Science Curriculum

At St. Mary's, we understand that science is an integral part of our everyday lives. As such, we aim to inspire children to ask questions about the world they inhabit and then provide them with the skills and knowledge they need to answer those questions. We take an investigative approach towards science, encouraging the children to learn new scientific skills, such as close observation, careful recording and designing investigations.

Science is one of the core subjects in the National Curriculum and is taught each week in all KS1 and KS2 classes.

Intent

The National Curriculum for Science aims to ensure that all children:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this.

Implementation

Our whole school approach to the teaching and learning of Science:

- There is a clear and comprehensive Science curriculum that is in keeping with the National Curriculum and where there is a progression of learning through the school (both knowledge and scientific skills).
- Children explicitly know what they are learning, why they are learning it and how they are learning it in every lesson.
- A holistic approach is taken to the teaching and learning of Science where children are given opportunities to reflect on previous learning and building upon this knowledge so that they can make links between different topic areas.
- Cross-curricular links are made regularly, allowing them to make further links between learning. Children complete a topic write once every half term, incorporate Maths were appropriate and also make links with other subject areas.
- A wide range of resources are used to aid the teaching and learning of Science so that children can embed scientific understanding and allowing them to work scientifically.
- Children are offered a wide range of extra-curricular activities, visits, trips and visitors to complement and broaden the curriculum.
- Assessment is monitored regularly to inform future planning so that all children are able to make good progress and achieve high standards.

Impact

- All groups of children will make good progress in Science and the majority of children will achieve age-related expectations.
- Children will retain the knowledge that is taught in Science and build on these through their learning journey while also applying these to real life contexts.
- Children will be able to conduct investigations and find answers to scientific questions that are posed through hands-on and practical teaching and learning.
- Children will be able to explain processes with scientific reasoning, using the appropriate key vocabulary that they are taught.

To read the rest of our policy on science – please see our school website: https://www.stmarys.bryanston.net/

	Long Term Curriculum Plan 2021-22					
Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	**ELG: Children at the expected level of development will:** ➢ Explore the natural world around them, making observations and drawing pictures of animals and plants; ➢ 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.					
Year 1	**Animals, including humans** (Ourselves & Our pets)	**Animals, including humans** (Ourselves & Our pets)	**Seasonal changes** (Wonderful weather)	**Plants** (What's growing in our gardens?)	**Everyday materials** (Let's build marvellous materials)	**Plants** (What's growing in our gardens?)
Year 2	**Plants** (Ready, steady, grow!)	**Use of everyday materials** (Materials Matter)	**Living things and their habitats** (Habitats)	**Use of everyday materials** (Squash, bend, twist, stretch)	**Habitats** (Gardens & Allotments)	**Animals; including humans** (Healthy animals)
Year 3	***Forces and magnets*** (Amazing magnets)	**Rocks** (Rocks and fossils)	**Light** (Light and shadows)	**Plants** (Artful flowers, fruit & seeds)	**Animals, including humans** (Keeping healthy)	**Plants** (Roots and shoot fs)
Year 4	**States of matter** (States of matter scientists)	**Sound** (Listen up)	**Animals, inc. humans** (Excuse me, are these your teeth?)	**Electricity** (It's electric)	**Living things and their habitat** (Name that living thing)	**Living things and their habitat** (Helping our habitat)
Year 5	**Earth and space** (Space presenters)	**Forces** (May the force be with you)	**Living things and their habitats** (The art of living)	**Animals, inc. humans** (Life explorers)	**Properties and changes of materials** (Changing materials)	**Properties and changes of materials** (Music festival materials)
Year 6	**Scientists and Inventors**	**Living things and habitats** (Classification connoisseurs)	**Evolution & inheritance** (The game of survival)	**Animals, inc. humans** (The art of being human)	**Light** (Crime lab investigations)	**Electricity** (Electric celebrations)

Progression of skills and knowledge

EYFS						
Year A	All About Me	Food	People Who Help Us	Buildings	Magic and Fantasy	Growing and Changing
	To recognise at least 5 basic body parts and be able to locate these on myself. To draw observational drawings of myself using a mirror Can talk about things they have observed using the senses.	To know some understanding of good practices with regard to exercise, eating, sleeping and hygiene which can contribute to good health (PSHE Link) To identify and name 5 healthy foods To make verbal observations on seasonal changes between Autumn and Winter. To develop an understanding of growth, decay and changes over time. To ask simple questions about the world around them.	Shows care and concern for environment (link to recycling) Discuss what happens in day and night time (link to emergency workers) Explore light and dark and observe changes. (link to lights on emergency vehicles, alert to danger)	Identify and compare some basic materials. Observe buildings in local area and talk about aspects of their familiar world.	Explore the natural world around them, drawing on their own experiences and linking to texts read in class.	Shows care and concern for living things and the environment Make observations and draw pictures of animals and plants Create small world models to explore animals and living things e.g: farm To draw observations about seasonal changes between Spring and Summer. To develop an understanding of growth, decay and changes over time. To notice differences between babies and children. Make observations of baby animals
Year B	All About Me	Celebrations	Transport	Superheroes and Explorers	Traditional Tales	Living Things
	To recognise at least 5 basic body pats and be able to locate and label on a diagram To draw observational drawings of myself and others To recognise similarities and differences between myself and others Name and give examples of the use of the 5 senses.	To draw observations of seasonal changes between Autumn and Winter To understand the effect of seasonal changes on the natural world around them including growth, decay and changes over time. To ask questions and make comments about the world around them.	Know that pushes and pulls are examples of forces Know that forces can make things speed up, slow down or change direction Observe changes and movements when transport is moving on different surfaces.	Draw and describe observations of different locations and habitats Observe changes over time (e.g: ice melting) and understand that there is a change.	Explore the natural world around them, drawing on own experiences and linking to texts read in class. Identify and compare some basic materials Test durability of materials and describe the effects of change. Express opinions on best material and why (link Three Little Pigs)	Compare two living things, drawing on observations, own experiences and linking to texts read in class. Show care and concern for living things and explain how to look after a living thing. Make observations on animals and plants and explain why some things occur, and talk about

						changes. To draw observations about seasonal changes between Spring and Summer To understand the effect of seasonal changes on the natural world around them including growth, decay and changes over time.

Year 1			
Plants What's growing in our gardens	**Animals, including humans** Ourselves Our pets	**Everyday materials** Let's build Marvellous materials	**Seasonal changes** Wonderful weather
Knowledge • Growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. • Plants have common parts, but they vary between the different types of plants. • Some trees keep their leaves all year while other trees drop their leaves during autumn and grow them again during spring.	**Knowledge** • Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them. • Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals. • Humans have key parts in common, but these vary from person to person. • Humans (and other animals) find out about the world using their senses. • Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.	**Knowledge** • All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. • Materials can be described by their properties e.g. shiny, stretchy, rough etc. • Some materials e.g. plastic can be in different forms with very different properties.	**Knowledge** • In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. • The weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. • The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.
Scientific skills **Classifying** Classifying leaves, flowers and seeds, choosing their own criteria. **Observing over time** • Observe a tree through the year. • Observe a trail/patch to identify how plants change through the year. **Pattern seeking** Encourage children to identify patterns based on their observations (e.g. size of leaves on different plants) **Researching.** Use secondary sources to name plants (inc trees).	**Scientific skills** **Classifying** • Classify animals they have seen/have first-hand experience of, choosing their own criteria to do so. • Classify animals based on physical structure. • Classify animals they have first-hand experience of based on what they eat (plants, other animals, both). (Complete this after the research.) **Observing over time** Observe animals in the local environment throughout the year. **Pattern seeking** Children generate questions for investigation such as:	**Scientific skills** **Classifying** • Classify objects made from the same material (e.g. lots of things made from plastic). • Classify one object made from different materials (e.g. cups made of different materials). • Classify different fabrics based on texture (e.g. to make a feely-book for a child). • Classify paper/plastics/fabrics. **Comparative/fair testing** Test objects made of different materials to see how effective they are e.g. umbrellas/hats/coats for waterproofness, cloths/nappies for absorbency, socks for elasticity, bounciness of balls, sunglasses for protection from the sun, picnic plates for	**Scientific skills** **Observing over time** • Take weather measurements and make observations over time. • Record/Photograph what children are wearing (jumper, coat, hats, scarves, etc.) • Make observations of daylight hours e.g. send a diary and toy bear home with one child each day and ask the child to record their activities, but the bear needs to go to bed when it gets dark and the children must record the time this happens. (This gathers evidence, over time, that day length changes and so do activities.) **Pattern seeking**

	▪ Do people with longer arms have longer legs? ▪ Can more people identify prawn cocktail crisps than cheese and onion? ▪ Do all animals with ..... have .....? **Comparative/fair testing** Can I taste the difference between different flavoured crisps/skittles/smarties? **Researching** • Use secondary sources to name animals seen in the local environment that they may not currently be able to name (e.g. birds: magpie, blackbird). • Research what animals they have first-hand experience of eating.	stiffness, door mats for wiping your feet, different papers for writing on/painting etc.	At the end of the year, look for patterns in evidence e.g. Does it rain more in spring? Do we have sunnier days in the summer? Which was the coldest month?
Vocabulary • 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.	**Vocabulary** • Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves. • Names of animals experienced first-hand from each vertebrate group. • Parts of the body including those linked to PSHE teaching. • Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue. N.B. The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals, not just meat. Although we often use our fingers and hands to feel objects, the children should understand that we can feel with many parts of our body.	**Vocabulary** Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through.	**Vocabulary** • Weather (sunny, rainy, windy, snowy etc.). • Seasons (winter, summer, spring, autumn). • Sun, sunrise, sunset, day length.

Year 2			
Living things and their habitat Gardens and allotments Habitats	**Plants** Ready, steady, grow!	**Animals, inc. humans** Healthy animals	**Everyday materials** Materials matter Squash, bend, twist, stretch
Knowledge • All objects are either living, dead or have never been alive.	**Knowledge** • Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into	**Knowledge** • Animals, including humans, have offspring which grow into adults. In humans and some	**Knowledge** • All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For

• Living things are plants (including seeds) and animals. • Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) • An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). • Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. • The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. • These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. • The plants and animals in a habitat depend on each other for food and shelter etc. • The way that animals obtain their food from plants and other animals can be shown in a food chain.	mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. • Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. • Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.	animals, these offspring will be young, such as babies or kittens, that grow into adults. • In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. • All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. • To grow into healthy adults, they also need the right amounts and types of food and exercise. • Good hygiene is also important in preventing infections and illnesses.	example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. • When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. • A material can be suitable for different purposes and an object can be made of different materials. • 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. This can be a property of the material or depend on how the material has been processed e.g. thickness.
<u>Scientific skills</u> **Classifying** • Find things that are living. • Find things that are dead. • Find things that have never been alive. • Classify things found in the environment (choosing their own criteria to do so), leading to living, dead and never been alive. • Classify minibeasts found in the environment based on physical structure. • Classify plants found in the environment. Observing **Observing over time** • Explore animals in micro-habitats throughout the year (under a rock, under a log, in a pond, in a bush, in the long grass). • Explore plants in micro-habitats throughout the year (e.g. woodland area, ponds, meadows). **Pattern seeking** Children generate questions for investigation such as:	**<u>Scientific skills</u>** **Classifying** Based on the children's own criteria: • classify seeds • classify bulbs. **Observing over time** Plant seeds and bulbs and observe how they grow. **Pattern seeking** Children generate questions for investigation such as: • Do big seeds germinate more quickly? • Does it matter which way round you plant a bulb or seed? • Which comes first, the root or the shoot? **Researching** Look at packets to decide how to plant and care for seeds e.g. How much water do they need? Do they need shade/full sun?	**<u>Scientific skills</u>** **Classifying** Based on the children's own criteria: • classify food items • classify animals. **Observing over time** • Observe a life cycle (e.g. caterpillars, chicks, farm animals). • Observe how their body changes during/after exercise. **Researching** Research adult animals and their young e.g. googling pictures and names of animal babies – swan and cygnet.	**<u>Scientific skills</u>** **Classifying** Based on the children's own criteria, classify materials e.g. samples of wood, metal, plastic, etc. **Comparative/fair testing** Test materials for different uses (e.g. Which material can you use to make an aeroplane? Which fabric would you use for curtains? Which materials are best for Cinderella's mop? Which fabric would you choose for Elastigirl's costume? Which paper can be used for a book, fabrics for a child's dungarees, materials for aeroplanes etc?) Researching

• Are there more daisies in the meadow or on the field? • Where do you see more ivy? • Where do you see more butterflies? • Where do snails live? **Researching** • Use secondary sources to name plants and animals seen in the local environment that they may not currently be able to name (Leafsnap UK on Apple App Store, SEEK INaturalist on google play and Apple App Store, textbooks, Woodland Trust resources). • Research what animals they have first-hand experience of eat.			
Vocabulary • Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed • Names of local habitats e.g. pond, woodland etc. • Names of micro-habitats e.g. under logs, in bushes etc.	**Vocabulary** As for Year 1* plus light, shade, sun, warm, cool, water, grow, healthy. *Y1 vocabulary: • 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.	**Vocabulary** Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta).	**Vocabulary** • Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard • Properties of materials – as for Year 1* plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid. • Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching. *Year 1 vocabulary: Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through.

Year 3				
Plants Roots and shoots Artful flowers, fruits and seeds	**Animals, including humans** Keeping healthy	**Rocks** Rocks and fossils	**Light** Light and shadows	**Forces and magnets** Amazing magnets
Knowledge • Many plants, but not all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. 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. The leaves use sunlight and water to produce the plant's food. Some plants produce	**Knowledge** • 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 – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. • A piece of food will often provide a range of nutrients.	**Knowledge** • Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. • Rocks can be hard or soft. They have different sizes of grain or crystal. • They may absorb water. • Rocks can be different shapes and sizes (stones, pebbles, boulders). • Soils are made up of pieces of ground down rock which may be	**Knowledge** • We see objects because our eyes can sense light. • Dark is the absence of light. We cannot see anything in complete darkness. • Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. • Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective.	**Knowledge** • 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 better or it may hinder 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.

flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. • Different plants require different conditions for germination and growth.	• Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.	mixed with plant and animal material (organic matter). • The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil. • Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.	• 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 sunhats in bright light. • 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. • The size of the shadow depends on the position of the source, object and surface.	• 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 unlike 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.
Scientific skills **Classifying** Classify flowers based on the children's own criteria. (This does not meet the curriculum objectives for this topic, but it is a good opening activity to assess prior knowledge.) **Observing over time** • Observe celery (with roots and leaves) in coloured water. • Observe white carnations (freshly cut) in coloured water. • Gather seeds and photographic evidence of blossoms/flowers and berries on a particular trail throughout the year. **Pattern seeking** Investigate what happens when conditions are changed e.g. more/less light/water, change in temperature, nutrients (Baby Bio vs other brands). **Researching** • Research the functions of the parts of flowering plants. • Research different methods of seed dispersal. • Research different methods of pollination.	**Scientific skills** **Classifying** Based on the children's own criteria: classify food items (leading to sorting by nutrients) classify animals (leading to sorting by whether or not they have skeletons). **Pattern seeking** Children generate questions for investigation into objective 1 such as: • Do 'healthy' drinks have less sugar? • Does brown bread have more fibre? Children generate questions for investigation into objective 2 such as: • Do people with long arms throw further? • Can people with short legs jump higher? • Can people with longer legs run faster? • Can people with bigger hands catch a ball more easily? **Researching** • Look at food packaging to identify the amount of nutrients in different food items. • Research which types of food contain which nutrients. • Generate questions to research about the human skeleton.	**Scientific skills** **Classifying** • Based on the children's own criteria, classify rocks. (At the beginning of the topic, this will most likely focus on appearance, leading to physical properties at the end of the unit.) • Look at different soils and discuss how they are similar/different. **Observing over time** Observe how soil separates into different layers in water – see diagram. **Comparative/fair testing** • Test the hardness of different rocks. • Test what happens when rocks are put in water. • Test how quickly water runs through different types of soil. **Researching** Research how fossils are formed.	**Scientific skills** **Classifying** Based on the children's own criteria: • classify light sources (leading to man-made/natural) • classify materials (leading to reflective/non-reflective, transparent/translucent/opaque). **Comparative/fair testing** • Test materials for reflectiveness. • Test materials for transparency. • Investigate shadows (size of shadows, shape of shadows). (NB Do not look at how shadows in the playground change throughout the day.)	**Scientific skills** **Classifying** Based on the children's own criteria: • sort materials (leading towards metal/non-metal and magnetic/not magnetic) • sort toys (leading to what makes them move e.g. push/pull). **Comparative/fair testing** • Test how objects move on different surfaces e.g. cars, spinning tops, wind-up/clockwork toys. • Test the strength of different magnets. **Researching** Find out how magnets are used in everyday life.
Vocabulary Photosynthesis, pollen, insect/wind pollination, seed formation, seed	**Vocabulary**	**Vocabulary** Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture,	**Vocabulary** Light, light source, dark, absence of light, transparent, translucent, opaque,	**Vocabulary**

dispersal (wind dispersal, animal dispersal, water dispersal).	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints.	absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous.	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole

Year 4				
Living things and their habitat Name that living thing Helping our habitat	**Animals, inc. humans** Excuse me, are these your teeth?	**States of matter** States of matter scientists	**Sound** Listen up	**Electricity** It's electric
Knowledge • Living things can be grouped (classified) in different ways according to their features. • Classification keys can be used to identify and name living things. • Living things live in a habitat which provides an environment to which they are suited (Year 2 learning). • These environments may change naturally e.g. through flooding, fire, earthquakes etc. 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). • These environments also change with the seasons; different living things can be found in a habitat at different times of the year.	**Knowledge** • Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing). • 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.	**Knowledge** • A solid keeps its shape and has a fixed volume. • A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. • A gas fills all available space; it has no fixed shape or volume. • 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. • Melting is a state change from solid to liquid. • Freezing is a state change from liquid to solid. The freezing point of water is 0oC. • Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. • Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. • Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy.	**Knowledge** • A sound produces vibrations which travel through a medium from the source to our ears. • Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). • The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound. • The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively. • Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.	**Knowledge** • Many household devices and appliances run on electricity. • Some plug in to the mains and others run on batteries. • An electrical circuit consists of a cell or battery connected to a component using wires. • If there is a break in the circuit, a loose connection or a short circuit, the component will not work. • A switch can be added to the circuit to turn the component on and off. • Metals are good conductors so they can be used as wires in a circuit. • Non-metallic solids are insulators except for graphite (pencil lead). • Water, if not completely pure, also conducts electricity.

		• Condensation is the change back from a gas to a liquid caused by cooling. • 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. and drain back into rivers etc. This is known as precipitation. This is the water cycle.		
Scientific skills **Classifying** Based on the children's own criteria: • classify a number of living things in their local environment (plants and animals) • classify a number of living things in the wider environment (plants and animals) after completing research • introduce branching databases/dichotomous keys. **Observing over time** Observe living things in their local environment at different times of the year. **Pattern seeking** • Do animals with .... have ....? • Do plants with .... have ....? **Research** • Research and be able to name plants and animals in the wider environment e.g. polar, desert, jungle, etc. • Research global environmental issues and their impact on living things.	**Scientific skills** **Classifying** • Compare and contrast different types of teeth (linking to simple functions). • Classify jaw bones/teeth to aid with making food chains e.g. recognise what eats plants and what eats animals by looking at their teeth. **Researching** • Research the different parts of the digestive system. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.) • Research what different animals eat within a specific environment, e.g. coral, polar, African grasslands, in order to construct food chains. **(Observing over time, pattern seeking and comparative/fair testing – NA).**	**Scientific skills** **Classifying** Based on the children's own criteria: • classify solids (including grains, crystals, powders: physical properties) • classify liquids. **Observing over time** • Watch ice melt (ice hands). • Watch hand prints dry e.g. water hand prints on coloured paper towel. • Watch frozen liquids melt. **Comparative/fair testing** • What affects the melting rate of chocolate (size of pieces, temperature of water, type of chocolate)? • What affects the rate an 'ice pole' melts? • What affects the rate of evaporation? • Test the 'runniness' of liquids. **Research** • Research the melting point of metals. • Research the water cycle. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.)	**Scientific skills** **Classifying** Based on the children's own criteria, sort musical instruments. **Comparative/fair testing** • Measure volume from different instruments. • Measure how volume changes away from a source. • Investigate string telephones. • Explore pitch e.g. through a carousel of activities using milk bottles, straw pipes, rulers, elastic band guitars. **Research** Research, make and play their own instruments based on what they learned about pitch and volume.	**Scientific skills** **Classifying** • Based on the children's own criteria, classify household appliances and/or toys (leading to electrical/not electrical, batteries/mains). • Test materials to classify into insulators and conductors.
Vocabulary Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	**Vocabulary** Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer,	**Vocabulary** Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle.	**Vocabulary** Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation.	**Vocabulary** Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor,

	predator, prey, food chain.			conductor, insulator, metal, non-metal, symbol. N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.

Year 5				
Living things and their habitats The art of living	**Animals, inc. humans** Life explorers	**Properties and changes of materials** Changing materials Music festival materials	**Earth and space** Space presenters	**Forces** May the force be with you
Knowledge • As part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. • Animals, including humans, 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. • Plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. • Gardeners may force plants to reproduce asexually by taking cuttings. • Asexual reproduction occurs through pollination, usually involving wind or insects.	**Knowledge** • When babies are young, they grow rapidly. They are very dependent on their parents. As they develop, they learn many skills. At puberty, a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. This needs to be taught alongside PSHE. The new statutory requirements for relationships and health education can be found below: • Statutory guidance on Physical health and mental wellbeing (primary and secondary). • Other useful guidance includes: – Joint briefing on teaching about puberty in KS2 from PHSE Association and Association for Science Education – riefing on humans' development and reproduction in the Primary Curriculum from PHSE Association and Association for Science Education.	**Knowledge** • 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.	**Knowledge** • The Sun is a star. It is at the centre of our solar system. • There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. • Earth takes 3651/4 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.	**Knowledge** • A force causes an object to start moving, stop moving, speed up, slow down or change direction. • Gravity is a force that acts at a distance. • Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. • Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object. • A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. • The small force moves a long distance and the resulting large force moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.
Scientific skills **Classifying** Classify animals according to their life cycle. **Observing over time**	**Scientific skills** **Researching** Develop questions to ask an expert e.g. a health visitor, doctor or nurse.	**Scientific skills** **Classifying** Based on the children's own criteria:	**Scientific skills** **Observing over time** Measuring shadows throughout the day. **Researching**	**Scientific skills** **Comparative/fair testing** • Compare friction e.g. trainers or weighted match box pulled with

• Grow from cuttings and observe whether they grow roots/stem/ leaf/flower. • Grow from, and harvest, bulbs through the year. (Can be done in conjunction with Year 2.) • Observe strawberry/spider plants through the year. **Pattern seeking** Children generate questions such as: • Do larger mammals have longer gestation periods? • Do larger animals live longer? • Do smaller animals lay more eggs? **Researching** • Generate questions to research the life cycle of a chosen animal: mammal, amphibian, insect, bird e.g. dragon fly, cuckoo, salmon, worm, owl. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.) • Research how gardeners asexually reproduce plants.	(Questions will need to be filtered by the teacher.)	• classify the materials themselves e.g. samples of wood, metal, plastic, etc. • after observing what happens when solids are added to liquids, classify materials based on the outcomes. **Observing over time** Observe rusting with uncoated nails in different liquids. (This can be achieved by removing coating with sandpaper.) **Comparative/fair testing** • Which material would be good for a tent? • Which material would be good to make a tea bag from? • Which materials keep things warm/cold? • Which material would be good for a bag for different purposes? • Test solids for solubility. • Compare rates of solubility. Burn different materials (not plastic or toxic substances).	Generate questions to research about the Earth and space. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.)	forcemeter, balloon rockets, CD hovercraft, balloon cars. • Compare water resistance e.g. boats in a gutter of water, plasticine in a cylinder of liquid (easier with a more viscous liquid e.g. bubble bath). • Compare air resistance e.g. spinners, parachutes, sailing boats, straw rockets. • Compare levers, pulleys and gears – see illustrations below.
Vocabulary Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings.	**Vocabulary** Puberty – the vocabulary to describe sexual characteristics.	**Vocabulary** Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material.	**Vocabulary** Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets.	**Vocabulary** Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears

Year 6				
Living things and habitats Classification connoisseurs	**Animals, inc. humans** The art of being human	**Evolution and inheritance** The game of survival	**Light** Crime lab investigations	**Electricity** Electric celebrations
Knowledge • 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	**Knowledge** • The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and	**Knowledge** • All living things have offspring of the same kind, as features in the offspring are inherited from the parents. • Due to sexual reproduction, the offspring are not identical to their parents 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	**Knowledge** • Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. • The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. • Objects that block light (are not fully transparent) will cause shadows. Because light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.	**Knowledge** • 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. • Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. • Turning a switch off (open) breaks a circuit so the circuit is not

not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. • Each group has common characteristics. 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.	then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system. • Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well out heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins. This content is also included in PSHE.	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 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 year 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.		complete and electricity cannot flow. • Any bulbs, motors or buzzers will then turn off as well. You can use recognised circuit symbols to draw simple circuit diagrams.
Scientific skills **Classifying** • Classify animals according to Carl Linnaeus' system. • Classify plants into flowering, mosses, ferns and conifers, based on specific characteristics. • Create a branching database/dichotomous key to classify a set of living things. **Researching** • Research the characteristics of a vertebrate/invertebrate group. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.) • Research the characteristics of flowering plants, mosses, ferns and conifers. • Research the difference between bacteria, virus and fungi to give reasons why these are not plants or animals. • Research how micro-organisms can be helpful or harmful.	**Scientific skills** **Observing over time** Observe pulse rates before, during and after exercise. Pattern seeking Children generate questions for investigation such as: • Do older people have lower pulse rates? • Do boys have higher pulse rates? **Comparative/fair testing** • Complete different activities to compare the impact on their own heart rate. **Researching** Generate questions to research about the human circulatory system. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.)	**Scientific skills** **Classifying** To show variation in a species: • classify a species of animal e.g. cats, dogs • classify a species of plant e.g. daffodils, tulips, lilies. **Pattern seeking** Use different pieces of equipment, e.g. chopsticks, toothpicks, cutlery, to look for patterns linking the suitability of bird beaks for the available food e.g. rice, grapes, raisins **Researching** Research different types of a species and their characteristics making them suitable for different habitats e.g. penguins.	**Scientific skills** **Comparative/fair testing** Investigate the shape of shadows and link this to light travelling in straight lines.	**Scientific skills** **Comparative/fair testing** • Investigate the effect of adding more bulbs to a circuit. • Investigate the effect of adding more cells to a circuit. • Investigate the effect of adding more buzzers to a circuit. • Investigate the effect of adding more motors to a circuit.

• Research unusual animals e.g. axolotl, platypus, kangaroos etc.				
Vocabulary Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering , non-flowering.	**Vocabulary** Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle.	**Vocabulary** Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils	**Vocabulary** As for Year 3 Light*, plus straight lines, light rays. *Year 3 vocabulary: Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous.	**Vocabulary** 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.

Progression in Working Scientifically Skills

Working Scientifically Progression		
Year 1 & 2	Year 3 & 4	Year 5 & 6
Asking questions and recognising they can be answered in different ways		
Asking simple questions and recognising that they can be answered in different ways. - While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. - The children answer questions developed with the teacher often through a scenario. - The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.	**Asking relevant questions and using different types of scientific enquiries to answer them.** - The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions. - The children answer questions posed by the teacher. - Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.	**Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.** - Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry. - Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.
Making observations and taking measurements		
Observing closely, using simple equipment. - Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. - They begin to take measurements, initially by comparisons, then using non-standard units.	**Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.** - The children make systematic and careful observations. - They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.	**Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.** - The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. - During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).
Engaging in practical enquiry to answer questions		

Performing simple tests. - The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying - Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. - They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.	**Setting up simple practical enquiries, comparative and fair tests.** - The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. - They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.	**Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary**. - The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.
Recording and presenting evidence		
Gathering and recording data to help in answering questions. - The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. - They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. - They classify using simple prepared tables and sorting rings.	**Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.** **Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables** - The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. - Children are supported to present the same data in different ways in order to help with answering the question.	**Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs** - The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. - Children present the same data in different ways in order to help with answering the question.
Answering questions and concluding		
Using their observations and ideas to suggest answers to questions. - Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources.	**Using straightforward scientific evidence to answer questions or to support their findings.** - Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence.	**Identifying scientific evidence that has been used to support or refute ideas or arguments.** - Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. - They talk about how their scientific ideas change due to new evidence that they have gathered. - They talk about how new discoveries change scientific understanding.
Using their observations and ideas to suggest answers to questions. - The children recognise 'biggest and smallest', 'best and worst' etc. from their data.	**Identifying differences, similarities or changes related to simple scientific ideas and processes.** - Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.**	**Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.** - In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.

	- They draw conclusions based on their evidence and current subject knowledge.	
Evaluating and raising further questions and predictions		
	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry.	**Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations**. - They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used. - They identify any limitations that reduce the trust they have in their data.
	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface. - Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.	**Using test results to make predictions to set up further comparative and fair tests.** - Children use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests.
Communicating their findings		
	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. - They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.	**Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations**. - They communicate their findings to an audience using relevant scientific language and illustrations.