Year 5 Curriculum Map - 2022

Year 5 – Forces				
Lesson Intention	**National Curriculum Reference**	**Scientific Enquiry**	**Rocket Words**	**Resources**
Explore gravity and the life and work of Isaac Newton	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	Identifying scientific evidence that has been used to support or refute ideas or arguments	Sir Isaac Newton gravity astronomy weight mass	*1m ruler/tape measure, weighing scales, variety of balls (tennis ball, soft ball, marble, hockey ball etc), pencil, 2 sheets of paper, stopwatch*
Examine the connection between air resistance and parachutes	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Galileo Galilei air resistance opposing streamlined parachute	*feather, tennis ball, small plastic toys/weights, stopwatches, variety of materials to test (different types of papers, plastic bags, bin bags, variety of materials), rulers, hole punch, string, calculators*
Explore factors which affect an object's ability to resist water	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	water resistance streamlined upthrust buoyant sink	*small object (such as a marble, or penny), large clear container filled with water, mini whiteboard, modelling clay, water, variety of containers (such as large bottles with the tops cut off, or large measuring cylinders), weighing scales*
Investigate the effects of friction on different surfaces	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	friction resistance lubricant Newton meter Newton	*a variety of surfaces (different carpets or carpet tiles, variety of wooden floors, tarmac/playground surface), trainer, Newton meter, ruler, weight* *Alternatively, children could cover a plank of wood with different surfaces (such as sandpaper, a towel, tinfoil, lino, carpet, corrugated cardboard, bubble wrap etc.), squared paper*
Investigate mechanisms - levers and pulleys	Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	lever load pivot fulcrum pulley	*mini whiteboards, ball, a load to lift per child (weights/1 pint milk bottle/bag of sand etc.), materials to create a pulley - string, cotton reels, dowel, wheels, cardboard*
Investigate mechanisms - gears	Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	mechanism gear mesh rack and pinion bevel gear	*strong cardboard, lolly sticks, paper straws, sticky tape, thin dowel/cocktail sticks, plasticine, sticky tape, glue, compass, scissors*

Year 5 Curriculum Map - 2022

Year 5 – Properties of Materials				
Lesson Intention	**National Curriculum Reference**	**Scientific Enquiry**	**Rocket Words**	**Resources**
Exploring properties of materials	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	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	conductive magnetic durable transparent versatile	*10 sample pieces of material - wood, paper, card, plastic, string, wool, rubber, different metals, clay, pen and pencils, electrical equipment to make circuits (with a bulb), magnets, torch*
Explore thermal conductors and thermal insulators	Compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	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	thermal conduction molecules degrees Celsius (℃) insulator	*paper cups, a variety of materials to wrap up the cup, for instance, cling film, foil, paper, felt, cotton, sticky tape, thermometer, warm water, stopwatch*
Explore the hardness of materials	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	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	hardness force iron steel stone	*granite tile, ceramic tile, hardwood, softwood, slate, different stones, plastic, metal, card, coin and nail*
Discover materials that become soluble in water	Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	dissolve solute insoluble soluble solvent	*a range of substances to test if they dissolve, for instance, sand, sugar, salt, flour, wax candles, coffee, jam, butter, chalk, jelly, pepper, measuring spoon, beakers/cup, water*
Investigate the solubility of materials	Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	Using test results to make predictions to set up further comparative and fair tests	solute solvent solution substance saturation	*a variety of solutes (salt, sugar, jelly, coffee), beakers, water*
Explore how mixtures could be separated by filtering, sieving, evaporating or magnets	Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	pure substance mixture filtering sieving evaporation	*sand, sawdust, gravel, metal nuts, marbles, flour, beakers or containers, filter paper, sieve, colander, magnets*

Year 5 Curriculum Map - 2022

Year 5 – Changes of Materials

Lesson Intention	National Curriculum Reference	Scientific Enquiry	Rocket Words	Resources
Use evaporation to recover the solute from a solution	Describe how to recover a substance from a solution	Reporting and presenting findings from enquiries, including conclusions	pure substance solute solvent solution evaporate	*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), teaspoons, small containers such as foil cake cases to place liquid in, labels, access to an oven (200◦C for 20 minutes will evaporate 3 teaspoons of water and leave salt) or warm place.*
Recognise and describe reversible changes	Demonstrate that dissolving, mixing and changes of state are reversible changes	Reporting and presenting findings from enquiries, including conclusions, in oral and written forms	reversible mixture physical change melting evaporate	*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. Optional- to reverse changes: heat source and mould to re- melt chocolate and ice and evaporate water, sieve.*
Observe chemical reactions and describe how we know new materials are made	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	irreversible chemical change compare effervescence product	*Water, fizzing tablet (such as berroca or alka seltzer), vinegar, bicarbonate of soda, candle, matches, red cabbage indicator*, soapy water, water, milk, small bottles for liquids, small containers (small aluminium pie cases work well)*
Investigate rusting reactions	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible	Planning different types of scientific enquiry to answer questions, including recognising and controlling variables where necessary	fair test variable control variable corrosion rusting	*Small iron nails, test tubes or other small containers, water, salty water, other liquids (lemon juice, cola etc) oil, paint or petroleum jelly*
Investigate burning reactions	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.	Identifying scientific evidence that has been used to support or refute ideas or arguments	combustion fuel oxygen extinguish smother	*Tea light, matches, beaker, vinegar, bicarbonate of soda*
Investigate chemical reactions - acids and bicarbonate of soda	Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated the action of acid on bicarbonate of soda	Using test results to make predictions to set up further comparative and fair tests	reaction predict acid bicarbonate of soda carbon dioxide	*Bicarbonate of soda, container with lid such as plastic egg or film canister, small containers to test substances in (test tubes or small foil containers), liquids (water, vinegar, cola, lemon juice), plastic spoons, pipettes*

Year 5 Curriculum Map - 2022

Year 5 – Animals, including humans				
Lesson Intention	**National Curriculum Reference**	**Scientific Enquiry**	**Rocket Words**	**Resources**
Identify the key stages of a mammal's life cycle	Describe the changes as humans develop to old age	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	foetus dependent adolescent puberty reproduce	*Scissors, handout (on thin card), pen and pencils, split pins*
Explore the gestation periods of mammals	Describe the changes as humans develop to old age	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	gestation pregnant duration extreme breeding	*Sticky notes, scissors, pens/pencils, computers/tablets for research*
Learn about foetal development	Describe the changes as humans develop to old age	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	womb umbilical chord embryo trimester midwife	*Pencil, graph paper, ruler, coloured pencils*
Investigate the hand span of different aged children	Describe the changes as humans develop to old age	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	growth spurt childhood motor skills milk teeth constant	*Ruler, tape measure, pens/pencils, paper*
Learn about the changes experienced during puberty	Describe the changes as humans develop to old age	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	adolescence puberty hormones mood swing develop	*Large paper/wallpaper, sticky tape, pens/pencils*
Describe the changes humans may experience during adulthood and old age	Describe the changes as humans develop to old age	Identifying scientific evidence that has been used to support or refute ideas or arguments	lifestyle keratin elasticity cataracts neurodegenerative	*Pens, pencils, computers/tablets*

Year 5 Curriculum Map – 2022

Year 5 – Earth & Space				
Lesson Intention	**National Curriculum Reference**	**Scientific Enquiry Covered**	**Rocket Words Covered**	**Resources Needed**
Describe Nicolaus Copernicus' ideas about planetary motion	Describe the movement of the Earth and other planets relative to the sun in the solar system Describe the sun, Earth and moon as approximately spherical bodies	Identifying scientific evidence that has been used to support or refute ideas or arguments	heliocentric geocentric Nicolaus Copernicus orbit Ptolemy	*Planet Mobile 1. Papier Mâché model, 9 balloon, newspaper, PVA glue, bowl, water, rings to stand balloons on while they are drying, paint, paintbrushes, string , 2. Ball Model, 8 polystyrene balls of different sizes, paint, paintbrushes, string ,*
Describe the movement of the Earth in space	Describe the movement of the moon relative to the Earth Describe the sun, Earth and moon as approximately spherical bodies	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	axis season poles eclipse hemisphere	*Pencils, paper, colouring pencils*
Learn about gravitational force	Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	Using test results to make predictions to set up further comparative and fair tests	ocean tides gravitational force black hole Mass celestial	*modelling clay, weighing scales, metre stick, stopwatch (optional), camera (optional)*
Describe the characteristics of the planets in our solar system	Describe the movement of the Earth and other planets relative to the sun in the solar system	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	rocky planets gas planets dwarf planet Moon solar system	*Scissors, backing card*
Describe the Big Bang Theory	Describe the movement of the Earth and other planets relative to the sun in the solar system	Identifying scientific evidence that has been used to support or refute ideas or arguments	astronomy universe Milky Way expand Big Bang theory	*Balloon, marker pen, measuring tape*
Explore what causes the different phases of the Moon	Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	phase orbit illuminate waxing waning	*Paper, scissors, pens, pencils, pictures of the Moon (optional), glue*

Year 5 Curriculum Map - 2022

Year 5 - Living things and their habitats				
Lesson Intention	**National Curriculum Reference**	**Scientific**	**Rocket Words**	**Resources**
Learn about sexual reproduction	Describe the life process of reproduction in some plants and animals	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	fertilisation, genes, sexual reproduction, pollination, pollen	*Images from internet, pens, pencils, colouring pencils*
Learn about asexual reproduction	Describe the life process of reproduction in some plants and animals	Plan different types of scientific enquiries to answer questions, including controlling variables where necessary	asexual, plantlet, bulb, tuber, bacteria	Plant (such as strawberries, tomato, basil or chilli), scissors, water, small flowerpot of moist soil, moist rooting powder
Describe the life cycles of a mammal, bird and reptile	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	unborn, egg, hatch, fledgling, mammary gland	*Life Cycle Challenge* Computers/Books Handout Pens Paper
Describe the life cycles of an insect and amphibian	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	metamorphosis, larva, pupa, tadpole, butterfly	Pen, pencil, coloured pencils
Know about the life and work of Sir David Attenborough	They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. [Non-statutory]	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	David Attenborough, natural sciences, documentary, naturalist, lecture	Pen and pencil
Know about the life and work of Dame Jane Goodall	They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. [Non-statutory]	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	Jane Goodall, chimpanzee, primatologist, primate, endangered	Lined Paper, colouring pens, paints ICT – research, magazines/internet for pictures and maps