



## Year 6 – Animals including humans

Lesson Intention	National Curriculum Reference	Scientific Enquiry	Rocket Words	Resources
Understand the function of the heart and its role in the circulatory system	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	circulatory system atrium ventricle vessel valves	Pipe cleaners, plasticine, craft materials, colouring pencils, mini whiteboards, pen, pencil.
Identify and compare blood vessels	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	vessel artery vein capillary microscope	Water (with dye), disposable paper cups, modelling clay, nail/cocktail stick, pen, pencil, stopwatch.
Explore blood	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	blood plasma platelet white blood cell red blood cell	Protractor, ruler, pen, pencil, compass, computers, mini whiteboards.
Learn how the body transports water and nutrients	Describe the ways in which nutrients and water are transported within animals, including humans	Identifying scientific evidence that has been used to support or refute ideas or arguments	absorb diffusion osmosis concentration nutrients	Demonstration: 2 eggs, water, sugar, 2 glasses, gummy bears, different liquids (milk, cola/soda, distilled water, sugar, salt), beakers/cups/test tubes, pen, pencil, ruler.
Investigate what affects your heart rate	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	diet exercise heart rate BPM pulse	Timers/stopwatches, heart rate monitors (if possible), PE equipment and attire, foods chosen by children.
Learn about the impact of drugs and alcohol on the body	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	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	drug painkiller stimulant depressant hallucinogens	Pen, pencil, colouring pencils, coloured paper, computers.



## 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 – Earth and space

Lesson Intention	National Curriculum Reference	Scientific Enquiry Covered	Rocket Words Covered	Resources Needed
Explore the solar system and its planets	Describe the Sun, Earth and Moon as approximately spherical bodies	Identifying scientific evidence that has been used to support or refute ideas or arguments  Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	terrestrial planet gas giant planets Solar System spherical orbit	Class presentation, 9 balls (one for the Sun) and a measuring trundle.
Understand the heliocentric model of the solar system	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 heliocentric geocentric dwarf planet orbit	Class presentation, pictures of each planet (from last lesson), newspaper, 9 balloons/balls, oil, PVA glue, a bowl, water, paint, paintbrushes and string.
Explain the Earth's movement in space	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	axis poles season hemisphere orbit	Class presentation, a torch, a globe, playdoh and kebab skewers or cocktail sticks.
Explain the Earth's rotation and night and day	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	sundial time zone gnomon dial shadow	Class presentation, card, scissors, a compass, glue, long wooden kebab skewers and time zone data.
Explain the movement of the Moon	Describe the movement of the Moon relative to the Earth	Identifying scientific evidence that has been used to support or refute ideas or arguments	moon phase waxing waning eclipse	Class presentation, pinwheel outlines, scissors, split pins, a globe, golf balls and a torch.
Design a planet using knowledge gained	Describe the Sun, Earth and Moon as approximately spherical bodies	Reporting and presenting findings from enquiries	rocky planet gas planet moon orbit solar system	Class presentation, felt tips, coloured pencils, paint or digital media.



### Year 6 – Living things and their habitats

Lesson Intention	National Curriculum Reference	Scientific Enquiry	Rocket Words	Resources
Classify living organisms	Give reasons for classifying plants and animals based on specific characteristics	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs and bar and line graphs	classify microorganism fern living organism conifer	Class presentation, liquorice allsorts, A3 paper and pens.
Understand the kingdoms of life	Give reasons for classifying plants and animals based on specific characteristics	Identifying scientific evidence that has been used to support or refute ideas or arguments	kingdom mrs gren cell multicellular unicellular	Class presentation, a plant and research materials.
Classify living things using the Linnaean system	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	Identifying scientific evidence that has been used to support or refute ideas or arguments	Carl Linnaeus classification Latin species domain	Class presentation and research devices.
Identify the characteristics of different types of microorganisms	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	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	microorganism bacteria fungi virus protozoa	Class presentation, mould growing investigation, slices of bread, sealable sandwich bags, water, sticky labels and marker pens.
Investigate asexual reproduction through spore dispersal	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	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	plant microscopic fungi mycelium ecosystem	Class presentation, large mushrooms, clamp stands, clamps, string, cocktail stick to make a hole, plain paper, hairspray and a ruler.
Classify and describe a living organism	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	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	classify microorganism living organism habitat reproduction	Class presentation, A3 paper, felt tips/colouring pencils and research materials.



## Year 6 – Evolution and inheritance

Lesson Intention	National Curriculum Reference	Scientific Enquiry	Rocket Words	Resources
Understand how offspring vary and are not identical to their parents	Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	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	offspring characteristic inherit variation environmental	Class presentation, handout, pen.
Learn about animal adaptations	Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	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	adaptation habitat climate nutrition feature	Class presentation, handout and research tools such as books or the internet.
Learn about plant adaptations	Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	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	nutrients epiphytes toxic predators pollinate	Class presentation, handout and research tools such as books and the internet.
Explore what we can learn from fossils	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	Identifying scientific evidence that has been used to support or refute ideas or arguments	fossil Mary Anning Palaeontologist ichthyosaurus Jurassic coast	Class presentation, handout and research tools such as books or the internet (optional).
Explore the theory of evolution	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	Identifying scientific evidence that has been used to support or refute ideas or arguments	Charles Darwin evolved extinct natural selection theory	Class presentation, coloured pencils, handout and research tools such as books or the internet (optional).
Explore human evolution	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	Identifying scientific evidence that has been used to support or refute ideas or arguments	ancestor tools primate Homo sapien Neanderthal	Class presentation, handout and research tools such as books or the internet (optional).



### Year 6 – Looking after the environment

Lesson Intention	National Curriculum Reference - Scientific Enquiry	Rocket Words	Resources
Learn about climate change	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	weather climate prevent global warming climate change	2L plastic bottle, permanent marker, sticky tape, skewers/plastic straws, rulers, scissors, thermometer, coloured paper, colouring pens/pencils.
Explore ways to reduce how much rubbish is sent to landfill	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	recycle landfill rubbish biodegrade council	Classroom bin (full!), rubber gloves, computer/tablets for research, pen, pencil.
Explore ways to reduce energy consumption	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	net zero renewable non-renewable greenhouse gases emissions	Clipboards, pencils, calculators, computers/tablets for research.
Explore what happens when fuels are burnt	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	industrial revolution fossil fuel coal combustion fuel	Candle, matches, metal spoon, computers/tablets for research, pen, pencil.
Explore the outcomes of COP26	Identifying scientific evidence that has been used to support or refute ideas or arguments	COP sustainability conference pledge subsidy	Computers/tablets, pen, pencil.
Compare data associated with the weather	Using test results to make predictions to set up further comparative and fair tests	species sensitive natural disaster habitat vulnerable	Computers/tablets, temperature and rainfall data collected + comparison data, graph paper, pen, pencil.