



Stoke By Nayland Cof E Primary School

KS1/EYFS Science 2 Year Knowledge Cycle

Cycle 1				
	Purpose	Evidence	Characteristics	Key Vocabulary
Materials everyday - naming and identifying	<p>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.</p> <p>Explore the natural world around them. Describe what they see, hear and feel while they are outside.</p>	<p>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?"</p> <p>Make comments about what they have heard and ask questions to clarify their understanding.</p>	<p>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.</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</p>	<p>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</p>
Animals including Humans	<p>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.</p> <p>Explore the natural world around them.</p>	<p>Can name a range of animals which includes animals from each of the vertebrate groups Can describe the key features of these named animals Can label key features on a picture/diagram Can write descriptively about an animal Can write a What am I? riddle about an animal Can describe what a range of animals eat Can play and lead 'Simon says' During PE lessons, can follow instructions involving parts of the body</p> <p>Know and talk about the different factors that support their overall health and wellbeing: -</p>	<p>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>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 within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear, tongue</p>

	Describe what they see, hear and feel while they are outside. Recognise some environments that are different to the one in which they live	regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian	Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	
Identifying and naming plants	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 Explore the natural world around them, making observations and drawing pictures of animals and plants.	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 Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	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. Understand the effect of changing seasons on the natural world around them.	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
Materials and their properties	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Whilst changing the shape of an object can describe the action used Can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot Can recognise that a material may come in different forms which have different properties Classify materials. Make suggestions about alternative materials for a purpose that are both suitable and unsuitable Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat Make comments about what they have heard and ask questions to clarify their understanding Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary	All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching
Living things and their habitats	Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other	Can find a range of items outside that are living, dead and never lived Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied Can talk about how the features of these animals and plants make them suitable to the habitat	All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) An object made of wood is classed as	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and microhabitats studied

	<p>Identify and name a variety of plants and animals in their habitats, including micro-habitats 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</p> <p>Understand the key features of the life cycle of a plant and an animal.</p>	<p>Can talk about what the animals eat in a habitat and how the plants provide shelter for them Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction</p> <p>Explore the outside environment regularly to find objects that are living, dead and have never lived. Classify objects found in the local environment. Observe animals and plants carefully, drawing and labelling diagrams. Create simple food chains for a familiar local habitat from first-hand observation and research. Create simple food chains from information given e.g. in picture books (Gruffalo etc.).</p> <p>Learn new vocabulary. Ask questions to find out more and to check what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail.</p>	<p>dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.</p> <p>Explore the natural world around them. Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</p>	
Plants Bulbs and growth	<p>Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p> <p>Begin to understand the need to respect and care for the natural environment and all living things.</p>	<p>Make close observations of seeds and bulbs. Classify seeds and bulbs. Research and plan when and how to plant a range of seeds and bulbs. Look after the plants as they grow – weeding, thinning, watering etc. Make close observations and measurements of their plants growing from seeds and bulbs. Make comparisons between plants as they grow.</p> <p>Use all their senses in hands-on exploration of natural materials.</p> <p>Talk about what they see, using a wide vocabulary.</p>	<p>Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.</p> <p>Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things</p>	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling
Cycle 2				
	Purpose	Evidence	Characteristics	Key Vocabulary

<p>Animals including Humans</p>	<p>Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen</p>	<p>Ask people questions and use secondary sources to find out about the life cycles of some animals. Observe animals growing over a period of time e.g. chicks, caterpillars, a baby. questions of a parent about how they look after their baby. Ask pet owners questions about how they look after their pet. Explore the effect of exercise on their bodies. Classify food in a range of ways, including using the Eatwell Guide. Investigate washing hands, using glitter gel.</p> <p>Explore how things work. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal</p>	<p>Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.</p> <p>Talk about what they see, using a wide vocabulary Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian</p>	<p>offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/hen, kitten/cat, caterpillar/butterfly), survive, survival, water food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy</p>
<p>Animal Food Chains</p>	<p>To understand food chains To understand how we rely on different things to keep us alive</p> <p>Talk about what they see, using a wide vocabulary</p>	<p>Food chains. The arrows mean 'is eaten by'.</p>  <p>Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things.</p>	<p>Examples of habitats:</p>  <p>Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"</p>	<p>Life processes, living, dead, never living, food chain, food sources, predator Habitat, microhabitat, depend, survive</p>
<p>Uses of everyday materials and changing materials</p>	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail.</p>	<p>Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use Can label a picture or diagram of an object made from different materials For a given object can identify what properties a suitable material needs to have</p> <p>Talk about the differences between materials and changes they notice</p>	<p>All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed</p>	<p>Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</p>

	Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.		in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness. Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties.	
Plants Identify and name	Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them.	Can describe how plants that they have grown from seeds and bulbs have developed over time Can identify plants that grew well in different conditions Make close observations of seeds and bulbs. Classify seeds and bulbs. Research and plan when and how to plant a range of seeds and bulbs. Look after the plants as they grow – weeding, thinning, watering etc. Make close observations and measurements of their plants growing from seeds and bulbs. Make comparisons between plants as they grow. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things	Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy Explore the natural world around them. Describe what they see, hear and feel while they are outside	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling
Living things and their habitats	Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Identify and name a variety of plants and animals in their habitats, including micro-habitats 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 Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"	Can find a range of items outside that are living, dead and never lived Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied Can talk about how the features of these animals and plants make them suitable to the habitat Can talk about what the animals eat in a habitat and how the plants provide shelter for them Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction Explore the outside environment regularly to find objects that are living, dead and have never lived. Classify objects found in the local environment. Observe animals and plants carefully, drawing and labelling diagrams. Create simple food chains for a familiar local habitat from first-hand observation and research.	All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees,	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and microhabitats studied

		<p>Create simple food chains from information given e.g. in picture books (Gruffalo)</p> <p>Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things.</p>	<p>on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.</p> <p>Use all their senses in hands-on exploration of natural materials. Make comments about what they have heard and ask questions to clarify their understanding.</p>	
<p>Seasonal Change and length of the day - consolidation of previous learning</p>	<p>Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p> <p>Understand 'why' questions, like: "Why do you think the leaves fall off?"</p> <p>Understand the effect of changing seasons on the natural world around them.</p>	<p>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 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.</p> <p>Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary.</p>	<p>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. 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</p> <p>Learn new vocabulary. Ask questions to find out more and to check what has been said to them.</p>	<p>weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length</p>

EYFS – shown in Red