

Term	Title	Unit Content	Key Vocabulary	Key Resources Needed
Autumn 1	Forces	<p><u>Friction</u> State some examples of contact and non-contact forces Describe friction and how it can be useful</p> <p><u>Air resistance</u> Describe air resistance Explain how vehicles are designed to reduce air resistance Explain what happens when a skydiver opens their parachute <i>Plan and complete parachute experiment</i></p> <p><u>Water resistance</u> Describe water resistance Define streamlined <i>Plan and complete water resistance experiment</i></p> <p><u>Gravity</u> Describe gravity Explain why gravity is a non-contact force Predict and investigate how quickly different weight objects fall</p> <p><u>Use small forces for greater effect</u> State what a gear, lever and pulley are Describe how gears, levers and pulleys work to allow a smaller force to have a greater effect</p>	<p>Force, contact force, friction, motion</p> <p>Air resistance, drag, force, parachute, independent, dependent & controlled variables</p> <p>Water resistance, streamlined, repeatability, precision</p> <p>Gravity, weight, contact force, non-contact force</p> <p>Lever, gear, pulley, machine</p>	<p>Modelling clay, wooden ramp, ice cubes</p> <p>Plastic bags, scissors, string, stopwatch, modelling clay, ruler, metre stick, balances, sycamore seeds</p> <p>Wall measuring cylinder, scales, modelling clay, stopwatch, ruler</p> <p>Modelling clay, scales, metre ruler</p> <p>Tin of paint, two pence piece, screwdriver</p>

Autumn 2	Space	<p><u>The solar system</u> State what makes up the solar system Define 'star' and 'satellite' State that the moon is a natural satellite of the Earth</p> <p><u>The planets</u> State how many planets are in the solar system State the order of the planets Describe the difference between the first four and last four planets in the solar system</p> <p><u>Modelling</u> Explain why we use models in science Describe what the model of the solar system shows State some advantages and disadvantages of the solar system model</p> <p><u>Motion of the Earth and planets</u> State why planets stay in orbit Explain why mercury takes the shortest time to orbit Describe what would happen if the sun was not present in the solar system</p> <p><u>The solar system – ideas over time</u> Describe Aristotle, Ptolemy and Copernicus's ideas about the solar system Describe similarities and differences between geocentric and heliocentric models Explain how Galileo and Newton improved our understanding of the solar system</p>	<p>Solar system, planets, orbit, sun</p> <p>Planet, orbit, Pluto, celestial body</p> <p>Sun, planet, model, orbit</p> <p>Gravity, orbit, heliocentric model, geocentric model</p> <p>Heliocentric model, geocentric model, Aristotle, Ptolemy, Copernicus, Galileo, Newton</p>	<p>A3 or A4 paper, coloured pencils, scissors, glue</p> <p>9 different sized balls</p> <p>Playground chalk</p> <p>Paper, secondary sources for research globe and torch</p> <p>Globe and torch</p>

Autumn 2	Space and Global Warming	<p><u>Planet Earth</u> State what Earth orbits Explain the phrase 'Earth rotates around its axis' Name the four seasons Explain why seasons occur</p> <p><u>Night and day</u> Describe what causes day and night Explain why people in different countries don't experience day at the same time Describe what would happen if Earth didn't rotate around its axis</p> <p><u>The moon</u> State what a satellite is State how long it takes the moon to orbit the Earth Describe 'gravitational pull' State that Earth isn't the only planet with a moon</p> <p><u>Global warming</u> State what global warming and greenhouse gases are Describe the greenhouse effect and climate change Discuss how human activities have contributed to global warming Discuss the effects of global warming on humans, animals and the planet</p>	<p>Rotate, south pole, north pole, axis, Earth</p> <p>Axis, rotate, Earth, sun, night, day</p> <p>Moon, gravitational force, orbit, satellite</p> <p>Global warming, greenhouse gases, fossil fuels, climate change, glacier, habitat, carbon footprint</p>	<p>Different sized balls</p>
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<p>Spring 1</p>	<p>Properties of Materials</p>	<p><u>Magnetism, transparency and hardness</u> State what magnetic means Define the terms translucent, transparent and opaque Describe how to test how hard materials are</p> <p><u>Electrical conductivity</u> State what is meant by an 'electrical conductor' and 'electrical insulator' State what components are in a complete circuit Explain why wires are covered with a plastic casing</p> <p><u>Insulating heat experiment</u> State what is meant by a 'thermal insulator' Explain why we want to keep something hot or cold Plan an experiment to investigate thermal insulation Identify variables (independent, dependent and controlled)</p> <p><u>Uses of everyday materials – plastic, wood and metal</u> State what is meant by an 'electrical conductor' and 'electrical insulator'</p>	<p>Transparent, translucent, opaque, magnetism, hardness</p> <p>Electrical conductor, electrical insulator, circuit, cell, bulb</p> <p>Thermal insulator, variables</p> <p>Properties, wood, metal, plastic, lifespan</p>	<p>Magnets, selection of coins, wood, brick, rock</p> <p>Batteries, electrical wires, bulbs, plastic, wood, graphite</p> <p>Beaker, ice, stopwatch, thermometer, Insulating materials</p> <p>Magnetis, circuits, plastic bag, paper bag</p>
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<p style="text-align: center;">Spring 1</p>	<p style="text-align: center;">Animals including Humans</p>	<p><u>The human life cycle</u> State the 6 stages of human life cycle State what age a human is described as a baby/ child State which life stages human grow the most in Describe the difference between a foetus and a baby Describe how an elderly adult may look different to an adult</p> <p><u>Babies and children</u> State what age most babies start to crawl and walk State how babies communicate their needs Explain why babies depend on an adult Describe how the length and mass of a baby changes as age increases</p> <p><u>Adolescence and puberty</u> Define puberty and hormones State on average what age do girls and boys start puberty Describe some key changes that happen to girls and boys during puberty Explain why puberty is important</p> <p><u>Adults and the elderly</u> State what age humans are classed as adults, and elderly adults Describe some physical changes occurring in adulthood and late adulthood Explain why an elderly person is more likely to break bones</p>	<p>Adolescent, baby, foetus, elderly adult, adult, life cycle</p> <p>Milestone, baby, toddler, child, womb</p> <p>Adolescent, period, reproduce, puberty, hormone</p> <p>Adult, elderly adult, produce, life expectancy</p>	<p>Images of humans at different stages of the life cycle</p> <p>Metre ruler, photographs of our learners when younger (with permission)</p> <p>Cards with key changes that happen during puberty</p> <p>Photographs of parents/ carers, grandparents (with permission)</p>
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Spring 2	Animals including Humans	<u>Gestation periods of mammals</u> Define a mammal and explain why humans are mammals Describe what gestation is Approximate the gestation period of a human Identify patterns of gestation periods in different mammals <u>Gestation periods and lifespan</u> Define lifespan Describe the relationship between gestation period and life span Define an anomaly Draw conclusions from data	Womb, foetus, gestation, mammal, offspring Gestation, lifespan, correlation, anomaly	Images of mammals Images of animals, secondary sources for research
	Life Cycles	<u>Life cycles of mammals</u> Describe key characteristics of mammals Describe the main stages of the life cycle of a mammal Compare life cycles of different mammals <u>Life cycles of amphibians (frogs)</u> State some key characteristics of amphibians Define metamorphosis Describe the main stages of the life cycle of a frog Describe the difference between frogspawn, tadpole, froglet and frog State which stage of the life cycle amphibians reproduce in Compare the life cycle of an amphibian to a mammal <u>Life cycle of insects</u> State some key characteristics of insects Describe the life cycle of a butterfly, honeybee and ladybird <u>Life cycles of birds</u> State some key characteristics of insects Describe the main stages of a life cycle of a bird Describe an egg, hatchling, nestling and fledgling	Monotreme, offspring, mammary gland, life cycle Amphibian, frogspawn, tadpole, froglet, metamorphosis Metamorphosis, larva, pupa, chrysalis, insect Birds egg, hatchling, nestling, fledgling, adult bird	Cards with life cycles of different mammals Pictures of the stages of the life cycle of a frog Pictures of the life cycle stages of a butterfly, ladybird or honeybee Pictures of the life cycle stages of a bird

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Summer 1</p>	<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Reproduction A</p>	<p><u>Sexual reproduction in mammals</u> Define sexual reproduction State the name of the male and female sex cell State where male and female sex cells are produced Describe what happens during fertilisation Define 'embryo' and 'foetus'</p> <p><u>Reproductive parts in plants</u> Name the male and female reproductive parts of a flowering plant State what parts of a plant are collectively known as the stamen and the pistil Describe the function of an anther, filament and stigma Name the male and female sex cell in flowering plants</p> <p><u>Pollination</u> Describe pollination State which parts of a plant produce pollen Describe what happens when pollen attaches to the stigma Describe how insects and wind can pollinate a plant Describe how seeds are made</p> <p><u>Asexual reproduction</u> Define asexual reproduction Describe the difference between sexual and asexual reproduction State which type of plants can reproduce asexually State which plants produce bulbs and tubers</p> <p><u>Clone plants</u> Describe how to take a cutting of a plant Investigate cloning plants Predict which plant cuttings will produce the tallest plants</p>	<p>Fertilisation, embryo, sperm cell, egg cell, sexual reproduction</p> <p>Anther, stigma, filament, ovule, ovary, style</p> <p>Pollination, pollen, ovule, fertilisation</p> <p>Clone, runner, tuber, bulb, asexual reproduction</p> <p>Independent, dependent and control variables, clone, cutting, parent plant, compost</p>	<p>Cards with pictures of key stages of fertilisation</p> <p>Flowers, scissors, sticky tape</p> <p>Different coloured counters in groups of five of each colour</p> <p>Secondary sources for research</p> <p>Plants to dissect, rulers, scissors, parent plants, plant pots, compost, water, rooting powder</p>
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<p style="text-align: center;">Summer 1</p>	<p style="text-align: center;">Reversible & Irreversible changes</p>	<p><u>Dissolving</u> Define 'dissolving', 'soluble', 'insoluble', 'solution' and 'substance' State if salt or sand is soluble or insoluble in a liquid Describe how to tell if a substance has dissolved Describe the effect of temperature on rate of dissolving</p> <p><u>Separating materials – filtering and sieving</u> State what type of mixture can be separated by sieving State what type of mixture can be separated by filtering Describe how to separate sand from rice and sand from water State which equipment is needed for filtering</p> <p><u>Solutions and evaporating</u> Describe how to separate sand/salt from a liquid Explain why filtration can't be used to separate salt from a liquid Explain why sieving can't be used to separate sugar from a liquid Define evaporation</p> <p><u>Reversible changes</u> State the three states of matter Define melting, condensing and evaporation Define a reversible change, state two examples</p> <p><u>Irreversible changes – burning</u> Define an irreversible change, state two examples Explain why burning is an irreversible change State if changes of state are reversible or irreversible changes</p> <p><u>Irreversible changes – acid</u> Describe the difference between a reversible and irreversible change Describe what happens when acid is added to bicarbonate of soda Define what is meant by 'chemical reaction'</p>	<p>Dissolve, soluble, insoluble, solution, substance</p> <p>Sieve, filter, mixture, insoluble, filtering, funnel</p> <p>Solution, dissolve, soluble, insoluble, evaporation</p> <p>Mixture, states of matter, dissolve, reversible change, reverse</p> <p>Chemical reaction, reversible change, irreversible change, burning, heating</p> <p>Irreversible change, chemical reaction, vinegar, bicarbonate of soda</p>	<p>Beakers, spoons, salt, sand, rice, flour, sugar, cold water, warm water, stopwatch</p> <p>Sieves, colanders, filter paper, funnels, water, rice, flour, salt</p> <p>Soluble substances salt, sugar, hairdryer, stopwatch</p> <p>Salt, water, rice, flour, matches, ice cubes, access to a freezer</p> <p>Matches, candles, bread and a toaster, kettle</p> <p>Vinegar, bicarbonate of soda, balloons, bottles</p>
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Summer 2	Plastic Pollution	<p><u>What is plastic pollution</u> State why plastics are made Describe some uses of plastics Describe some properties of plastic Define plastic pollution</p> <p><u>What are the impacts of plastic pollution on the planet?</u> Describe how plastic pollution affects the environment State what kind of habitats and living things can be affected by plastic pollution state what can be done to reduce the effects of plastic pollution</p>	<p>Plastic, habitat, plastic pollution, landfill, pollution</p> <p>Habitat, plastic, microplastics, pollution</p>	<p>Access to laptops, images of habitats, examples of single and reusable plastic</p> <p>A4 paper, examples of single use and reusable plastic</p>
	Reproduction B	<p><u>Findings – clone plants</u> Define asexual reproduction Decide if your results match your prediction Describe your results, use relevant equipment to measure plant length</p> <p><u>Interpret data</u> Make conclusions from data Draw a line graph to show your data Evaluate your experiment and suggest improvements</p>	<p>Asexual reproduction, cutting, parent plant, data</p> <p>Line graph, parent plant, prediction</p>	<p>Plant cuttings from reproduction A, rulers</p>
		<p><u>Consolidation</u> Consolidation of key areas from this year Make use of summative and formative assessments done throughout the year to identify gaps in knowledge or misconceptions</p>		