


Science Curriculum Overview 2024- 2025

<p>Nursery (Three and Four Year Olds)</p>	<p>Throughout the year, children will be learning to understand ‘why’ questions, e.g. “Why do you think the caterpillar got so fat?” They will learn about making healthy choices regarding food, drink, exercise and tooth brushing. They will be using their senses to explore different materials, talk about things they can see and forces they can feel. They will explore how things work. They will begin to make sense of their own life-story and their family history. They will explore plants including planting seeds and caring for growing plants. They will learn to understand the key features of the life cycle of a plant and an animal. They will begin to understand the need to respect and care for the natural environment and all living things.</p>					
<p>Reception</p>	<p>Throughout the year, children will explore the different factors that support their overall health and wellbeing including: regular physical activity, healthy eating, tooth brushing, sensible amounts of ‘screen time’, having a good sleep routine and being a safe pedestrian. They will explore the natural world around them and use their senses to describe what they see, hear and feel while they are outside. They will learn to recognise some environments that are different to the one in which they live. They will learn to understand the effect of changing seasons on the natural world around them.</p>					
	<p>Autumn 1</p>	<p>Autumn 2</p>	<p>Spring 1</p>	<p>Spring 2</p>	<p>Summer 1</p>	<p>Summer 2</p>
<p>Year 1</p>	<p>Animals Including Humans Part 1 Using the local environment, children explore and answer questions about animals in their habitat. They will understand how to take care of animals taken from their local environment and the need to return them safely after study. They will be able to identify and name a variety of common animals that are carnivores, herbivores and omnivores including fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. They will be able to describe and compare the structure of these animals.</p>	<p>Seasonal Change Children will observe and talk about changes in the weather and across the four seasons. They will observe and describe weather associated with seasons and how day length varies. They will learn that it is not safe to look directly at the sun, even when wearing dark glasses. <i>Children will work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change.</i></p>	<p>Everyday Materials Children will explore, name, discuss, raise, and answer questions about everyday materials so that they become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. Children will learn to distinguish between an object and the material from which it is made. They will identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. They will be able to describe the simple physical properties of a variety of</p>	<p>Animals Including Humans Part 2 They will be able to identify, name, draw and label the basic parts of the human body and know which part of the body is associated with each sense. <i>Children will have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes.</i></p>	<p>Plants Using the local environment, children will explore and answer questions about plants growing in their habitat. They will be able to identify and name a variety of common wild and garden plants and flowers, including deciduous and evergreen trees. They will also learn to identify and describe the basic structure of a variety of common flowering plants, including trees (leaves, flowers, blossom, petals, fruit, roots, bulb, seed, trunk, branches, and stem). <i>Children will work scientifically by: observing closely, perhaps using</i></p>	<p>Revision of units covered this year</p>

	Children will 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.		everyday materials. They will learn to compare and group together a variety of everyday materials based on their simple, physical properties. In addition, children will further explore and experiment with other materials, including: brick, paper, fabrics, elastic and foil. Children will work scientifically by: performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ... for lining a dog basket? ... for curtains? ... for a bookshelf? ... for a gymnast's leotard?'		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 including trees. Children will 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. They will observe the growth of flowers and vegetables they have planted.	
Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Living Things and Their Habitats Children will be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. They will raise and answer questions that help them to become familiar with the life processes that are common to all living things. Children will explore and compare the differences between things that are living, dead and things that have never been alive. Children will be introduced to the terms 'habitat' (a natural	Uses of everyday materials Children will 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. For example, metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles. Alternatively, different materials are used for the same thing, for example, spoons can be made from plastic, wood, metal, but not normally from glass. Children will identify and compare the suitability of a	Animals Including Humans Children will be introduced to the basic needs of animals for survival; they will find out about and describe the basic needs of animals, including humans, for survival (water, food and air). They will also learn to describe the importance of exercise and nutrition for humans, as well as eating the right amounts of different types of food and hygiene. Children will also be introduced to the processes of reproduction and growth in animals. They will learn that animals, including humans, have	Plants Children will use the local environment throughout the year to observe and describe how seeds and bulbs grow into mature plants. They will find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. They will also be introduced to the requirements of plants for germination, growth and survival, as well as the processes of reproduction and growth in plants. Children will also learn that seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them. Children will 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.		Revision of units covered this year

	<p>environment or home of a variety of plants and animals) and ‘microhabitat’ (a very small habitat, for example for woodlice under stones, logs or leaf litter). They will 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. They will learn to 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. They will identify and name a variety of plants and animals in their habitats, including microhabitats. They will 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. In addition, children will 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.</p>	<p>variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. They will find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. They will be able to describe the simple physical properties of a variety of everyday materials. They will compare and group together a variety of everyday materials based on their simple, physical properties. In addition, they will learn to think about the properties of materials that make them suitable or unsuitable for particular purposes and they will be encouraged to think about unusual and creative uses for everyday materials. Children will also find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam.</p> <p>Children will 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</p>	<p>offspring, which grow into adults. The focus at this stage will be on questions that help children to recognise growth. The following examples will be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults will include reference to baby, toddler, child, teenager and adult.</p> <p>Children will 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.</p>		
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Year 3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Animals Including Humans Children will continue to learn about the importance of nutrition and will be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions. Children will learn to identify that</p>	<p>Rocks Linked with work in geography, children will explore different kinds of rocks and soils, including those in the local environment. They will compare and group together different kinds of rocks based on their appearance and simple physical</p>	<p>Forces and Magnets Children will compare how things move on different surfaces. They will observe that most forces need direct contact between two objects (for example, opening a door, pushing a swing) but magnetic forces can act at a distance, without direct contact.</p>	<p>Plants Children will be introduced to the relationship between structure and function: the idea that every part of the plant has a job to do. Children will be able to identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. They will</p>	<p>Light Children will recognise that we need light in order to see things and that dark is the absence of light. They will notice that light is reflected from surfaces. Children will explore what happens when light reflects off a mirror or</p>	<p>Revision of units covered in the year</p>

	<p>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. They will learn to identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Children will 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 will compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They will research different food groups and how they keep us healthy, and design meals based on what they find out.</p>	<p>properties. They will describe in simple terms how fossils are formed when things that have lived are trapped within rock. They will recognise that soils are made from rocks and organic matter.</p> <p>Children will work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Children will research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Children will explore different soils, identify similarities and differences between them, and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They will raise and answer questions about the way soils are formed.</p>	<p>Children will observe how magnets attract or repel each other and attract some materials and not others. They will compare and group together a variety of everyday materials based on whether they are attracted to a magnet and identify some magnetic materials. They will be able to describe magnets as having two poles and predict whether two magnets will attract or repel each other, depending on which poles are facing. In addition, they will explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe).</p> <p>Children will 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 to 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, for example, the</p>	<p>explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. They will examine the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow), how this varies from plant to plant and they will be introduced to the idea that plants can make their own food. They will investigate the way in which water is transported within plants. They will also investigate the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p>Children will work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They will observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.</p>	<p>other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They will recognise that light from the sun can be dangerous and be reminded from Year 1 work that it is not safe to look directly at the sun, even when wearing dark glasses. They will learn that there are ways to protect their eyes and about why it is important to protect their eyes from bright lights. They will recognise that shadows are formed when a solid object blocks the light from a light source. In addition, they will look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.</p> <p>Children will 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.</p>	
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Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Electricity Children will identify common appliances that run on electricity. They will construct simple series electrical circuits, trying different components, identifying and naming basic parts, including cells, wires, bulbs, buzzers, switches and motors. They will use their circuits to create simple devices. They will learn to identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. They will recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. They will recognise some common conductors and insulators, and associate metals with being good conductors. Children will learn to draw the circuit as a pictorial representation. Children will be made aware of the terms current and voltage, in preparation for Year 6. They will also be taught about precautions</p>	<p>Sound Children will identify how sounds are made, associating some of them with something vibrating. They will recognise that vibrations from sounds travel through a medium to the ear. They will find patterns between the pitch of a sound and features of the object that produced it. They will find patterns between the volume of a sound and the strength of the vibrations that produced it. They will recognise that sounds get fainter as the distance from the sound source increases. Children will also explore and identify the way sound is made through vibration in a range of different musical instruments from around the world, investigating how the pitch and volume of sounds can be changed in a variety of ways.</p> <p>Children will 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</p>	<p>States of Matter Children will 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 will observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. Children will be able to compare and group materials together, according to whether they are solids, liquids or gases. They will observe that some materials change state when they are heated or cooled and measure or research the temperature at which this happens in degrees Celsius (°C). They will be able to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>Children will work scientifically by: grouping and classifying a variety of different materials;</p>	<p>Living Things and their Habitats Children will 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 will identify how the habitat changes throughout the year. Children will recognise that living things can be grouped in a variety of ways. They will explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Children will also explore possible ways of grouping a wide selection of living things that include animals, flowering plants (including grasses) and non-flowering plants (ferns and mosses). Children will begin to put vertebrate animals into groups, for example: fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. Children will recognise that environments can change and that this can sometimes pose dangers to living things. They will also explore examples of human</p>	<p>Animals including Humans Children will be introduced to the main body parts associated with the digestive system in humans, for example: mouth, tongue, teeth, oesophagus, stomach, and small and large intestine, and explore questions that help them to understand and describe their special functions. They will learn to identify the different types of teeth in humans and their simple functions. They will be able to construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Children will 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 will draw and discuss their ideas about the digestive system and</p>	Revision of units covered in the year

	<p>for working safely with electricity.</p> <p>Children will work scientifically by: observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p>	<p>thicknesses. They will make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They will make and play their own instruments by using what they have found out about pitch and volume.</p>	<p>exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They will research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They will 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.</p>	<p>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.</p> <p>Children will work scientifically by: using and making 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>compare them with models or images.</p>	
Year 5	<p>Autumn 1</p> <p>Living Things and their Habitats</p> <p>Children will study and raise questions about their local environment throughout the year. They will observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment. Children will be able to describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. They will learn to describe the life process of reproduction in some plants and animals. They will research the work of</p>	<p>Autumn 2</p> <p>Properties and Changes of Materials</p> <p>Children will build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials, including relating these to what they learnt about magnetism in Year 3 and about electricity in Year 4. They will compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. They will use knowledge of solids, liquids</p>	<p>Spring 1</p> <p>Forces</p> <p>Children will explore falling objects and be able to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. They will raise questions and identify the effects of air resistance, water resistance and friction that act between moving surfaces. They will investigate the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. They will experience forces that make things begin to move,</p>	<p>Spring 2</p> <p>Earth and Space</p> <p>Children will be introduced to a model of the sun and Earth that enables them to explain day and night. They will be able to describe the movement of the Earth and other planets relative to the sun in the solar system. They will learn that the sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. They will learn to describe the movement of the moon relative to the Earth and they will understand that a moon is a celestial body that orbits a planet. They will describe the</p>	<p>Summer 1</p> <p>Animals including Humans</p> <p>Children will be able to describe the changes as humans develop to old age. Children will draw a timeline to indicate stages in the growth and development of humans. They will learn about the changes experienced in puberty.</p> <p>Children will work scientifically by researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length</p>	<p>Summer 2</p> <p>Revision of units covered in the year</p>

	<p>naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall.</p> <p>Children will 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 will grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They will observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.</p>	<p>and gases from Year 4 to decide how mixtures might be separated, including through filtering, sieving and evaporating. They will know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. They will be able to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. They will explore reversible changes; including evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes. They will be able to explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning, rusting and the action of acid on bicarbonate of soda. In addition, they will research how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton.</p> <p>Children will work scientifically by: carrying out tests to answer questions, for example,</p>	<p>get faster or slow down. They will explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel. They will study the effects of levers, pulleys and gears on movement, recognising that some mechanisms allow a smaller force to have a greater effect. In addition, children will research how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.</p> <p>Children will work scientifically by: exploring falling paper cones or cupcake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They will explore resistance in water by making and testing boats of different shapes. They will design and make products that use levers, pulleys, gears and/or springs and explore their effects.</p>	<p>sun, Earth and moon as approximately spherical bodies. They will be able to use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. In addition, children will research about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus.</p> <p>Children will work scientifically by: comparing the time of day at different places on the Earth through internet links and direct communication, creating simple models of the solar system, constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day, finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.</p>	<p>and mass of a baby as it grows</p>	
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Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	<p>Living Things and their Habitats Children will build on their learning about grouping living things in Year 4 by looking at the classification system in more detail. They will be introduced to the idea that broad groupings, such as microorganisms, plants and animals can be subdivided, according to common observable characteristics, based on similarities and differences. Through direct observations, they will classify animals into commonly found invertebrates (such as insects, spiders, snails,</p>	<p>Animals including Humans Children will build on their learning from Years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function. Children will learn to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. They will recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>	<p>Evolution and Inheritance Building on what they learned about fossils in the topic on rocks in Year 3, children will find out more about how living things on earth have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. They should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs and what happens when, for example, Labradors are crossed with poodles. They</p>	<p>Electricity Building on their work in Year 4, children will construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They will learn to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. They will be able to compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p>	<p>Light Children will build on the work on light in Year 3, exploring the way that light behaves, including light sources, reflection and shadows. Children will recognise that light appears to travel in straight lines. They will be able to use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. They will learn to explain that we see things because light travels from light sources to our eyes or from light sources to</p>	<p>Sound Children will revisit how sounds are made, associating some of them with something vibrating. They will revise those vibrations from sounds travel through a medium to the ear. They will revise patterns between the pitch of a sound and features of the object that produced it. They will revise patterns between the volume of a sound and the strength of the vibrations that produced it. They will revise that sounds get fainter as the distance from the sound source increases.</p>

	<p>worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They will discuss reasons why living things are placed in one group and not another and be able to give reasons for classifying plants and animals based on specific characteristics. In addition, children will research the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification.</p> <p>Children will work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They will research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.</p>	<p>They will be able to describe the ways in which nutrients and water are transported within animals, including humans. In addition, children will learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body.</p> <p>Children will work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p>	<p>will recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. They will also learn that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox. They will learn to identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. In addition, children will research the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.</p> <p>Children will work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They will analyse the advantages and disadvantages of specific adaptations, such as being on 2 feet rather than 4, having a long or a short beak, having gills or</p>	<p>They will also learn how to represent a simple circuit in a diagram using recognised symbols.</p> <p>Children will work scientifically by: systematically identifying the effect of changing one component at a time in a circuit, designing and making a set of traffic lights, a burglar alarm or some other useful circuit.</p>	<p>objects and then to our eyes. They will discuss what happens and make predictions. They will be able to use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>Children will 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 will investigate the relationship between light sources, objects and shadows by using shadow puppets. They will extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters.</p>	<p>Children will also revise and identify the way sound is made through vibration in a range of different musical instruments from around the world, investigating how the pitch and volume of sounds can be changed in a variety of ways.</p> <p>Children will 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 will make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They will make and play their own instruments by using what they have found out about pitch and volume.</p>
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