

Y 1 & 2 WORKING SCIENTIFICALLY: During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: □ asking simple questions and recognising that they can be answered in different ways □ observing closely, using simple equipment □ performing simple tests □ identifying and classifying □ using their observations and ideas to suggest answers to questions □ gathering and recording data to help in answering questions.					
Year	Programme of Study	Key Vocabulary	Key Facts	Pictures / Diagrams	Important People
1	Animals, including humans	Human body, (various parts eyes, nose etc), senses (touch, taste etc), omnivore, herbivore, carnivore, amphibians, reptiles, birds, mammals	To know which animals are carnivores, herbivores and omnivores and what that means they eat. To know that types of animals can be categorised into amphibians, reptiles, birds, mammals. To know what the basic parts of the human body are called and what their functions are.	Venn diagram sorting of types of animals. Diagram of human body and labels.	Vets
	Everyday materials	Materials, metal, paper, wood, glass, plastic, purpose, strong, stronger, strongest, (weak), recycle,	To be able to distinguish between an object and the material from which it is made. To identify and name a variety of everyday materials. To be aware of features and purposes of different materials including whether they can be recycled.	Sorting recyclable materials. Pictures of the three pigs houses, which is the strongest and why?	Lego
	Seasonal changes	Summer, Autumn, Winter, Spring, cloudy, misty, rain, changes, forecast, temperature, equator (Geography link).	To know that there are changes across the four seasons and what those changes are. To know which types of weather that are associated with the seasons and how day length varies.	Weather symbols used in forecast. Map of the world including equator. Map of UK. Diagram of the sun in relation to the spinning Earth.	
2	Living things and their habitats	Living, dead, alive, habitat, forests, woodland, coastal, marine, polar, desert, adapt, needs, survival	To know the differences between things that are living, dead and those that have never been alive. To know that habitats are suited to the specific animal that lives in them. To know which habitats match a variety of plants and animals.	Habitat to animal sorting. Labels of features of the habitat shown.	

	Plants	Grow, mature, sustainable temperature, light, water, survive, thrive, roots, shoot, seedling,	To know and describe that seeds and bulbs grow into mature plants. To know that plants need water, light and a sustainable temperature to thrive.	Labels on a diagram of the stages of a growing plant.	Botanists
	Animals, including humans	Pregnant, (animal baby names such as 'cub'), drow, develop, hatch, born, young, adult, fully grown, past, future, present	To know that animals, including humans have offspring that grow into adults.	Life cycle diagrams, cross section diagrams showing how babies grow inside humans and animals stomachs,	Doctors, Louis Pasteur
	Uses of everyday materials	Maleable, squashing, bending, twisting, stretching, wood, metal, plastic, glass, brick, paper, cardboard, use, function.	To know which everyday materials are suitable for particular uses and compare them. To know how the shapes of solid objects can be changed. To know about people who have developed useful new materials.	Sorting materials by their features including whether or not they are maleable	Charles McIntosh, John Dunlop or John McAdam
Y 3 & 4	WORKING SCIENTIFICALLY: During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: <ul style="list-style-type: none"> □ asking relevant questions and using different types of scientific enquiries to answer them □ setting up simple practical enquiries, comparative and fair tests □ making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers □ gathering, recording, classifying and presenting data in a variety of ways to help in answering questions □ recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables □ reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions □ using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions □ identifying differences, similarities or changes related to simple scientific ideas and processes □ using straightforward scientific evidence to answer questions or to support their findings 				
Year	Programme of Study	Key Vocabulary	Key Facts	Pictures / Diagrams	Important People
3	Plants	Root, stem, trunk, leaves, tree, flowering plants, life, growth, air, light, water, nutrients, soil, life cycle, pollination, seed formation, seed dispersal.	To know that: a) the different parts and functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers, b) Requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and that this can vary from plant to plant, c) Water is transported within plants, d) The different part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Comparing and grouping: sorting diagrams, keys and branching diagrams. Flowering plant life cycles. Observational labelled drawings.	

	Animals, including humans	Nutrition, diet, skeleton, muscles, functions, movement, grouping, observation, comparing, food groups	To know how to a) identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; b) they get nutrition from what they eat; c) identify that humans and some other animals have skeletons and muscles for support, protection and movement.	*Labelled diagrams of teeth, e.g. different types and position. * Food pyramid * Label of bones in the human skeleton	Marie Curie
	Rocks	Appearance, physical properties, organic matter, grains, crystals, fossils, sedimentary, igneous, metamorphic	To know: a) Rocks can be compared and grouped together different kinds of rocks on the basis of their appearance and simple physical properties; b) fossils are formed when things that have lived are trapped within rock; c) soils are made from rocks and organic matter.	Venn diagrams to compare and group rocks and soils; branching diagrams, classification charts	Mary Anning or William Smith
	Light	Light, dark, reflection, surface, shadows, light source, solid,	To know: a) We need light in order to see things and that dark is the absence of light; b) that light is reflected from surfaces; c) that light from the sun can be dangerous and that there are ways to protect their eyes; d) shadows are formed when the light from a light source is blocked by an opaque object and e) there are patterns in the way that the size of shadows change.	Labelled diagrams' observational drawings, directional drawings	

	Forces and magnets	Surfaces, contact, attract, repel, magnets, forces, materials, poles, direct / indirect contact, group,	To know: a) things move differently on different surfaces; b) some forces need contact between two objects; c) magnetic forces can act at a distance; d) magnets attract or repel each other and attract some materials and not others; e) everyday materials can be grouped on the basis of whether they are attracted to a magnet, and identify some magnetic materials; f) magnets as having two poles; g) two magnets will attract or repel each other, depending on which	Observational drawings, graphs to show strength of different types of magnets	
4	Living things and their habitats	Grouping, classification, keys, local / wider environment, vertebrate / invertebrate, fish, amphibian, reptile, mammal, insects, flowering / non-flowering / ferns / mosses, human impact, positive, negative, nature reserves, planned parks, garden ponds, litter and deforestation	To know: a) that living things can be grouped in a variety of ways; b) classification keys can be used to help group, identify and name a variety of living things in their local and wider environment; c) that environments can change and that this can sometimes pose dangers to living things.	Classification keys to help group, identify and name a variety of living things	
	Animals, including humans	Digestive system, humans, types of teeth, functions, food chains, producers, predators, prey, oesophagus, stomach, intestine, carnivore, herbivore, omnivore,	To know: a) the basic parts of the digestive system in humans and that they have different functions; b) there are different types of teeth in humans and that they have simple functions; c) how to construct and interpret a variety of food chains, identifying producers, predators and prey.	*Construct and interpret a variety of food chains * Branching diagrams * Parts of the digestive system *Food webs	

	States of matter	Grouping, materials, solids, liquids, gases, change of state, heated, cooled, measure, research, temperature, degrees celsius, evaporation, condensation, water cycle, chemical change, baking, burning	To know: a) materials can be compared and grouped together, according to whether they are solids, liquids or gases; b) some materials change state when they are heated or cooled; c) how to measure and / or research the temperature at which this happens in degrees Celsius (°C); d) evaporation and condensation have a specific function in the water cycle and to associate the rate of evaporation with temperature.	*Compare and group according to solid, liquid and gas *Sorting materials * Observational drawings *Tables and graphs	
	Sound	Vibrating, vibrations, medium, pitch, sound, volume, strength, fainter, source, musical instruments, tuning fork	To know: a) how sounds are made and associate some of them with something vibrating; b) recognise that vibrations from sounds travel through a medium to the ear; c) that there are patterns between the pitch of a sound and features of the object that produced it; d) there are patterns between the volume of a sound and the strength of the vibrations that produced it; e) that sounds get fainter as the distance from the sound source increases	* Labelled diagram of the ear	Alexander Grahan Bell

	Electricity	Appliances, series circuit, cells, wires, bulbs, buzzers, switches, complete circuit, battery, conductor, insulator, metals, current, voltage	To know: a) some common appliances run on electricity; b) how to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers; c) recognise whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery; d) recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit; e) recognise some common conductors and insulators, and associate metals with being good conductors.	*Simple circuit drawings / diagrams	Thomas Edison
Y 5 & 6	WORKING SCIENTIFICALLY: 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: <input type="checkbox"/> planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary <input type="checkbox"/> taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate <input type="checkbox"/> recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs <input type="checkbox"/> using test results to make predictions to set up further comparative and fair tests <input type="checkbox"/> 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 <input type="checkbox"/> identifying scientific evidence that has been used to support or refute ideas or arguments				
Year	Programme of Study	Key Vocabulary	Key Facts	Pictures / Diagrams	Important People
5	All living things and their habitats	Life cycle, mammal, amphibian, insect, bird, compare, life process, reproduction, plants, animals, environment, habitats, naturalist, behaviourist, sexual / asexual reproduction, rainforests, deserts, oceans, prehistoric, plants, seed	to Know: a) that there are differences in the life cycles of a mammal, an amphibian, an insect and a bird; b) recognise the life process of reproduction in some plants and animal.	*Compare and group life cycles * Life cycle labelled diagrams *Concept mapping	David Attenborough, Jane Goodall
	Animals, including humans	Changes, human development, puberty, gestation periods, animals, length, mass	To know: a) there are different stages which link to changes as humans develop to old age.	* Labelled diagrams of gestation period *Graphs and recording data in tables	

	<p>Properties and changes of materials</p>	<p>Compare, group, materials, properties, hardness, solubility, transparency, conductivity (electrical / thermal), magnets, dissolve, solution, substance, solids, liquids, gases, mixtures, separation, filtering, sieving, evaporation, comparative, fair tests, variables, reversible / irreversible changes, burning, chemical changes</p>	<p>To know: a) everyday materials can be compared and grouped together on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets; b) some materials will dissolve in liquid to form a solution, and can describe how to recover a substance from a solution; c) how to use their knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating; d) evidence from fair tests can be used to identify the particular uses of everyday materials, including metals, wood and plastic; e) dissolving, mixing and changes of state are reversible changes; f) some changes result in the formation of new materials, and that this kind of change is not usually</p>	<p>*Sorting solids, liquids and gases *Tables and graphs</p>	<p>Spencer Silver, Ruth Benerito</p>
	<p>Earth and space</p>	<p>Earth, movement, planets, sun, solar system, moon, spherical, rotation, day / night, satellite, celestial bodies, orbits, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, shadow clocks, Stone Henge</p>	<p>To know: a) how to describe the movement of the Earth, and other planets, relative to the Sun in the solar system; b) how to describe the movement of the Moon relative to the Earth; c) the Sun, Earth and Moon as approximately spherical bodies; d) the idea of the Earth's rotation can be used to explain day and night and the apparent movement of the sun across the sky.</p>		<p>Ptolemy, Alhazen, Copernicus</p>

	Forces	Forces, unsupported objects, gravity, air resistance, friction, gears, levers, mass, pull force, pulleys, push force and water resistance, mechanisms	To know: a) that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object; b) the effects of air resistance, water resistance and friction, that act between moving surfaces; c) some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	* Solar system labelled diagram * Day and night *Phases of the moon	Galileo, Newton
6	Living things and their habitats	Micro-organisms, plants, animals, classify, characteristics, invertebrates / vertebrates, keys, environment, habitats	To know: a) how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals; b) Reasons can be given for classifying plants and animals based on specific characteristics		Carl Linnaeus
	Animals, including humans	Human circulatory system, functions, heart, blood vessels, blood, heart, diet, exercise, drugs, lifestyle, body functions, nutrients, water, transportation, healthy, damaged	To know: a) how to identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood; b) diet, exercise, drugs and lifestyle have different effects on the way their bodies function; c) nutrients and water are transported within animals, including humans in different ways.	*Identify and name the main parts of the human circulatory system *Labelled diagram of the heart to demonstrate how it works	Alexander Fleming

	Evolution and inheritance	Fossils, palaeontologists, offspring, adaptation, environment, evolution, inheritance, breeds, insulation, advantages / disadvantages	To know: a) living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago; b) living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents; c) that animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	*Human evolution skulls diagram *Branching diagrams	Charles Darwin, Mary Anning, Alfred Wallace, Mary Leakey
	Light	Travel, straight lines, reflect, light, light source, eyes, shadows, shape, object, reflection, periscope, rainbows, filters	To know that: a) light appears to travel in straight lines; b) that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye; c) we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes, d) light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	*Labelled diagram of the eye *Observational drawings	
	Electricity	Brightness, volume, buzzer, light, voltage, cells, circuit, variations, components, function, on/off position switches, symbols, diagram, series circuit, safety	To know: a) how to associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit; b) there can be variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches; c) specific symbols are used when representing a simple circuit in a diagram.	Represent a simple circuit in a diagram	Steve Jobs