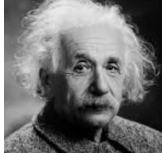


Units	Earth and Space	Animals Including Humans	Properties of Materials	Changes of Materials	Living Things and Their Habitats	Forces
National Curriculum:	- Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. - Describe the life process of reproduction in some plants and animals. - Describe the changes as humans develop to old age. - 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. - 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. - 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.			Working scientifically Statutory requirements During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: - planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - using test results to make predictions to set up further comparative and fair tests - reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations - identifying scientific evidence that has been used to support or refute ideas or arguments.		

Unit Link	<u>Earth and Space</u> 	<u>Animals Including Humans</u> 	<u>Properties of Materials</u> 	<u>Changes of Materials</u> 	<u>Living Things and Their Habitats</u> 	<u>Forces</u> 
Scientist	<u>Tim Peake</u> 	<u>Rosalind Franklin</u> 	<u>Hugh Bradner</u> 	<u>Albert Einstein</u> 	<u>Dr. Thomas Lovejoy</u> 	<u>Isaac Newton</u> 
Area Focus	Physics	Biology	Chemistry	Chemistry	Biology	Physics
Enquiry Approach	 Identifying, Grouping and Classifying  Research  Pattern Seeking  Observations Over Time	 Observations Over Time  Research  Pattern Seeking  Comparative/Fair Testing  Problem Solving	 Comparative/Fair Testing  Problem Solving  Pattern Seeking	 Observations Over Time  Problem Solving  Comparative/Fair Testing	 Pattern Seeking  Identifying, Grouping and Classifying  Observations Over Time  Research	 Comparative/Fair Testing  Problem Solving
Resources	9 balls Measuring trundle Pictures of the planets Torch Globe Modelling clay Kebab skewers	Split pins Tape measures	10 sample pieces of materials (wood, paper, card, plastic, string and wool. Rubber, metal, clay) electrical equipment to make circuits (with a bulb) and magnets	1 large clear bottle filled with pure water labelled "A" 1 large clear bottle filled with salt water labelled "B" (30g of table salt in 150 ml of water)	rooting powder pots a healthy plant (strawberry, tomato, basil or chilli) soil mammal type sorting cards	ruler/tape measure weighing scales a variety of balls of similar sizes (e.g. tennis ball, softball, hockey ball) stopwatch feather

	Compass Card paper Time zone data Pinwheel outlines Split pins Globe Golf balls		paper cups variety of materials to wrap up the cup: such as cling film, foil, paper, felt, cotton and sticky tape. Thermometers granite tile ceramic tile hardwood softwood plastic metal card coin a range of substances to test if they dissolve: such as sand, sugar salt flour wax candles coffee jam butter chalk jelly beakers sawdust gravel metal nuts marbles	Teaspoons small containers labels oven some chocolate that has been melted into a different shape small toys frozen in some ice sugar dissolved in water in a bottle rice and sugar mixed together in a jar. Berroca/Alka-Seltzer vinegar bicarbonate of soda candle matches soap milk small bottles small iron nails test tubes salt oil paint/Vaseline rubber gloves cola lemon juice plastic spoons pipettes	split pins eggs toothpicks	tennis balls small plastic toys/weights a variety of materials to test (e.g. different types of papers, plastic bags and bin bags) hole punch string calculators A small object (such as a marble or penny) large clear container filled with water mini whiteboard modelling clay a variety of containers (such as large bottles with the tops cut off or large measuring cylinders) weighing scales A variety of surfaces (different carpets or carpet tiles, a variety of wooden floors, tarmac/playground surface) Trainers Newton meters weights a load to lift per child (e.g. weights/1 pint milk bottle/bag of sand) materials to create a lever (e.g. string, cotton reels, dowel, wheels and cardboard)
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						Strong cardboard lolly sticks paper straws Sellotape thin dowel/cocktail sticks plasticine sticky tape compass
Key Concepts	Changing the movement of an object requires a net force (push or pull) to be acting on it. The movement of Earth affects the seasons and times of day	Humans move through different stages of growth and development Living things have characteristics and requirements for life, growth and health	There is a relationship between structure and function Living and non-living things can be grouped in a variety of ways All matter on earth exists in one of three states: solid, liquid, gas and the state of matter can change Energy makes things happen and can be seen by its effects; it can be transferred (but is not used up)	There is a relationship between structure and function Living and non-living things can be grouped in a variety of ways All matter on earth exists in one of three states: solid, liquid, gas and the state of matter can change Energy makes things happen and can be seen by its effects; it can be transferred (but is not used up)	Humans move through different stages of growth and development Living things have characteristics and requirements for life, growth and health	Changing the movement of an object requires a net force (push or pull) to be acting on it. The movement of Earth affects the seasons and times of day.
Knowledge	Lesson 1: Explore the solar system and its planets I can describe the Sun, Earth and Moon as approximately spherical bodies. Lesson 2: Understand the heliocentric model of the solar system I can describe the movement of the Earth and other planets relative to the Sun in the solar system.	Lesson 1: Identify the key stages of a mammal's life cycle I can compare the human life cycle with another mammal. Lesson 2: Explore the gestation periods of mammals I can recognise the gestation period for different mammals.	Lesson 1: Explore properties of materials I can compare and group together everyday materials on the basis of their properties, including transparency, conductivity (electrical and thermal) and magnetic. Lesson 2: Explore thermal conductors and thermal insulators I can compare and group together everyday	Lesson 1: Use evaporation to recover the solute from a solution I can describe how to recover a substance from a solution. Lesson 2: Recognise and describe reversible changes I can demonstrate that dissolving, mixing and changes of state are reversible changes.	Lesson 1: Understand the life processes of a plant I can describe the life process of reproduction in some plants. Lesson 2: Understand the life cycles of mammals I can describe the differences in the life cycle of a mammal. Lesson 3: Compare the life cycles of insects and amphibians	Lesson 1: Explore gravity and the life and work of Isaac Newton I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Lesson 2: Examine the connection between air resistance and parachutes I can identify the effects of air resistance.

	Lesson 3: Explain the Earth's movement in space. 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. Lesson 4: Explain the Earth's rotation and night and day I can compare the time of day at different places on the Earth. Lesson 5: Explain the movement of the Moon I can describe the movement of the Moon relative to the Earth.	Lesson 3: Learn about foetal development I can describe the changes to a foetus in human development. Lesson 4: Investigate the hand span of differently aged children I can describe the changes to a child in human development. Lesson 5: Describe the changes humans may experience during old age I can describe the changes to a human in old age.	materials based on evidence from comparative and fair tests, including their conductivity of heat. Lesson 3: Explore the hardness of materials I can compare and group together everyday materials on the basis of their properties, including their hardness. Lesson 4: Discover materials that are soluble in water I know that some materials will dissolve in liquid to form a solution. Lesson 5: Explore how mixtures can be separated by filtering, sieving, evaporating or magnets I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.	Lesson 3: Observe chemical reactions and describe how we know new materials are made 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. Lesson 4: Investigate rusting reactions I can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible (rust). Lesson 5: Investigate burning reactions 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) – shown in lesson 3	I can describe the differences in the life cycles of an amphibian and an insect. Lesson 4: Understand the life cycle of birds and reptiles I can describe the differences in the life cycle of a bird. Lesson 5: Know about the life and work of Jane Goodall and David Attenborough I can identify important facts on key members of the scientific community.	Lesson 3: Explore factors which affect water resistance I can identify the effects of water resistance. Lesson 4: Investigate the effects of friction on different surfaces I can identify the effects of friction that act between moving surfaces. Lesson 5: Investigate mechanisms – levers and pulleys I can recognise that some mechanisms including levers and pulleys allow a smaller force to have a greater effect. Lesson 6: Investigate mechanisms – gears I can recognise that some mechanisms including gears allow a smaller force to have a greater effect.
Skills	Lesson 1:  Interpreting and Communicating Results Lesson 2: 	Lesson 1:  Recording data, results and findings Lesson 2:  Interpreting and Communicating Results	Lesson 1:  Making Predictions Lesson 2:  Observing and Measuring Lesson 3:	Lesson 1:  Setting up tests Lesson 2:  Interpreting and Communicating Results	Lesson 1:  Making Predictions. Lesson 2:  Interpreting and Communicating Results	Lesson 1:  Making Predictions. Lesson 2:  Setting up tests Lesson 3: 

	Interpreting and Communicating Results Lesson 3:  Observing and Measuring Lesson 4:  Making Predictions. Lesson 5:  Recording data, results and findings	Lesson 3:  Recording data, results and findings Lesson 4:  Observing and Measuring Lesson 5:  Interpreting and Communicating Results	 Observing and Measuring Lesson 4:  Setting up tests Lesson 5:  Evaluating	Lesson 3:  Interpreting and Communicating Results Lesson 4:  Setting up tests Lesson 5:  Interpreting and Communicating Results	Lesson 3:  Recording data, results and findings Lesson 4:  Observing and Measuring Lesson 5:  Interpreting and Communicating Results	Interpreting and Communicating Results Lesson 4:  Recording data, results and findings Lesson 5:  Evaluating Lesson 6:  Observing and Measuring
Vocabulary	orbit spherical Solar System gas giant planets terrestrial planet heliocentric astronomy dwarf planet geocentric hemisphere poles axis shadow sundial dial time zone phase moon waning waxing eclipse	reproduce adolescent dependent puberty foetus gestation pregnant breeding duration trimester embryo umbilical cord womb midwife growth spurt childhood motor skills milk teeth memory lifestyle	magnetic versatile conductive durable transparent thermal molecules insulator degrees Celsius (°C) conduction iron stone steel force hardness insoluble dissolve solute soluble solvent solution	solute solution evaporate pure substance solvent reversible physical change melting mixture irreversible compare chemical change effervescence product control variable corrosion fair test rusting variable combustion fuel	fertilisation reproduction asexual reproduction genes tuber monotreme mammal pouch marsupial placental amphibian metamorphosis larva caterpillar pupa hatch egg fledgling egg tooth embryo natural sciences primatologist	astronomy weight mass Sir Isaac Newton gravity Galileo Galilei air resistance parachute opposing streamlined sink upthrust water resistance buoyant friction resistance Newton meter lubricant load pulley lever

			pure substance sieving mixture filtering evaporation	oxygen smother extinguish bicarbonate of soda acid reaction carbon dioxide predict	endangered documentary naturalist	pivot gear mesh mechanism rack and pinion bevel fulcrum
Career Links	Aerospace engineer	Phlebotomist	Lab technician	Hair and beauty	Catchment Officer	Physicist
CPD Links						