



## UKS2 Science Rolling Programme

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer
UKS2 YEAR A	Earth and Space (Year 5)	Electricity (Year 6)	Animals including humans (year 5)	Animals including humans (Year 6)	Evolution and inheritance (Year 6)
<b>Knowledge</b>	-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.	-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.	-describe the changes as humans develop to old age.	-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. .	-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.
<b>vocabulary</b>	Earth Sun Moon moons planets stars solar system Mercury Venus	voltage brightness volume switches danger series circuit working safely with electricity electrical safety	human development baby-toddler-child-teenager-adult puberty gestation length mass grows grow	Human internal organs - heart, lungs, liver kidney, brain skeletal skeleton muscle muscular digest	evolution adaption inherited traits adaptive traits natural selection inheritance Charles Darwin Alfred Wallace DNA



	Mars Jupiter Saturn Uranus Neptune Pluto rotate day night Aristotle Ptolemy Galileo Copernicus Brahe Alhazen orbit axis spherical heliocentric geocentric hemisphere season tilt	sign circuit diagram switch bulb buzzer motor recognised symbols	growing	digestion digestive Human circulatory system - heart, blood, vessels, blood Impact - diet, exercise, drugs, lifestyle nutrients water damage - drugs, alcohol substance	genes variation parent offspring fossil environment habitat fossilisation plants animals living things Evolution and Inheritance
Scientific skills	Comparing the time of day at different places on the Earth through internet links and direct communication. -Creating simple models of the solar system. -Constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day.	Systematically identifying the effect of changing one [thing] component at a time in a circuit. -Designing and making a set of traffic lights, a burglar alarm or some other useful circuit.	Researching the gestation periods other animals and comparing them with humans. -By finding out and recording the length and mass of a baby as it grows.	Exploring the work of scientists. -Scientific research about the relationship between diet, exercise, drugs, -working scientifically and to provide an opportunity to use ICT to collect/interpret data -Observing/Measuring changes to breathing,	Observing and raising questions about local animals and how they are adapted to the environment. -Comparing how some living things adapt to survive in extreme conditions, e.g. cactuses,



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	-Finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.			heart beat and/or pulse rates after exercise.	penguins and camels. -Analysing the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.
Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer



UKS2 YEAR B	Forces (Year 5)	Properties and changes of materials (Year 5)	Living things and their habitats (Year 5)	Living things and their habitats (Year 6)	Light (year 6)
<b>Knowledge</b>	<ul style="list-style-type: none"><li>-explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li><li>-identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li><li>-recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li></ul>	<ul style="list-style-type: none"><li>-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</li><li>-know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li><li>-use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li><li>-give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li><li>demonstrate that dissolving, mixing and changes of state are reversible changes</li><li>-explain that some changes result in the formation of new</li></ul>	<ul style="list-style-type: none"><li>-describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li><li>-describe the life process of reproduction in some plants and animals</li></ul>	<ul style="list-style-type: none"><li>-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</li><li>-give reasons for classifying plants and animals based on specific characteristics</li></ul>	<ul style="list-style-type: none"><li>-recognise that light appears to travel in straight lines</li><li>-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</li><li>-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</li><li>-use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li></ul>



		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.			
vocabulary	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	properties - hardness, solubility, transparency, conductive (electrical and thermal), response to magnets dissolve - liquid, solution separate separating solids, liquids, gases - filtering, sieving, evaporating reversible changes - dissolving, mixing, evaporation, filtering, melting, irreversibility - new material, burning, rusting magnetism (y3) electricity (y4) Chemists - Spencer Silver, Ruth Benerito quantitative measurements - conductivity, insulation	life cycles - mammal, amphibian, insect, bird life process of reproduction - plants, animals vegetable garden, flower boarder, animal naturalists - David Attenborough animal behaviourist - Jane Goodall reproduction - plants - sexual, asexual animals - sexual lifecycles around the world - rainforest, oceans, desert, prehistoric similarities differences	micro-organisms plants animal classification classify animals invertebrates - insects, spiders, snails, worms vertebrates - fish, amphibians, reptiles, birds, mammals scientists - Carl Linnaeus	light travels straight reflect reflection light source object shadows mirrors periscope rainbow filters



		chemical			
Skills	<ul style="list-style-type: none"><li>-Exploring falling paper cones or cup-cake cases.</li><li>-Designing and making [exploring] a variety of parachutes.</li><li>-Carrying out fair tests to determine which designs are the most effective.</li><li>-Exploring resistance in water by making and testing boats of different shapes.</li><li>-Design and make artefacts that use simple levers, pulleys, gears and/or springs and explore their effects.</li></ul>	<p>Carry out tests to answer questions such as 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?'</p> <p>-Compare materials in order to make a switch in a circuit.</p> <p>Observing and comparing the changes that take place, for example, when burning different materials or baking bread or cakes.</p> <p>-Researching and discussing how chemical changes have an impact on our lives, for example cooking.</p> <p>-Discuss [research] the creative use of new materials such as polymers, super-sticky and super-thin materials.</p>	<ul style="list-style-type: none"><li>-Observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times).</li><li>-Asking pertinent questions.</li><li>-Suggesting reasons for similarities &amp; differences.</li><li>-They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs.</li><li>-Observe changes in an animal over a period of time (for example, by hatching and rearing chicks).</li></ul>	<ul style="list-style-type: none"><li>-Using classification systems and keys.</li><li>-Identifying some animals and plants in the immediate environment.</li><li>-Researching unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.</li></ul>	<ul style="list-style-type: none"><li>-Deciding [observe/explore] where to place rear-view mirrors on cars.</li><li>-Designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works.</li><li>-Investigating the relationship between light sources, objects and shadows by using shadow puppets.</li><li>-Extend their experience [explore and observe] of light by looking at a range of phenomena including rainbows, colours on soap bubbles, objects looking</li></ul>



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			-Comparing how different animals reproduce and grow.		
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