











Year 5 Science Coverage






Living Things and their Habitats	Animals including Humans	Earth and Space	Properties and Changes of Materials	Forces
L1 I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	A1 I can describe the changes as humans develop to old age.	S1 I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system.	M1 I can 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.	F1 I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
L2 I can describe the life process of reproduction in some plants and animals.		S2 I can describe the movement of the Moon relative to the Earth.	M2 I can name some materials that will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.	F2 I can identify the effects of air resistance, water resistance and friction that act between moving surfaces.
		S3 I can describe the Sun, Earth and Moon as approximately spherical bodies.	M3 I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.	F3 I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.
		S4 I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	M4 I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	
			M5 I can demonstrate that dissolving, mixing and changes of state are reversible changes.	
			M6 I can 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.	
Scientist to study: David Attenborough - links to free resources requiring a login (Naturalist & TV Presenter)		Scientist to study: Tim Peake (Astronaut who was the first British person to walk in space) Valentina Tereshkova (Astronaut and first woman in space) Neil Armstrong (Astronaut who was the first human to walk on the Moon)	Scientist to study: Antoine Lavoisier (1743 - 1794) Sir Humphry Davy (1778 - 1829) John Dalton (1766 - 1844) Marie Curie (1967-1934)	Scientist to study: Friction; Leonardo Da Vinci, Guillaume Amontons, Leonhard Euler, Charles-Augustin de Coulomb, Philip Bowden and David Tabor Gravity: Aristotle, Brahmagupta, Galileo Galilei, Isaac Newton, Albert Einstein
Working Scientifically skills Making observations and recording information. Setting up a simple test, observing, measuring, evaluating the investigation and posing further questions to investigate.	Working Scientifically skills Asking questions and making observations. Interpreting and communicating data. Communicating information.	Working Scientifically skills Asking questions. Recording data and communicating information. Setting up a test, recording and communicating data. Making observations.	Working Scientifically skills Making observations. Asking questions. Setting up tests and recording data. Making predictions. Communicating information.	Working Scientifically skills Asking questions Recording Setting up a test and communicating results. Making predictions

Presenting data.				
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	Unit	Key End Points	Vocabulary	Prior learning	Future learning	Common misconceptions
Autumn 1	<p>Living things and their habitats L1&2</p> <p>Observation over time Observing changes that occur over a period of time ranging from minutes to months. </p> <p>Pattern-seeking Identifying patterns and looking for relationships in enquiries where variables are difficult to control. </p> <p>Research Using secondary sources of information to answer scientific questions. </p> <p>Identifying, grouping and classifying Making observations to name, sort and organise items. </p> <p>Comparative / fair testing Changing one variable to see its effect on another, whilst keeping all others the same. </p>	<p>By the end of this unit children will be able to: Describe the life cycles of a bird, amphibian and or insect. Compare the life cycles of 2 of the above. Explain how offspring are produced e.g. live, eggs. Explain how some young undergo a further change before becoming adults – metamorphosis. Describe the reproduction of animals. Describe the reproduction of plants.</p>	Reproduction of mammal, bird, insect and amphibian , offspring, complete / incomplete metamorphosis, hatch	Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans). Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)		Some children may think: <ul style="list-style-type: none"> • all plants start out as seeds • all plants have flowers • plants that grow from bulbs do not have seeds • only birds lay eggs.
Autumn 2	<p>Animals inc humans A1</p> <p>Pattern-seeking Identifying patterns and looking for relationships in enquiries where variables are difficult to control. </p> <p>Research Using secondary sources of information to answer scientific questions. </p>	<p>By the end of this unit children will be able to: Describe the changes of humans from birth to death. Name and order the different stages of human life e.g. foetus, baby, child, adolescent, adult, old age. Describe how a baby changes physically as it grows and what it is able to do.</p>	Foetus, embryo, womb, gestation, baby, toddler, teenager, puberty, adolescent, adult, elderly, development, growth.	Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)		Some children may think: <ul style="list-style-type: none"> • a baby grows in a mother’s tummy • a baby is “made”.
Spring 1	<p>Properties and Changes of Materials M1-6</p> <p>Identifying, grouping and classifying Making observations to name, sort and organise items. </p> <p>Comparative / fair testing Changing one variable to see its effect on another, whilst keeping all others the same. </p> <p>Observation over time Observing changes that occur over a period of time ranging from minutes to months. </p>	<p>By the end of this unit children will be able to: Explain what thermal conductivity is and which materials provide insulation. Describe what a solution is. Describe what a mixture is. Explain the difference between soluble and insoluble. Explain what dissolving means and give examples. Explain what filtering and sieving are and give examples. Explain how materials can be recovered from solutions</p>	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials).		Some children may think: <ul style="list-style-type: none"> • thermal insulators keep cold in or out •thermal insulators warm things up • solids dissolved in liquids have vanished and so you cannot get them back • lit candles only melt, which is a reversible change

		<p>or mixtures through evaporation, filtering and sieving. Describe reversible and non-reversible changes including examples. E.g. burning wood, rusting, mixing vinegar and bicarbonate of soda.</p>		<p>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. (Y3 - Forces and magnets) Compare and group materials together, according to whether they are solids, liquids or gases. (Y4 - States of matter) 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). (Y4 - States of matter) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Y4 - States of matter)</p>		
<p>Spring 2</p>	<p style="text-align: center;">Forces F1-3</p> <div style="background-color: #004a87; color: white; padding: 5px; border-radius: 10px; margin-bottom: 5px;"> <p>Comparative / fair testing Changing one variable to see its effect on another, whilst keeping all others the same. </p> </div> <div style="background-color: #76b82a; color: white; padding: 5px; border-radius: 10px; margin-bottom: 5px;"> <p>Research Using secondary sources of information to answer scientific questions. </p> </div> <div style="background-color: #00a0c9; color: white; padding: 5px; border-radius: 10px;"> <p>Pattern-seeking Identifying patterns and looking for relationships in enquiries where variables are difficult to control. </p> </div>	<p>By the end of this unit children will be able to: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Explain the effects of friction on different materials. To explain that friction can occur when two surfaces are in contact with each other. Identify and explain the effects of air resistance. Identify and explain the effects of water resistance. Explain how a lever and a pulley works. Explain that levers and pulleys allow a smaller force to have a greater effect. Explain that gears allow a</p>	<p>Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears</p>	<p>Floating and sinking (EYFS) Compare how things move on different surfaces. (Y3 - Forces and magnets) Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets) Observe how magnets attract or repel each other and attract some materials and not others. (Y3 - Forces and magnets) Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and</p>		<p>Some children may think:</p> <ul style="list-style-type: none"> • the heavier the object the faster it falls, because it has more gravity acting on it • forces always act in pairs which are equal and opposite • smooth surfaces have no friction • objects always travel better on smooth surfaces • a moving object has a force which is pushing it forwards and it stops when the pushing force wears out

		<p>smaller force to have a greater effect. Explain that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.</p>		<p>identify some magnetic materials. (Y3 - Forces and magnets) Describe magnets as having two poles. (Y3 - Forces and magnets) Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 - Forces and magnets)</p>	<ul style="list-style-type: none"> • a non-moving object has no forces acting on it • heavy objects sink and light objects float
<p>Summer</p>	<p style="text-align: center;">Earth and Space S1-4</p> <div style="background-color: #92d050; padding: 5px; border-radius: 10px; display: flex; justify-content: space-between; align-items: center;"> <div style="font-size: 0.8em;"> <p>Research Using secondary sources of information to answer scientific questions.</p> </div>  </div> <div style="background-color: #2e5496; padding: 5px; border-radius: 10px; display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <div style="font-size: 0.8em;"> <p>Comparative / fair testing Changing one variable to see its effect on another, whilst keeping all others the same.</p> </div>  </div> <div style="background-color: #d62728; padding: 5px; border-radius: 10px; display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <div style="font-size: 0.8em;"> <p>Observation over time Observing changes that occur over a period of time ranging from minutes to months.</p> </div>  </div>	<p>By the end of this unit children will be able to: Explain the shape and relative sizes of the Earth, Sun and Moon. Explain why we have day and night. Explain about the Earth's orbit around the Sun. To describe the Moon's phases and orbit of the Earth. Describe the Solar System and human kind's journey into space. Name the 8 planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto reclassified as a 'dwarf planet' in 2006). To describe the moon as a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones).</p>	<p>Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets</p>	<p>Observe changes across the four seasons. (Y1 - Seasonal changes) Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes) Prior knowledge of gravity (Forces Y5)</p>	<p>Some children may think:</p> <ul style="list-style-type: none"> • the Earth is flat • the Sun is a planet • the Sun rotates around the Earth • the Sun moves across the sky during the day • the Sun rises in the morning and sets in the evening • the Moon appears only at night • night is caused by the Moon getting in the way of the Sun or the Sun moving further away from the Earth.