

	Autumn Term	Spring Term	Summer Term
Term 1	Materials	Animals, including Humans	Living things and their habitats
Term 2	Light	Forces	Plants

	Key Stage One		Key Stage Two
Terms	Class One	Class Two	Class Three
Autumn Term 1	Everyday Materials	Use of Everyday Materials	States of Matter
Objectives	<p><b>Year 1</b></p> <ul style="list-style-type: none"> <li>Children should explore, name, discuss and raise and answer questions about everyday materials so that they become familiar with the names of materials and properties such as: <i>hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent</i>. Children should explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, foil.</li> <li>Children might work scientifically by: performing simple tests to explore questions, for example: <i>What is the best material for an umbrella? ... for lining a dog basket? ... for curtains? ... for a bookshelf? ... for a gymnast's leotard?</i></li> </ul>	<p><b>Year 2</b></p> <ul style="list-style-type: none"> <li>Children should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). They should think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials. Children might find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam.</li> <li>Children might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.</li> </ul>	<p><b>Year 4</b></p> <ul style="list-style-type: none"> <li>Children should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). Children should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled.</li> <li><b>Note:</b> Teachers should avoid using materials where heating is associated with chemical change.</li> <li>Children might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream. They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.</li> </ul>
Autumn 2	Light	Light	Light
Objectives	<p>-Children could learn that light is essential for seeing things and that when it is dark other senses can be used to help us find things and identify things.</p> <p>-Children could learn that there are many sources of light; that light sources vary in brightness and to observe and make comparisons of sources of light.</p> <p>-Children could learn that sources of light show up best at night-time.</p> <p>-Children could learn that objects cannot be seen in darkness and to observe and make comparisons of sources of light and to</p>	<p><b>Year 3</b></p> <ul style="list-style-type: none"> <li>Children should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.</li> <li><b>Note:</b> Children should be warned that it is not safe</li> </ul>	<p><b>Year 6</b></p> <ul style="list-style-type: none"> <li>Children should build on the work on light in Year 3, exploring the way that light behaves, including light sources, reflection and shadows. They should talk about what happens and make predictions.</li> <li>Children might work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources,</li> </ul>

	<p>try to explain what they observed.  <i>-Children could learn that the Sun is the source of light for the Earth; that it is dangerous to look at the Sun because it is so bright and to make observations and to try to explain these.</i>  <i>-Children could learn that shiny objects need a light source if they are to shine; that shiny objects are not light sources; to suggest how to find out about where a reflective strip will shine brightly and to make observations and simple comparisons and to say whether what they found out was what they expected</i></p>	<p>to look directly at the Sun, even when wearing dark glasses.  <ul style="list-style-type: none"> <li>Children might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</li> </ul> </p>	<p>objects and shadows by using shadow puppets. They could extend their experience of light by looking at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur).</p>
<p>Spring 1</p>	<p>Animals, including Humans</p>	<p>Animals, including Humans</p>	<p>Animals, including Humans</p>
<p>Objectives</p>	<p><b>Year 1</b></p> <ul style="list-style-type: none"> <li>Children should use the local environment throughout the year to explore and answer questions about animals in their habitat. They should understand how to take care of animals taken from their local environment and the need to return them safely after study. Children should become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets.</li> <li>Children should have plenty of opportunities to learn the names of the main body parts (including <i>head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth</i>) through games, actions, songs and rhymes.</li> <li>Children might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.</li> </ul>	<p><b>Year 2</b></p> <ul style="list-style-type: none"> <li>Children should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. They should also be introduced to the processes of reproduction and growth in animals. The focus at this stage should be on questions that help children to recognise growth; they should not be expected to understand how reproduction occurs.</li> <li>The following examples might be used: <i>egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep.</i> Growing into adults can include reference to <i>baby, toddler, child, teenager, adult.</i></li> <li>Children might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.</li> </ul> <p><b>Year 3</b></p> <ul style="list-style-type: none"> <li>Children should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.</li> <li>Children might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us</li> </ul>	<p><b>Year 4</b></p> <ul style="list-style-type: none"> <li>Children should be introduced to the main body parts associated with the digestive system and explore questions that help them to understand their special functions.</li> <li>Children might work scientifically by: comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.</li> </ul> <p><b>Year 5</b></p> <ul style="list-style-type: none"> <li>Children should draw a timeline to indicate stages in the growth of humans, and learn about puberty.</li> <li>Children could work scientifically by comparing the gestation periods of other animals with humans.</li> </ul> <p><b>Year 6</b></p> <ul style="list-style-type: none"> <li>Children should build on their learning from Years 3 and 4 about the main body parts and internal organs to explore and answer questions that help them to understand how the circulatory system enables the body to function.</li> <li>Children should learn how to keep their bodies healthy and how their bodies might be damaged.</li> <li>Children might work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</li> </ul>

		healthy and design meals based on what they find out.	
Spring 2	Forces	Forces and Magnets	Forces
Objectives	<p>-Children could learn that there are many sorts of movement which can be described in many ways; to observe and describe different ways of moving; that pushing or pulling things can make objects start or stop moving; to identify similarities and differences between the movement of different objects and to make suggestions about how objects can be made to move and to find out whether they were right.</p> <p>-Children could learn to recognise hazards and risks to themselves in moving objects; that it is not only ourselves that make things move by pushing and to ask questions about what is causing movement.</p>	<p><b>Year 3</b></p> <ul style="list-style-type: none"> <li>Children should observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They should explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe).</li> <li>Children might work scientifically by: comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, such as the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.</li> </ul>	<p><b>Year 5</b></p> <ul style="list-style-type: none"> <li>Children should explore falling objects and raise questions about the effects of air resistance. They should explore the effects of air resistance by observing how different objects fall. They should experience forces that make things begin to move, get faster or slow down. Children should explore the effects of friction on movement and find out how it slows or stops moving objects. Children should explore the effects of levers, pulleys and simple machines on movement. Children might find out how scientists helped to develop the theory of gravitation.</li> <li>Children might work scientifically by: exploring falling paper cones or cup-cake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They might explore resistance in water by making and testing boats of different shapes. They might design and make products that use levers, pulleys, gears and/or springs and explore their effects.</li> </ul>
Summer 1	Living things and their habitats	Living things and their habitats	Living things and their habitats
Objectives	<p>-Children could learn that there are different kinds of plants and animals in the immediate environment; to treat animals and the environment with care and sensitivity; to recognise hazards in working with soil; to observe and make a record of animals and plants found and to present results in a table.</p> <p>-Children could learn that there are differences between local habitats; to make predictions about the animals and plants found in different local habitats and to investigate these and to use drawings to present results and make comparisons saying whether their predictions were supported.</p> <p>-Children could learn that flowering plants produce seeds.</p> <p>-Children could learn to turn ideas of their own, about what plants need to begin to grow, into a form that can be tested; to observe and make a day-by-day record of observations; to use the results to draw a conclusion about what seeds need to begin to grow and decide whether this is what they expected and that seeds produce new plants</p> <p>-Children could learn that animals reproduce and change as they grow older.</p>	<p><b>Year 2</b></p> <ul style="list-style-type: none"> <li>Children should be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They should raise and answer questions that help them to become familiar with the life processes that are common to all living things. Children should be introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). They should raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals. Children should compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest.</li> <li>Children might work scientifically by: sorting and</li> </ul>	<p><b>Year 4</b></p> <ul style="list-style-type: none"> <li>Children should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. They should identify how the habitat changes throughout the year. Children should explore possible ways of grouping a wide selection of living things. Children could begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects.</li> <li><b>Note:</b> Plants can be grouped into categories such as flowering plants and non-flowering plants.</li> <li>Children should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.</li> <li>Children might work scientifically by: using and making</li> </ul>

		<p>classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions for example: <i>Is a flame alive? Is a deciduous tree dead in winter?</i> and talk about ways of answering their questions. They could construct a simple food chain that includes humans (e.g. grass, cow, human). They could describe the conditions in different habitats and micro-habitats (under log, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there.</p>	<p>simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.</p> <p><b><u>Year 5</u></b></p> <ul style="list-style-type: none"> <li>• Children should study and raise questions about their local environment throughout the year. They should observe life-cycle changes in a variety of living things and animals in the local environment. They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall.</li> <li>• Children should find out about different types of reproduction in plants and animals.</li> <li>• Children might work scientifically by: observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.</li> </ul> <p><b><u>Year 6</u></b></p> <ul style="list-style-type: none"> <li>• Children should build on their learning about grouping living things in Year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates and vertebrates. They should discuss reasons why living things are placed in one group and not another.</li> <li>• Children might find out about the significance of the work of scientists such as Carl Linnaeus.</li> <li>• Children might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in</li> </ul>
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			the classification system.
Summer 2	Plants	Plants	Plants
Objectives	<p><b>Year 1</b></p> <ul style="list-style-type: none"> <li>Children should use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Where possible, they should observe the growth of flowers and vegetables that they have planted.</li> <li>They should become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including <i>leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem</i>).</li> <li>Children might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants and trees. Children might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.</li> </ul>	<p><b>Year 2</b></p> <ul style="list-style-type: none"> <li>Children should use the local environment throughout the year to observe how different plants grow. Children should be introduced to the requirements of plants for germination, growth and survival, as well as to the processes of reproduction and growth in plants.</li> <li><b>Note:</b> Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them.</li> <li>Children might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.</li> </ul> <p><b>Year 3</b></p> <ul style="list-style-type: none"> <li>Children should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed.</li> <li>Children might work scientifically by: finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume.</li> </ul>	<p>Living Things and their Habitats Continues with a plant study</p>