

# Hatherley Infant School

## Teaching and learning intent for Science

As scientists, we are curious about the world around us and we use our scientific skills confidently to investigate and to increase our knowledge and understanding. We show respect for living things and the physical environment and we are learning to think carefully about our findings

Year R scientific skills progression	Y1/2	Year 1 scientific skills progression	Year 2 scientific skills progression
<ul style="list-style-type: none"> <li>○ Make simple <b>observations</b> through a variety of means including magnifiers and photographs.</li> <li>○ Observe changes and notice differences</li> <li>○ Find ways to solve problems and <b>test</b> their ideas</li> <li>○ <b>Creating their own environments</b> through small world play.</li> <li>○ <b>Describing</b> what happens for example when foods melt, water freezes, cooking and baking.</li> <li>○ <b>Record</b> findings by drawing, writing, making a model or photographing.</li> <li>○ <b>Looking after living things</b>- tending garden areas and taking care of wildlife in outdoor areas.</li> <li>○ Make links and <b>notice patterns</b> in their experiences.</li> <li>○ <b>Choose the resources</b> they need for their chosen activities.</li> <li>○ <b>Handle equipment</b> and tools safely.</li> <li>○ <b>Develop their own narratives</b> by connecting ideas or events.</li> </ul>	<p><b>Working Scientifically</b> Children will be taught to use these practical scientific methods, processes and skills.</p>	<ul style="list-style-type: none"> <li>○ They will begin to <b>ask simple questions</b> and start to recognise that they can be answered in different ways.</li> <li>○ They will learn how to <b>observe closely</b> and to <b>use simple equipment</b>.</li> <li>○ The children will learn how to <b>perform simple tests</b>.</li> <li>○ They will begin to <b>identify and classify</b></li> <li>○ Using their <b>observations and ideas</b> they will begin to suggest answers to questions.</li> <li>○ The children will learn to <b>gather and record their data</b> to help them answer questions.</li> <li>○ They will begin to <b>use scientific language</b>.</li> <li>○ Children will begin <b>to notice and describe patterns and relationships</b> between scientific ideas as their understanding develops.</li> </ul>	<ul style="list-style-type: none"> <li>○ They will <b>ask simple questions</b> and recognise that they can be answered in a range of different ways.</li> <li>○ They will <b>observe closely</b> and <b>use simple equipment</b> with confidence.</li> <li>○ The children will <b>perform simple tests</b> with growing independence.</li> <li>○ They will <b>identify and classify</b></li> <li>○ They will use their <b>observations to suggest answers</b> to questions.</li> <li>○ The children will use their <b>data gathering skills</b> to help them answer questions.</li> <li>○ They will use appropriate <b>scientific vocabulary</b>.</li> <li>○ Children will become confident when <b>describing patterns and relationships</b> between scientific ideas as their understanding is embedded.</li> </ul>

<b>Understanding The world</b>		<b>Year 1 skills progression</b>	<b>Year 2 skills progression</b>
<ul style="list-style-type: none"> <li>• Children comment and ask questions about aspects of their familiar world or the natural world</li> </ul> <p><i>Eg Why is it getting colder? What makes the ice melt? Where has the puddle gone? What will happen to the bread when we put it in the hot oven? Why do leaves fall off trees?</i></p> <ul style="list-style-type: none"> <li>• They can talk about some of the things they have observed such as plants, animals and natural objects.</li> </ul> <p><i>Eg Observing mini beasts in our outside area. Growing a bean plant in spring. What do plants and animals need to grow?</i></p> <ul style="list-style-type: none"> <li>• They talk about why things happen and how things work.</li> </ul>	<b>Living things and their habitats</b>		<ul style="list-style-type: none"> <li>• <b>Explore and compare</b> the differences between things that are living, dead and have never been alive. <i>Eg Compare conditions for life on earth to that of the moon</i></li> <li>• <b>Identify</b> that most living things live in habitats to which they are suited. <i>Eg Consider how animals have adapted to their surroundings</i></li> <li>• Consider how different types of habitats provide for the basic needs of animals and plants and how they depend on each other. <i>eg compare hot and cold climates</i></li> <li>• <b>Identify and name</b> a variety of plants and animals in their habitats including micro habitats. <i>Eg woodland, garden</i></li> <li>• <b>Describe</b> how animals obtain their food from plants and other animals. <i>Eg make observations about a wood louse colony living under a tree stump</i></li> <li>• Understand a simple food chain and <b>identify and name</b> different food sources <i>Explore food chains</i></li> </ul>
<p><i>Which material will make the strongest bridge for the three billy goats? Would a straw house fall on the little pig if the wind blows? How do animals keep warm in winter? How do we keep warm when it is cold?</i></p> <ul style="list-style-type: none"> <li>• They think about cause and effect <i>What happens when the gingerbread man goes in the water? Would a different liquid help him to stay crispy? Why did the enormous turnip grow so big?</i></li> </ul>	<b>Plants</b>	<ul style="list-style-type: none"> <li>• Children will <b>identify and name</b> a variety of common wild and garden plants, including deciduous and evergreen trees. <i>Eg which plants and trees can we find growing in our school grounds?</i></li> <li>• They will be able to identify and <b>describe</b> the basic structure of a variety of common flowering plants including trees. <i>Eg Investigate plant growth Examine the structure of plant tubers such as potatoes and carrots</i></li> </ul>	<ul style="list-style-type: none"> <li>• Children will <b>observe and describe</b> how seeds and bulbs grow into mature plants. <i>Eg investigate spring flowering bulbs</i></li> <li>• They will find out and describe how plants need water, light and a suitable temperature to stay healthy. <i>Eg investigate plant growth by designing their own test</i></li> </ul>
<ul style="list-style-type: none"> <li>• They develop an understanding of growth, decay and changes over time.</li> </ul>		<b>Year 1 skills progression</b>	<b>Year 2 skills progression</b>

<p><i>Eg observing what happens as chicks hatch or caterpillars pupate. Noticing wood rotting, leaves composting and seeds germinating. Watching out for seasonal changes- collecting fallen leaves, observing sticky buds, sitting under the shade of a tree in full leaf.</i></p> <ul style="list-style-type: none"> <li>• They show concern for living things and the environment. <i>Taking care of animals and plants they notice or find. Disposing of litter carefully when we are outside.</i></li> </ul> <p><b>Early Learning Goal</b></p> <ul style="list-style-type: none"> <li>• Children will look closely at similarities and differences in relation to objects, materials and living things. <i>Look closely at patterns in the natural world- Eg bark, stripes on leaves, petals and shapes of flowers, spots on ladybirds, colours on a feather.</i></li> <li>• They make observations of animals and plants and explain why some things occur. They can talk about changes they see. <i>Eg Describe what happens to a caterpillar when it changes to a pupa. Look closely at a flowering plant as it grows and describe the changes they see. What's different about where the little red hen lives and where you live?</i></li> </ul>	<p style="text-align: center;"><b>Everyday Materials</b></p> <ul style="list-style-type: none"> <li>• Children will <b>distinguish between</b> an object and the material from which it is made. <i>Eg materials hunt around school</i></li> <li>• They will <b>identify and name</b> a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</li> <li>• They will <b>describe</b> the simple physical properties of a variety of every day materials. <i>Eg explore a selection of materials and describe their appearance.</i></li> <li>• They will <b>compare and group</b> together a variety of every day materials on the basis of their physical <i>properties</i>. <i>Eg investigate a material most suitable for a bear's raincoat; conduct simple tests.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Children <b>will identify and compare</b> the suitability of a variety of every day materials including wood, plastic, glass, brick, rock, paper and cardboard for particular uses. <i>Eg investigate how the properties of certain materials influence their use. Why is wood useful for furniture making? What properties do your PE clothes have that make them suitable for wearing for gymnastics?</i></li> <li>• They will <b>compare</b> how things move on different surfaces</li> <li>• They will <b>investigate</b> how the shapes of solid objects made from some materials can be changed by squashing, bending twisting and stretching. <i>Eg investigate the effects of heat on certain materials</i></li> </ul>	
	<p style="text-align: center;"><b>Animals including humans</b></p> <ul style="list-style-type: none"> <li>• Children will learn <b>to identify and name</b> a range of common animals including fish, amphibians, reptiles, birds and mammals. <i>Eg animal facts</i></li> <li>• They will identify and name a variety of common animals that are carnivores, herbivores and omnivores. <b>Label, sort animals into categories</b></li> <li>• They will <b>describe and compare</b> the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) <i>Labelling, sorting and categorising animals</i></li> <li>• They will identify, name, <b>draw, and label</b> the basic parts of the human body and say which part of the body is associated with each of the senses. <i>Eg use their senses to perform simple tests</i></li> </ul>	<ul style="list-style-type: none"> <li>• Children will <b>notice</b> that animals including humans, have offspring that grow into adults. <i>Where do we come from? How do some animals reproduce? Eg describing changes</i></li> <li>• They <b>will find out about and describe</b>, the basic needs of animals, including humans, for survival (water, food and air) <i>What do we need to survive?</i></li> <li>• They <b>will describe the importance</b> for humans of exercise, eating the right amounts of different types of food and hygiene. <i>How do we stay healthy? Eg to observe and describe the effects of exercise on the body</i></li> </ul>	
	<p style="text-align: center;"><b>Seasonal Changes</b></p> <ul style="list-style-type: none"> <li>• Children will <b>observe changes</b> across the four seasons.</li> <li>• They will <b>observe and describe</b> weather associated with the seasons and how day length varies. <i>eg Look for signs of seasonal change in our school grounds. Make weather observations.</i></li> </ul>		
	<b>Year 1 skills progression</b>	<b>Year 2 skills progression</b>	

	<b>Scientists and Investigators</b>	<ul style="list-style-type: none"> <li>● Conduct simple tests of enquiry related to the work of selected scientists and investigators.</li> </ul> <p><i>Eg investigate the best material to make ear muffs inspired by the invention of Chester Greenwood in 1873</i></p>	<ul style="list-style-type: none"> <li>● Study the inventions of famous scientists such as John Dunlop and Charles Mackintosh to identify and compare the suitability of everyday materials</li> </ul>
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**Key Vocabulary for working scientifically. In order to develop our children's scientific vocabulary and understanding, we will pre teach new vocab and revisit vocab learned already.**

classify observe explore investigate categorise sort record notice identify describe record  
 diagram question answer data compare

*See vocabulary progression*