

Springcroft Primary School

Year 1

Science Programme of Study

Inc. Core-Standard Coverage of Enquiry Types and 'Working Scientifically' Skills:

Enquiry Types	
Research Using Secondary Sources	✓✓✓✓
Observing Over Time	✓✓
Pattern Seeking	✓✓
Identifying, Classifying and Grouping	✓✓✓
Comparative and Fair Testing	✓✓✓

Working Scientifically	
Conducting Secondary Research	✓✓✓✓
Asking Enquiry Questions	✓
Making Predictions and Hypothesising	✓
Setting up an Investigation	✓✓
Observing and Measuring	✓✓
Recording Data	✓✓✓
Interpreting and Communicating Results	✓
Evaluating and Questioning Further	✓

Aims

‘The National Curriculum for Science’ aims to ensure that all pupils:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

Scientific Knowledge and Conceptual Understanding:

The programmes of study describe a sequence of knowledge and concepts. While it is important that pupils make progress, it is also vitally important that they develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. Insecure, superficial understanding will not allow genuine progression: pupils may struggle at key points of transition (such as between primary and secondary school), build up serious misconceptions, and/or have significant difficulties in understanding higher-order content.

Pupils should be able to describe associated processes and key characteristics in common language, but they should also be familiar with, and use, technical terminology accurately and precisely. They should build up an extended specialist vocabulary. They should also apply their mathematical knowledge to their understanding of science, including collecting, presenting and analysing data. The social and economic implications of science are important but, generally, they are taught most appropriately within the wider school curriculum: teachers will wish to use different contexts to maximise their pupils’ engagement with and motivation to study science.

The Nature, Processes and Methods of Science:

‘Working Scientifically’ specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how ‘working scientifically’ might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. ‘Working Scientifically’ will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

Year 1– Science Programme of Study - *Timelines of Learning (Knowledge and Understanding)*

Unit	Prior learning...	What I will learn now...	What I don't need to learn yet...
Seasonal Change	<p>Pupils will already know about / have been taught to:</p> <ul style="list-style-type: none"> Recognise signs of Autumn, Winter, Spring and Summer. Understand what clothes are needed for each season. Compare nature walks during different seasons. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Observe changes across the four seasons <u>(1-Seasonal Changes)</u> Observe and describe weather associated with the seasons and how day length varies. <u>(1-Seasonal Changes)</u> 	<p>In Year 3 pupils will be taught to:</p> <ul style="list-style-type: none"> Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. <u>(3-Light)</u> <p>In Year 5 pupils will be taught to:</p> <ul style="list-style-type: none"> Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <u>(5-Earth and Space)</u> <p>In Key Stage 3 pupils will be taught about:</p> <ul style="list-style-type: none"> The seasons and the Earth's tilt, day length at different times of year, in different hemispheres.
Everyday Materials	<p>Pupils will already know about / have been taught to:</p> <ul style="list-style-type: none"> Recognise and test waterproof materials (Floating and sinking- junk modelling project to make boats to test) 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Distinguish between an object and the material from which it is made <u>(1-Everyday materials)</u> Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock <u>(1-Everyday materials)</u> Describe the simple physical properties of a variety of everyday materials <u>(1-Everyday materials)</u> Compare and group together a variety of everyday materials on the basis of their simple physical properties <u>(1-Everyday materials)</u> 	<p>In Year 2 pupils will be taught to:</p> <ul style="list-style-type: none"> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses <u>(2-Everyday materials)</u> Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <u>(2-Everyday materials)</u>
Animals inc. Humans	<p>Pupils will already know about / have been taught to:</p> <ul style="list-style-type: none"> Manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently Describe the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. Understand the importance of conservation to protect animals from extinction. Identify Carnivores, herbivores and omnivores. Know the difference between mammals, reptiles, and birds. Discuss what animals need to survive. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Identify and name a variety of common animals including fish, amphibians, reptiles, mammals and birds <u>(1-Animals including Humans)</u> Identify and name a variety of common animals that are carnivores, herbivores and omnivores <u>(1-Animals including Humans)</u> Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, and mammals, including pets) <u>(1-Animals including Humans)</u> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>(1-Animals including Humans)</u> 	<p>In Year 2 pupils will be taught to:</p> <ul style="list-style-type: none"> Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. <u>(Y2-Animals including Humans)</u> <p>In Year 6 pupils will be taught to:</p> <ul style="list-style-type: none"> 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 <u>(6-Living things and their Habitats)</u> Give reasons for classifying plants and animals based on specific characteristics. <u>(6-Living things and their Habitats)</u>
Plants	<p>Pupils will already know about / have been taught to:</p> <ul style="list-style-type: none"> Explain the life cycle of a plant. Discuss what plants need to survive. Care for a plant. 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees <u>(1-Plants)</u> Identify and describe the basic structure of a variety of common flowering plants, including trees. <u>(1-Plants)</u> 	<p>In Year 2 pupils will be taught to:</p> <ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants <u>(2-Plants)</u> Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. <u>(2-Plants)</u>

Year 1– Science Programme of Study - *Timelines of Learning (Working Scientifically)*














	Plan		Do			Review		
Stages	Recognise the best type of enquiry to answer a question	Choose equipment, select tests, use secondary sources to decide how to obtain accurate observations and measurements	Obtain observations and measurements using equipment and/or secondary sources	Record observations and measurements	Present observations and measurements	Draw conclusions and make explanations	Evaluate the data collected	Evaluate the process used (including next steps)
Prior learning... End of EYFS (ELG - prior to 2021)		I choose the resources I need for a chosen activities and say when I do or don't need help.	I make observations of animals and plants. I explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. I select and use technology for particular purposes.	I represent my own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.		I talk about the features of my own immediate environment and how environments might vary from one another. I explain why some things occur and talk about changes.		
What I will learn now... End of Year 1	With help and encouragement, I ask simple questions that begin with why, what if, how or when.	I make suggestions about how to do things when we plan a simple test.	With help, I use simple equipment and non-standard units to find things out. I observe using my senses.	With help, I can gather and record data to help me answer my questions.		I talk about what happened and/or what I saw.		I talk about what I did.
What I don't need to learn yet... End of Year 2	I ask simple questions and recognise these questions can be answered in different ways.	I decide with help, what to find out, observe or measure.	I observe closely, using simple equipment and non-standard units. I can identify and classify. I can perform a simple test.	I gather data and record data to help me answer my questions. I record what I have found out using e.g., words or pictures, tables or simple prepared formats.		I use my observations and ideas to suggest answers to my questions.		I talk about how I found out what I found out.

KEY: **NAVY BLUE** – EYFS Framework (pre-2021) or National Curriculum - statutory
 RED – Non-statutory to support progression

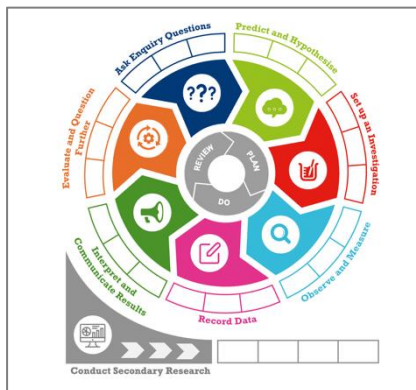
Year 1– Science Programme of Study – Yearly Overview (*Knowledge and Understanding*)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Seasonal Changes	Animals inc. Humans	Seasonal Changes	Animals inc. Humans	Seasonal Changes	Everyday Materials
	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure the amount of rainfall in each month using a scale and organise the data using a simple weather diary.</i></p> <p><i>Maths - Recognise and use language relating to dates, weeks, months and years (by ordering months, matching weather to seasons, etc.).</i></p> <p><i>Maths - Tell the time to the hour or half past by considering the number of / time of daylight hours, etc.</i></p>	<p>Identify, name, draw & label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Compare height to age or order by age (are older children taller? etc.).</i></p> <p><i>Maths - Measure and record height, length (hand span, leg, foot span, etc. and order) and time (months and years to measure age, etc.).</i></p>	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure the amount of rainfall in each month using a scale and organise the data using a simple weather diary.</i></p> <p><i>Maths - Recognise and use language relating to dates, weeks, months and years (by ordering months, matching weather to seasons, etc.).</i></p> <p><i>Maths - Tell the time to the hour or half past by considering the number of / time of daylight hours, etc.</i></p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Compare and describe lengths and heights of different animals.</i></p>	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure the amount of rainfall in each month using a scale and organise the data using a simple weather diary.</i></p> <p><i>Maths - Recognise and use language relating to dates, weeks, months and years (by ordering months, matching weather to seasons, etc.).</i></p> <p><i>Maths - Tell the time to the hour or half past by considering the number of / time of daylight hours, etc.</i></p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare & group together a variety of everyday materials on the basis of their simple physical properties.</p>
		Plants		Plants		Plants
		<p>Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure, compare, order and describe lengths and heights of different plants.</i></p> <p><i>Geography - Plot the range of plants identified within the school grounds on a simple map.</i></p>	<p>Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p><i>Maths - Tell the time to the hour or half past by considering the number of / time of daylight hours, etc.</i></p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure, compare, order and describe lengths and heights of different plants.</i></p> <p><i>Geography - Plot the range of plants identified within the school grounds on a simple map.</i></p>	<p>Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure, compare, order and describe lengths and heights of different plants.</i></p> <p><i>Geography - Plot the range of plants identified within the school grounds on a simple map.</i></p>	<p>Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure, compare, order and describe lengths and heights of different plants.</i></p>	<p>Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p style="text-align: center;">Cross Curricular Links:</p> <p><i>Maths - Measure, compare, order and describe lengths and heights of different plants.</i></p>

Exemplification of 'Scientific Enquiry Types' and 'Working Scientifically'

5 Enquiry Types		Working Scientifically – Processes of Science	
	<p>Research Using Secondary Sources Where the answer is found or developed using secondary sources. This is usually where it is impossible or unsafe for pupils to fully answer with first-hand enquiries, or where confirmation of the conclusions drawn during first-hand enquires is sought. This enquiry skill helps pupils to evaluate sources, distinguish between fact and opinion and recognise conflicting evidence and bias.</p>		
	<p>Observing Over Time Pupils identify and measure events and changes in living things, materials and physical process or events. These observations may take place over time spans of minutes or hours (e.g., puddles evaporating) up to several weeks or months (e.g., rearing young chicks).</p>		<p>Asking Questions Asking questions that can be answered using a scientific enquiry. E.g., how does the road surface affect the speed at which a car travels?</p>
	<p>Pattern Seeking Pupils observe, measure and record events and systems when carrying out pattern seeking enquires. They also collect and interpret data from secondary sources. They make observations and conduct surveys where the variables can't easily be controlled for practical or ethical reasons.</p>		<p>Making Predictions and Hypothesising Using prior knowledge (inc. that developed through secondary research) to suggest what will happen in a scientific enquiry. E.g., I think that a smoother road surface will allow a car to travel faster.</p>
	<p>Identifying, Classifying and Grouping Pupils make sense of how the world is organised. Identification is the process of using differences to name something and classification is organising things into groups. Opportunities to identify arise when pupils recognise not all birds are the same for example and can identify and name them. They can then use observable and behavioural similarities to group them and add new things.</p>		<p>Setting up an Investigation Deciding on the method and equipment to use to carry out an enquiry. E.g., children may use a timing ramp, different surface coverings and a data logger to test how the road surface affects the speed at which a car travels.</p>
	<p>Comparative and Fair Testing Helps pupils explore relationship between variables. Comparative tests children compare one event with another. E.g., does the red car go faster than the green car? A fair test identifies the causal relationship between two variable. E.g., does the height of the ramp affect how quickly the toy car rolls down the ramp and everything else remains the same?</p>		<p>Observing and Measuring Using measuring equipment and the senses to make observations or take measurements relating to the enquiry. E.g., the car took 1.5 seconds to travel between point A and point B on a smooth surface.</p>
			<p>Recording Data Using tables, drawing and other means to note observations and measurements. E.g., children record the results of their investigation using a two-way table.</p>
			<p>Interpreting and Communicating Results Using information from the recorded data to say what you found out and presenting this in an appropriate form. E.g., children draw and explain a bar chart showing how the time taken for a car to travel between points A and B changes depending on the surface covering.</p>
			<p>Evaluating and Questioning Further Reflecting on the success of the enquiry approach and identifying further questions for enquiry. E.g., children may ask how the angle of the ramp may also affect the speed at which the car travels between points A and B.</p>

*Definitions adapted from 'It's not fair - or is it?' (Turner, Keogh, Lawrence & Naylor, 2011)
Enquiry Symbols - © University of Manchester
Working Scientifically Symbols - © - Primary Science Teaching Trust*



The **Working Scientifically Wheel** may be used in lessons to draw attention to the focused 'working scientifically' skill being covered.

Colouring or dating a section for each focused skill provides an opportunity to check that all of the skills are covered across the year, and also track children's progress in relation to the identified skills.

Year 1– Core Investigations– Coverage of ‘Working Scientifically’ and ‘Scientific Enquiry’

Seasonal Changes	Everyday Materials	Animals inc. Humans	Plants
<p>NC OBJ - Observe and describe weather associated with the seasons and how day length varies.</p> <p>Enquiry Type: <i>Observing Over Time</i> Working Scientifically Skill: <i>Setting up an Investigation</i></p> <p>(1) Investigation Overview: OWN PLANNING - Collect the rainfall in Autumn. Children make and install their own weather stations, enabling them to measure and record the rainfall in Autumn.</p>	<p>NC OBJ - Describe the simple physical properties of a variety of everyday materials.</p> <p>Enquiry Type: <i>Pattern Seeking</i> Working Scientifically Skill: <i>Recording Data</i></p> <p>(1) Investigation Overview: TAPS Focussed Assessment – Transparency. Children discuss how to test the transparency of different materials (e.g., can you see through it?) and then use their method to test and identify if some materials are more transparent than others.</p>	<p>NC OBJ - Identify, name, draw & label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Enquiry Type: <i>Identifying, Classifying and Grouping</i> Working Scientifically Skill: <i>Observe/Measure</i></p> <p>(1) Investigation Overview: TAPS Focussed Assessment – Body Parts Children create models of the human body (clay or playdough) and label the parts, describing which part of the body is associated with each sense.</p>	<p>NC OBJ - Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p>Enquiry Type: <i>Pattern Seeking</i> Working Scientifically Skill: <i>Asking Questions</i></p> <p>(1) Investigation Overview: Ogden Trust – How Big Are Those Leaves? Children ask questions about how the size of a tree affects the size of its leaves. They investigate in the local environment and measure closely, before recording their results appropriately.</p>
<p>NC OBJ - Observe changes across the four seasons.</p> <p>Enquiry Type: <i>Observing Over Time</i> Working Scientifically Skill: <i>Recording Data</i></p> <p>(2) Investigation Overview: TAPS Focussed Assessment – Seasonal Change Children go on a ‘welly walk’ and observe / take photos of deciduous and evergreen trees, repeating this each month, plotting changes on a timeline and making comparison between different months of the year.</p>	<p>NC OBJ - Compare & group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>Enquiry Type: <i>Comparative and Fair Testing</i> Working Scientifically Skill: <i>Predicting and Hypothesising</i></p> <p>(2) Investigation Overview: TAPS Focussed Assessment – Floating and Sinking Children make predictions about whether and object will float or sink and record these predictions in a simple table. They then test their predictions and record the results in small groups.</p>	<p>NC OBJ - Identify, name, draw & label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Enquiry Type: <i>Comparative and Fair Testing</i> Working Scientifically Skill: <i>Evaluating and Questioning Further</i></p> <p>(2) Investigation Overview: Ogden Trust – That’s Smelly! Children investigate if their sense of smell is better when they cannot see. Once complete, children must evaluate the effectiveness of their investigation and pose further questions.</p>	<p>NC OBJ - Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Enquiry Type: <i>Identifying, Classifying and Grouping</i> Working Scientifically Skill: <i>Observe/Measure</i></p> <p>(2) Investigation Overview: Curriculum Maestro – Seeds and Bulbs Children have a wide variety of seeds and bulbs to examine using magnifying glasses before sorting the seeds and bulbs according to criteria.</p>
<p>NC OBJ - Observe changes across the four seasons.</p> <p>Enquiry Type: <i>Research Using Sec. Sources</i> Working Scientifically Skill: <i>Conduct Sec. Research</i></p> <p>(3) Investigation Overview: ASE Plan Materials – Where do the Animals Go? Children listen to a range of stories about animals that migrate or hibernate during winter. As a class, conduct secondary research to identify a range of animals that migrate or hibernate and children may then classify these accordingly.</p>	<p>NC OBJ - Distinguish between an object and the material from which it is made.</p> <p>Enquiry Type: <i>Research Using Sec. Sources</i> Working Scientifically Skill: <i>Conduct Sec. Research</i></p> <p>(3) Investigation Overview: Ogden Trust – How Are Bricks Made? Children use a range of secondary sources (videos, books, etc.) to research how bricks are made and the materials from which they are made. Children may then sequence the brick making process.</p>	<p>NC OBJ - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p>Enquiry Type: <i>Research Using Sec. Sources</i> Working Scientifically Skill: <i>Conduct Sec. Research</i></p> <p>(3) Investigation Overview: Ogden Trust – Are We All The Same? Children use a range of sec. sources (teacher, videos, books, etc.) to investigate if all animals have the same senses as humans.</p>	<p>NC OBJ - Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p>Enquiry Type: <i>Comparative and Fair Testing and Observing Over Time</i> Working Scientifically Skill: <i>Setting up an Investigation</i></p> <p>(3) Investigation Overview: Ogden Trust – What Makes Our Garden Grow Children examine different types of compost before planning and setting up an investigation about which type of compost make a sunflower grow the tallest, before carrying out as appropriate.</p>
	<p>NC OBJ - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>Enquiry Type: <i>Identifying, Classifying and Grouping</i> Working Scientifically Skill: <i>Interpret and Communicate Results</i></p> <p>(4) Investigation Overview: Ogden Trust – An Effective Umbrella Children identify / name a variety of materials that may be used to make an umbrella. Consider what an umbrella needs to be, before testing the materials and recording / communicating the results.</p>		<p>NC OBJ - Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p>Enquiry Type: <i>Research Using Sec. Sources</i> Working Scientifically Skill: <i>Conduct Sec. Research</i></p> <p>(4) Investigation Overview: Ogden Trust – Are There Flowers in Every Season? Children use a range of sec. sources (teacher, videos, books, etc.) to investigate if there are plants that flower in every season.</p>

Year
1

Year 1– Science Knowledge Builder– *Small Steps and Suggested Lesson-Level Overview*

Small Steps Overview – Seasonal Changes (Y1)

(1)	Observe changes across the four seasons.
(2)	Observe and describe weather associated with the seasons and how day length varies.
(3)	Providing further depth and breadth of understanding

NOTE – SOME STEPS WILL TAKE MORE THAN 60 MINUTES

Pupils will know...

Key Vocab (MUST be introduced*)

All knowledge (inc. key vocab) linked to prior learning (see page 3 for linked objectives)		
that there are four seasons. (1)	Step 1	season, Spring, Summer, Autumn, Winter
that the weather changes. (2)	Step 2	weather, seasonal
that to a great extent, the weather depends on the season. (2)		
that in the UK, the weather in Autumn is typically cool and windy with some wet days and some dry. (2)	Step 3	rain, storm, thunder, temperature, wind, cool, wet, dry
that in Autumn, leaves on many trees turn yellow or orange. (1)	Step 4	tree, leaves
that once the leaves on a tree have turned yellow or orange, they fall to the floor. (1)		
that in the UK, the weather in the Winter is typically cold and wet, and it sometimes snows. (2)	Step 5	cold, snow, frost, ice, freeze, shiver
that people wear certain clothes during the Winter in the UK. (3)	Step 6	hat, scarf, gloves, coat
that in the UK, it gets light later in a morning during Winter than in it does in Summer. (2)	Step 7	light, sunrise, dark, sunset
that in the UK, it gets dark earlier at night during Winter than in it does in Summer. (2)		
that some animals hibernate during Winter. (3)	Step 8	hibernate
that in the UK, the weather in Spring is typically calm and dry, with warm, sunny days and cool nights. (2)	Step 9	dry, warm, sun, calm
that in Spring, some trees begin to grow new leaves. (1)	Step 10	tree, leaves, blossom, plant
that in Spring, some trees grow blossom. (1)		
that in Spring, many plants begin to grow. (1)		
that in the UK, the weather in Summer is typically hot and dry. (2)	Step 11	hot, draught, heatwave
that people wear certain clothes during the Summer in the UK. (3)	Step 12	t-shirt, shorts, sun hat, sunglasses, sandals
that in the UK, it gets light earlier in a morning during Summer than in it does in Winter. (2)	Step 13	light, sunrise, dark, sunset
that in the UK, it gets dark later at night during Summer than in it does in Winter. (2)		

← **Begin Core Invest. 1**

← **Begin Core Invest. 2**

← **Core Investigation 3**

**Vocabulary may already have been introduced but must be covered in the given context*

Year 1– Science Lesson Objectives

Seasonal Changes (Y1)

To describe the signs of Autumn.
To describe the signs of Winter
To describe the signs of Spring.
To describe the signs of Summer.
To describe how the weather changes across the seasons
To observe how day length varies across the seasons.
To compare the changes in seasons
1.To observe over time. (TAPS seasonal change)
2. Use secondary sources to research hibernation and migration. (Where do the Animals Go? Hibernation and migration))
3.Investigate the amount of rainfall over time.

Black - Learning objective Red – Suggested Activities or useful information. Purple – Core investigations

Small Steps Overview – Animals inc. Humans (Y1)

Builder– *Small Steps and Suggested Lesson-Level Overview*

(1)	Identify, name, draw & label the basic parts of the human body and say which part of the body is associated with each sense.
(2)	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
(3)	Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
(4)	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, inc. pets).
(5)	Providing further depth and breadth of understanding

NOTE – SOME LESSONS WILL TAKE MORE THAN 60 MINS

Pupils will know...

		Key Vocab (MUST be introduced*)
All knowledge (inc. key vocab) linked to prior learning (see page 3 for linked objectives)		
that the group of living things called 'animals' includes humans. (1)	Step 1	animal, human
that there are different types of animals in the immediate environment. (2)		bird (chicken, robin, duck), mammal (human, dog, mouse)
that there are different types of animals in the wider environment. (2)	Step 2	fish (goldfish, shark, salmon), amphibian (frog, toad, newt), reptile (snake, lizard, tortoise)
that some animals may be kept as pets and other may not. (4)	Step 3	Pets - dog, cat, goldfish, guinea pig, rabbit, hamster, horse, snake, tortoise
that some animals are better pets than other. (5)		Not Pets (wild) – lion, tiger, giraffe, shark, crocodile
that animals and the environment should be treated with care and sensitivity. (5)	Step 4	
that animals including humans are structured in different ways. (4)	Step 5	gills, tentacles, scales, nose, spine, fur, leg, wings, beak, claw, eyes, ears, tail, tusks, fins, feathers, trunk, shell
that there are similarities and differences between the structure of common animals. (4)		
that there are similarities and differences between humans. (5)	Step 6	
that humans are more like each other than they are like other animals. (5)		
that humans have bodies with similar parts. (see key vocab for parts which must be covered) (1)	Step 7	mouth, hair, foot, head, eyes, ears, teeth, leg, elbow, shoulders, thumb, knee, nose, toes, fingers, hand
that humans have five senses. (1)	Step 8	Sense of... touch, smell, taste, sight, hearing
that each of a human's five senses may be associated with a different body part(s). (1)		fingers, nose, tongue, eyes, ears
that some animals have more highly developed senses than humans. (5)	Step 9	
that some animals are carnivores. (3)	Step 10	carnivore, wolf, tiger, lion, frog
that a carnivore is an animal that mostly eats other animals (meat). (3)		
that some animals are herbivores. (3)	Step 11	herbivore, cow, rabbit, giraffe, horse
that a herbivore is an animal that only eats plants. (3)		
that some animals are omnivores. (3)	Step 12	omnivore, squirrel, pig, dog, monkey
that an omnivore is an animal that eats both plants and other animals. (3)		

← Core Investigation 1

← Core Investigation 2

← Core Investigation 3

← Core Investigation 4

Year 1– Science **Lesson Objectives**

Animals inc. Humans (Y1)

To identify and label the basic parts of the human body.
To use our senses to compare different textures, sounds and smells.
To identify and name a variety of common animals.
To group animals according to what they eat (carnivores, herbivores and omnivores).
To describe and compare the structure of a variety of common animals. (fish, amphibians, reptiles, birds and mammals including pets).
To use simple features to compare living things.
1.To identify which part of the body is associated with each sense. (TAPS Body Parts)
2.To evaluate the effectiveness of our investigation (investigate if their sense of smell is better when they cannot see)
3. Use secondary sources to research if all animals have the same senses. (Do all animals have the same senses as humans).
Assessment – To identify and classify a range of animals into groups. (TAPS Animal Classification)

Black - Learning objective Red – Suggested Activities or useful information. Purple – Core investigations

Year 1– Science Knowledge Builder– *Small Steps and Suggested Lesson-Level Overview*

Small Steps Overview – Plants (Y1)

(1)	Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.
(2)	Identify and describe the basic structure of a variety of common flowering plants, including trees.
(3)	Providing further depth and breadth of understanding

NOTE – SOME STEPS WILL TAKE MORE THAN 60 MINUTES

Pupils will know...

Key Vocab (MUST be introduced*)

All knowledge (inc. key vocab) linked to prior learning (see page 3 for linked objectives)			
that there are different plants in the immediate environment. (1)		Step 1	daffodil, tulip, sunflower, rose, nettle, dandelion, daisy, thistle, oak tree, conifer, birch tree, hawthorn, bramble
that plants and the environment should be respected. (3)			
that some plants may be classified as ‘weeds’ – others may not. (1)		Step 2	weed
that plants should not be removed from their environment unless they are a weed. (3)			
that plants have different parts. (see key vocab for parts which must be covered) (2)		Step 3	leaf, flower, blossom, petal, fruit, root, trunk, branch, stem
that some plants have parts which may make them harmful. (see key vocab for parts which must be covered) (3)		Step 4	thorn, hair, bramble, nettle, cacti
<ul style="list-style-type: none"> bramble nettle cacti 			
that some plants in the local environment are similar to each other. (2)		Step 5	root structure
<ul style="list-style-type: none"> roots (same size, structure) stem (same size, thickness) leaves (same size, shape, colour) flowers (same size, colour, shape, number of petals) 			
that some plants in the local environment are different to each other. (2)			
<ul style="list-style-type: none"> roots (different size, structure) stem (different size, thickness) leaves (different size, shape, colour) flowers (different size, colour, shape, number of petals) 			
that some plants lose their leaves in winter. (1)		Step 6	deciduous – oak, birch, beech, hawthorn evergreen – oak, yew, holly, conifer
that some plants are ‘evergreen’. (1)			
that some plants grow from seeds. (2)		Step 7	seed, bulb
that some plants grow from bulbs. (2)			
that seeds are smaller than bulbs and come in various shapes, sizes and colours. (3)		Step 8	
Bulbs are larger than seeds and typically have a rounded shape and papery coating. (3)			
that the parts of a plant change over time as they grow. (2)		Step 9	
<ul style="list-style-type: none"> thickness of stem size of leaves appearance of the flower (closed, open) 			
that different plants flower at different times of the year.(3)		Step 10	

← Core Investigation 1

← Core Investigation 2

← Core Investigation 3

← Core Investigation 4

**Vocabulary may already have been introduced but must be covered in the given context*

Year 1– Science Lesson Objectives

Plants (Y1)

To name a variety of common wild and garden plants.
To name the petals, stem, leaves and root of a plant.
To name the roots, trunk, branches and leaves of a tree.
To identify and classify evergreen and deciduous trees.
To observe the growth of plants over time.
1.Measure and record results to find a pattern (Does the size of the tree affect the size of its leaves?)
2. Identify and group a variety of seeds and bulbs. (Curriculum Maestro – Seeds and Bulbs)
3.Decide the method and equipment to use to carry out an enquiry. (which type of compost make a sunflower grow the tallest?)
4. Use secondary sources to research if there are flowers in every season. (Are these flowers in every season?)
Assessment - To observe closely using simple equipment. (TAPS Plant Structure)

Black - Learning objective Red – Suggested Activities or useful information. Purple – Core investigations

Year 1– Science Knowledge Builder– *Small Steps and Suggested Lesson-Level Overview*

Small Steps Overview – Everyday Materials (Y1)

(1)	<i>Distinguish between an object and the material from which it is made.</i>
(2)	<i>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</i>
(3)	<i>Describe the simple physical properties of a variety of everyday materials.</i>
(4)	<i>Compare & group together a variety of everyday materials on the basis of their simple physical properties.</i>
(5)	<i>Providing further depth and breadth of understanding</i>

NOTE – SOME STEPS WILL TAKE MORE THAN 60 MINUTES

Pupils will know...

Key Vocab (MUST be introduced*)

All knowledge (inc. key vocab) linked to prior learning (see page 3 for linked objectives)			
<i>that there are many materials that can be named. (see key vocab for materials which should be covered) (2)</i>	Step 1	<i>wood, metal, plastic, clay, sand, glass. rock, brick, paper, fabric, elastic, rubber, wool, cotton</i>	
<i>that some materials occur naturally. (5)</i>	Step 2	<i>natural, man-made</i>	
<i>that some materials do not occur naturally (they are made). (5)</i>			
<i>that all materials have different characteristics. (2)</i>	Step 3	<i>hard/soft stretchy/stiff shiny/dull rough/smooth bendy (flexible)/not bendy (rigid) waterproof/not waterproof absorbent/not absorbent opaque/transparent/translucent floats (buoyant) / sinks</i>	← Core Investigation 1
<i>that we can recognise the characteristics of different materials using our senses. (3)</i>	Step 4		
<i>that materials can be sorted based on their characteristics. (4)</i>	Step 5		← Core Investigation 2
<i>that sometimes the same materials can have different characteristics. (4)</i>	Step 6		
<ul style="list-style-type: none"> <i>plastic – some are hard and some are soft</i> <i>metal – some are hard and some are soft</i> <i>metal – some are bendy and others are rigid</i> <i>glass – some are transparent and some are translucent and some are opaque</i> 			
<i>that objects feel and look different based on the materials from which they are made. (4)</i>	Step 7		
<i>that materials can be used to make things. (1)</i>	Step 8	<i>suitable, unsuitable</i>	← Core Investigation 3
<i>that some materials are better for making things than others. (5) [do not cover in detail – Y2]</i>			← Core Investigation 4
<i>that all objects are made from a material. (1)</i>	Step 9	<i>table, window, carpet, book, tyre, plate, clothes</i>	
<ul style="list-style-type: none"> <i>classroom tables – wood, plastic and metal</i> <i>windows – plastic and glass</i> <i>carpet – wool</i> <i>books – paper</i> <i>car tyres – rubber</i> <i>dinner plates – clay</i> <i>clothes – fabric (cotton, wool or other synthetic fibres)</i> 			

***Vocabulary may already have been introduced but must be covered in the given context**

Year 1– Science Lesson Objectives

Everyday Materials (Y1)

To identify and name a variety of everyday materials. (including wood, plastic, glass, metal, water, and rock by matching a material to its name.)
To distinguish between an object and the material from which it is made.
To describe the simple physical properties of a variety of everyday materials.
To compare and group materials by their physical properties.
1. To test the transparency of materials and record the results (TAPS – Transparency)
2. To make predictions. (TAPS– Floating and Sinking)
3. To conduct research using secondary sources. (How Are Bricks Made?)
4. To use observations to suggest answers to questions. (Test and decide which materials would be suitable to make an umbrella from).
Assessment – To observe closely using simple equipment. (Go around the classroom and take photos of objects. Name the materials and identify properties).

Black - Learning objective Red – Suggested Activities or useful information. Purple – Core investigations

Year 1 - Possible Misconceptions

Year 1	Seasonal Changes	Everyday Materials
	<p>Some children may think:</p> <ul style="list-style-type: none"> • it always snows in winter • it is always sunny in the summer • there are only flowers in spring and summer • it rains most in the winter. 	<p>Some children may think:</p> <ul style="list-style-type: none"> • only fabrics are materials • only building materials are materials • only writing materials are materials • the word 'rock' describes an object rather than a material • 'solid' is another word for hard.
	Animals inc. Humans	Plants
	<p>Some children may think:</p> <ul style="list-style-type: none"> • only four-legged mammals, such as pets, are animals • humans are not animals • insects are not animals • all 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group • amphibians and reptiles are the same. 	<p>Some children may think:</p> <ul style="list-style-type: none"> • plants are flowering plants grown in pots with coloured petals and leaves and a stem • trees are not plants • all leaves are green • all stems are green • a trunk is not a stem • blossom is not a flower.

Useful Resources and Websites

Name	Link / Location
• Primary Science Teaching Trust (website)	https://pstt.org.uk
• Teacher Assessment in Primary Science (TAPS)	https://pstt.org.uk/resources/curriculum-materials/assessment Also on Teams/shared area
• STEM	https://www.stem.org.uk/primary-science
• Explorify	https://explorify.uk
• ReachOut CPD	https://www.reachoutcpd.com