Year 1 Science

Block	Key NC Science Objectives	Key Science Activities and Extended Writing Opportunities
Autumn 1 – Animals including Humans **Ourselves** Learn fascinating things about your bodies and senses in this varied and creative block. Observe changes over time and think about the question how do we change as we get older? Collect data, look for patterns and carry out investigations.	**Animals, including humans (1AH)** iv) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense **Working Scientifically (KS1 WS)** i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions	• Share baby photos together as a class. • Observe changes over time between the baby photos and current ones **(Exploring)** • Consider and notice patterns between foot and hand size. • Together, make a class wall display of Our Body Patterns, with photographs and measurements, to show their understanding and learning **(Pattern seeking)**. • Talk to each other about what makes a difference to how well they can hear a whistle when it is blown. • Investigate ideas by going outside and asking and extending questions and noticing patterns **(Pattern seeking, exploring over time)**. • Identify the differences between fruit and vegetables using our senses. • Classify fruit and vegetables into different groups **(Sorting, classifying and identifying).** • Go outside to explore the school grounds using different senses. • Blindfold each other to find out what it is like without the sense of sight **(Exploring)**. • Accept a challenge to produce sensory items for a local community group. • Classify different stimulating items into sensory groups on a sensory board and in sensory bottles for a local community group **(Sorting, classifying and identifying).** **Extended writing opportunities** **Labels, lists and signs**: Make a sign to go with the final sensory board. **Letters**: Write a letter to the community explaining the rationale behind the sensory board. **Stories with repeating patterns**: use the items on the sensory board as prompts to orally retell a familiar story before writing it down.

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Year 1 Science

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Autumn 2 - Animals and Humans **Our Pets** Look carefully at the behaviour and habitats of creatures you find in the school grounds. Learn about a variety of common animals with a particular focus on the pets we keep and how we keep them happy and healthy.	**Animals, including humans (1AH)** i) identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals ii) identify and name a variety of common animals that are carnivores, herbivores and omnivores iii) describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) **Working Scientifically (KS1 WS)** i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions	• Use observation skills to look closely at creatures in the school grounds. • Make a visual record of their observations in drawings and photographs, and annotate to show their understanding and learning **(Pattern seeking).** • Observe and consider what type of conditions a woodlouse might prefer. • Set up different colonies in the classroom based on what they know about their habitats. • Observe the woodlice over a period of time and record the results **Exploring, Observing over time)** • Discuss the problem: which paper will be best for the job of mopping up the puppy accident? • Consider an investigation to test the different types of paper **(Fair Test, Problem Solving)**. • Understand that animals' features vary and why some animals make good pets and others do not. • Talk about and design a good pet **(Researching and analysing secondary sources).** • Consider what is involved in keeping a real pet happy and healthy. • Observe different pets in the classroom. • Study their similarities and differences and what features they have in common that make them good pets **(Exploring).** **Extended writing opportunities** **Labels, lists and signs**: make a list of all of the things you need and the things you have to do, in order to look after a particular pet. **Information text**: explain to a new owner how they should look after their new pet.

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Year 1 Science

Block	Key NC Science Objectives	Key Science Activities and Extended Writing Opportunities
Spring 1 – Everyday Materials **Let's Build** Explore different materials and sort them into groups before writing songs based on their properties! Consider what it would be like if the tables were made of jelly or the chairs were chocolate! Then recreate the story of the three little pigs and predict what will happen to their houses.	**Everyday materials (1EM)** i) distinguish between an object and the material from which it is made ii) identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock iii) describe the simple physical properties of a variety of everyday materials iv) compare and group together a variety of everyday materials on the basis of their simple physical properties **Working Scientifically (KS1 WS)** i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions	• Identify and name the materials found in the classroom, using the scientific words: wood, plastic, glass and metal. • Sort the objects according to their properties (what material is this made of? What is its useful property?). • Play Material Snap in pairs, placing an object each on the table and seeing if their properties are the same. • **(Sorting, classifying and identifying).** • Explore a variety of different magnets and objects (both magnetic and non-magnetic), including paperclips in jars/bowls of water. Consider challenges such as: Can you get the paperclip out of the water without getting your hands wet? Are different magnets able to hold the same amount of paper clips? • Create games in the classroom using the magnets, such as a fishing game, magnetic maps (magnet under a piece of paper and a paperclip), moving magnets without touching them, strength test with different magnets **(Exploring, problem solving)** • Sort objects in the classroom according to these criteria: hard, soft, stretchy, stiff, bendy/floppy **(Sorting, classifying and identifying).** • Listen to the story of three pigs who didn't choose the right materials and recreate using straw, twigs, bricks and a hairdryer **(Exploring, problem solving)**. **Extended writing opportunities** **Instructions**: Imagine you are one of the three little pigs. Write instructions to one of the other pigs explaining how to make a successful alternative house. **Stories with familiar settings**: rewrite the ending of the three little pigs with the new, improved house that you have designed. How does this change the ending?

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Year 1 Science

Block	Key NC Science Objectives	Key Science Activities and Extended Writing Opportunities
Spring 2 – Everyday Materials **Marvellous Materials** In this block, explore a range of materials suitable for fixing a broken umbrella and test them using pipette to simulate raindrops. Working with play figures frozen in ice, devise an investigation to release them. Explore puddles and observe how they change. Think carefully about what is happening: can you explain why a puddle changes?!	**Everyday Materials (1EM)** i. distinguish between an object and the material from which it is made ii. identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock iii. describe the simple physical properties of a variety of everyday materials iv. compare and group together a variety of everyday materials on the basis of their simple physical properties **Working Scientifically (KS1 WS)** i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment iii) performing simple tests iv) identifying and classifying v) using their observations and ideas to suggest answers to questions vi) gathering and recording data to help in answering questions	• Rise to the challenge of fixing a torn umbrella, using materials they select for their useful properties. • Discuss selection of materials for fixing the umbrella: what properties does this material have that makes it a good choice? **(Problem solving)** • Investigate the materials for their useful properties, considering questions such as: how can we know that this material will not let the rain through? How can we test it? • Use pipettes to simulate raindrops and experiment with the different materials **(Observing over time, problem solving).** • Observe a block of ice and record the changes. • Devise an investigation to melt the ice quickly or slowly. **(Exploring, problem solving, observing over time)**. • Create puddles in shallow containers or plastic sheets. • Drawing chalk lines around the puddles at different times, measure and observe the changes and make predictions. • Create a simple chart, or series of diagrams, to show how the puddles change. **(Exploring, observing over time)**. **Extended writing opportunities** **Recount**: Write an account of puddle day. **Letter**: Write a letter to an alien visitor to Earth explaining why puddles appear, change and disappear.

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Year 1 Science

Block	Key NC Science Objectives	Key Science Activities and Extended Writing Opportunities
Summer 1 – Seasonal Changes **Wonderful Weather** Think about what you already know about weather, look at weather forecasts and video your own school weather forecasts; do weather observations and make collages about the seasons; have fun with shadows; make a class weather station that can measure rainfall, wind direction and temperature.	**Seasonal Changes (1SC)** i) observe changes across the four seasons. ii) observe and describe weather associated with the seasons and how day length varies. **Working scientifically (KS1 WS)** i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment. iii) performing simple tests. iv) identifying and classifying v) using their observations and ideas to suggest answers to questions	• Go outside and look at the weather, observe the temperature and wind. • Suggest how to dress a teddy or doll appropriately for the current weather conditions **(Exploring, pattern seeking).** • Take the temperature outside in the morning and the afternoon. • Record these observations in the classroom and discuss the changes **(Exploring, pattern seeking).** • Play shadow tag and look at the shape of shadows. • Consider the questions: Does my shadow always look like that? What was it like first thing in the morning? Is it better to play shadow tag at lunchtime or after school? **(Exploring, researching and analysing secondary sources)** • Track a shadow by observing and measuring it over time. • Make a bar chart of paper strips of shadow length plotted against time intervals. • Set the rainfall gauges up in the playground and record the rainfall over a period of time**.** • Make a windsock to measure wind direction and a wind vane to measure the direction of the wind **(Observing over time, pattern seeking)**. **Extended writing opportunities** **Information text**: Write a weather report describing the weather you have recorded. **Labels, lists and signs**: Make notices and signs to go with your class weather station.

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Year 1 Science

Block	Key NC Science Objectives	Key Science Activities and Extended Writing Opportunities
Summer 2 – Plants **What's Growing in our Gardens?** Outdoor learning and a range of art and design activities will help you connect with the world of plants. From fruit and vegetables to flowers and trees, you will understand and observe them and even grow your own seeds and keep them healthy.	**Plants (1P)** i) identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. ii) identify and describe the basic structure of a variety of common flowering plants, including trees. **Working scientifically (KS1 WS)** i) asking simple questions and recognising that they can be answered in different ways ii) observing closely, using simple equipment. iii) performing simple tests. iv) identifying and classifying v) using their observations and ideas to suggest answers to questions	• Go outside to the school garden to look at plants. • Make a map of the garden plot, identifying the plants and predicting what they will turn into when they are fully grown. • In groups, prepare tubs and plant chitted potatoes **(Exploring).** • Design and set up a garden centre in the classroom. • Plant a bean in a jar and seeds in a bag and keep them in the classroom garden centre **(Observing over time).** • Create large pollen sculptures out of clay and display, along with facts, in the classroom **(Exploring)** • Find flowers outside in the playground and carefully examine them with a magnifying glass. Sketch and photograph them. • Make a large model of the inside of a flower using junk modelling materials **(Exploring, researching and analysing secondary sources)**. • Do bark and leaf rubbings using paper and wax crayons. • Understand the basic structure of a tree and what goes on inside. • Represent the inside of a tree through playground art, using cloths, chalk and found materials. **(Exploring)** **Extended writing opportunity** **Labels, lists and signs**: Draw a diagram of the school garden with labels. Make signs for the school garden. **Labels, lists and signs**: Make a large model of the inside of a flower and label the main parts. **Information text**: Explain the main parts of a flower and their purpose.

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Hamilton Science; Types of Investigations

'Working Scientifically' is the continuous area of study in the National Curriculum for Science in England. This aims to ensure that children have greater exposure to a range of enquiry types and that they recognize when the various forms of enquiry are taking place. This is to enable them to decide for themselves which type to use in order to tackle the question they are investigating. The following types of enquiry are included in Hamilton Science planning.

Exploring:

Discovering what happens through play and exploration, e.g. what happens when you add water to fabric?

Observing over time:

Often linked to exploring but with a time variable included, e.g. using a thermometer to observe temperature changes of water.

Sorting, classifying and identifying:

Putting things into groups based on their characteristics, e.g. in how many ways can you sort these materials?

Fair test:

Used when we can control all the variables except the one we are changing, e.g. which 'towel' material will absorb the most water?

Pattern seeking:

Used when there are too many variables to control and so a true fair test is not possible, e.g. do some people have stronger muscles because they use them more?

Problem solving:

Using the science we know to solve a problem, e.g. Using what you have learned about how sounds are made and the loudness of sounds made by different materials, design an effective bird scarer that uses wind chimes or similar.

Researching and analysing secondary sources

Using secondary sources to help answer scientific questions that cannot be answered through practical investigations, e.g. which materials are biodegradable?

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