

Science Curriculum Coverage Overview

Year 1

Term: Autumn 1 & Autumn 2		Topic: Everyday Materials		Strand: Chemistry	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> distinguish between an object and the material from which it is made. identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. describe the simple physical properties of a variety of everyday materials. compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> use all their sense in hands-on exploration of natural materials (Nursery – materials, including changing materials) explore collections of materials with similar and/or different properties. (Nursery – materials, including changing materials) talk about the differences between materials and changes they notice. (Nursery – materials, including changing materials) 	<p>Pupils can...</p> <ul style="list-style-type: none"> distinguish between an object and the material from which it is made. describe materials using their senses. describe materials using their senses, using specific scientific words. explain what material objects are made from. label a picture or diagram of an object made from different materials. explain why a material might be useful for a specific job. name some different everyday materials e.g. wood, plastic, metal, water and rock. sort materials into groups by a given criteria e.g. materials, property, test the properties of objects e.g. absorbency of cloths, strength of party hats made from different papers, stiffness of paper plates, waterproofness of shelters 	<p>Pupil ...</p> <ul style="list-style-type: none"> know all objects are made of one or more materials. Although, some objects can be made from different materials. can label objects with the material they are made out of: glass, metal, plastic, fabric, brick, wood and rock (marble) know a property of: glass, metal, plastic, fabric, brick and wood e.g. wood, brick and metal are strong materials. fabrics is stretchy plastic is waterproof know plastic can be in different forms with very different properties. know why some objects are made out a specific material and not another e.g. a chocolate teapot. describe why a specific material is better than another for a certain job. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> classify objects made of one material in different ways e.g. a group of objects made of metal. classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials. classify materials based on their properties. test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters. 	
Key Vocabulary					
<p>object, material(s), <u>Names of materials:</u> wood, plastic, glass, metal, water, rock, brick, paper, elastic, foil, card/cardboard, wool, clay, rubber, fabric, fur, fleece, cotton, polyester, cotton wool, <u>Properties of materials:</u> hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, floppy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff, breaks/breakable, tears, see-through, not see-through,</p>					

Year 1

Term: Spring 1		Topic: Animals Including Humans		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. identify and name a variety of common animals that are carnivores, herbivores and omnivores. describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> use all their senses in hands-on exploration of natural materials. (Nursery – humans) name and describe people who are familiar to them. (Reception – humans) 	<p>Pupils can...</p> <ul style="list-style-type: none"> name a variety of different mammals/reptiles/birds/amphibians/ fish. group animals according to what they eat. describe the simple structure/key features of common animals: Fish, amphibians, mammals and birds. write descriptively about an animal. compare the simple structure of common animals. identify, name, draw and label the parts of the human body that they can see. identify the main parts of the human body and link them to their senses. label the main human body parts that can be seen: head, eyes, ears, legs, hand, foot, nose, knee, fingers, teeth, fingers and toes. name the 5 senses and their associated body parts. 	<p>Pupils ...</p> <ul style="list-style-type: none"> know animals vary in many ways having different structures e.g. wings, tails, ears etc. and animals have different skin coverings e.g. scales, feathers, hair. identify a bird, amphibian, reptile, mammal and fish and at least one characteristic. know animals eat certain things; a carnivore is an animal that eats meat, an omnivore eats meat and plants and a herbivore is an animal that only eats plants. name the main human body parts that can be seen. know humans (and other animals) find out about the world using their senses. They have 5 sense and know the senses are linked to articular parts of the body: We smell through our nose We taste with our tongue We touch with our skin We see with our eyes We hear with our ears 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> compare two animals from the same or different groups. classify animals using a range of features. identify animals by matching them to named images. classify animals according to what they eat. make first-hand close observations of parts of the body e.g. hands, eyes. compare two people. take measurements of parts of their body. compare parts of their own body. look for patterns between people e.g. Do people with big hands have big feet? classify people according to their features. investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match? 	
Key Vocabulary					
<p><u>Names of animal groups:</u> fish, amphibians, reptiles, birds, mammals, human, animal, pet.</p> <p><u>Names of animals:</u> experienced first-hand from each vertebrate group.</p> <p><u>Animal diets:</u> carnivore, herbivore, omnivore.</p> <p><u>Human and animal body parts:</u> body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, tongue, hair, mouth, nose, cheek, chin, teeth, leg(s), elbow, ankle, spine, chest, hands, feet, toes, tail, wings, feathers, claw(s), scales, paws, hooves, fur, beak, fins, gills, fingers, skin</p> <p><u>Human senses:</u> sight (see, look, eyes), hearing, listening (ears), touch (fingers, feel, skin), smell (nose), taste (tongue)</p> <p><u>Exploring senses:</u> loud, quiet, soft, rough.</p>					

Year 1

Term: Summer 1		Topic: Plants		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. identify and describe the basic structure of a variety of common flowering plants, including trees. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> plant seeds and care for growing plants. (Nursery – plants) understand the key features of the life cycle of a plant and an animal (Nursery – plants) begin to understand the need to respect and care for the natural environment and all living things. (Nursery – plants) explore the natural world around them. (Reception – living things and their habitats) recognise some environments that are different to the one in which they live. (Reception – living things and their habitats) 	<p>Pupils can...</p> <ul style="list-style-type: none"> name common UK plants (wild and garden), and know each living thing has a special name. name some UK deciduous and evergreen trees. explain that some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring. identify plants and trees in their local area. describe the basic structure of a plant, including trees (including leaves, flowers, petals, fruit, roots, bulb, seed, trunk, branches, stem). draw and label the basic structure of a plant. Annotate to include detail. 	<p>Pupils ...</p> <ul style="list-style-type: none"> know deciduous trees lose their leaves during autumn and grow them again in spring. know evergreen trees keep their leaves all year round name some common UK flowers e.g. roses, daisies and dandelions and name some common UK trees e.g. oak, ash, holly identify plants and trees based on their characteristics e.g. acorns, sunflower seeds. plants have common parts, but they vary between the different types of plants; The stem of a plant carries the water and holds the plant up. The trunk of a tree holds up the tree and carries water to the branches The roots anchor the plant to the ground. Petals of plants attract bees to help the plants. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> make close observations of seeds and bulbs. classify seeds and bulbs. research and plan when and how to plant a range of seeds and bulbs. look after the plants as they grow – weeding, thinning, watering etc. make close observations and measurements of their plants growing from seeds and bulbs. make comparisons between plants as they grow. 	
Key Vocabulary					
<p>plant(s), tree(s), flower(s) <u>Names of common plants:</u> wild plant, garden plant, evergreen tree, deciduous tree, common flowering plant, weed, grass. <u>Name features of plants:</u> flower(s), vegetable, fruit, berry, blossom, leaf/leaves, blossom, petal(s), stem, trunk, branch/branches, root(s), seed(s), bulb(s), soil, bark, stalk, bud, <u>Name some common types of plant</u> e.g. sunflower, daffodil, daisy, rose, oak, ash, sycamore, grass, buttercup, dandelion, holly, tulip, clover, <u>Name of plants that grow to eat</u> e.g. lettuce, tomatoes, cucumbers, radish, herbs</p>					

Year 1

Term: Summer 2		Topic: Living Things and Their Habitats		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> explore and compare the characteristics between things that are living, things that are 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 the basic needs of different kinds of animals and plants, and how they depend on each other. 	<p>Pupils can...</p> <ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 – plants) identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 – plants) identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – animals including humans) identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – animals including humans) describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – animals including humans) observe changes across the four seasons. (Y1/2 – seasonal changes) 	<p>Pupils can...</p> <ul style="list-style-type: none"> explore, find, sort and know all objects are either living, dead or have never been alive. explore and compare the characteristics between things that are living, things that are dead, and things that have never been alive. draw and label images of objects or objects that are living, dead and that have never been alive. know all living things are plants (including seeds) and animals. explain: dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves, twigs, shells, fur, hair An object made of wood is classed as dead. An object made of rock, metal and plastic have never been alive. explain how animals and plants live in a habitat to which they are suited. describe how different habitats provide the basic needs for animals and plants: shelter, food and water. 	<p>Pupils...</p> <ul style="list-style-type: none"> know living things are all animals and plants. know living things grow and reproduce and non-living things will never be alive such as rocks. know that dead things can include twigs, fur and hair that have detached from the living thing. name some of the characteristics of living things e.g. move, reproduce, react to heat and light. know a habitat is a home for plants and animals and provide everything an animal or plant needs to survive. talk about how animals and plants live in a habitat to which they are suited, which mean that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> explore the outside environment regularly to find objects that are living, dead and have never lived. classify objects found in the local environment. observe animals and plants carefully, drawing and labelling diagrams. create simple food chains for a familiar local habitat from first-hand observation and research. create simple food chains from information given e.g. in picture books (Gruffalo etc.). 	
Key Vocabulary					
<p>alive, living, dead, never been alive, <u>Characteristics of living things:</u> movement, breathing, sensitivity, nutrition (eat), get rid of waste, reproduce and grow <u>Basic needs:</u> habitat, shelter, food, water <u>Names of habitats:</u> e.g. woodland, pond, desert, polar, suited, suitable,</p>					

Year 1

Term: Seasonally (Autumn/Winter/Spring/Summer)		Topic: Seasonal Changes		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> observe changes across the 4 seasons; observe and describe weather associated with the seasons and how day length varies. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> understand the key features of the life cycle of a plant and an animal. (Nursery – plants & animals including humans) explore the natural world around them. (Reception – seasonal changes) describe what they see, hear and feel whilst outside. (Reception – seasonal changes) understand the effect of changing seasons on the natural world around them. (Reception – seasonal changes) 	<p>Pupils can...</p> <ul style="list-style-type: none"> observe and talk about the seasons and changes between them. observe and talk about changes in the weather and the seasons know in the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until winter (about 8 hours) before getting longer again. observe day length over a whole year. know the weather changes with the season. In the UK, it is usually colder and rainier in winter, and hotter and dryer in summer. name of different types of weather. measure rainfall, wind direction, temperature explain how the change in the weather causes other changes, such as, number of mini-beasts found outside, seed and plant growth, leaves on trees, types of clothes worn by people 	<p>Pupils...</p> <ul style="list-style-type: none"> know there are 4 seasons in the UK and that not all countries have 4 seasons. know the names of the 4 seasons. know day length varies over a year, and that summer has longer daylight hours and winter has shorter daylight hours. can describe differences between the four seasons e.g. winter is the coldest season and has the shortest days; in Spring, the weather gets warmer and plants begin to grow; summer is the hottest season with the longest days; in autumn, the weather gets colder and the leaves begin to fall off the trees name different types of weather, and know in which season we would have those weathers. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> collect information about the weather regularly throughout the year. present this information in tables and charts to compare the weather across the seasons. collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans. present this information in different ways to compare the seasons. gather data about day length regularly throughout the year and present this to compare the seasons. 	
Key Vocabulary					
<p>Seasons: spring, summer, autumn, winter, seasonal change.</p> <p>Weather: e.g. sun, sunny, rain, rainy, shower, snow, snowy, frost(y), ice/icy, fog, cloud(y), hot/warm, cold, storm, wind(y), thunder, lightning, hail, sleet, weather forecast, puddles, rainbow,</p> <p>Measuring weather: temperature, rainfall, wind direction, thermometer, rain gauge.</p> <p>Day length: night, day, sun, sunrise, sunset, daylight.</p>					

Science Curriculum Coverage Overview

Year 2

Term: Autumn 1 & Autumn 2		Topic: Animals Including Humans		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults. find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – animals, including humans) 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) 	<p>Pupils can...</p> <ul style="list-style-type: none"> name the basic needs for survival; feeding, drinking and breathing. name and order the stages of human life. know all animals have offspring that grow into adults, and in some animals these offspring will be young, such as babies or kittens. Some animals such as chicken or insects may lay eggs that hatch into young or other stages then grow into adults. The young of some animals do not look like their parents e.g. tadpoles. name animals' offspring e.g. chick – chicken and talk about if they were live births or hatched from an egg. match offspring to their adult. make, draw and label a life cycle of an animal. talk about the importance of exercise and nutrition for humans. name and label food that is good for humans to eat, and talk about why they are good for humans. talk about what a balanced diet is. explain how animals obtain their food from plants and 	<p>Pupils ...</p> <ul style="list-style-type: none"> know all living things need oxygen to survive, and that all animals need food, water, air, sleep and shelter to survive too. know animals can give birth to their young or their young can hatch from an egg. know the stages of human life in order. know humans need to exercise to keep their bodies healthy and exercise makes your heart beat faster, as well as, it makes your muscles stronger, your body more flexible and it can also make you feel happy. know humans need to eat the right amount of different food to keep their bodies healthy and to give them energy. know humans need to keep clean to make sure they don't catch anything which will make them unwell. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> ask people questions and use secondary sources to find out about the life cycles of some animals. observe animals growing over a period of time e.g. chicks, caterpillars, a baby. ask questions of a parent about how they look after their baby. ask pet owners questions about how they look after their pet. explore the effect of exercise on their bodies. classify food in a range of ways, including using the Eatwell Guide. investigate washing hands, using glitter gel. 	

		<p>other animals for energy and use a simple a simple food chain to show this.</p> <ul style="list-style-type: none"> name, draw and talk about the importance of good hygiene. 		
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Key Vocabulary

Being born and growing: born, birth, young, **reproduce, reproduction, offspring, live young, grow, growth**, develop, change, hatch, lay, fly, crawl, talk.

Young and adult names: e.g. lamb and sheep, kitten and cat, duckling and duck.

Life cycle stages: e.g. **baby, toddler, child, teenager, adult, old person**; frogspawn, tadpole, froglet, frog, life cycle

Survival and staying healthy: basic needs, **survive, survival, water, food, air, shelter, exercise, fit, heartbeat, breathing, hygiene**, diet, nutrition, healthy, balanced diet, **germs, disease**, food chain, is eaten by

Food groups: **food, fruit and vegetables, proteins, meat, dairy and alternatives, carbohydrates, oil and spreads, fat, bread, rice, pasta, nuts, olive oils, pulses, eggs, cheese, milk, butter, beans**, salt, sugar, water, energy

Types of animals: **fish, amphibians, birds, mammals, reptiles, humans**



Year 2

Term: Spring 1		Topic: Uses of Everyday Materials		Strand: Chemistry	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> distinguish between an object and the material from which it is made. (Y1 – everyday materials) identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. (Y1 – everyday materials) describe the simple physical properties of a variety of everyday materials. (Y1 – everyday materials) compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 – everyday materials) 	<p>Pupils can ...</p> <ul style="list-style-type: none"> explain the uses of everyday materials. explain that all objects are made of one or more materials that are chosen specifically because they have suitable properties for the task e.g. a water bottle is made of plastic because it is transparent allowing you to see the drink inside and is waterproof so that it holds the water. describe the suitability of a material for a particular purpose. know that material can be suitable for different purposes and an object can be made of different materials. explain why some materials are used for more than one thing e.g. metal can be used for coins, cars and table legs. describe creative research different materials and their uses. sort and label materials. uses for different materials. find out about people who have developed new materials for example John Dunlop, Charles Macintosh or John McAdam 	<p>Pupils...</p> <ul style="list-style-type: none"> can name an object and say what material it is made from, identify its properties and a particular use: <ul style="list-style-type: none"> -table: It is made of wood because it is hard. It is used for furniture and building. Paper and cardboard are made from wood too. -Lego: It is made from plastic because it is strong and it is cheap to make. It is also waterproof. -Glass is used for windows, cups and bottles. It is transparent so we can see through it. know the terms; opaque, transparent and translucent, reflective and non-reflective and use these when describing materials. know an object can be made of more than one material and can label a picture or diagram of an object made from different materials. know you can change the shape of an object and how (action). know the more flexible a material is, the more it can be changed as it can be squashed, bent, twisted and stretched. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> classify materials. make suggestions about alternative materials for a purpose that are both suitable and unsuitable test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat 	
Key Vocabulary					
<p><u>Material names:</u> all from Year 1: wood, plastic, metal, glass, brick, rock, paper, card/cardboard, water, fabric, elastic, foil, rubber, wool, clay, fur, fleece, cotton, polyester, cotton wool,</p> <p><u>Changing shape:</u> squash(y) or squashing, push(ing), pull(ing), bend(y) or bending, twist(y) or twisting, stretch(y) or stretching,</p> <p><u>Properties of materials:</u> including year 1 plus: shape, strong, flexible, light, hard-wearing, opaque, transparent, translucent, reflective, non-reflective, rigid suitability,</p> <p><u>Other:</u> recycle, pollution</p>					

Year 2

Term: Summer 1		Topic: Plants		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow into mature plants; find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (Y1 – plants) identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 – plants) 	<p>Pupils can...</p> <ul style="list-style-type: none"> classify and know plants grow from either seeds or bulbs. know seeds and bulbs germinate and grow into seedlings which then continue to grow into mature plants. from observations, describe in detail how seeds and bulbs grown into mature plants. explain that some mature plants may have flowers which then develop into seeds, berries, fruits etc. draw, label and know the 5 key stages of the life cycle of a plant. know some plants are better suited to growing in full sun and some grow better in partial or full shade. Also, plants need different amounts of water and space to grow well and stay healthy. research and plan when and how to plant a range of seeds and bulbs. know the best environment for a plant to grow: water, sunlight, temperate and soil. identify plants that grow well in different conditions e.g. cactus. make close observations and measurements of their plants growing. 	<p>Pupils...</p> <ul style="list-style-type: none"> know seeds and bulbs grow roots into the soil. know seeds and bulbs grow up towards the light and begin to grow into seedlings then eventually grow into mature plants. plants need water, light and the right temperature to grow, survive and to stay healthy. plants may need different things for them to thrive know the life cycle of a plant is: germination roots leaves flowers seed dispersal 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> make close observations of seeds and bulbs. classify seeds and bulbs. research and plan when and how to plant a range of seeds and bulbs. look after the plants as they grow – weeding, thinning, watering etc. make close observations and measurements of their plants growing from seeds and bulbs. make comparisons between plants as they grow. 	
Key Vocabulary					
<ul style="list-style-type: none"> <u>Growth of plants:</u> germinate/germination, shoot, seed dispersal, grow, food store, life cycle, die, wilt, seedling, sapling, healthy, soil, nutrients, <u>Needs of plants:</u> sun/sunlight, nutrition, light, healthy, space, air, shade, water, temperature, warm/warmth, cool, <u>Name different types of plant:</u> e.g. bean plant, cactus. <u>Names of different habitats:</u> e.g. rainforest, desert, habitat, hot, cold, warm, cool <u>Parts of a plants:</u> root(s), deciduous, evergreen, blossom, bulb(s), trunk, stem, leaf/leaves, flower(s), fruit(s), seed(s), bulb(s), oxygen, petal(s), branch/branches, 					

Year 2

Term: Summer 2		Topic: Living Things and Their Habitats		Strand: Biology
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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 microhabitats; describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 – plants) identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 – plants) identify and name a variety of common animal including fish, amphibians, reptiles, birds and mammals. (Y1 – animals including humans) identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – animals including humans) describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets. (Y1 – animals including humans) observe changes across the four seasons. (Y1/Y2 – seasonal changes) 	<p>Pupils can...</p> <ul style="list-style-type: none"> find, identify and name objects that are either living, dead or have never been alive. know all 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. fur, leaves, twigs, shells, hair and feathers. Also, know an object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive. identify that most living things live in habitats to which they are best 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. know what all living things can do. describe how different habitats provide the basic needs of different kinds of animals and plants – shelter, food and water. know that 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. name a range of animals and plants that live in a habitat and micro-habitat that they have studied. know micro-habitats have different conditions e.g. light/dark, damp/dry and these 	<p>Pupils...</p> <ul style="list-style-type: none"> know the difference between things that are living, dead and things that have never been alive. know all living things move, grow, require nutrition, breathe and reproduce, whereas, non-living things will never be alive such as rocks. name plants and animals in different habitats and micro-habitats. know habitats and micro-habitats give animals what they need to survive and 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 cannot live in a pond because it is not salty. know animals and plants depend on each other in a habitat and can construct a simple food chain for a familiar local habitat from first-hand observations and research. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> sorting and classifying things to whether they are living, dead or were never alive, and record their findings using charts. describe how they decided where to place things and should explore questions such as 'Is a flame alive? Is a deciduous tree dead in winter?' explore the outside environment regularly to find objects that are living, dead and have never lived. classify objects found in the local environment. observe animals and plants carefully, drawing and labelling diagrams. create simple food chains for a familiar local habitat from first-hand observation and research. create simple food chains from information given e.g. in picture books (Gruffalo etc.).

		<p>affect which plants and animals live there.</p> <ul style="list-style-type: none"> • know all living things, depend on each other for food and shelter etc. • know the way that animals obtain their food from plants and other animals can be shown in a food chain. • construct a simple food chain with the arrows pointing in the right direction. 	
Key Vocabulary			
<ul style="list-style-type: none"> • <u>Living or dead:</u> living, dead, never living, non-living, alive, never been alive, healthy, basic needs, adapt • <u>Habitats including microhabitats:</u> depend, shelter, safety, survive, survival, suited, suitable, conditions, light, dark, shady, wet, damp, dry, hot, cold, space, minibeast, air, heat, warmth, water, sun, • <u>Life processes:</u> move/movement, sensitivity/senses, growth, reproduction, feed, nutrition, excretion, respiration, • <u>Food chains:</u> food sources, food, producer, consumer, predator, prey, carnivore, herbivore, omnivore, seed, water • <u>Names of habitats and microhabitats:</u> e.g. under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat, pond, under a log, in bushes, 			

Science Curriculum Coverage Overview

Year 3

Term: Autumn 1 & Autumn 2		Topic: Animals Including Humans		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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; identify that humans and some other animals have skeletons and muscles for support, protection and movement. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – animals including humans) identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – animals including humans) describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). (Y1 – animals including humans) find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 – animals including humans) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 – animals including humans) 	<p>Pupils can...</p> <ul style="list-style-type: none"> know and understand that humans do not make their own food like plants. know animals need to eat in order to get the nutrition they need, and can plan a daily diet to contain a good balance of nutrients. know foods contain a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water and fibre. These are needed by the body to stay healthy. know a piece of food will often provide a range of nutrients, and these can be found on food labels. use food labels to explore the nutritional content of a range of food items. research, identify, label and talk about how humans and some other animals have skeletons and muscles which help them to move and provide protection and support. compare, contrast and classify skeletons of different animals. describe the importance of nutrition investigate patterns asking questions such as; can people with longer legs run faster? 	<p>Pupils...</p> <ul style="list-style-type: none"> animals cannot make their own food and need plants or other animals to survive. explain that animals get nutrition from their food which helps them to move and grow, and we need to eat the right types of food to give us the correct amount of nutrients. know/name the nutrients in food: carbohydrates, protein, vitamins, minerals, fats, sugars, water and fibre. animals have muscles and joints which help them to move, and can describe how these help us to move. animals have a skeleton that gives them support and protection but with the muscles, enables them to move. can name some bones that make up the skeleton. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> identify and group animals with and without skeletons and observing and comparing their movement exploring ideas about what would happen if humans did not have skeletons. compare and contrast the diets of different animals (including their pets) and muscles for support, protection and movement. research different food groups and how they keep us healthy and design meals based on what they find out classify food in a range of ways. use food labels to explore the nutritional content of a range of food items. use secondary sources to find out the types of food that contain the different nutrients. use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? plan a daily diet to contain a good balance of nutrients. explore the nutrients contained in fast food. 	

		Can people with bigger hands catch a ball better?		<ul style="list-style-type: none"> • use secondary sources to research the parts and functions of the skeleton. • investigate patterns asking questions such as: Can people with longer legs run faster? Can people with bigger hands catch a ball better?
Key Vocabulary				
<ul style="list-style-type: none"> • <u>Food groups and nutrients:</u> food, feeding, balanced diet, nutrition, nutrients, fibre, fat(s) (saturated and unsaturated), vitamins, minerals, carbohydrates (cereal), sugars, protein, water, meat, nuts, pulses, beans, eggs, milk, potatoes, rice, pasta, • <u>Skeletons and muscles:</u> human(s), skeleton, muscles, move/movement, tendons, joints, protect, protection, support, organs, voluntary muscles, involuntary muscles, biceps, triceps, contract, relax, bone(s), cartilage, shell, vertebrate, invertebrate, endoskeleton, exoskeleton, hydrostatic skeleton, • <u>Names of human bones:</u> e.g. skull, spine, backbone, ribs, vertebral column, ribcage, pelvis, clavicle, scapula, humerus, ulna, pelvis, radius, femur, tibia, fibula. • energy. 				



Year 3

Term: Spring 1		Topic: Magnets and Forces		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare how things move on different surfaces; notice that some forces need contact between 2 objects, but magnetic forces can act at a distance; observe how magnets attract or repel each other and attract some materials and not others; compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials; describe magnets as having 2 poles; predict whether 2 magnets will attract or repel each other, depending on which poles are facing. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> explore how things work (Nursery – forces) explore and talk about different forces they can feel. (Nursery – forces) talk about the difference between materials and changes they notice. (Nursery – forces) explore the natural world around them. (Reception – forces) describe what they see, hear and feel whilst outside. (Reception – forces) 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) 	<p>Pupils can...</p> <ul style="list-style-type: none"> explain that a force is a push or a pull, and identify these in everyday life. compare how things move on different surfaces, noticing then when an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement. know that magnetic forces can act without direct contact. (unlike most forces where contact is necessary) know that magnets attract and repel each other and some materials compare and group together materials according to whether they are attracted to a magnet or not. know iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. know that magnets have two poles; North and South. The poles are the strongest part of a magnet. explore the behaviour of magnets and draw and label their observations. 	<p>Pupils ...</p> <ul style="list-style-type: none"> some forces need contact between two objects, some forces can act at a distance e.g. magnetic the rougher the surface, the more friction there will be. Friction slows objects down as they rub against each other magnets have a north pole and a south pole and will attract or repel other magnets depending on which way the poles are facing. magnets can attract or repel some materials depending on whether they are magnetic or not. know not all metals are magnetic. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> explore the strengths of different magnets and finding a fair way to compare them. sort and classify materials into those that are magnetic and those that are not. look for patterns in the way that magnets behave in relation to each other and what might affect this, for example the strength of a magnet or which pole is facing the other. compare how different things move and grouping them e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc. carry out tests to find out how far things move on different surfaces and gathering and recording data to find answers to their questions explore the way that magnets behave in relation to each other. explore how magnets work at a distance e.g. through the table, in water, jumping paper clips up off the table. devise an investigation to test the strength of magnets. 	
Key Vocabulary					
<ul style="list-style-type: none"> <u>How things move:</u> move, movement, surface, distance, strength, strong, weak, <u>Types of forces:</u> force, push, pull, twist, contact force, non-contact force, magnetic force, friction, gravity <u>Magnet(s):</u> magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, button magnet, magnetic poles (north pole, south pole), attract, repel, compass, <u>Magnetic and non-magnetic materials:</u> e.g. metal, iron, steel, nickel, cobalt, carpet, tiles, wood, lino, bubble wrap, sandpaper, fleece, polythene, towel, 					

Year 3

Term: Spring 2		Topic: Light		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light; notice that light is reflected from surfaces; recognise that light from the sun can be dangerous and that there are ways to protect their eyes; recognise that shadows are formed when the light from a light source is blocked by an opaque object; find patterns in the way that the size of shadows change. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> explore how things work. (Nursery – light) talk about the difference in materials and changes they notice. (Nursery – light) describe what they see, hear and feel whilst outside. (Reception – light) 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) describe the simple physical properties of a variety of everyday materials. (Y1 – materials) 	<p>Pupils can...</p> <ul style="list-style-type: none"> explain that we see objects because our eyes can sense light, and know that light is needed to see things and that dark is the absence of light. We cannot see anything on complete darkness. identify, name and know some objects, such as, the sun, light bulbs and candles are sources of light. understand objects are easier to see if there is more light. explore how light is reflected from some surfaces with the exception of reflective materials. research and explain how the light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or hats in bright lights. explain how shadows are formed on a surface when an opaque or translucent object is between a light source and the surface, and blocks some of the light. explore the size of the shadow and talk about how shadows depends on the position of the source, object and surface. Find patterns in the way that the size of the shadows change 	<p>Pupils...</p> <ul style="list-style-type: none"> know we need light to see anything and darkness is the absence of light. know how light reflects on any surface and how it travels to the eye. know the terms, opaque, transparent and translucent. know and understanding that looking straight at the sun is dangerous and we must protect our eyes. know that there are shadows when the light from a sources is blocked by an opaque object and stops it getting through know shadows change depending on where the light source is. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that there are shadows when the light from a source is blocked by an opaque object explore how different objects are more or less visible in different levels of lighting. explore how objects with different surfaces, e.g. shiny vs matt, are more or less visible. explore how shadows vary as the distance between a light source and an object or surface is changed. explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground. choose suitable materials to make shadow puppets. create artwork using shadows. 	
Key Vocabulary					
<p>Light and seeing: see, eyes, light, dark, absence of light, light source, illuminate, visible, shadow, translucent, transparent, opaque, energy, block, size, shape, pattern</p> <p>Light sources: e.g. candle, torch, fire, lantern, lightning, sun, sunlight, lamp, flame, light bulb</p> <p>Reflective light: reflect, reflection, reflected, surface, ray, scatter, reverse, beam, angle, mirror, moon, shiny, dull, see-through, not see-through, matt,</p> <p>Sun safety: dangerous, glare, damage, UV light, UV rating, sunglasses, direct.</p> <p>Other: day, night, dim, sunrise, sunset,</p>					

Year 3

Term: Summer 1		Topic: Rocks		Strand: Chemistry	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. describe in simple terms how fossils are formed when things that have lived are trapped within rock. recognise that soils are made from rocks and organic matter. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> distinguish between an object and the material from which it is made. (Y1 – everyday materials) identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 – everyday materials) describe the simple physical properties of a variety of everyday materials. (Y1 – everyday materials) compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 – 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. (Y2 – uses of everyday materials) 	<p>Pupils can...</p> <ul style="list-style-type: none"> sort materials based on whether they are natural or man-made. compare and group together different types of rocks on the basis of their appearance and simple physical properties e.g. size (pebble/stone/boulders), size of grain/crystal, hard/soft, absorb water or not. explain that there are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. explain how soil is made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter), and the type of rock, size of rock pieces and the amount of organic matter affect the property of the soil e.g. sandy, peaty, chalky. describe in simple terms how fossils have been formed over millions of years. describe when plants and animals die, they fell to the seabed. They became covered and squashed by other material. Overtime, the dissolving animal and plant matter is replaced by minerals in water. research the work of Mary Anning 	<p>Pupils...</p> <ul style="list-style-type: none"> know the name of some rocks and can group them depending on what they look like and what they feel like, and how they behave e.g. absorb water. know how fossils are formed when something which was alive is trapped inside the rock for a long time know soil is made from rocks and organic matter, and soil has multiple layers. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> observe rocks including those used in building, and gravestones and explore how these have changed over time use a hand lens or microscope to help them to identify and research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes observe rocks closely. classify rocks in a range of ways, based on their appearance. devise a test to investigate the hardness of a range of rocks. devise a test to investigate how much water different rocks absorb. observe how rocks change over time e.g. gravestones or old building. research using secondary sources how fossils are formed. observe soils closely. classify soils in a range of ways based on their appearance. devise a test to investigate the water retention of soils. 	

				<ul style="list-style-type: none"> • observe how soil can be separated through sedimentation. • research the work of Mary Anning.
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Key Vocabulary

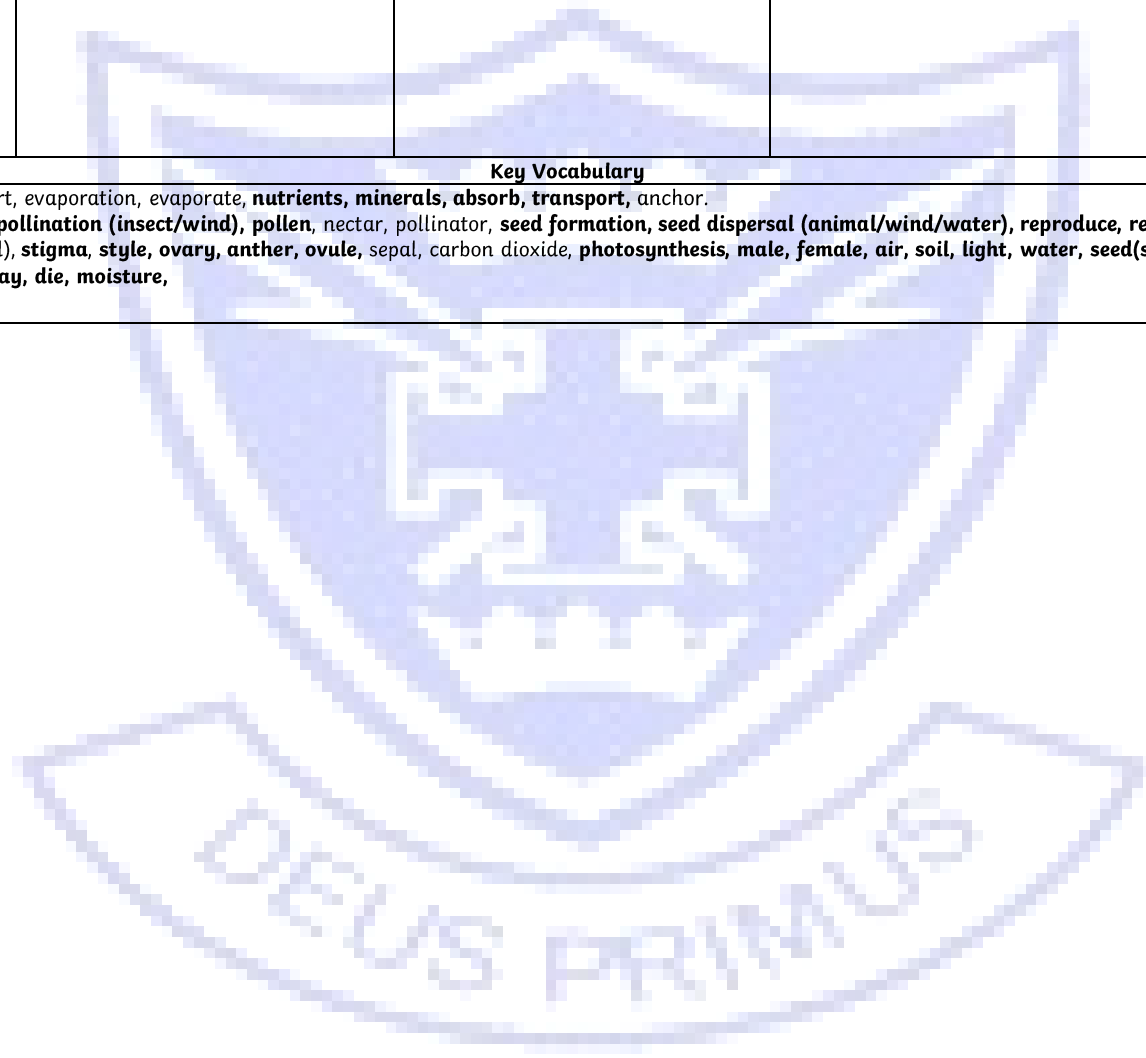
- Types of rock: sedimentary rock, igneous rock, metamorphic rock.
- Properties of rocks: permeable, semi-permeable, impermeable, durable, **hard, soft, texture, absorbs water,**
- Names of rocks: e.g. **rock, stone, pebble, marble, chalk, granite, sandstone, slate.**
- Formation of rocks and fossils: natural, human-made, magma, lava, molten rock, sediment, erosion, fossilisation, **grain, crystals, layers, bone, fossil, flesh**
- Soil: **sandy, chalky, clay, peaty,** loamy, topsoil, subsoil, bedrock, **mineral(s),** organic matter, compost.
- Other: palaeontology, stone, pebble, boulder, grain, crystal,



Year 3

Term: Summer 2		Topic: Plants		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers; 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; investigate the way in which water is transported within plants; explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> observe and describe how seeds and bulbs grow into mature plants. (Y2 – plants) find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 – plants) 	<p>Pupils can...</p> <ul style="list-style-type: none"> identify, name and label the structure and function of each part of the plant, and know that many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. describe the life cycle of a flowering plant, including pollination, seed formation, seed dispersal, and germination. identify the role of the roots and stem regarding nutrition and support, describing how the roots absorb water and nutrients from the soil and anchors the plant in place. Whereas the stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. identify the role of the leaves in the production of food. Describe how the leaves use sunlight and water to produce the plant's food. identify the role of the flower or blossom, describing how the flowers help a plant to reproduce. The pollen, which is the male part of the flower, is transferred to the female part of the flowers (pollination). know that when a male and female part of a plant come together, it forms a seed which can be inside a berry or a fruit observe different ways in which seeds are dispersed. 	<p>Pupils...</p> <ul style="list-style-type: none"> can draw and label a diagram of a flowering plant to show its parts. can explain the function of the parts of a flowering plant and the importance of each part within the flower's lifecycle: <ol style="list-style-type: none"> 1)seed dispersal 2)Germination 3)flowering 4)pollination 5)fertilisation/seed formation know how water is transported around a plant. know different methods of pollination and seed dispersal. know the process of photosynthesis: leaves collect the sunlight to convert carbon dioxide and water into food know and name pollinators and their importance in the process of reproduction. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> compare 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 different stages of plant life cycles over a light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants. looking for patterns in the structure of fruits that relate to how seeds are dispersed. observe what happens to plants over time when the leaves or roots are removed. observe the effect of putting cut white carnations or celery in coloured water. investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space. spot flowers, seeds, berries and fruits outside throughout the year. observe flowers carefully to identify the pollen. observe flowers being visited by pollinators e.g. bees and butterflies in the summer. 	

		<ul style="list-style-type: none"> explain how different plants require different conditions for germination and growth. 	<ul style="list-style-type: none"> observe seeds being blown from the trees e.g. sycamore seeds. research different types of seed dispersal. classify seeds in a range of ways, including by how they are dispersed. create a new species of flowering plant.
Key Vocabulary			
<ul style="list-style-type: none"> <u>Water transportation</u>: transport, evaporation, evaporate, nutrients, minerals, absorb, transport, anchor. <u>Life cycle of flowering plants</u>: pollination (insect/wind), pollen, nectar, pollinator, seed formation, seed dispersal (animal/wind/water), reproduce, reproduction, fertilisation, fertilise, stamen, filament, carpel (pistil), stigma, style, ovary, anther, ovule, sepal, carbon dioxide, photosynthesis, male, female, air, soil, light, water, seed(s), seedling, bulb(s), fruit <u>Other</u>: life cycle, compost, decay, die, moisture, 			



Science Curriculum Coverage Overview

Year 4

Term: Autumn 1		Topic: Animals Including Humans		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the simple functions of the basic parts of the digestive system in humans. identify the different types of teeth in humans and their simple functions. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – animals including humans) find out about and describe the basic needs of animals, including humans, for survival (water, food and air) (Y2- animals including humans) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 – 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) 	<p>Pupils can...</p> <ul style="list-style-type: none"> identify and label the parts of the body that are associated with the digestive system. describe the functions of each part of the digestive system: 1.mouth 2.teeth start break the food down 3. saliva is added 4.food is swallowed 5. food passes down the oesophagus to the stomach 6.food is broken down further by being churned around and other chemicals are added 7.food passes into the small intestine where nutrients are removed 8.food then passes into the large intestine where water is removed 9.what is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet. identify, name and know the function of the four types of teeth in a human; incisor (cutting), canine (tearing), pre-molar and molar (chewing). explain what good oral hygiene is. 	<p>Pupils ...</p> <ul style="list-style-type: none"> know the digestive system helps the body to absorb nutrients needed to grow and move know the digestive system takes in food and lets out waste products. know the names and functions of the digestive system. know the names and functions of human teeth: <ul style="list-style-type: none"> -Canine teeth rip and tear food. -Molars grind up food -Incisors cut food know what happens to our teeth if we do not look after them 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> research the function of the parts of the digestive system. create a model of the digestive system using household objects. explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing). classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls. use food chains to identify producers, predators and prey within a habitat. use secondary sources to identify animals in a habitat and find out what they eat. 	
Key Vocabulary					
<ul style="list-style-type: none"> Digestive system: digest, digestion, mouth, tongue, teeth, saliva, salivary glands, oesophagus, stomach, liver, pancreas, gall bladder, small intestine, duodenum, large intestine, rectum, anus, faeces, organ, excretion, gastric juices, enzymes, bile, Types of teeth and dental care: molar (crush, grind), premolar, incisor (cut, slice), canine (tear, rip, pierce), wisdom teeth, tooth decay, plaque, enamel, baby (milk) teeth, dental, dentist, 					

Year 4

Term: Autumn 2		Topic: Sound		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • identify how sounds are made, associating some of them with something vibrating; • recognise that vibrations from sounds travel through a medium to the ear; • find patterns between the pitch of a sound and features of the object that produced it; • find patterns between the volume of a sound and the strength of the vibrations that produced it; • recognise that sounds get fainter as the distance from the sound source increases. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> • explore how things work. (Nursery – sound) • describe what they see, hear and feel whilst outside. (Reception – sound) • 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) 	<p>Pupils can...</p> <ul style="list-style-type: none"> • draw, label and talk about how sound produces vibrations which travel through a medium from the source to our ears. • explore and identify the way sound is made through vibration in a range of different musical instruments from around the world. • understand how vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound. • explore how sound travels through different mediums, such as, solids, liquids and gases but know sound can not travel through a vacuum (an empty area of matter). • find out how the pitch (lightness/lowness) of a sound is affected by features of objects producing the sounds, such as, smaller objects usually produce higher pitch sounds. • find out how the volume (loudness) of sounds can be changed by the strength (size) of the vibrations which decreases as they travel through the medium. Therefore, sound decreasing in volume as you move away from the source. • create a sound insulator; a material that blocks sound effectively. 	<p>Pupils...</p> <ul style="list-style-type: none"> • know sounds travel as vibrations from a source to our ear. • know sounds travel into the ear and vibrates our ear drums and other parts of our body inside our ear. This helps us to hear (sense) the sound. • know sounds can travel through solids, liquids and gases. • know if a sound has a strong vibration, the sound will be louder. • know shorter objects have a higher pitch. • know a sound that travels over a large distance, gets quieter. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> • find patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. • make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. • make and play their own instruments by using a range of materials. • classify sound sources. • explore making sounds with a range of objects, such as musical instruments and other household objects. • explore how string telephones or ear gongs work. • explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks. • measure sounds over different distances. • measure sounds through different insulation materials. 	
Key Vocabulary					
<ul style="list-style-type: none"> • <u>Parts of the ear:</u> ear, eardrum, inner ear, outer ear, cochlea, hammer • <u>Making sound:</u> sound, source(s), vibration, vibrating, vibrate, medium, instruments, vocal cords, particles, soundproof, absorb sound, insulation, insulate, insulating, • <u>Measuring sound:</u> pitch (high/low), volume (faint/loud/quiet/soft), amplitude, sound wave, travel, distance. 					

Year 4

Term: Spring 1		Topic: Electricity		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify common appliances that run on electricity. construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 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. recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. recognise some common conductors and insulators, and associate metals with being good conductors. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> explore how things work. (Nursery – electricity) 	<p>Pupils can...</p> <ul style="list-style-type: none"> name household devices and appliances that run on electricity, and identify if they are mains powered or battery powered. construct an electrical circuit, and understand it needs a cell (battery) connected to a component using wires. identify whether or not a lamp will light in a simple series circuit. recognise that a switch opens and closes a circuit, and will turn a component on or off. identify that if there is a break in the circuit, the component will not work. recognise some common conductors and insulators, and associate metals with being good conductors. construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and use their circuits to create simple devices. draw the circuit as a pictorial representation. explain why electricity is dangerous and can identify dangers in the home, including the dangers of water. 	<p>Pupils...</p> <ul style="list-style-type: none"> know common appliances that run on electricity and can describe them as mains powered or battery powered. know why some appliances need to use mains electricity and why some need batteries. name electrical components and their function, cells, wires, bulbs, switches and buzzers. know which components are needed to make a simple series electrical circuit, and in which order. know 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. know a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. know electricity is dangerous and why. 	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> construct a range of circuits. explore which materials can be used instead of wires to make a circuit. Explore that some materials can conduct electricity and some cannot, and why. classify the materials that were suitable/not suitable for wires. explore how to connect a range of different switches and investigate how they function in different ways. choose switches to add to circuits to solve particular problems, such as a pressure switch for a burglar alarm. give reasons for choice of materials for making different parts of a switch apply their knowledge of conductors and insulators to design and make different types of switch. make circuits that can be controlled as part of a DT project. <p>N.B. Children should be given one component at a time to add to circuits.</p>	
Key Vocabulary					
<p>Electricity: mains-powered, battery-powered, mains electricity, plug, electrical appliance(s): television, computer, lamp, electrical device(s): mobile phones, torch, voltage, socket</p> <p>Circuits: electrical circuit, simple series circuit, complete circuit, incomplete circuit, connect/connections, loose connection, short circuit, positive, negative, open/closed, complete loop,</p> <p>Circuit parts: component, bulb, cell, wire(s) , buzzer, switch, motor, battery, crocodile clip, symbol,</p> <p>Materials: electrical conductor, electrical insulator, metal, non-metal, names of materials: plastic, fabric, water, metal, non-metal</p> <p>Other: safety, symbol, bright, brightness,</p>					

Year 4

Term: Spring 2		Topic: States of Matter		Strand: Chemistry	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group materials together, according to whether they are solids, liquids or gases; 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); identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> distinguish between an object and the material from which it is made. (Y1 – everyday materials) identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 – everyday materials) describe the simple physical properties of a variety of everyday materials. (Y1 – everyday materials) compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 – 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. (Y2 – uses of everyday materials) find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 – uses of everyday materials) 	<p>Pupils can...</p> <ul style="list-style-type: none"> describe states of matter (solids, liquids and gases) <ul style="list-style-type: none"> -solids hold their shape and have a fixed volume -liquids have a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. -gasses fill all available space. They have no fixed shape or volume. They escape from an unsealed container. draw the particles in solids, liquids and gas and model how they behave. explain how granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. explain the changes of state: <ul style="list-style-type: none"> -melting is the change from solid to a liquid. -freezing is the state change from liquid to solid. The freezing point of water is 0°C. -boiling is state change from liquid to a gas. It happens when a liquid is heated to a specific temperature and bubbles of gas can be seen in the liquid. The boiling temperature of water is 100°C. -evaporation is the same state as boiling, but happens slower at lower temperatures and only at the surface of the liquid. It 	<p>Pupils...</p> <ul style="list-style-type: none"> can name the properties of solids, liquids and gases: <ul style="list-style-type: none"> -know solid materials cannot be poured and maintain their shape -know liquids can be poured and put into moulds. -know gasses are all around us and make up our atmosphere know you can change the state of an object by increasing or decreasing its temperature know what happens during the water cycle; <ul style="list-style-type: none"> -water evaporates and condenses forming clouds -evaporation is the process of turning from liquid into vapour, and the hotter the temperature, the faster a liquid will evaporate -condensation is water which collects as droplets on a cold surface when humid air is in contact with it. know what a thermometer is and how to use a thermometer. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> observe closely and classify a range of solids. observe closely and classify a range of liquids. observe and record an evaporation over a period of time, for example, a puddle on the playground or washing on a washing line. explore making gases visible e.g. squeezing sponges under water to see bubbles, and showing their effect e.g. using straws to blow objects, trees moving in the wind. classify materials according to whether they are solids, liquids and gases. observe a range of materials melting e.g. ice, chocolate, butter. investigate how to melt ice more quickly. observe the changes when making rocky road cakes or ice-cream. investigate the melting point of different materials e.g. ice, margarine, butter and chocolate. explore freezing different liquids e.g. tomato ketchup, oil, shampoo. use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration). observe water evaporating and condensing e.g. on cups of icy water and hot water. 	

		<p>happens quicker if the temperature is higher, the liquid is spread out or it is windy.</p> <p>-condensation is the state of change from a gas to a liquid caused by cooling.</p> <ul style="list-style-type: none"> draw, label and explain the water cycle: <ol style="list-style-type: none"> 1)water at the surface of seas, rivers etc. evaporate into water vapour (a gas). 2)vapour rises, collects and condenses back into liquid forming cloud. 3)the water droplets in the cloud get too heavy and fall back as precipitation 4)collected water drains back into rivers. use a thermometer. 		<ul style="list-style-type: none"> set up investigations to explore changing the rate of evaporation e.g. washing, puddles, handprints on paper towels, liquids in containers. use secondary sources to find out about the water cycle.
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Key Vocabulary

- States of matter: **solid(s), liquid(s), gas(es)**, particle(s), **ice, steam, water vapour**
- State change: **evaporate/evaporation, condense/condensation, melting, freezing, heating, cooling, boiling, melting point, freezing point, boiling point**, hot, cold, **cooled, freeze, temperature**, thermometer, **change of state, Celsius, rate**
- Water cycle: **precipitation** (rain, snow, sleet), **evaporation**, wind, absorb, **condensation**, ground run-off, collection, underground water, bodies of water (sea, river, stream), water droplets, hail.
- Other: atmosphere.

Year 4

Term: Summer 1		Topic: Animals Including Humans		Strand: Biology
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> construct and interpret a variety of food chains, identifying producers, predators and prey. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – animals including humans) find out about and describe the basic needs of animals, including humans, for survival (water, food and air) (Y2- animals including humans) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 – 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) 	<p>Pupils can...</p> <ul style="list-style-type: none"> name, sort and talk about animals and plants they have put into groups, such as, producer, prey, predator or carnivore, herbivore and omnivore. describe the difference between a carnivore, herbivore and omnivore based on their teeth. explain what a producer, prey and predator are. construct a food chain and a food web. use arrows to show 'eaten by'. 	<p>Pupils...</p> <ul style="list-style-type: none"> know living things can be grouped by their teeth and by what they eat. know animals and plants rely on each other to survive, as well as the sun. know all plants are known as producers as they produce their own food through the process, photosynthesis. They use sunlight, water, carbon dioxide and chlorophyll (green substance). know predators hunt and eat their prey. They are carnivores. know prey is hunted by predators. These are often small herbivores or omnivores. know animals can be both predators and prey know a food chain or a food web shows how energy is passed through plants and animals 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing). classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls. use food chains to identify producers, predators and prey within a habitat. use secondary sources to identify animals in a habitat and find out what they eat.
Key Vocabulary				
<ul style="list-style-type: none"> <u>Types of teeth and dental care:</u> molar, premolar, incisor, canine, <u>Food chains and animal diets:</u> predator, prey, producer, food chain, herbivore, omnivore, carnivore, energy, sun, decomposer, food web. <u>Other:</u> habitat 				

Year 4

Term: Summer 2		Topic: Living Things and Their Habitats		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways. explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. recognise that environments can change and that this can sometimes pose dangers to living things. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 – plants) identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 -plants) identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – animals, including humans) describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). (Y1 – animals, including humans) identify and name a variety of plants and animals in their habitats, including micro-habitats. (Y2 – living things and their habitats) 	<p>Pupils can...</p> <ul style="list-style-type: none"> group living things (including flowering and non-flowering plants) in different ways according to their features. use a classification key to identify and name living things. group and classify vertebrate animals into groups such as fish, reptiles, birds, mammals and amphibians. group invertebrates into slugs, snails, worms, spiders and insects. Explore, research and find out how about habitat that living things live in and how they provide an environment to which they are suited. identify how environments change with the seasons; different living things can be found in a habitat at different times of the year. explore the positive and negative impact of humans on environments (nature reserves, litter, deforestation) 	<p>Pupils...</p> <ul style="list-style-type: none"> know living things can be grouped by their features and by what they eat. <ul style="list-style-type: none"> -know mammals have fur, are warm blooded and give birth to live young -know birds have feathers, are warm blooded and lay eggs. -know fish breathe through gills and lay eggs. -know reptiles have scales and are cold blooded which means they often live in hot countries. -know amphibians have gills when they are young and develop lungs to breathe air when they are older. know vertebrates have a skeleton, but invertebrates do not. know names of living things in a range of habitats. know when an environment changes, it can cause danger to the things living there know changes to the environment can be natural or man made 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> compare teeth of carnivores and herbivores, and suggest reasons for differences. use and make simple guides or keys to explore and identify local plants and animals. make a guide to local living things ask and answer questions based on their observations of animals and what they have in our local environment and wider environment. observe plants and animals in different habitats throughout the year. compare and contrast the living things observed. use classification keys to name unknown living things. classify living things found in different habitats based on their features. create a simple identification key based on observable features. use fieldwork to explore human impact on the local environment e.g. litter, tree planting. use secondary sources to find out about how environments may naturally change. use secondary sources to find out about human impact, both positive and negative, on environments. 	
Key Vocabulary					
<ul style="list-style-type: none"> Living things: organisms, species. 					

- Grouping living things: **classification, classification keys, classify, characteristics, animals, fish, bird, mammal, amphibian, reptile, skeleton, bone, invertebrates, vertebrate, backbone, herbivore, carnivore, omnivore, predator, prey, producer,**
- Names of vertebrate animals: lions, frogs, blackbird
- Names of invertebrate animals: snails and slugs, worms, spiders, insects.
- Invertebrate body parts: e.g. wing case, abdomen, antenna, segments,
- Environmental changes: **environment, environmental dangers, habitat, adapt, natural changes, climate change, deforestation, pollution, urbanisation, endangered species, extinct, carbon dioxide, photosynthesis, human impact, positive, negative, migrate, hibernate, nature reserves, ecological planned parks, adaption, adapt, ecological, ecosystems, parks, ponds, litter, field, hedgerow, woodland, seashore, ocean, rainforest, arctic, desert, nest, burrow, air, water, food, shelter, heat, warmth, sun, camouflage,**
- Other: **flowering plants, non-flowering plants, ferns, mosses, fungi**



Science Curriculum Coverage Overview

Year 5

Term: Autumn 1		Topic: Animals Including Humans		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the changes as humans develop to old age. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> Notice that animals, including humans, have offspring which grow into adults. (Y2 – animals, including humans) 	<p>Pupils can...</p> <ul style="list-style-type: none"> explain the human lifecycle, including; <ol style="list-style-type: none"> babies: when babies are young, they grow rapidly and are very dependent on their parents. toddler child teenager adult senior draw a timeline to indicate stages in the growth and development of humans research and find out about the changes experienced in puberty. talk about puberty as a time when a child's body changes, and how puberty develops primary and secondary sexual characteristics. explain that puberty is when a person is able to reproduce. <p><i>Teach this unit alongside the RSE programme of learning.</i></p>	<p>Pupils...</p> <ul style="list-style-type: none"> know an embryo grows into a baby in a female. Pregnancy spans 9 months from conception to birth. know what gestation means. know how we develop in the womb. know humans give birth to live young (babies) which grow into toddlers. know toddlers grow into children which grow into teenagers. know teenagers go through puberty and become adults. know how do we change during puberty. know adulthood is the longest stage of life in a human. know how do we change when we are a senior 	<p>Pupils could work scientifically by...</p> <ul style="list-style-type: none"> researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows. 	
<p>Key Vocabulary</p> <ul style="list-style-type: none"> <u>Process of reproduction:</u> human(s), gestation, asexual reproduction, sexual reproduction, fertilisation sperm, egg, cells, conception, birth, womb, <u>Changes and life cycle:</u> embryo, pregnancy, foetus, uterus, prenatal, baby/babies, child, toddler, teenager, human, adolescence, puberty, , adult, adulthood, menopause, life expectancy, old age, senior, geriatric, hormones, sweat. <u>Changing body parts:</u> e.g. breasts, penis, larynx, ovaries, genitalia, pubic hair, acne, ovulate, ovulation, menstruation, periods 					

Year 5

Term: Autumn2		Topic: Forces		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. identify the effects of air resistance, water resistance and friction, that act between moving surfaces. recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> compare how things move on different surfaces. (Y3 – forces and magnets) notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 – forces and magnets) observe how magnets attract and repel each other and attract some materials and not others. (Y3 – forces and magnets) compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. (Y3 – forces and magnets) describe magnets as having two poles. (Y3 – forces and magnets) predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 – forces and magnets) 	<p>Pupils can...</p> <ul style="list-style-type: none"> explain what a force is; it causes an object to start moving, stop moving, speed up, slow down or change direction. observe forces and watch how they make things begin to move, get faster or slow down exploring falling paper cones or cup-cake cases. explore, investigate and test ideas about the contact forces; air resistance, water resistance and friction e.g. explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall draw, label and explain what gravity is and understand that gravity is a force that acts at a distance. explore, investigate and test the mechanisms; levers, pulleys and gears. 	<p>Pupils...</p> <ul style="list-style-type: none"> know what a force is and what impact they have on an object: contact and non-contact forces. know unsupported objects fall towards Earth because of Earth's gravity, and can explain what gravity is. know air resistance slows an object down as it moves through the air. know water resistance slows down objects which move through or on water. know what friction is. know the mechanism; levers, pulleys and gears, and how they help to move objects with a smaller amount of force. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> investigate the effect of friction in a range of contexts e.g. trainers, bathmats, mats for a helter-skelter. investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water and pulling shapes, such as boats, along the surface of water. investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats. explore how levers, pulleys and gears work. make a product that involves a lever, pulley or gear. create a timer that uses gravity to move a ball. research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation. 	
Key Vocabulary					
<ul style="list-style-type: none"> Types of forces: force, contact force, non-contact force, move, movement, air resistance, water resistance, buoyancy, up-thrust, Earth's gravitational pull, gravity, falling, opposing forces, driving force, friction, Mechanisms: simple machines, levers, pulleys, gears/cogs. Measurements: weight, mass, kilograms (kg), Newtons (N), force meter, drag, scales, speed, fast, slow. Other: streamlined, Earth, surface, texture, 					

Year 5

Term: Spring 1		Topic: Earth and Space		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the movement of the Earth and other planets relative to the Sun in the solar system; describe the movement of the Moon relative to the Earth; describe the Sun, Earth and Moon as approximately spherical bodies; use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> explore the natural world around them. (Reception – earth and space) describe what they see, hear and feel whilst outside. (Reception – earth and space) observe changes across the four seasons. (Y1/2 – seasonal changes) observe and describe weather associated with the seasons and how day length varies. (Y1 – seasonal changes) 	<p>Pupils can...</p> <ul style="list-style-type: none"> describe a model of the sun and earth to explain day and night, and explain how as the Earth rotates (spins), half of the planet faces the sun (day) and half is facing away from the sun (night). Know it takes 24 hours for Earth to rotate (spin) on its axis. explain the sun is star and is at the centre of our solar system. Draw and label a model of the solar system and know it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006) and that they travel around the sun in fixed orbits. Explain how the Earth takes 365.25 days to complete its orbit around the sun, and how we know this. Explain how as the Earth rotates, the sun appears to move across the sky, and why this is. Explain what the moon is and how it orbits the Earth every 28 days and how it looks different at different times of the month, and what impact it has on tides. 	<p>Pupils...</p> <ul style="list-style-type: none"> know there are eight planets and can name them in order. know these planets orbit around the sun on a fixed orbit. know the closer the planet is to the sun, the smaller their orbit is. know the moon orbits around the Earth every 28 days and looks different at different times of the month, and also affects the Earth's tides. know the Earth rotates on an axis that is tilted, and takes 265.25 days to complete its orbit. know as the Earth rotates, the side of the Earth facing away from the sun is in night time and the side of the Earth facing the sun is in daytime. As we see the sun rise, the Earth is actually turning to face toward the sun. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> comparing the time of day at different places on the Earth through internet links and direct communication. finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks. use secondary sources to help create a model e.g. role play or using balls to show the movement of the Earth around the Sun and the Moon around the Earth. use secondary sources to help make a model to show why day and night occur. make first-hand observations of how shadows caused by the Sun change through the day. make a sundial. research time zones. consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel. 	
Key Vocabulary					
<ul style="list-style-type: none"> Solar system: star, planet(s), sun, moon(s), faces, shadow, reflect, spherical, Names of planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus. Shape: spherical bodies, sphere, crescent moon, gibbous moon, eclipse, lunar Movement: rotate, rotation, axis, orbit, satellite, spin, Theories: astronomer. Day length: sunrise, sunset, dusk, midday, time zone, day, night, light, dark, dim, sundials, 					

Year 5

Term: Spring 2		Topic: Properties and Changes to Materials		Strand: Chemistry	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> 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; know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution; use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating; give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic; demonstrate that dissolving, mixing and changes of state are reversible changes; 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 and the action of acid on bicarbonate of soda. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 – uses of everyday materials) find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 – uses of everyday materials) compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. (Y3 – forces and magnets) compare and group materials together, according to whether they are solids, liquids or gases. (Y4 – states of matter) 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. (Y4 – states of matter) identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Y4-SOM matter) 	<p>Pupils can...</p> <ul style="list-style-type: none"> 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. explain how materials have different uses depending on their properties and states (solid, liquid, gas) give reasons for the particular uses of everyday materials, including metals, wood and plastic explore, investigate and test ideas on how some materials will dissolve in a liquid and form a solution whilst others are insoluble and form sediment. explore, investigate and test ideas about reversible changes to mixtures, and separate these by filtering, sieving and evaporation. explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda, and understand that the results of these can form new materials. 	<p>Pupils...</p> <ul style="list-style-type: none"> know that some changes to material are reversible and some are irreversible. know salt can dissolve in a liquid and can form a solution, and when too much salt is added, the liquid is saturated and cannot hold any more. know some materials cannot be dissolved in a liquid and leaves a sediment. know you can separate a substance from a solution using evaporation know you can separate a mixture using a filter. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> carry out tests to answer questions, for example, 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?' compare materials in order to make a switch in a circuit. observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes. research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials. explore adding a range of solids to water and other liquids e.g. cooking oil, as appropriate. • Investigate rates of dissolving by carrying out comparative and fair test. create a chart or table grouping/comparing everyday materials by different properties use evidence gathered about different properties to suggest an appropriate material for a particular purpose separate mixtures by sieving, filtering and evaporation, 	

				choosing the most suitable method and equipment for each mixture. <ul style="list-style-type: none"> • explore a range of non-reversible changes e.g. rusting, adding fizzy tablets to water, burning. • carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting? What affects the amount of gas produced? • research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton).
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Key Vocabulary

- **Properties of materials:** electrical conductor/insulator, thermal conductor/insulator, magnetic conductor/insulator, magnetic, magnetism, electrical resistance, **absorbent, porous, opaque, transparency, translucent, transparent,**
- **Mixtures and solutions:** dissolve/dissolving, substance, soluble, insoluble, separate, saturated, mixture, solution,
- **Changes of materials:** reversible change, physical change, irreversible change, chemical change, **burning, rusting, new material,** product, **solid(s), liquid(s), gas(es), change of state, oxygen, carbon dioxide, state change, melt/melting, freeze/freezing, heated, cooled, temperature, thermometer, Celsius, steam, water vapour, water cycle, condensation,**
- **Separating:** sieve/sieving, filter/filtering, magnetic attraction, **evaporation/evaporate/evaporating**

Year 5

Term: Summer 2		Topic: Living Things and Their Habitats		Strand: Biology
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. describe the life process of reproduction in some plants and animals. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> notice that animals, including humans, have offspring which grow into adults. (Y2 – animals, including humans) explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 – plants) 	<p>Pupils can...</p> <ul style="list-style-type: none"> talk about life cycles and know that in order for life to continue, plants and animals need to reproduce. Most animals reproduce sexually; involving two parents. 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 research animal offspring, and how some animals, including humans, have live offspring. research metamorphosis, and learn about how some young animals go through further change before becoming adults e.g. caterpillars to butterflies. find out about different types of reproduction, including sexual and asexual reproduction in plants. Know bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Sexual reproduction occurs through pollination. find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall? 	<p>Pupils...</p> <ul style="list-style-type: none"> know frogs (an amphibian) lay eggs, the eggs hatch into tadpoles, the tadpoles develop into froglets, froglets develop into frogs. know a ladybird (an insect) lay eggs, the eggs hatch into larva, the larva develop into pupa and the pupa develop into lady birds. know mammals give birth, the young develop into adolescence and the adolescence develop into adults know some animals go through metamorphosis. know plants produce seeds, the seeds are dispersed and grow into young plants, these plants then flower and disperse the seeds know some plants reproduce asexually. know about the life and work of well-known naturalists. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world. observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow use secondary sources and, observations to find out about the life cycle of a range of animals. compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth. look for patterns between the size of an animal and its expected life span. grow and observe plants that reproduce asexually e.g. strawberries, spider plants, potatoes. take cuttings from a range of plants e.g. African violet, mint. plant bulbs and then harvest to see how they multiply. use secondary sources to find out about pollination.
Key Vocabulary				
<p>Reproduction: reproduce, asexual reproduction, sexual reproduction, gestation, metamorphosis, tuber, runners/side branches, plantlet(s), cuttings, embryo, adolescent, penis, vagina, egg, pregnancy, gestation, plants, plantlets, ovulate,</p> <p>Life cycles: pollination, offspring, fertilise(s), fertilisation, sepal, filament, anther, stamen, pollen, leaf/leaves, flower(s), petal(s), blossom, fruit, seed(s), trunk, branch/branches, stigma, style, ovary, ovulate, carpel, ovule, stem, bulb(s), roots, animal, young, mammal, adult, baby, babies, sperm, cells, live young, vertebrate, invertebrate, amphibians, reptiles, birds, fish, insects, egg, runners, tubers, seed dispersal, seed formation, caterpillar, larva, chrysalis, pupa,</p>				

Science Curriculum Coverage Overview

Year 6

Term: Autumn 1		Topic: Animals Including Humans		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. describe the ways in which nutrients and water are transported within animals, including humans. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> describe the importance for humans to exercise, eat the right amounts of different types of food, and have good hygiene. (Y2 – 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) describe the simple functions of the basic parts of the digestive system in humans. (Y4 – animals, including humans) identify the different types of teeth in humans and their simple functions. (Y4 – animals, including humans) 	<p>Pupils can...</p> <ul style="list-style-type: none"> identify, label and name the main parts of the human circulatory system. describe the functions of the heart, blood vessels and blood; the heart pumps blood in the blood vessels around to the lungs. The vessels can constrict or dilate. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and then is pumped around the body. explain what is in blood and why: nutrients, water and oxygen are transported to the muscles and other parts of the body where needed. Carbon dioxide is a waste produce and is carried back to the heart, and the cycle starts again. explore, investigate and find out how diet, exercise, drugs and lifestyle have an impact on the way our bodies function, especially the way in which they impact on how well the heart and lungs work. research into heath conditions, such as, diabetes, deficiencies 	<p>Pupils...</p> <ul style="list-style-type: none"> know the human body has many different systems including the circulatory system. know the main parts of the human circulatory system and their function. Know the heart is made up of two different sides. know the heart pumps blood around the body which carries oxygen, nutrients and water to different body parts when needed, and carbon dioxide is a waste product. know the blood vessels can constrict and dilate to carry more or less blood; exercise results in more blood being pumped around the body and is important for a healthy lifestyle. know the impact diet, exercise, drugs and lifestyle can have on our bodies function: drugs affect the way our bodies function and affect the different systems within our body and some drugs can cause irreversible damage to our bodies. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> create a role play model for the circulatory system. carry out a range of pulse rate investigations: carry out a fair test – effect of different activities on my pulse rate carry out a pattern seeking enquiry – exploring which groups of people may have higher or lower resting pulse rates carry out an observation over time enquiry – how long does it take my pulse rate to return to my resting pulse rate (recovery rate) carry out a pattern seeking enquiry – exploring recovery rate for different groups of people. research the negative effects of drugs (e.g. tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources. 	
Key Vocabulary					
<ul style="list-style-type: none"> Circulatory system: circulation, heart, pulse, heartbeat, heart rate, lungs, breathing, blood vessels, blood, pump(s), transported, oxygenated blood, deoxygenated blood, oxygen, arteries, capillaries, chambers, plasma, platelets, white blood cells, red blood cells, carbon dioxide, lungs, veins, cells, cycle, Lifestyle: diet, drug(s), alcohol, smoking, disease, calorie, energy input, energy output, healthy, exercise, nutrients, minerals, vitamins, water, Other: water transportation, nutrient transportation, waste products. 					

Year 6

Term: Autumn2		Topic: Light		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that light appears to travel in straight lines; 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; explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes; use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light (Y3 - light) notice that light is reflected from surfaces. (Y3 – light) recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 – light) recognise that shadows are formed when the light from a light source is blocked by an opaque object (Y3 – light) find patterns in the way that the size of shadows change. (Y3 – light) 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 to materials) 	<p>Pupils can...</p> <ul style="list-style-type: none"> investigate and explore how light appears to travel in straight lines. research about how we see objects; objects are seen because they give out or reflect light into the eye. Light may come from a light source or be reflected from the object into our eye. Images travel into our eye upside down. draw and label diagrams of how we can see objects. observe what happens to shadows, reflections and light sources explain why shadows have the same shape as the objects that cast them; objects that block light will cause shadows because as light travels in straight lines, the shape of the shadow will be the same as the outline shape of the object. explore, investigate and test ideas on how shadows change. 	<p>Pupils...</p> <ul style="list-style-type: none"> know light travels in straight lines. know objects are seen because they reflect light off their surfaces. know that we can see when light travels from a source and reflects from an object into our eyes. know shadows are the same shape as the objects that cast them because light travels in straight lines so cannot bend around them. know images travel into our eyes upside down and our brains help us to see them the correct way. know how shadows can appear larger or smaller. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> explore different ways to demonstrate that light travels in straight lines e.g. shining a torch down a bent and straight hose pipe, shining a torch through different shaped holes in card. explore the uses of the behaviour of light, reflection and shadows, such as in periscope design, rear view mirrors and shadow puppets. investigate where to place rear-view mirrors on cars design and make a periscope. explore phenomena including rainbows, colours on soap bubbles etc. 	
Key Vocabulary					
<p>Light and seeing: see, dark, absence of light, light source, illuminate, visible, shadow, translucent, transparent, opaque, energy, block, visible, prism, eye, size, shape, pattern</p> <p>Light sources: e.g. candle, torch, fire, lantern, lightning, sun, sunlight</p> <p>Reflective light: reflect, reflected, reflection, surface, ray, scatter, reverse, beam, angle, mirror, moon, shiny, matt, bright, brightness,</p> <p>Sun safety: dangerous, glare, damage, UV light, UV rating, sunglasses, direct.</p> <p>Reflection: periscope.</p> <p>How light travels: light waves, wavelength, straight line, light rays, refraction.</p> <p>Other: names and properties of materials, absorb, component, bulb(s), buzzer, battery, cell, wire(s), motor, switch, open, closed, circuit, series, complete loop, current, voltage, Volta, circuit diagram, circuit symbol,</p>					

Year 6

Term: Spring 1		Topic: Electricity		Strand: Physics	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit; 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; use recognised symbols when representing a simple circuit in a diagram. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> identify common appliances that run on electricity. (Y4 – electricity) construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 – electricity) 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. (Y4 – electricity) recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4 – electricity) recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 – electricity) 	<p>Pupils can...</p> <ul style="list-style-type: none"> construct a simple series circuit explore, investigate and test what happens to a bulb, a buzzer or/and a motor when they add more cells. explore, investigate and find out what will happen when you use a battery with a higher voltage. explore, investigate and test what happens when more bulbs, buzzers or motors are added to a circuit. find out about switches, and how turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow, and any bulbs, buzzers or motors will not work also. represent components in simple circuit diagrams using symbols. 	<p>Pupils...</p> <ul style="list-style-type: none"> know the higher the voltage, the brighter the lamp, the faster the motor or the louder the buzzer. know the more cells used in a circuit, the higher the voltage. know a bulb, motor or buzzer will be brighter, faster or louder with more cells. know the more motors, buzzers or lamps there are in a circuit, the slower, quieter or dimmer they will be. know the position of cells, switches and other components affects the function of the circuit. know how to use recognised symbols when representing a simple circuit in a diagram 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> explain how a circuit operates to achieve particular operations, such as to control the light from a torch with different brightness's or make a motor go faster or slower. make circuits to solve particular problems, such as a quiet and a loud burglar alarm. carry out fair tests exploring changes in circuits. make circuits that can be controlled as part of a DT project e.g. traffic lights. A burglar alarm... Can incorporate a switch into a circuit to turn it on and off communicate structures of circuits using circuit diagrams with recognised symbols devise ways to measure brightness of bulbs, speed of motors, volume of a buzzer during a fair test predict results and answer questions by drawing on evidence gathered 	
Key Vocabulary					
<ul style="list-style-type: none"> <u>Flow and measure of electricity:</u> conductor, insulator, voltage, amps, resistance, electrons, volts (V), current. <u>Circuits:</u> symbol, circuit diagram, component, series circuit, function, filament, battery/cell, wires, buzzer, motor, bulb, crocodile clips, <u>Variations:</u> dimmer, brighter, louder, quieter, faster, slower <u>Types of electricity:</u> natural electricity, human-made electricity, solar panels, power station. <u>Other:</u> positive, negative. 					

Year 6

Term: Spring 2		Topic: Evolution and Inheritance		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> 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. (Y2 – living things and their habitats) notice that animals, including human, have offspring which grow into adults. (Y2 – animals, including humans) explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 – plants) describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 – rocks) recognise that environments can change and that this can sometimes pose dangers to living things (Y4 – living things and their habitats) describe the life process of reproduction in some plants and animals. (Y5 – living things and their habitats) 	<p>Pupils can...</p> <ul style="list-style-type: none"> explain how all living things have offspring of the same kind, as features in the offspring are inherited from the parents but due to sexual reproduction, the offspring are not identical to their parents and vary from each other. Characteristics are passed from parents to their offspring. understand plants and animals have characteristics that make them suited (adapted) to their environment. If their environment changes rapidly, some variations of a species may not be suited to the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass their characteristics onto their young. Over time, these characteristics become more dominant within the population. find out more about how living things on earth have changed over time – evolution. explore, investigate and find out about fossils and how they give us evidence of what lived on Earth millions of years ago, and provided evidence to support the theory of evolution. 	<p>Pupils...</p> <ul style="list-style-type: none"> know all living things have changed over time and have adapted to their environments through natural selection. know fossils help us to see the changes that have taken place in living things over millions of years know all living things all produce offspring which are not usually identical to their parents. know adaptation of animals can sometimes lead to evolution. 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> design a new plant or animal to live in a particular habitat. use models to demonstrate evolution e.g. 'Darwin's finches' bird beak activity. use secondary sources to find out about how the population of peppered moths changed during the industrial revolution. make observations of fossils to identify living things that lived on Earth millions of years ago. identify features in animals and plants that are passed on to offspring and explore this process by considering the artificial breeding of animals or plants e.g. dogs. compare the ideas of Charles Darwin and Alfred Wallace on evolution. research the work of Mary Anning and how this provided evidence of evolution. 	
Key Vocabulary					
<ul style="list-style-type: none"> Evolution and inheritance: evolve, adaptation, inherit, natural selection, adaptive traits, inherited traits, mutations, theory of evolution, ancestors, biological parent, chromosomes, genes, Charles Darwin, sexual reproduction, species, Other: selective breeding, artificial selection, breed, cross breeding, genetically modified food, cloning, DNA, offspring, characteristics, habitat, climate, habitat, environment, adapt, adapted, vary, variations, human, fossil(s), suited, cells, 					



Year 6

Term: Summer 2		Topic: Living Things and Their Habitats		Strand: Biology	
National Curriculum Objectives	Prior Learning	Knowledge and Skills	Sticky Knowledge	Working Scientifically	
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> describe how living things are classified into broad groups according to common observable characteristics and based on 	<p>Pupils should be able to...</p> <ul style="list-style-type: none"> recognise that living things can be grouped in a variety of ways. 	<p>Pupils can...</p> <ul style="list-style-type: none"> understand that broad groupings, such as microorganisms, plants and animals can be subdivided 	<p>Pupils ...</p> <ul style="list-style-type: none"> classify animals, plants and microorganisms can be subdivided into smaller groups 	<p>Pupils might work scientifically by...</p> <ul style="list-style-type: none"> use secondary sources to learn about the formal 	

<p>similarities and differences, including micro-organisms, plants and animals;</p> <ul style="list-style-type: none"> • give reasons for classifying plants and animals based on specific characteristics. 	<p>(Y4 - Living things and their habitats)</p> <ul style="list-style-type: none"> • 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) • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) • describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats) 	<ul style="list-style-type: none"> • through direct observations where possible, classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates) (fish, amphibians, reptiles, birds and mammals). • discuss reasons why living things are placed in one group and not another. 	<ul style="list-style-type: none"> • know invertebrates can be grouped into insects, spiders, snails and worms • know vertebrates can be grouped into fish, mammals, amphibians, birds and reptiles • know animals are grouped by their similarities and differences 	<p>classification system devised by Carl Linnaeus and why it is important.</p> <ul style="list-style-type: none"> • use first-hand observation to identify characteristics shared by the animals in a group. • use secondary sources to research the characteristics of animals that belong to a group. • use information about the characteristics of an unknown animal or plant to assign it to a group. • classify plants and animals, presenting this in a range of ways e.g. Venn diagrams, Carroll diagrams and keys. • create an imaginary animal which has features from one or more groups.
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Key Vocabulary

- **Classifying:** Carl Linnaeus, Linnaean system, **plants, flowering and non-flowering plants**, variation.
- **Classification of animals:** **vertebrates, invertebrates, fish, reptiles, amphibians, birds, mammals, warm blooded, cold-blooded, insects, spiders, snails, worms, head, thorax, wings, fur, feathers, scales,**
- **Microorganisms:** **bacteria**, single-celled, microbes, microscopic, virus, fungi, fungus, **mosses, ferns, conifers**, mould, antibiotic, yeast, ferment, **microscope**, decompose.
- **Other:** **species, kingdom**