| Year | Foundation Stage | Topic | Plants |
|---|---|---|---|
| Nursery Expectations | | End of Reception | |
| Understanding the World<br>• Use all senses in hands on exploration.<br>• Talk about what they see, with a wide range of vocabulary | | Understanding the World<br>• Explore the natural world around them.<br>• Describe what they see, hear and feel when they are outside.<br>• Plant seeds and care for growing plants<br>Understand the key features of a life cycle of a plant and an animal. | |
| Characteristics of Effective | | | |
| **Playing and exploring**<br>• I can plan and think about how I will explore or play with objects.<br>• I can bring my own interests and fascinations in to the early years settings.<br>• I can respond to new experiences when they are brought to my attention.<br>**Active Learning**<br>• I can keep on trying things when they are difficult.<br>**Creating and thinking critically**<br>• I can solve real problems<br>• I can make more links between my ideas.<br>• I can concentrate on achieving something that is important to me.<br>• I can give my attention to tasks and ignore distractions with increasing control.<br>• I can feel confident about coming up with my own ideas. | | | |

| Year group | Key Learning | Activities | Possible Evidence | Key vocab |
|---|---|---|---|---|
| Nursery | Naming simple parts of a plant.<br>Over a period of time will explain how a plant grows, or if they notice flowers or fruit developing. | Plant runner bean seeds<br>Look at seeds in vegetables - Pumpkin<br>Grow cress<br>Sensory – tough tray (Autumn leaves, pinecones)<br>Looking at leaves in the autumn | Tapestry/Photographs<br>Can name some parts of a plant eg seeds, leaves.<br>Can say what they might expect to happen when they plant a seed and notice changes as their seeds grow. | Sunlight water root shoot leaves seed stem compost growth grow growing grew plant living dead |
| Reception | What makes a flower grow? | Planting and gardening – looking after strawberry, tomato, raspberry plants, sunflowers. | Observations/discussions and explanations: | Plant, flower, stem, leaf, roots, water, sunlight, grow, die<br>Different plant / flower names |

| | | | | |
|---|---|---|---|---|
| | Flowers and plants don't all look the same, describing similarities and differences between different types of plant.<br>All living things die.<br>Naming basic parts of a plant . | Caring for a plant – understanding they water and light.<br>Experiments of what happens to a plant without water etc. | Children will be able to name plants they are caring for, will pick fruit from them if applicable and name the fruit, name parts of the plant. | |

| Year | 1 | Topic | Plants |
|---|---|---|---|
| • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.<br>• Identify and describe the basic structure of a variety of common flowering plants, including trees. | | | |

| Prior Learning | Future Learning |
|---|---|
| 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. | • Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants)<br>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants)<br>• Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)<br>• Identify and describe the functions of different parts of flowering plants:<br>roots, stem/trunk, leaves and flowers. (Y3 - Plants)<br>• Investigate the way in which water is transported within plants. (Y3) |

<table>
<tr><th colspan="2">What pupils need to know or do to be secure</th></tr>
<tr><th colspan="2">Show understanding of a concept using scientific vocabulary correctly</th></tr>
<tr><th>Key Learning</th><th>Possible evidence</th></tr>
<tr><td>Growing locally, there is a vast array of plants which all have specific names, in the school grounds. 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.</td><td rowspan="3"><ul><li>Can name trees and other plants that they see regularly in the school grounds (especially when bulbs come out in spring along the footpath or blue bells in the story meadow, or pears on the pear tree)</li><li>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</li><li>Can point out trees which lost their leaves and those that kept them the whole year –identifying trees which lose their leaves in the school grounds</li><li>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</li></ul></td></tr>
<tr><th>Key Vocabulary</th></tr>
<tr><td>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud<br>Names of trees in the local area<br>Names of garden and wild flowering plants in the local area</td></tr>
<tr><th colspan="2">Common Misconceptions</th></tr>
<tr><td colspan="2">Some children may think:<br>• plants are flowering plants grown in pots with coloured petals and leaves and a stem<br>• trees are not plants<br>• all leaves are green<br>• all stems are green<br>• a trunk is not a stem<br>• blossom is not a flower.</td></tr>
<tr><th colspan="2">Apply knowledge in familiar related contexts, including a range of enquiries</th></tr>
<tr><th>Activities</th><th>Possible Evidence</th></tr>
<tr><td><ul><li>Plant turnips, potatoes, wild flower seeds and hollyhocks.</li><li>Make close observations of leaves, seeds, flowers etc.</li><li>Compare two leaves, seeds, flowers etc.</li><li>Classify leaves, seeds, flowers etc. using a range of characteristics from the school grounds, using leaf identification sheets</li><li>Identify plants in the school grounds by matching them to named images, eg daffodils, pansies, lavender, bluebells.</li><li>Make observations of how plants change over a period of time.</li></ul></td><td><ul><li>Can sort and group parts of plants using similarities and differences</li><li>Can use simple charts etc. to identify plants</li><li>Can collect information on features that change during the year</li><li>Can use photographs to talk about how plants change over time</li></ul></td></tr>
</table>

| | |
|---|---|
| • When further afield (eg on the common), spot plants that are the same as those in the local area studied regularly, describing the key features that helped them. | |

| Year | 2 | Topic | Plants |
|---|---|---|---|
| • Observe and describe how seeds and bulbs grow into mature plants.<br>• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. | | | |

| Prior Learning | Future Learning |
|---|---|
| • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)<br>• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) | • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. (Y3 - Plants)<br>• Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. (Y3 - Plants)<br>• Investigate the way in which water is transported within plants. (Y3 - Plants)<br>• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants) |

| What pupils need to know or do to be secure | |
|---|---|
| Show understanding of a concept using scientific vocabulary correctly | |
| **Key Learning** | **Possible evidence** |
| 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. | • Can describe how plants that they have grown from seeds and bulbs have developed over time<br>• Can identify plants that grew well in different conditions |
| **Key Vocabulary** | |
| As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy | |

| Common Misconceptions | |
|---|---|
| Some children may think:<br>• plants are not alive as they cannot be seen to move<br>• seeds are not alive<br>• all plants start out as seeds<br>• seeds and bulbs need sunlight to germinate. | |
| Apply knowledge in familiar related contexts, including a range of enquiries | |
| **Activities** | **Possible Evidence** |
| • Plant spring and summer bulbs (daffs, tulips, hyacinths, alliums) + veg of choice – careful not to repeat other year groups (see above)<br>• Make close observations of seeds and bulbs.<br>• Classify seeds and bulbs by sorting and planting in the school grounds.<br>• Research and plan when and how to plant a range of seeds and bulbs, eg shade, light, time of year.<br>• Look after the plants as they grow – weeding, thinning, watering etc.<br>• Make close observations and measurements of their plants growing from seeds and bulbs.<br>• Make comparisons between plants as they grow. | • Can spot similarities and difference between bulbs and seeds<br>• Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants |

| Year | Foundation Stage | Topic | Animals Including Humans |
|---|---|---|---|

| Nursery Expectations | End of Reception |
|---|---|
| Understanding the World<br>• Use all sense in hands on exploration<br>• Talk about what they see with a with range of vocabulary. | Understanding the World<br>• Explore the natural world around them.<br>• Describe what they see, hear and feel when they are outside.<br>• Understand the key features of the life cycle of plants and **humans**.<br>• Begin to understand the need to respect and care for the natural environment and all living things.. |

Characteristics of Effective Learning

**Playing and exploring**

- I can plan and think about how I will explore or play with objects.
- I can bring my own interests and fascinations in to the early years settings.
- I can respond to new experiences when they are brought to my attention.

**Active Learning**

- I can keep on trying things when they are difficult.

**Creating and thinking critically**

- I can solve real problems
- I can make more links between my ideas.
- I can concentrate on achieving something that is important to me.
- I can give my attention to tasks and ignore distractions with increasing control.
- I can feel confident about coming up with my own ideas.

| Year Group | Key Learning | Activities | Possible Evidence | Key vocab |
|---|---|---|---|---|
| Nursery | Children can talk about describe creatures that they see in their environment – insects, arachnids, arthropods (minibeasts), as well as pets they may have at home. | Mini-Beast hunt<br>How do we look after Herman the Tortoise<br>Farm animals small world play<br>How do we look after ourselves<br>Self-portraits<br>Clean out Herman the tortoise and feed and water.<br>Share bay photos from home. | Tapestry/Photographs:<br>Children can name some of the minibeasts they find in the school environment such as ladybirds/butterflies. They can talk about some similarities and differences eg wings, colour, patterns.<br>Can say similarities and differences in appearance between themselves | Insect spiders ants woodlice worms<br>Tortoise shell patterns needs food water exercise<br>Lambs sheep<br>Calf cow<br>Washing bathing showering cleaning our teeth<br>Brushing our hair<br>Eyes nose ears mouth touch |

| | | | | |
|---|---|---|---|---|
| | Talk about what they look like/what their friends look like.<br>Discuss how they grow and change from baby to adulthood.<br>Look after school pets/make minibeast homes. | Share photos of pets, explain how to look after them.<br>Make minibeast hotels.<br>Make hibernation hotels. | and their peers, eg I have long hair and you have short hair. | |
| Reception | Comparing me and my friend.<br>What makes me unique?<br>Naming and describing / sorting animals.<br>How have I changed? | Circle times- I am the same as my friend because… / I am different because…<br>Mirror play<br>Self-portraits and descriptions<br>What can different ages do?<br>Sorting activities – objects, photos, who does it belong too.<br>Who lives at my house? PSE link – different families. | Observations/discussions and explanations/sorting reasoning:<br>Looking at pictures of faces and using comparative language.<br>Comparing living creatures saying what is the same or different eg a snake has no legs but a dog has 4.<br>I am different from a baby because I can do this…. | Grow, older, younger, bigger, smaller, key features e.g. hair colour, glasses, baby, toddler, child, adult, family. |

| Year | 1 | Topic | Animals Including Humans |
|---|---|---|---|

- 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 | Future Learning |
|---|---|
| Children will be able to name and describe some animals, talking about similarities and differences between them, as well as humans. | • 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)<br>• • 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)<br>• • Give reasons for classifying plants and animals based on specific characteristics. (Y6 - Living things and their habitats) |

| What pupils need to know or do to be secure | |
|---|---|
| Show understanding of a concept using scientific vocabulary correctly | |
| **Key Learning** | **Possible evidence** |
| 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.<br>Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.<br>Humans have key parts in common, but these vary from person to person.<br>Humans (and other animals) find out about the world using their senses.<br>Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body. | • Can name a range of animals which includes animals from each of the vertebrate groups<br>• Can describe the key features of these named animals<br>• Can label key features on a picture/diagram<br>• Can write descriptively about an animal<br>• Can write a What am I? riddle about an animal<br>• Can describe what a range of animals eat<br>• Can play and lead 'Simon says'<br>• During PE lessons, can follow instructions involving parts of the body |

| Key Vocabulary | |
|---|---|
| • Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves<br>• Names of animals experienced first-hand from each vertebrate group<br>• Parts of the body including those linked to PSHE teaching<br>• Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue<br>N.B.<br>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.<br>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.<br>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. | |

| Common Misconceptions |
|---|
| Some children may think:<br>• only four-legged mammals, such as pets, are animals<br>• humans are not animals<br>• insects are not animals<br>• all 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group<br>• amphibians and reptiles are the same. |

| Apply knowledge in familiar related contexts, including a range of enquiries | |
|---|---|
| **Activities** | **Possible Evidence** |
| • Make first-hand, close observations of animals from each of the groups.<br>• Compare two animals from the same or different groups in our Squeak Meow Roar topic.<br>• Classify animals using a range of features. | • Can sort and group animals using similarities and differences<br>• Can use simple charts etc. to identify unknown animals<br>• Can create a drawing of an imaginary animal labelling its key features<br>• Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zookeepers etc. |

| | |
|---|---|
| • Identify animals by matching them to named images.<br>• Classify animals according to what they eat, using clips from Andy's Safari Adventures.<br>• Make first-hand close observations of parts of the body e.g. hands, eyes, drawing and labelling bodies in chalk on the school playground.<br>• Compare two people.<br>• Take measurements of parts of their body.<br>• Compare parts of their own body.<br>• Look for patterns between people e.g. Do people with big hands have big feet?<br>• Classify people according to their features.<br>• 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? | • Can use first-hand close observations to make detailed drawings<br>• 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."<br>• 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." |

| Year | 2 | Topic | Animals Including Humans |
|---|---|---|---|

- 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.

| Prior Learning | Future Learning |
|---|---|
| • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans)<br>• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) | • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans)<br>• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats)<br>• Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)<br>• Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans) |

| What pupils need to know or do to be secure | |
|---|---|
| Show understanding of a concept using scientific vocabulary correctly | |
| **Key Learning** | **Possible evidence** |
| 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.<br>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. | • Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages<br>• Can state the basic needs of animals, including humans, for survival<br>• Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene<br>• Can name foods in each section of the Eatwell Guide |

| | |
|---|---|
| Good hygiene is also important in preventing infections and illnesses. | |
| **Key Vocabulary** | |
| Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta) | |

**Common Misconceptions**

Some children may think:
- an animal's habitat is like its 'home'
- all animals that live in the sea are fish
- respiration is breathing
- breathing is respiration.

Apply knowledge in familiar related contexts, including a range of enquiries

| Activities | Possible Evidence |
|---|---|
| • Ask people questions and use secondary sources to find out about the life cycles of some animals, relating to our class minibeasts – dragonflies, crickets and glow-worms.<br>• Observe animals growing over a period of time e.g. chicks, caterpillars, a baby.<br>• Ask questions of a parent about how they look after their baby.<br>• Ask pet owners questions about how they look after their pet.<br>• Explore the effect of exercise on their bodies.<br>• Classify food in a range of ways, including using the Eatwell Guide.<br>• Investigate washing hands, using glitter gel. | • Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child<br>• Can measure/observe how animals, including humans, grow.<br>• Show what they know about looking after a baby/animal by creating a parenting/pet owners' guide<br>• Explain how development and health might be affected by differing conditions and needs being met/not met |

| Year | Foundation Stage | Topic | Everyday Materials |
|---|---|---|---|

| Nursery Expectations | End of Reception |
|---|---|
| Understanding the World<br>• Explore collections of materials with similar and/or different properties.<br>• Talk about differences between materials and changes they notice. | Understanding the World<br>• No objectives for this year group |

**Characteristics of Effective Learning**

**Playing and exploring**

- I can plan and think about how I will explore or play with objects.
- I can bring my own interests and fascinations in to the early years settings.
- I can respond to new experiences when they are brought to my attention.

**Active Learning**

- I can keep on trying things when they are difficult.

**Creating and thinking critically**

- I can sort materials
- I can solve real problems
- I can make more links between my ideas.
- I can concentrate on achieving something that is important to me.
- I can give my attention to tasks and ignore distractions with increasing control.
- I can feel confident about coming up with my own ideas.

| Year Group | Key Learning | Activities | Possible Evidence | Key vocab |
|---|---|---|---|---|
| Nursery | Similarities and differences – language to describe materials and how they feel.<br>Name some things objects are made of. | The story of the three little pigs-talking about materials needing to be fit for purpose.<br>Children use junk modelling such as toilet rolls, paper cups, tubes, paper and pegs to make your own pig and wolf characters to act out the story.<br>Floating & sinking | Tapestry/Paintings/drawings:<br>Name some materials eg wood, paper, plastic.<br>Can fix construction toys together to build and try out ways to stop it falling over.<br>Can use glue or sellotape to join materials together, sometimes with support. | Straw sticks bricks glass plastic wood metal fabric waterproof non-waterproof heavy light strong weak build design |

| | | | | |
|---|---|---|---|---|
| Reception | There is no key learning for this year group. Reception staff must check to see that key learning in Nursery is embedded and if not provide opportunities for this in their year group. | Three Little pigs - Testing materials for strength – Can you blow them down? – using various materials & blowing can you test what will fall down (lego brick, sticks, stones, leaves, tinfoil)<br>Build the strongest house you can using natural resources.<br>Construction<br>Sorting activities<br>Noticing change e.g. melting<br>Floating and sinking experiments<br>Comparing materials<br>Choosing the best material – why?<br>Waterproofing. | Observations/discussions and explanations/sorting reasoning:<br>This fell down because..<br>I think this is stronger because…<br>This is made from…<br>Talking about properties of materials, naming materials. | Material names – wood, stone, glass, metal, brick, plastic,<br>material properties<br>float, sink, melt, freeze |

| Year | 1 | Topic | Everyday Materials |
|---|---|---|---|

- 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.

| Prior Learning | Future Learning |
|---|---|
| Children will have explored collections of materials with similar and/or different properties and used a wide vocabulary to describe them. They have talked about differences between materials and changes they notice. | • 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)<br>• 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) |

<table>
<tr><th colspan="2">What pupils need to know or do to be secure</th></tr>
<tr><th colspan="2">Show understanding of a concept using scientific vocabulary correctly</th></tr>
<tr><th>Key Learning</th><th>Possible evidence</th></tr>
<tr><td>All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons.<br>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.</td><td rowspan="3"><ul><li>Can label a picture or diagram of an object made from different materials</li><li>Can describe the properties of different materials</li></ul></td></tr>
<tr><th>Key Vocabulary</th></tr>
<tr><td>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</td></tr>
<tr><th colspan="2">Common Misconceptions</th></tr>
<tr><td colspan="2">Some children may think:<br>• only fabrics are materials<br>• only building materials are materials<br>• only writing materials are materials<br>• the word ‘rock’ describes an object rather than a material<br>• ‘solid’ is another word for hard.</td></tr>
<tr><th colspan="2">Apply knowledge in familiar related contexts, including a range of enquiries</th></tr>
<tr><th>Activities</th><th>Possible Evidence</th></tr>
<tr><td><ul><li>Classify objects made of one material in different ways e.g. a group of object made of metal.</li><li>Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials.</li><li>Classify materials based on their properties.</li><li>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.</li><li>Look at the materials of different inventions eg umbrella,</li><li>Test materials for making a spacesuit</li></ul></td><td><ul><li>Can sort objects and materials using a range of properties</li><li>Can choose an appropriate method for testing an object for a particular property</li><li>Can use their test evidence to answer the questions about properties e.g. “Which cloth is the most absorbent?”</li></ul></td></tr>
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| Year | 2 | Topic | Uses of Everyday Materials |
|---|---|---|---|

- 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.

| Prior Learning | Future Learning |
|---|---|
| • Distinguish between an object and the material from which it is made. (Y1 - Everyday materials)<br>• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials)<br>• Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials)<br>• Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) | • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (Y3 - Rocks)<br>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets)<br>• Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials)<br>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials) |

| What pupils need to know or do to be secure | |
|---|---|
| Show understanding of a concept using scientific vocabulary correctly | |
| **Key Learning** | **Possible evidence** |
| 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.<br>Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by | • 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<br>• Can label a picture or diagram of an object made from different materials<br>• For a given object can identify what properties a suitable material needs to have<br>• Whilst changing the shape of an object can describe the action used<br>• 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 |

<table>
<tr><td>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.</td><td rowspan="3">• Can recognise that a material may come in different forms which have different properties</td></tr>
<tr><td>Key Vocabulary</td></tr>
<tr><td>Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard<br>Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid<br>Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching</td></tr>
<tr><td colspan="2">Common Misconceptions</td></tr>
<tr><td colspan="2">Some children may think:<br>• only fabrics are materials<br>• only building materials are materials<br>• only writing materials are materials<br>• the word rock describes an object rather than a material<br>• solid is another word for hard.</td></tr>
<tr><td colspan="2">Apply knowledge in familiar related contexts, including a range of enquiries</td></tr>
<tr><td>Activities</td><td>Possible Evidence</td></tr>
<tr><td>• Classify materials.<br>• Make suggestions about alternative materials for a purpose that are both suitable and unsuitable<br>• 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</td><td>• Can sort materials using a range of properties<br>• Can explain using the key properties why a material is suitable or not suitable for a purpose<br>• Can begin to choose an appropriate method for testing a material for a particular property<br>• Can use their test evidence to select appropriate material for a purpose e.g. Which material is the best for a rain hat?</td></tr>
</table>

| Year | Foundation Stage | Topic | Seasonal Changes |
|---|---|---|---|
| Nursery Expectations | | End of Reception | |
| Understanding the World<br>• Talk about what they see, with a wide range of vocabulary. | | Understand the World<br>• Explore the natural world around them.<br>• Describe what they see, hear and feel when they are outside. Understand the effect of changing seasons on the natural world around them. | |
| Characteristics of Effective Learning | | | |
| **Playing and exploring**<br>• I can plan and think about how I will explore or play with objects.<br>• I can bring my own interests and fascinations in to the early years settings.<br>• I can respond to new experiences when they are brought to my attention.<br>**Active Learning**<br>• I can keep on trying things when they are difficult.<br>**Creating and thinking critically**<br>• I can solve real problems<br>• I can make more links between my ideas.<br>• I can concentrate on achieving something that is important to me.<br>• I can give my attention to tasks and ignore distractions with increasing control.<br>• I can feel confident about coming up with my own ideas. | | | |

| Year Group | Key Learning | Activities | Possible Evidence | Key vocab |
|---|---|---|---|---|
| Nursery | Explain what they see in the natural world around them in each season. | Signs of Spring Walk<br>Signs of Summer Walk<br>Signs of Autumn walk. Autumn leaf hunt<br>Signs of Winter walk<br>Play in the snow/frost<br>Ice tray exploration. | Tapestry/Paintings/drawings:<br>Draw, talk about and discuss weather they see at different times of year – I feel hot/cold, it is raining, it is sunny, it is icy/frosty. Choose appropriate clothes for the weather at different times of year. | Season Year Month Spring Summer Autumn Winter Blossom buds Daffodils Snowdrops lambs chicks Weather sunshine sunburn hot snow frost freezing icicles ice black ice sleet hail cold thunder lightening<br>same different |
| Reception | What is happening and | Weather watch – diary<br>Discussions<br>Season hunt – what has changed | Observations/discussions and explanations/art work: | Autumn, summer, winter, spring<br><br>Weathers |

| | | | | |
|---|---|---|---|---|
| | changing outside?<br>Naming the seasons<br>What do we see / observe at these times.<br>Name and describe different weathers<br>Ask questions about what is happening | Playing in the season – leaves, snow, rain etc.<br>What clothes do I need?<br>Describing what is happening and why.<br>Seasonal pictures. | | Darker, colder, brighter, longer days etc. |

| Year | 1 | Topic | Seasonal Changes |
|---|---|---|---|
| • Observe changes across the four seasons.<br>• Observe and describe weather associated with the seasons and how day length varies. | | | |

| Prior Learning | Future Learning |
|---|---|
| Children have explored the natural world around them, describing what they could see, hear and feel when they are outside at different times of year. They understand the effect of changing seasons on the natural world around them. | • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light)<br>• 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)<br>• The seasons and the Earth's tilt, day length at different times of year, in different hemispheres. (KS3) |

| What pupils need to know or do to be secure | |
|---|---|
| Show understanding of a concept using scientific vocabulary correctly | |
| **Key Learning** | **Possible evidence** |
| 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.<br>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. | • Can name the four seasons and identify when in the year they occur<br>• Can describe weather in different seasons over a year<br>• Can describe days as being longer (in time) in the summer and shorter in the winter<br>• Can describe other features that change through the year |
| **Key Vocabulary** | |
| • Weather (sunny, rainy, windy, snowy etc.)<br>• Seasons (winter, summer, spring, autumn)<br>• Sun, sunrise, sunset, day length | |

| Common Misconceptions | |
|---|---|
| Some children may think:<br>• it always snows in winter<br>• it is always sunny in the summer<br>• there are only flowers in spring and summer<br>• it rains most in the winter. | |
| Apply knowledge in familiar related contexts, including a range of enquiries | |
| **Activities** | **Possible Evidence** |
| • Collect information about the weather regularly throughout the year.<br>• Present this information in tables and charts to compare the weather across the seasons.<br>• Take photographs of the pear tree/willow tree in every season.<br>• Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans.<br>• Present this information in different ways to compare the seasons.<br>• Gather data about day length regularly throughout the year and present this to compare the seasons. | • Use the evidence gathered to describe the general types of weather and changes in day length over the seasons.<br>• Use their evidence to describe some other features of their surroundings, e.g. themselves, animals, plants that change over the seasons<br>• Demonstrate their knowledge in different ways e.g. making a weather forecast video, writing seasonal poetry, creating seasonal artwork |

| Year | Foundation Stage | Topic | Living Things and Their Habitats |
|---|---|---|---|
| Nursery Expectations | | End of Reception | |
| Understanding the World<br>• Talk about what they see with a wide range of vocabulary.<br>• Plant seeds and care for growing plants.<br>• Begin to understand the need to respect and care for the natural environment and all living things. | | Understanding the World<br>Explore the natural world around them | |
| Characteristics of Effective Learning | | | |
| **Playing and exploring**<br>• I can plan and think about how I will explore or play with objects.<br>• I can bring my own interests and fascinations in to the early years settings.<br>• I can respond to new experiences when they are brought to my attention.<br>**Active Learning**<br>• I can keep on trying things when they are difficult.<br>**Creating and thinking critically**<br>• I can solve real problems<br>• I can make more links between my ideas.<br>• I can concentrate on achieving something that is important to me.<br>• I can give my attention to tasks and ignore distractions with increasing control.<br>• I can feel confident about coming up with my own ideas. | | | |

| Year Group | Key Learning | Activities | Possible Evidence | Key vocab |
|---|---|---|---|---|
| Nursery | Talk about animals and plants they see and where they live.<br>Discuss and name things that plants and animals (including humans need to stay alive) | Farm Animals<br>The life-cycle of a Butterfly/The Very Hungry Caterpillar<br>Changes from baby to adult.<br>Babies, children, Teenager, Adult.<br>What do we eat?<br>What do animals eat? | Tapestry/paintings/drawings:<br>Can make butterfly and caterpillar pictures and talk about how they change from one to the other.<br>Can retell the story of the very hungry caterpillar.<br>Looking for caterpillars and butterflies in their environment and talk about where they find them. | Grow change egg chrysalis pupa<br>Animal names<br>Pond, frogspawn, tadpole, froglet, frog, babies, children, teenager, adult. |

| | | | | |
|---|---|---|---|---|
| Reception | Commenting and asking questions<br>Naming and describing<br>Different and similarities | Naming and learning about animals<br><br>Sorting animals according to different features<br><br>Where do animals live? What is it like there?<br><br>Baby animals and their mummies | Observations<br><br>Discussions and explanations<br><br>Art work<br><br>Small world play | Animal names and where they live – simple habitat names eg pond, desert, ocean, farm. |

| Year | 2 | Topic | 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

| Prior Learning | Future Learning |
|---|---|
| • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)<br>• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)<br>• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans)<br>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans)<br>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans)<br>• Observe changes across the four seasons. (Y1 - Seasonal changes) | • Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats)<br>• Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Living things and their habitats)<br>• Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats)<br>• Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans) |

| What pupils need to know or do to be secure | |
|---|---|
| Show understanding of a concept using scientific vocabulary correctly | |
| **Key Learning** | **Possible evidence** |
| 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.) | • Can find a range of items outside that are living, dead and never lived<br>• Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied |

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, 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.

- 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

**Key Vocabulary**

- Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed
- Names of local habitats e.g. pond, woodland etc.
- Names of micro-habitats e.g. under logs, in bushes etc.

**Common Misconceptions**

Some children may think:
• an animal's habitat is like its 'home'
• plants and seeds are not alive as they cannot be seen to move
• fire is living
• arrows in a food chain mean 'eats'.

Apply knowledge in familiar related contexts, including a range of enquiries

| Activities | Possible Evidence |
|---|---|
| • Explore the outside environment (school playground/common) regularly to find objects that are living, dead and have never lived.<br>• Classify objects found in the local environment. | • Can sort into living, dead and never lived<br>• Can give key features that mean the animal or plant is suited to its micro-habitat<br>• Using a food chain can explain what animals eat |

| | |
|---|---|
| • Observe animals and plants carefully, drawing and labelling diagrams.<br>• Create simple food chains for a familiar local habitat from first-hand observation and research.<br>• Create simple food chains from information given e.g. in picture books (Gruffalo etc.). | • Can explain in simple terms why an animal or plant is suited to a habitat e.g. the caterpillar cannot live under the soil like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty |

Amended by Rachel Smith March 2022