Science – Knowledge End Points by Topic

PLANTS (Biology)			
Year group	**Curriculum**	**Sticky knowledge**	**Key vocabulary**
Nursery	Shows care and concern for living things and the environment.	To know we need to look after our world. Plants and some foods are grown and collected for Harvest.	Earth/soil Growing Plant Food Water Sun Care
Reception	Explore the natural world around them, making observations and drawing pictures of animals and plants.	Plants grow from seeds. Humans and animals can eat some plants.	Life Cycle Seed Roots Flower Dies Plant Growing
Year 1	Identify and describe the basic structure of a variety of common flowering plants, including trees Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Growing locally, there will be a lots of different plants with different names. These might look different but will all have the same main parts. The main parts of a flowering plant are: flower, petal, stem, leaf, root. The main parts of a tree are: trunk, roots, branches, leaves. Some also have fruit and blossom. Some trees keep their leaves all year. These are called evergreen trees. Other trees drop their leaves during autumn and grow them again during spring. These are called evergreen trees.	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area

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Science – Knowledge End Points by Topic

Year 2	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	Plants may grow from either seeds or bulbs. These then grow into seedlings which then continue to grow into full sized plants. Seeds and bulbs will grow at different rates. Plants need water, light and the right temperature to grow well and stay healthy. Some plants are better suited to growing in full sun and some grow better in partial or full shade.	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, shoot, seedling
Year 3	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	Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and help to keep the plant in place. Nutrients can be found in soil and help the plant to grow. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to help with pollination and seed dispersal. The leaves use sunlight and water to make the plant's food. Some plants produce flowers which enable the plant to reproduce. Reproduce means to make more of the same kind of plant (or animal). Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers. This is called pollination. Pollination then makes seeds, which can grow into new plants. The seeds can sometimes be found in berries or fruit. The seeds can be spread by wind, water or animals.	pollen, insect/wind pollination, male, female, seed formation, seed dispersal, nutrients, minerals, soil, absorb, transport **NB Do not need to learn photosynthesis both as the term and details of the process.**

Year 4	N/A	
Year 5	N/A	
Year 6	N/A	

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Science – Knowledge End Points by Topic

ANIMALS, INCLUDING HUMANS (Biology)

Year group	National Curriculum	Sticky knowledge	Key vocabulary
Nursery	**B**egin to understand how and why question**s**	Brushing our teeth and washing is important to keep us healthy.	Germs Brushing teeth Washing hands clean/dirty
Reception	Explore the natural world around them, making observations and drawing pictures of animals and plants. Manage their own basic hygiene and personal needs including dressing, going to the toilet and understanding the importance of healthy food choices. Plus Nursery statement/s above.	There are lots of different animals and plants. Plants grow and change. Animals grow and change. Fruit and vegetables are healthy foods, which are good for our body.	Life Cycle Animal Changes
Year 1	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,	There are lots of different animals and many of these look very different and have different body parts. Some animals have wings and/or tails. Some animals have scales, feathers or hair. We can name an animal by using how it looks. NB – children DO NOT need to be able to name the groups e.g. mammal, reptile etc just be able to identify different types of animals from across these groups e.g. rabbit, lizard. Animals eat different things - some eat other animals, some eat plants, some eat both plants and animals. NB children do not need to know carnivore, herbivore and omnivore.	head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear, tongue NB children do not need to know

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Science – Knowledge End Points by Topic

	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.	Humans all usually have the same body parts, though they may be different shapes, sizes and colours. Humans (and other animals) find out about the world using their senses. Humans have five senses: Sight – using our eyes Touch – using our skin Taste –using our tongue Hearing – using our ears Smelling – using our nose	carnivore, herbivore and omnivore.
Year 2	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	Animals, including humans, have offspring which grow into adults. Humans and some animals give birth to live young, which are not in an egg. The main stages of growth for a human include: Baby, toddler, child, teenager, adult Some animals (such as birds) lay eggs, which hatch into their young. The young of some animals do not look like their parents e.g. tadpoles. All animals, including humans, have the basic needs of feeding, drinking and breathing to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses. Good hygiene includes: Washing, eating healthily and exercising.	offspring, growth, baby, toddler, child, teenager, adult, old person, survive, survival, water, food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy)

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Year 3	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	Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients. Nutrients include: carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water and fibre. All nutrients are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. Humans, and some other animals, have skeletons and muscles which help them move, and provide protection and support. Some common parts of a human skeleton include a skull, ribs and a spine.	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine
Year 4	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 Construct and interpret a variety of food chains, identifying producers, predators and prey	Digestion is when our body breaks down the food we eat into tiny pieces. This allows it to obtain the nutrients we need to remain healthy and get rid of anything we do not need. Food enters the body through the mouth. • Digestion starts when the teeth start to break the food down. • Saliva is added and the tongue rolls the food into a ball. • The food is swallowed and passes down the oesophagus to the stomach. • Here the food is broken down further by being churned around and other chemicals are added. • The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. • The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. • What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet. Humans have three main types of teeth: incisors for cutting; canines for tearing; premolars and molars for grinding (chewing). Living things can be classified as producers, predators and prey according to their place in the food chain. A producer is something that produces its own food e.g. a plant. A predator is an animal that hunts and kills other animals. This is how they obtain the nutrients they need. Prey are animals that are hunted and eaten by predators.	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain

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Science – Knowledge End Points by Topic

Year 5	**Describe the changes as humans develop to old age**	Humans have different stages of growth. These include: Gestational Infancy Childhood Adolescence Adulthood Old Age Puberty occurs in adolescence and affects both boys and girls. Puberty is when the body is getting ready to reproduce. Puberty involves changes in the body including: Deepening of voice and growth of facial/body hair in boys. Body hair growth and menstruation in girls. The gestational period is how long a baby needs to develop before it is born. The gestational period for a human is around 40 weeks/9 months. Gestational periods vary from animal to animal and is usually dependent on size.	**New born, infant, child, teenager, puberty, adult, gestation**
Year 6	**Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood** **Describe the ways in which nutrients and water are transported within animals, including humans** **Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function**	**The human circulatory system:** **1. The heart pumps blood in the blood vessels around to the lungs.** **2. Oxygen from the lungs goes into the blood and carbon dioxide is removed.** **3. The blood goes back to the heart and is then pumped around the body.** **4. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed.** **5. As they are used, they produce carbon dioxide and other waste products.** **6. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body.** **Diet, exercise, drugs and lifestyle have an impact on the way our bodies function.** **They can affect:** • **how well our heart and lungs work** • **how likely we are to suffer from disease or illness** • **how clearly we think** • **how fit and well we feel.**	**Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle**

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Science – Knowledge End Points by Topic

LIVING THINGS AND THEIR HABITAT (Biology)

Year group	National Curriculum	Sticky knowledge	Key vocabulary
Nursery	Shows care and concern for living things and the environment	Changes between seasons	Changes Seasons weather
Reception	Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. **Understand some important processes and changes in the natural world around them, including the seasons** and changing states of matter.	To know that not everywhere looks the same as where they live. There are 4 seasons. Each season looks different.	Seasons Autumn Winter Spring Summer Sun, Rain
Year 1	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	In the UK: The days are longer in summer (more sunlight) and shorter in winter (less sunlight). The weather changes with the seasons. It is usually colder and rainier in winter, and hotter and drier in the summer. The change in weather can causes many other changes. Some examples are: the numbers of animals found outside; seed and plant growth; leaves on trees; the type of clothes worn by people.	Weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset day length.
Year 2	Explore and compare the differences between things that are living, dead, and things that have never been alive	All objects are either living, dead or have never been alive.	living, dead, never been alive, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, conditions, light,

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Science – Knowledge End Points by Topic

	Identify and name a variety of plants and animals in their habitats, including microhabitats 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 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	Living things are plants (including seeds) and animals. One of the reasons we know they are alive is because they grow. Dead things include dead animals and plants and parts of plants and animals that are no longer attached. (NB: This is simplified for Y2). Therefore, an object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive. A habitat is a natural home where an animal or plant lives. Animals and plants live in a habitat to which they are suited. The habitat provides the basic needs of the animals and plants – shelter, food and water. It also allows them to move around freely e.g. a fish in water. Within a habitat there are different micro-habitats A micro habitat is a very small habitat inside another habitat. e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions to the main habitat e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.	dark, shady, sunny, wet, damp, dry, hot, cold, **NB Do not need to learn MRS NERG/GREN**
Year 3	N/A		

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Year 4	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.	Living things can be grouped (classified) in different ways according to their features. NB **Non-Statutory** guidance - Pupils could *begin to* put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects. Classification keys can be used to identify and name living things. Environments that include habitats may change through natural events e.g. through flooding, fire, earthquakes etc. Environments also change with the seasons; different living things can be found in a habitat at different times of the year. Humans also cause the environment to change. This can be in a good way (i.e. positive human impact, such as setting up nature reserves) or in a bad way (i.e. negative human impact, such as littering). Negative change (for any reason) will pose danger to those plants and animals living there.	Classification, classification keys, environment, habitat, human impact, positive, negative,

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Science – Knowledge End Points by Topic

Year 5	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	As part of their life cycle, plants and animals reproduce. When animals, including humans, reproduce, they have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g. caterpillars to butterflies. This is called a metamorphosis. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Plants reproduce both sexually and asexually. Asexual production only requires one parent. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction Gardeners may encourage plants to reproduce asexually by taking cuttings. In plants, sexual reproduction occurs through pollination, usually involving wind, water or animals.	life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, bulbs, cuttings
Year 6	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics	Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other livings things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot. Animals can be divided into two main groups: those that have backbones (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics.	vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, warm-blooded, cold-blooded, insects, spiders, snails, worms, flowering, non-flowering, NB Does not need to memorise the names and order of the Linnaeus classification system (Kingdom, phylym, class,

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Science – Knowledge End Points by Topic

		Invertebrates can be divided into a number of groups, including insects, spiders, snails and worms. **Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.**	**order, family, genus, species)**
Year 6 **Evolution & Inheritance**	**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** **Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago**	**All living things produce offspring of the same kind as themselves.** **Due to sexual reproduction (mix of two parents), the offspring are not identical to either parent and vary from each other.** **Plants and animals have characteristics that make them suited (adapted) to their environment.** **If the environment changes rapidly, some variations of a species may not suit the new environment and will die.** **If the environment changes slowly, animals and plants with variations that are best suited to it, survive in greater numbers. They then reproduce and pass these characteristics on to their young.** **Over time, these inherited characteristics become more dominant within the population.** **Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution.** **Fossils give us evidence of what lived on the Earth millions of years ago and provide evidence to support the theory of evolution.** **More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.**	**offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, evolve, evolution** **NB Do not need to know DNA and genes. Pupils can be taught that offspring inherit characteristics but don't need to know that genes and DNA are the mechanism for this.**

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Science – Knowledge End Points by Topic

MATERIALS (Chemistry and Physics)			
Year group	**National Curriculum**	**Sticky knowledge**	**Key vocabulary**
Nursery	Talk about the differences between materials and changes they notice.	Children will be able to use sense of touch to talk about/describe different materials	Change Look Different Same Hard Soft
Reception	**Understand some important processes and changes** in the natural world around them including the seasons and **changing states of matter.**	Children understand that water freezes when it's cold and melts when it is warm.	Water Freeze Melt Hot Cold
Year 1	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.	There are lots of different materials. Materials we see every day include wood, plastic, glass, metal, water and rock. All objects are made of one or more material. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Materials can be described by their properties: Hard or soft Rough or smooth; Bendy or not bendy; Waterproof or not waterproof See-through or not see-through	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, bendy, floppy, waterproof, breaks/tears, rough, smooth, see-through, not see-through

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Year 2	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.	All objects are made out of materials that are suitable for the object's use. (For example a window is made out of glass as it is transparent). Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. (For example, clay can be shaped by squashing, stretching, rolling, pressing etc.)	Names of materials: wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials: as for Year 1 (hard, soft, bendy, floppy, waterproof, breaks/tears, rough, smooth) plus opaque, transparent and translucent, flexible, rigid Shape: push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching
Year 3	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	Rock is a naturally occurring material, not manmade. (e.g. concrete and brick are not rocks) There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. Rocks have different sizes of grain or crystal. Rocks may absorb water. Rocks can be different shapes and sizes Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). There are lots of different types of soil, based on the type/size of rock and organic matter it is made from. Some rocks contain fossils.	rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, fossil, bone, **NB Do not need to know about the details of the rock cycle including knowing that rocks can be sedimentary, metamorphic or igneous and details of how formed.**

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		Fossils were formed millions of years ago. Fossilisation process: 1. When plants and animals die, they are sometimes covered and squashed by layers of soil. 2. Over time water from the soil seeps into the bones. 3. The bones then start to be dissolved by water in the soil. 4. Minerals in the water replace the bone, leaving a **rock replica** of the original bone called a fossil.	
Year 4	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.	A solid keeps its shape. A liquid can changes in shape to fit the container. A liquid can be poured and keep a level, horizontal surface. A gas fills all available space and it has no fixed shape. Solids like rice, sand or flour can be confused with liquids because they can be poured. However, 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. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0 degrees Celsius. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature. Water boils when it is heated to 100 degrees Celsius. Evaporation also changes liquid to gas, but can happen more slowly and at a lower temperature than boiling. Condensation is the change back from a gas to a liquid caused by cooling.	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle

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		The Water Cycle: • Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). • This rises, cools and condenses back into a liquid forming clouds. • When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. • These drain back into rivers etc. This is known as precipitation.	
Year 5	**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** **Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials including metals, wood, plastic.** **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** **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**	**Materials have different uses depending on their properties and state (liquid, solid, gas).** **Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets.** **Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.** **Mixtures can be separated by filtering, sieving and evaporation.** **Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible.**	**Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material**

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Science – Knowledge End Points by Topic

Year 6	N/A		

Scientific Skills are detailed on our Skills Wheel document. Planning documents specify individual skills used in each unit.

Science – Knowledge End Points by Topic

FORCES (Physics)			
Year group	**National Curriculum**	**Sticky knowledge**	**Key vocabulary**
Nursery	N/A		
Reception	N/A		
Year 1	N/A		
Year 2	N/A		
Year 3	Compare how things move on different surfaces Notice that some forces need contact between two 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 two poles Predict whether two magnets will attract or repel each other,	A force is a push or a pull. 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 more easily, or it may slow down its movement (e.g. ice skater compared to walking on ice in normal shoes.) A magnet attracts magnetic material. Iron and nickel (and other materials containing these, e.g. stainless steel) are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles – a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other – repel. If two opposite poles, e.g. a north and south, are brought together they will pull together – attract. For some forces to act, there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts.	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole

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	depending on which poles are facing.		
Year 4	n/a		
Year 5	**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**	**The Sun is a star. It is at the centre of our solar system.** **There are 8 planets (names optional).** **These planets travel around the Sun in fixed orbits.** **Earth takes 365¼ days to complete its orbit around the Sun.** **The Earth rotates (spins) on its axis every 24 hours.** **As Earth rotates half faces the Sun (day) and half is facing away from the Sun (night). As the Earth rotates, the Sun appears to move across the sky.** **The Moon orbits the Earth. It takes about 28 days to complete its orbit.** **The Sun, Earth and Moon are approximately spherical.**	**Sun, Moon, Earth, planets spherical, Solar System, rotate, star, orbit**
Year 5	**Identify the effects of air resistance, water resistance and friction, that act between moving surfaces** **Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object** **Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect**	**A force causes an object to start moving, stop moving, speed up, slow down or change direction.** **Air and water resistance can affect how quickly an object moves.** **Friction can also affect how quickly an object moves.** **Gravity is a force that acts at a distance.** **Everything is pulled to the Earth by gravity. This causes unsupported objects to fall.** **A mechanism is a device that allows a small force to be increased to a larger force.** **This allows us to move objects that we would find difficult to move without a mechanism e.g. a bottle opener.** **Pulleys, levers and gears are all mechanisms, also known as simple machines.**	**Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears**

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Science – Knowledge End Points by Topic

Year 6			

Scientific Skills are detailed on our Skills Wheel document. Planning documents specify individual skills used in each unit.

Science – Knowledge End Points by Topic

ELECTRICITY (Physics)			
Year group	**National Curriculum**	**Sticky knowledge**	**Key vocabulary**
Nursery	N/A		
Reception	N/A		
Year 1	N/A		
Year 2	N/A		
Year 3	N/A		
Year 4	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	Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. A simple electrical circuit consists of a cell or battery connected to a component using wires. A component could be a bulb, a motor or a buzzer. The component will not work if there is a break in the circuit. A switch can be added to the circuit to turn the component on and off. Some materials conduct electricity. This means they allow the electricity to travel through them easily. These are called conductors. Metals are good conductors so they can be used as wires in a circuit. Materials, which do not conduct electricity are called insulators. Examples of these include wood and plastic.	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery connect/connections, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.

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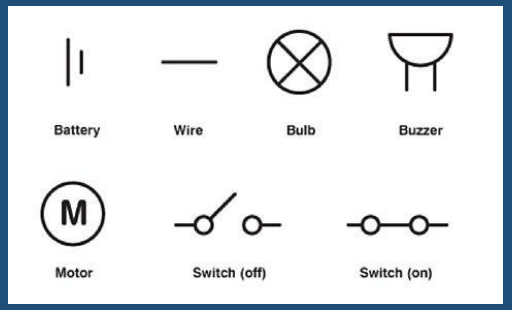
Science – Knowledge End Points by Topic

	whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors		
Year 5	N/A		
Year 6	**Use recognised symbols when representing a simple circuit in a diagram** **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**	**Know and draw a circuit using these symbols:**  **Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound.** **If you use a battery with a higher voltage, the same thing happens.** **Adding more bulbs to a circuit will make each bulb less bright.** **Adding more motors will make each motor spin slower.** **Adding more buzzers will make each buzzer less loud.** **Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.**	**Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage** **N.B. Children do not need to understand what voltage is, but will use volts and voltage to describe different batteries. The words "cells" and "batteries" are now used interchangeably.**

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