South Lake Primary School - Progression of learning - Science (Substantive Knowledge)

	Term 1		Term 2		Term 3	
EYFS	**Nursery** Numerals 1, 2, 3. Shows awareness of time (e.g. stating 'next it's lunchtime'). Make connections between the features of their family and other families. Talk about what they see. Talk about how they have changed (e.g. my top is too small. I've got bigger). Use all senses in exploring natural objects. Explore how things work. Explore different materials freely, in order to develop their ideas about how to use them and what to make. Begin to show interest in and describe the texture of things. Taps our simple repeated rhythms.	**Reception** Learn new vocabulary. Ask questions. Engage in non-fiction books. Enjoy and have a love of books and poetry, including: Autumn Woods The Rhythm of Life The Dinosaur Rap. Know nursery rhymes, including: Head, shoulders, knees and toes I've got a body, a very busy body Fingers, thumbs and toes. Use some recognisable letters and own symbols. Matching and sorting. Counting by rote, counting out loud. Comparing, representing and composing 1, 2, 3, 4, 5. Begin to make sense of their own life-story and family's history. The Natural World: Talk about what they see, using a wide vocabulary. The Natural World: Explore the natural world around them. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Know which colours make green, orange, purple and brown. Accurately draw a person, no longer drawing cephalopods. Show accuracy and proportion when drawing independently and to illustrate their work.	**Nursery** Understand 'why' questions. Beginning to see letter shapes and symbols in writing. Numerals 4, 5, 6. Capacity: say whether something is full, empty or order containers. Begin to make sense of their own life story and family's history. Show an interest in different occupations. To develop a positive attitude about the differences between people. The Natural World: Talk about what they experience outside using a wide vocabulary. The Natural World: Explore and talk about the difference forces they can feel. The Natural World: Talk about the differences between materials. Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures.	**Reception** Ideas and thoughts are shared in sentences. Learn new vocabulary and begin to use them through the day. To use connectives in their speech. Basic recall of an event. Use talk to work through problems. Counting 6, 7, 8, 9. Comparing groups up to 10. The Natural World: Talk about the differences between materials and changes they notice. The Natural World: Understand the key features of the life cycle of a plant and an animal. The Natural World: Talk about what they see, using a wide vocabulary. Talk about how two colours can create a new colour and experiment to create these. Watch and talk about dance and performance art, expressing their feelings and responses.	**Nursery** Use a wider range of vocabulary. Be able to express a point of view and debate when they disagree with an adult or a friend, using words as well as actions. Recap and application of numerals 1 to 5. Recognising, representing, comparing, chanting, subsidising, counting objects and counting on a 5 frame. To compare 2 items for weight saying which one is heavy and which one is light. Begin to make sense of their own story and family's history. The Natural World: Notices features of the life cycle of a plant and animal. The Natural World: Begin to understand the need to respect and care for natural environments. The Natural World: Talks about how things are changing within a season (e.g. It's colder). Use drawings to represent ideas like movement or loud noises. Explore colour and colour mixing.	**Reception** Ask questions to find out more and to check they understand what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Use talk to help work out problems and organise thinking and activities. Explain how things work and why they might happen. Length, height and distance. Weight. Capacity. The Natural World: Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them. Continues to explore colour and colour mixing independently. Experience and manipulate clay and textures and create a hand-finished pot using coil/pinch techniques.

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	Term 1		Term 2		Term 3	
Year 1	**Everyday 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. Compare and group together a variety of everyday materials on the basis of their simple physical properties.	**Seasonal changes** Observe changes across the 4 seasons. Observe and describe weather associated with the seasons and how day length varies.	**Animals including humans** Parts of the body. Senses.	**Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees.	**Animals including humans** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	
Year 2	**Living things and their habitats** Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	**Living things and their habitats continued** **Uses of everyday materials** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Uses of everyday materials continued**	**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.	**Plants continued** **Animals including humans** 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 continued**

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	Term 1		Term 2		Term 3	
Year 3	**Forces and magnets** Compare how things move on different surfaces. Notice that some forces need contact between 2 objects. Observe how magnets attract or repel each other. Compare and group materials, identify magnetic materials. Predict whether 2 magnets will attract or repel each other.	**Rocks** Compare and group together different kinds of rocks. Describe in simple terms how fossils are formed. Recognise that soils are made from rocks and organic matter.	**Animals including humans** Identify that animals, including humans, need the right types and amount of nutrition. Identify that humans and some other animals have skeletons and muscles.	**Plants** Identify and describe the functions of different parts of plants. Explore the requirements of plants for life and growth. Investigate the way in which water in transported within plants. Explore the part that flowers play in the life cycle of plants.	**Plants** **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. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.	
Year 4	**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** 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.	**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. Construct and interpret a variety of food chains, identifying producers, predators and prey.		**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 pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.

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	Term 1		Term 2			Term 3
Year 5	**Living things and their habitats** 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.	**Forces** 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.	**Earth and Space** 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.	**Properties and changes of materials** Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.		**Animals including humans** Describe the changes as humans develop to old age.
Year 6	**Animals including humans** 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.	**Animals including humans** SCIENCE..	**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** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.	**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.	**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 light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Search lights. Light travels in straight lines. Periscope. Shadow puppets.