

SUNNINGWELL CE PRIMARY SCHOOL
LONG TERM PLANS
SCIENCE



Term	EYFS	KS1 National Curriculum Links	KS2 National Curriculum Links	
It's all material! Science Materials	<p>Understanding the World Explore the natural world using our senses; Discuss ways of looking after the natural world around us. Observe and interact with natural processes (e.g. ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water) Compare and group together a variety of everyday materials on the basis of their simple physical properties. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Festivals and celebrations: Recognise that people have different beliefs and celebrate special times in different ways (e.g. Harvest, Thanksgiving, St Andrew's Day, Diwali, Hanukkah, Christmas, New Year)</p>	<p>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. 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.</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. 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.</p>	<p>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.</p>
Progressive Vocabulary	Material, wood, plastic, glass, paper, fabric, metal, rock, hard, soft, smooth, shiny, rough, bendy, flexible	Material, wood, plastic, glass, paper, fabric, metal, rock, hard, soft, smooth, shiny, rough, bendy, flexible, stiff, shiny, dull, waterproof,	Sandstone, limestone, granite, marble, pumice, slate, crystals, properties, permeable, impermeable, hardness,	Solid, liquid, gas, temperature, heating, freezing point, boiling point, particles, evaporation,

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	Freeze, melt, transparent, opaque, smooth, rough, light, heavy Festival, tradition, celebration	absorbent, transparent, opaque, brick, fabric, foil, squashing, bending, twisting, stretching, elastic	sedimentary, igneous, metamorphic, fossils, soil, organic matter	condensation, thermometer, thermal insulation
Roots, shoots and fruits Plants	Understanding the World Understand the effect of changing seasons on the natural world (spring). Identify and describe the weather and some of the seasonal features. Observe the natural world and all the changes that come with spring (flowering plants, trees, baby animals and birds); Identify and name some of the most common garden plants. Find out and describe how plants need water, light, and a suitable temperature to grow. Festivals and Celebrations: St David's Day, World Book Day, Mother's Day, Shrove Tuesday, Easter, Ramadan	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. 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	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.
Progressive Vocabulary	Seed, plant, sprout, roots, stem, bud, leaf, flower, petals, pollen, nectar, compost, soil, environment. Daffodil, snowdrop, crocus, tulip, primrose, forget-me-not, iris, hyacinth, rose	Evergreen & deciduous trees, branches, trunk, leaves, flowers (blossom), petals, fruit, roots, bulb, seed, stem, water, light, temperature, growth	Air, light, water, soil, nutrients, reproduction, seed formation, dispersal, germination, pollination, transportation, species, location, photosynthesis	As LKS2 and adaptation, evolution, characteristics, reproduction, genetics
Home Sweet Home Living things and their habitats	Understanding of the world: Identify and name some of the features of the environment we live in; Learn the vocabulary needed to name specific features of the world, both natural and made by people; Identify and name a variety of plants and animals in 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	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	Describe the life process of reproduction in some plants and animals. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants

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	including microhabitats. Identify similarities and differences between animals and plants we find in the UK and other countries. Festivals and Celebrations: Father's Day, World Music Day	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.	dangers to living things. Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	and animals. Give reasons for classifying plants and animals based on specific characteristics.
Progressive Vocabulary	Living, dead, name a range of animals, organism, endangered species, survive, alive, extinct, food chain, carnivore, herbivore, omnivore, habitat, desert, forest, rainforest, ocean, mountain, lake	Living, dead, never alive, habitat, micro habitat, energy, food chain, prey, predator, woodland, pond, desert	Fish, reptiles, mammals, birds, amphibians, snails, slugs, worms, spiders, insects, environment, habitat, vertebrate, invertebrate, exoskeleton, adaption	Reproduction of mammal, bird, insect and amphibian, offspring, complete/incomplete metamorphosis, hatch, classification, mammals, birds, amphibians, fish, reptiles, insects, vertebrates, invertebrates, micro-organisms, bacteria fungi
May the force be with you! Electricity and forces	Forces in the playground: push and pull forces. Toys from past and present - talk about similarities and differences in terms of how they operate and discuss what types of forces are involved. Identify magnetic materials and group together a variety of everyday materials on the basis of whether they are attracted to a magnet. Experiment how an object can float or sink, and the forces involved in the process. Festivals and celebrations: Recognise that people have	Recognise simple types of forces and motion. Understand forces that push and pull. Describe their effects. Observe and perform simple tests to show that pushes and pulls can cause objects to move, to stop, to change shape. Understand the importance of electricity. Recognise how to be safe around electricity and how to identify hazards. Use equipment to make a simple circuit.	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	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. 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

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	different beliefs and celebrate special times in different ways (e.g. Harvest, Halloween, Diwali, Hanukkah, St. Nicholas, Christmas, New Year)	Asking simple questions and recognising that they can be answered in different ways. Using their observations and ideas to suggest answers to questions.	facing. 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.	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.
Progressive Vocabulary	Push, pull, wire, bulb magnet, attract, repel, spring, bounce, stretch bulb, socket, cable, remote control, battery, electricity switch, safety	Push, pull, attract, repel, gravity, force, twist, bend, squash, squeeze, stretch, bounce, rub Circuit, cell, wire, bulb, switch, lamp, socket, television, toaster.	Force, push, pull, open, surface, magnet, magnetic, attract, repel, magnetic poles, North, South Appliances, electricity, electrical circuit, cell, wire, bulb, buzzer, danger, electrical safety, sign, insulators, wood, rubber, plastic glass, conductors, metal, water, switch, open, closed.	Gravity, air resistance, water resistance, friction, surface, force, effect, move, accelerate, decelerate, stop, change direction, brake, mechanism, pulley, gear, spring, theory of gravitation, Galileo Galilei, Isaac Newton. Voltage, brightness, volume, switches, danger, series circuit, working safely with electricity, electrical safety, sign, circuit diagram, switch, bulb, buzzer, motor, recognised symbols.
To infinity and beyond!	Understanding the world Name the planet we live on , name some of the planets within the Solar System; Observe and interact with	Name planets in our solar system and know their order. Discuss a significant person who travelled into space: Neil Armstrong.	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.	Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. Describe the movement of the Moon relative

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<p>Space, light and sound</p>	<p>natural processes (e.g. Light travelling through transparent material, an object casting a shadow) Observe how the size of shadows changes throughout the day. Explore how sounds are made; look at a variety of musical instruments and how the sounds are produced. Festivals and Celebrations: St David's Day, World Book Day, Mother's Day, Shrove Tuesday, Easter, Ramadan</p>	<p>Understand the different phases of the moon. Describe and understand how light travels. Experiment and describe how shadows are made. Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel. 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.</p>	<p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Know that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change. 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.</p>	<p>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. 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.</p>
<p>Progressive Vocabulary</p>	<p>Space, Sun, Moon, Solar system, universe Planets - Earth, Venus, Neptune, Mercury, Mars, Saturn, Jupiter, Uranus Stars, Satellite, Crater Rocket, asteroid, gravity astronaut, oxygen, oxygen tank, space suit.</p>	<p>Planets (name planets in solar system - Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune,), Sun (only star in solar system), Moon, orbit, space, stars, rocket, astronaut</p>	<p>Light, see, dark, reflect, surface, natural, star, Sun, Moon, artificial, torch, candle, lamp, shadow, blocked, solid, sunlight, dangerous, protect eyes, Vibrate, vibration vibrating, air, medium, ear, hear, sound, volume, pitch, faint, fainter, loud, louder, string, percussion, woodwind, brass, insulate.</p>	<p>Earth, Sun, Moon, moons, planets, stars, solar system, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Plato, rotate, day, night, Aristotle, Ptolemy, Galileo, Copernicus, Brahe, Alhazen, orbit, axis, spherical, heliocentric, geocentric, hemisphere, season, tilt. Light, travels, straight, reflect, reflection, light source, object, shadows, mirrors, periscope, rainbow, filters.</p>