Science at Southbourne Junior School

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1
Year 3	**What is the secret of the standing stones?** Changes in Britain from the Stone Age to the Iron Age.	**Who is behind the mask?** The achievements of the earliest civilizations: Ancient Egypt.	**Beyond the Magic Kingdom: what is the Sunshine State really like?** Locational knowledge, place knowledge, human and physical geography, skills and fieldwork.	**How can we live more sustainably?** A significant turning point in British history: first railways.	**Why are jungles so wet and deserts so dry?** Locational knowledge, human and physical geography, skills and fieldwork.
	What do the different rocks look like and where are they found? *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 rocks. Recognise that soils are made from rocks and organic matter.	**Why do animals and humans need to eat different foods?** *Animals and Humans 2* Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	**How can we see things?** *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 is blocked by a solid object. Find patterns in the way that the size of shadows change.	**What is a force and how does it work?** *Forces and Magnets* Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.	**What do the parts of a plant look like and what do they do?** *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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Year 4	**Why do some earthquakes cause more damage than others?** Locational knowledge, human and physical geography, skills and fieldwork.	**How did the arrival of the Romans change Britain?** The Roman Empire and its impact on Britain.	**Why do so many people live in megacities?** Locational knowledge, human and physical geography, skills and fieldwork.	**Who were the Anglo-Saxons and how do we know what was important to them?** Britain's settlement by Anglo-Saxons and Scots.	**On our doorstep: how has Southbourne changed?** A local history study.
	What's the matter? *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.	**What is a sound and where does it go when it's made?** *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.	**What can electricity do?** *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.	**What happens when we chew food?** *Animals and Humans 1* 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 function. Construct and interpret a variety of food chains, identifying producers, predators and prey. ***Wildlife liaison officers*** *Bird watching, owl pellets, bird boxes*	**How can we classify living things?** *Living Things and 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	**What is a river?** Locational knowledge, place knowledge, human and physical geography, skills and fieldwork.	**What did the Vikings want and how did Alfred help to stop them getting it?** The Viking and Anglo-Saxon struggle for the Kingdom of England to the time of Edward the Confessor.	**The story of the Trojan Horse: historical fact, legend or classical myth?** Ancient Greece: a study of Greek life and achievements and their influence on the western world.	**How is climate change affecting the world?** Locational knowledge, human and physical geography, skills and fieldwork.	**How do volcanoes affect the lives of people on Heimaey?** Locational knowledge, place knowledge, human and physical geography, skills and fieldwork.
	Could you survive on a desert island? *Properties and Changes of Materials* Compare and group everyday materials on the basis of their properties, incl. their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know 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 & the action of acid on bicarbonate of soda.	**What are the effects of forces that act between moving surfaces?** *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.	**What is in our solar system?** *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.	**How is the life cycle of a mammal different to any other living thing?** *Living Things and their Habitats 1* 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.	**How do humans change as they develop and age?** *Animals including Humans 1* Describe the changes as humans develop to old age.

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Year 6	**Who are Britain's national parks for?** Locational knowledge, place knowledge, human and physical geography, skills and fieldwork.	**Why was winning the Battle of Britain in 1940 so important?** A significant turning point in British history.	**Why are mountains so important?** Locational knowledge, human and physical geography, skills and fieldwork.	**Why did the Ancient Maya change the way they lived?** A non-European society that provides contrasts with British history.	**Why is fair trade fair?** Locational knowledge, human and physical geography, skills and fieldwork.
	How can I look after my heart? *Animals including Humans 2* 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.	**How can we classify living organisms?** *Living things and their Habitats 2* 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.	**How could we prove light travels in straight lines?** *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.	**What affects the brightness of a bulb?** *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.	**How have living things changed and adapted over time?** *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.