





## Year 1 Science Overview

### Everyday Materials

<b>Substantive Knowledge</b>				<b>Disciplinary Knowledge</b>			
Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties.				Sort using yes/no statements Group by difference or similarity Link properties of materials to an application Use scientific equipment - magnification Use & remember science during activity Add science word labels to diagrams			
<b>Prior Learning -EYFS</b>				<b>Next Steps -Year 2</b>			
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)				Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)  Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)			
<b>Sequence of learning</b>	Session 1 What are materials?	Session 2 What are objects made from?	Session 3 What are different materials like?	Session 4 How do materials behave?	Session 6 What makes the best space nappy?	Session 7 Which materials make good curtains?	Session 8 Who invented Lego?
<b>Substantive Knowledge</b>	Identify and name a variety of everyday materials including wood, plastic, glass, metal.	Distinguish between an object and the material from which it is made	Identify the properties of common everyday materials.	Describe the simple properties of a variety of everyday materials.	The most absorbent material.	Which materials will make good curtains?	What happens to plastics when we throw them away?
<b>Disciplinary Knowledge</b>		Add science word labels to diagrams	Record results in a table.	Ask questions to group materials.	Use a simple scale to measure carefully.		
<b>Enrichment</b>					Key Scientist – Charles Mackintosh	Careers Link – Design Engineer	
<b>Common Misconceptions:</b>				<b>Vocabulary</b>			
Some children may think: 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.				Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through			
<b>What pupils need to show to be secure:</b>				<b>Application of Knowledge</b>			
<b>Show understanding of a concept using scientific vocabulary.</b>				<b>Application of Knowledge</b>			
<b>Key Learning:</b> All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.				Classify objects made of one material in different ways e.g. a group of object made of metal. Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials. Classify materials based on their properties.			

Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters.





**Possible Evidence:**

Can label a picture or diagram of an object made from different materials.  
Can describe the properties of different materials.

Can sort objects and materials using a range of properties  
Can choose an appropriate method for testing an object for a particular property  
Can use their test evidence to answer the questions about properties e.g. "Which cloth is the most absorbent?"

## Year 1 Science Overview





### Seasonal Change (Taught across the year)

<b>Substantive Knowledge</b>			<b>Disciplinary Knowledge</b>		
Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.			Describe what is happening using science. Use a simple table by recording in words & numbers. Use a frame to add to pictograms. Add to block charts & pictograms by counting up.		
<b>Prior Learning -EYFS</b>			<b>Next Steps -Year 2</b>		
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)			Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light) Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. (Y5 - Earth and space) The seasons and the Earth's tilt, day length at different times of year, in different hemispheres. (KS3)		
<b>Sequence of learning</b>	Session 1 Autumn	Session 2 Autumn	Session 3 Autumn	Session 4 Spring 2	Session 5 Summer 2
<b>Substantive Knowledge</b>	What weather do we see in Autumn? Name and identify the four seasons.	What colour are Autumn leaves?	How does the weather change in winter?	What happened as winter changed to spring?	How do I keep myself safe in summer?
<b>Disciplinary Knowledge</b>	Setting up investigation to observe over time.		Reading scales – rainfall measure.	Reading scales - thermometer	
<b>Enrichment</b>					Careers link – Meteorologist George James Symons
<b>Common Misconceptions:</b>			<b>Vocabulary</b>		
Some children may think: 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.			Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length		
<b>What pupils need to show to be secure:</b>			<b>Application of Knowledge</b>		
<b>Show understanding of a concept using scientific vocabulary.</b>			<b>Application of Knowledge</b>		
<b>Key Learning:</b> In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. The change in weather causes many other changes. Some examples are numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.			Collect information about the weather regularly throughout the year. Present this information in tables and charts to compare the weather across the seasons. Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans. Present this information in different ways to compare the seasons. Gather data about day length regularly throughout the year and present this to compare the seasons.		
<b>Possible Evidence:</b>			<b>Possible Evidence:</b>		
Can name the four seasons and identify when in the year they occur. Can describe weather in different seasons over a year. Can describe days as being longer (in time) in the summer and shorter in the winter. Can describe other features that change through the year.			Use the evidence gathered to describe the general types of weather and changes in day length over the seasons. Use their evidence to describe some other features of their surroundings, e.g. themselves, animals, plants that change over the seasons		

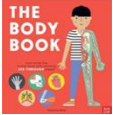




	Demonstrate their knowledge in different ways e.g. making a weather forecast video, writing seasonal poetry, creating seasonal artwork
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## Year 1 Science Overview

### Plants (Taught across the year)

<b>Substantive Knowledge</b>				<b>Disciplinary Knowledge</b>			
Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.				Choose an appropriate method to record observations. Construct a simple pictogram. Use of magnification. Create a simple report to communicate results.			
<b>Prior Learning -EYFS</b>				<b>Next Steps</b>			
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)				Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants) Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants) Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats) Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. (Y3 - Plants) Investigate the way in which water is transported within plants. (Y3 Plants)			
<b>Sequence of learning</b>	Session 1 Autumn	Session 2 Spring	Session 3 Summer	Session 4 Summer	Session 5 Summer	Session 6	Session 7
<b>Substantive Knowledge</b>	Describe how seeds and bulbs change.	Describe how seeds and bulbs change.	What are wild plants?	What plants can we find outside?	What are the parts of a plant?	Do trees all have the same leaves?	How have the things I planted changed?
<b>Disciplinary Knowledge</b>	Choose an appropriate method to record changes.	Make observations about changes		Construct a simple chart.	Use of magnification		Create a simple report to show changes.
<b>Enrichment</b>				Careers link – Landscape gardner		Careers Link – Forestry work	Careers Link- NFU - Farming
<b>Common Misconceptions:</b>				<b>Vocabulary</b>			
Some children may think: 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.				Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area			
<b>What pupils need to show to be secure:</b>				<b>Application of Knowledge</b>			
<b>Show understanding of a concept using scientific vocabulary.</b>				<b>Application of Knowledge</b>			
<b>Key Learning:</b> Growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts, but they vary between the different types of plants. Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring.				Make close observations of leaves, seeds, flowers etc. Compare two leaves, seeds, flowers etc. Classify leaves, seeds, flowers etc. using a range of characteristics. Identify plants by matching them to named images. Make observations of how plants change over a period of time. When further afield, spot plants that are the same as those in the local area studied regularly, describing the key features that helped them.			
<b>Possible Evidence:</b>							
Can name trees and other plants that they see regularly Can describe some of the key features of these trees and plants e.g. the shape of the leaves, the colour of the flower/blossom Can point out trees which lost their leaves and those that kept them the whole year Can point to and name the parts of a plant, recognising that they are not always the same e.g. leaves and stems may not be green.				Can sort and group parts of plants using similarities and differences. Can use simple charts etc. to identify plants. Can collect information on features that change during the year. Can use photographs to talk about how plants change over time.			

## Year 1 Science Overview Animals Including Humans

Substantive Knowledge		Disciplinary Knowledge				
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.						
Prior Learning		Next Steps				
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)		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. (Y2 - Living things and their habitats) Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. (Y6 - Living things and their habitats) Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats)				
Sequence of learning	Session 1 Do you know what your body parts are called?	Session 2 What are the five senses?	Session 3 Can you taste with your nose?	Session 4 Which groups do animals belong to?	Session 5 Careers Week	Session 6 - BSW Can we group animals based on what they eat? Session 7
<b>Substantive Knowledge</b>	Identify, name, draw and label the basic parts of the human body	Say which part of the body is associated with each sense.	Say which part of the body is associated with each sense.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.	Working with animals. Jane Goodall Joan Procter	Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
<b>Disciplinary Knowledge</b>	Label a diagram with scientific vocabulary					
<b>Enrichment</b>						
Common Misconceptions:			Vocabulary			
Some children may think: 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.			Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves Names of animals experienced first-hand from each vertebrate group Parts of the body including those linked to PSHE teaching Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue. <b>The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics.</b> <b>The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat.</b> <b>Although we often use our fingers and hands to feel objects, the children should understand that we can feel with many parts of our body.</b>			

What pupils need to show to be secure:	
<p><b>Show understanding of a concept using scientific vocabulary.</b></p> <p><b>Key Learning:</b>            Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them. Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.            Humans have key parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.</p>	<p><b>Application of Knowledge</b></p> <p>Make first-hand, close observations of animals from each of the groups.            Compare two animals from the same or different groups.            Classify animals using a range of features.            Identify animals by matching them to named images.            Classify animals according to what they eat.            Make first-hand close observations of parts of the body e.g. hands, eyes.            Compare two people.            Take measurements of parts of their body.            Compare parts of their own body.            Look for patterns between people e.g. Do people with big hands have big feet?            Classify people according to their features.            Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?</p>
<p><b>Possible Evidence:</b></p> <p>Can label parts of the body on pictures and diagrams            Can explore objects using different senses</p>	<p>Can sort and group animals using similarities and differences            Can use simple charts etc. to identify unknown animals            Can create a drawing of an imaginary animal labelling its key features            Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zookeepers etc.            Can use first-hand close observations to make detailed drawings            Can name body parts correctly when talking about measurements and comparisons e.g. "My arm is x straws long." "My arm is x straws long and my leg is y straws long. My leg is longer than my arm."            "We both have hands, but his are bigger than mine." "These people have brown eyes and these have blue."            Can talk about their findings from investigations using appropriate vocabulary e.g. "My fingers are much better at feeling than my toes" "We found that the crisps all taste the same."</p>