 1 working scientifically (NC)	Ask simple questions and recognise that they can be answered in different ways	Perform simple tests	Observe closely using simple equipment	Gather and record data to help in answering questions	Use their observations and ideas to suggest answers to questions. Identify and classify. Use appropriate scientific language to communicate ideas.	
Year 1 assessment opportunities	How do the things I plant change over time? Are all animals the same?	What are the five senses? How are ice and water similar and different? Which materials are best for curtains to block sunlight?	Do older children have bigger handspans? How are rocks the same and different? How do the things I plant change over time?	What are the main changes in each season? Can you identify and name some wild and garden plants in my local area? Are all animals the same?	What are the names for the parts of the body? What are the main changes in Autumn? What are the main changes in Winter? What are the main changes in Spring? What are the main changes in Summer? What are the main changes in each season? How are materials different? Is there a pattern with the materials used in schools to make objects? Can you identify and name different parts of a plant? Can you identify and name parts of a tree? How can we sort trees into different groups? Are all animals the same? How can we identify and classify animals? Can you name some animals that are carnivores? Can you name some animals that are herbivores? Can you name some animals that are omnivores?	
Year 2 assessment opportunities	What are mammals needs for survival? Can a material change back to its original shape? What do seeds need to grow?	Do plants grow healthier in the light or dark? Do bulbs and seeds grow quicker inside or outside over time?	What are fishes needs for survival? How is fabric used for different purposes? How can plants be sorted in different ways?	What are birds needs for survival? What are reptiles needs for survival? Do plants grow healthier in the light or dark?	What are amphibians needs for survival? What are wood, paper and cardboard suitable for? Which material are houses in Gainsborough made from? What are plastic and glass suitable for? What is metal suitable for? Who is Charles Macintosh?	

	<p>Do plants grow healthier in the light or dark?</p>		<p>What are the similarities and differences between tree parts and parts of other plants? What are the differences between a seed and a bulb? Do bulbs and seeds grow quicker inside or outside over time? Can you identify the life cycle of a butterfly?</p>	<p>What do plants need to grow? What different habitats in my local area? What conditions do woodlice prefer to live in? How are animals and plants linked to their diets?</p>	<p>What are the most common plants in Britain and where can you find them? How does the habitat of the Arctic compare with the habitat of the desert? How does the habitat of the ocean compare with the habitat of the woodlands? How would you group things to show which are living, dead or never been alive? Which offspring belongs to which animal? Can you identify the different parts of a human life cycle? Can you identify the parts of different mammals' life cycles? Can you identify the parts of different amphibians' life cycles? Are there patterns between the life cycles of different animals?</p>	
<p>Lower Key Stage 2 working scientifically (NC)</p>	<p>Ask relevant questions and use different types of scientific to answer them</p>	<p>Set up simple practical enquiries, comparative and fair tests.</p>	<p>Make systematical and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and data loggers.</p>	<p>Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labeled diagrams, keys, bar charts and tables.</p>	<p>Report on findings from enquiries, including oral and written explanations, displays or presentations for results and conclusions. Identify differences, similarities or changes related to simple scientific ideas and processes.</p>	<p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Use straightforward scientific evidence to answer questions or to support their findings</p>
<p>Year 3 assessment opportunities</p>	<p>Does the number of seeds within one pot affect the growth of plants? What is the function of the flowers/leaves/roots and stem?</p>	<p>Which soil absorbs the most water? Does the distance between the light source and the object affect the size of the shadow? Does the number of seeds within one pot affect the growth of plants? How is water transported within a plant?</p>	<p>What are the names of different rocks and how are they different? Which rock would be the best fit for a new paved area in school? Which soil absorbs the most water? How are humans able to see objects? Can everything make a shadow?</p>	<p>Do males have larger skulls than females? How does the angle that your elbow/knee is bent affect the circumference of your upper arm/thigh? What are the names of different rocks and how are they different? What rocks can you identify in the local area?</p>	<p>What bones can you identify in an amphibian, or reptile, or fish, or bird skeletons? How can we classify animals based on their skeletons? Are all types of diets the same? How did chemist, Marie Maynard Daly, use</p>	<p>What are the different parts that make up a skeleton? What effects do different food groups have on the body? How has human activity caused soil loss and what is the impact on living things? Which soil absorbs the most water?</p>

		<p>How does the material on the ramp affect the distance a car travels? What is the strongest magnet? Are all metals magnetic?</p>	<p>Does the number of seeds within one pot affect the growth of plants?</p>	<p>What are the different types of soil? Which pair of sunglasses will be best to protect our eyes? What are reproductive parts in plants? How does the material on the ramp affect the distance a car travels?</p>	<p>science to help us improve our diets? How are fossils formed? What are the key stages of fossilisation? How would you organise these light sources into natural and artificial sources? What is the process of germination? Does the length of the wings on a seed affect how long it takes to fall to the ground? How can we describe a force? Can you group materials that are magnetic and non-magnetic? Can you identify which poles on a magnet attract and repel?</p>	<p>What is the function of the flowers/leaves/roots and stem? What is the process of pollination? What are the stages in a plant's life cycle? How does the material on the ramp affect the distance a car travels?</p>
<p>Year 4 assessment opportunities</p>	<p>What is condensation and evaporation? How are sounds made? Why do we have different teeth? How is a build up of plaque formed?</p>	<p>How does the temperature of the water affect the time it takes for ice to melt? How does the temperature affect the time it takes for water to evaporate? How does the distance from the sound source affect the volume of the drum? How do teeth change when they are left in different liquids?</p>	<p>What is a thermometer and stop watches used for? How does the distance from the sound source affect the volume of the drum?</p>	<p>How can we group different animals? What is a vertebrate and invertebrate? How can we classify animals using a classification key? How can we group and classify plants using a classification key? What living things do we have in our local area? What living things do we have in our local area? Can you identify and classify animals that live in a rural and urban habitat?</p>	<p>What living things do we have in our local area? What impacts do humans have on different habitats? Which materials are more difficult to categorise as solids, liquids or gases? How does the temperature of the water affect the time it takes for ice to melt? How does the temperature affect the time it takes for water to evaporate? What part does evaporation and</p>	<p>Which string telephone works best and why? How does the distance from the sound source affect the volume of the drum? Can you identify what has gone wrong in the circuit? How do teeth change when they are left in different liquids? What is a food chain?</p>

				<p>What are the similarities and differences between a solid, liquid and a gas? How does the temperature of the water affect the time it takes for ice to melt? How does the temperature affect the time it takes for water to evaporate? How do the different parts of the ear allow us to hear sound? How can we group electrical devices based on where the electricity comes from? What is an electrical circuit? Can you construct your own food chain?</p>	<p>condensation play in the water cycle? Which string telephone works best and why? Does it conduct electricity? Who actually invented the light bulb, Thomas Edison or Joseph Swan? Why do animals have different type of teeth? What are the names for all the organs involved in the digestive system and what are their function?</p>	
Lower Key Stage 2 working scientifically (NC)	<p>Plan different types of scientific enquiries to answer their own questions, including recognising and controlling variables where necessary.</p>	<p>Use test results to make predictions to set up further comparative and fair tests.</p>	<p>Take measurements, using a range of scientific equipment with increasing accuracy and precisions, taking repeat readings where appropriate.</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>	<p>Report and present findings from enquiries including conclusions and causal relationships, in oral and written forms such as displays and other presentations, using appropriate scientific language.</p>	<p>Explain degree of trust in results. Identify and evaluate scientific evidence that has been used to support or refute ideas or arguments.</p>
Year 5 assessment opportunities	<p>Which material is the thermal insulator? Can you identify all the stages in the human life cycle? Which plant cutting produces the tallest plant?</p>	<p>How does the area of a parachute affect the time it takes to fall? Which material is the thermal insulator? Which plant cutting produces the tallest plant?</p>	<p>How does the area of a parachute affect the time it takes to fall? Does the shape of an object affect the time it takes to fall to the bottom of a measuring cylinder filled with water?</p>	<p>Is there a pattern between the size of the planet and the time it takes to travel round the sun? What is an electrical conductor and an electrical insulator?</p>	<p>Which type of shoe creates the largest force of friction when sliding over a surface? How does the area of a parachute affect the time it takes to fall? How do levers, pulleys and gears work to allow a</p>	<p>How has the idea of gravity changed over time? What does it mean that 'Earth rotates around its axis'? Why do we have day and night?</p>

		<p>Can you identify substances that are soluble and insoluble?</p>	<p>Which material is the thermal insulator? How can you separate a soluble solid from a liquid?</p>	<p>Is there a pattern between the age of a child and their height? Are there patterns linking gestation periods and lifespans? What are the main stages of the life cycle of an amphibian and insect? What are the names and functions of the reproductive parts in plants? Can you identify which mixtures can be separated by sieving and filtering?</p>	<p>smaller force to have a greater effect? What is the solar system? What are the features of the planets in the Solar System? Can you identify all the parts of the solar system? How have key people and projects changed the ideas about the Earth and space have changed over time? How long does the moon take to orbit the Earth and why? How can you group materials based on their properties? What are the key changes that happen to girls and boys during puberty? Are there patterns linking gestation periods and lifespans? What are the main stages of the life cycle of a mammal? What are the life cycles of animals similar and how are they different? What is sexual reproduction in mammals? What is pollination? Which changes are reversible? Which changes are irreversible?</p>	<p>What are the key changes that happen in humans during adulthood and late adult hood? What is asexual reproduction?</p>
<p>Year 6 assessment opportunities</p>	<p>How does the voltage in a circuit affect the</p>	<p>How does the voltage in a circuit affect the</p>	<p>How does the voltage in a circuit affect the</p>	<p>How can we identify, group and classify animals?</p>	<p>Who was Carl Linnaeus?</p>	<p>What are the characteristics of living things?</p>

	<p>brightness of a bulb and the loudness of a buzzer? How does the distance from a light source affect the size of the shadow? What are the key functions of the circulatory system?</p>	<p>brightness of a bulb and the loudness of a buzzer?</p>	<p>brightness of a bulb and the loudness of a buzzer? How does the distance from a light source affect the size of the shadow?</p>	<p>How can we identify, group and classify plants? How do I draw a scientific diagram of a circuit? What is a complete/incomplete circuit? What happens to a circuit when we add more components? Why are shadows the same shape as the objects that cast them? How do humans see objects? How does the distance from a light source affect the size of the shadow? What are the different components of blood and what are their functions? What is oxygenated and deoxygenated blood? What are some examples of characteristics in humans and animals?</p>	<p>How have ideas of electricity changed over time? Can you identify and name different parts of the eye? How have ideas of light developed over time? What are the different components of blood and what are their functions? How does my heart work? Where does blood flow through the heart? What is oxygenated and deoxygenated blood? What is the circulatory system and how does it work? Can you identify and compare variations between the same species and different species? How do animals adapt to suit their environment? What is evolution? What happened when Charles Darwin visits Galápagos Islands? How have fossils changed over time and does this provide evidence for evolution? Who was Mary Anning?</p>	<p>What do different microorganisms do and are they harmful? What is refraction? How do plants adapt to suit their environment? How have fossils changed over time and does this provide evidence for evolution?</p>
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