Broughton CE Primary School – Science Curriculum Overview (Knowledge and Conceptual Understanding)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	**Topics:** **Materials and changes of state** **Animals including humans – senses** Talk about the differences between materials and changes they notice, e.g. baking, melting. Use all their senses in hands-on exploration of natural materials.	**Topic:** **Forces** Explore how things work. Explore and talk about different forces they can feel. E.g. • how the water pushes up when they try to push a plastic boat under it • how they can stretch elastic, snap a twig, but cannot bend a metal rod • magnetic attraction and repulsion	**Topics:** **Animals including humans- healthy lifestyle** Make healthy choices about food, drink, activity and tooth brushing.	**Topics:** **Plants** **Life cycles of living things** Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things.	**Topics:** **Materials and their properties** Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary.	**Topics:** **Living things and their habitats** (**Visit to the zoo)** Begin to understand the need to respect and care for the natural environment and all living things.
Reception	**Topics:** Materials and changes of state Light Animals including humans – senses **ELG** **Understanding the World (The Natural World)** • Explore the natural world around them • Understand some important processes and changes in the natural world around them, including	**Topic:** Forces – pushing and pulling, exploring magnets **ELG** **Understanding the World (The Natural World)** • Explore the natural world around them • Understand some important processes in the natural world around them.	**Topic:** Animals including humans – body parts and taking care of themselves **ELG** **PSED (Managing Self)** • Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of	**Topic:** Plants – growing and naming plants, observing changes **ELG** **Understanding the World (The Natural World)** • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world	**Topic:** Electricity – identifying electrical devices, electrical safety **ELG** **Understanding the World (The Natural World)** • Understand some important processes in the natural world around them. Children should identify different electrical devices and they should	**Topics:** Animals including humans – life cycles Living things and their habitats **ELG** **Understanding the World (The Natural World)** • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and

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	changing states of matter. Children to observe and interact with natural processes, such as ice or other materials melting/freezing, light travelling through transparent materials, an object casting a shadow. Children to explore their senses and describe what they see, hear and feel whilst outside. Children to have access to a range of materials to explore and describe, including natural materials.	Children to observe and interact with natural processes, such as a magnet attracting an object and a boat floating on water. Have a variety of toy transport for the children to experience and describe the forces of pushing and pulling.	healthy food choices. Children to talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • tooth brushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian Children to develop their knowledge and vocabulary of the different body parts.	around them and contrasting environments, drawing on their experiences and what has been read in class Children should have the opportunities to grow and look after different plants and observing how they change as they grow. Children are to observe different plants in the school and church grounds and make drawings of them. Teach children about contrasting environments and the different plants that grow there.	discuss and understand how to be safe around plug sockets and electrical devices. They should have the opportunity to use battery-powered devices.	differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Children to learn about life cycles of humans and different animals and observe life cycles in action in world around them. Teach children about a range of contrasting environments within both their local and national region. Share non-fiction texts that offer an insight into contrasting environments. Listen to how children communicate their understanding of their own environment and contrasting environments through conversation and in play.
	Ongoing topics throughout year: • Seasonal changes and observing the natural world **ELG** **Understanding the World (The Natural World)** • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.					

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<table>
<tr><td></td><td colspan="6">• Explore the natural world around them, making observations and drawing pictures of animals and plants.

Guide children's understanding by draw children's attention to the weather and seasonal features. Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons. Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change. Look for children incorporating their understanding of the seasons and weather in their play.
Children should observe and make drawings of animals and plants throughout the year.</td></tr>
<tr><td>Year 1</td><td>Animals, including humans- human body and growth
▪ Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
▪ Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</td><td>Plants
• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees plants
• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</td><td>Materials
▪ 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</td><td>Materials - Suitability of materials for uses
▪ Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
▪ Compare and group together a variety of everyday materials on the basis of their simple physical properties</td><td>Plants- naming and identifying plants, structure of plants
▪ 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
▪ Observe and describe how seeds and bulbs grow into mature plants</td><td>Animals- identification, grouping and needs of animals
▪ Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals
▪ Identify and name a variety of common animals that are carnivores, herbivores and omnivores
▪ Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</td></tr>
<tr><td colspan="7">Seasonal changes
▪ Observe changes across the four seasons
▪ Observe and describe weather associated with the seasons and how day length varies</td></tr>
<tr><td>Year 2</td><td>Animals, including humans- growth and needs
▪ Notice that animals, including humans, have offspring which grow into adults.
▪ Find out about and describe the basic needs</td><td>Living things and their habitats
▪ Explore and compare the differences between things that are living, dead, and things that have never been alive</td><td>Animals, including humans- health and social hygiene
▪ Describe the importance for humans of exercise, eating the right amounts of different</td><td>Plants
▪ 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</td><td>Materials
▪ Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</td><td>Plants
▪ 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</td></tr>
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	of animals, including humans, for survival (water, food and air)	▪ Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other ▪ Identify and name a variety of plants and animals in their habitats, including micro-habitats ▪ 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	types of food, and hygiene		▪ Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	
Year 3	Forces and magnets • Compare how some 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.	Animals, including humans- the human body and nutrition • Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get nutrition from what they eat. • Identify that humans and some other animals have	Rocks • 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.	Light • Recognise that they need light in order to see things and that dark is the absence of light. • Notice that light is reflected from surfaces. • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • Recognise that shadows are formed when the light from a light source	Plants • 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.	

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	• 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 (like and unlike poles). • Predict whether two magnets will attract or repel each other, depending on which poles are facing.	skeletons and muscles for support, protection and movement.	• Recognise that soils are made from rocks and organic matter	is blocked by a solid object. • Find patterns in the way that the size of shadows can change.	
Year 4	Electricity • Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors and insulators, and associate metals with being good conductors.	Sound • Identify how sounds are made, associating some of them with something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear. • Find patterns between the volume of a sound and the strength of the vibrations that produced it. • Recognise that sounds get fainter as the distance from the sound source increases. • Find patterns between the pitch of a sound and the features of the object that produced it.	States of matter • 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.	Animals, including humans- food chains • 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	Living things and their habitats • 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.

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Year 5	Earth and space	Forces	Living things and their habitats – animal and plant life cycles	Animals including humans– human life cycles	Properties and changes of materials
	▪ 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 Sun/Earth/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	• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • Identify the effects of air resistance, water resistance and friction that act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	• 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.	▪ Describe the changes as humans develop to old age. ▪ Animals are alive; they move, feed, grow, use their senses, reproduce, breathe/respire and excrete.	▪ Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. ▪ Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. ▪ Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • Demonstrate that dissolving, mixing and changes of state are reversible changes.

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					• 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.
Year 6	Light • Recognise that light appears to travel in straight lines. • Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. • Explain that we see things because the light that travels from light sources to our eyes or from light sources to objects and then to our eyes. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	Electricity • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • Use recognised symbols when representing a simple circuit in a diagram.	Evolution and inheritance • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	Living things and their habitats– classification • 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.	Animals including humans– circulatory system • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. • Describe the ways in which nutrients and water are transported within animals, including humans.

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