



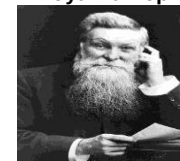
Science Knowledge and Skills Progression Map

Year group/ Expected level	Working Scientifically (On-going)	Biology	Chemistry	Physics	Linked Scientists
Nursery <i>Please refer to the EYFS planning for key themes and to the EYFS Statutory Framework for the 7 Areas of Learning and Development Matters for the Early Learning Goals. Full details of the EYFS Curriculum can be found in the EYFS Folder under Curriculum.</i>	• Use all their senses in hands-on exploration of natural materials. (UW) • Talk about what they see, using a wide vocabulary. (UW)	• Begin to understand the need to respect and care for the natural environment and all living things. (UW) • Plant seeds and care for growing plants. (UW) • Understand the key features of the life cycle of a plant and an animal. (UW)	• Talk about the differences between materials and changes they notice. (UW) • Explore collections of materials with similar and/or different properties. (UW)	• Explore how things work. (UW) • Explore and talk about different forces they can feel. (UW)	
The Early Years Foundation Stage (EYFS) Learning and Development has seven Areas of Learning and 17 Early Learning Goals: Communication and Language (CL) ➤ Listening, Attention and Understanding ➤ Speaking Personal, Social and Emotional Development (PSED) ➤ Self-Regulation ➤ Managing Self ➤ Building Relationships		Physical Development (PE) ➤ Gross Motor Skills ➤ Fine Motor Skills Literacy (L) ➤ Comprehension ➤ Word Reading Writing Mathematics (M) ➤ Number ➤ Numerical Patterns		Understanding The World (UW) ➤ Past and Present ➤ People, Culture and Communities ➤ The Natural World Expressive Art and Design (EAD) ➤ Creating with Materials ➤ Being Imaginative and Expressive	
Key progressive vocabulary linked specifically to scientific terms and language: Plant, seeds, growing, animal, same, different, head, shoulders, arms, legs (parts of body etc). Animal names etc.					

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Reception <i>Please refer to the EYFS planning for key themes and to the EYFS Statutory Framework for the 7 Areas of Learning and Development Matters for the Early Learning Goals. Full details of the EYFS Curriculum can be found in the EYFS Folder under Curriculum</i>	- Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary (CL) - Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. (CL) - Describe what they see, hear and feel whilst outside (UW).	- Explore the natural world around them, making observations and drawing pictures of animals and plants. (UW) - Know some similarities and differences between the natural world around them and contrasting environments, (UW)	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (EAD)	- Explore the natural world around them. (UW) - Recognise some environments that are different to the one in which they live. (UW) - Understand the effect of changing seasons on the natural world around them. (UW) - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. (UW)	
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Key progressive vocabulary linked specifically to scientific terms and language: Natural world, same/different, season, change, feel, touch, see, smell, parts of body, living things, insect, bird, animal names etc.					

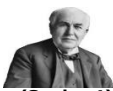
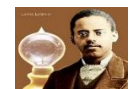
Year group/ Expected level	Working Scientifically (on-going)	Biology	Chemistry	Physics	Linked Scientists
Year 1 <i>Please refer to the curriculum and theme overview document and the knowledge organisers.</i> <i>For further information please see National Curriculum programme of study for Science.</i>	- To ask simple questions and recognise that they can be answered in different ways. - To observe closely using the 5 senses and simple equipment such as magnifying glasses - To perform simple tests. - To identify and classify using sorting hoops, tables and Venn diagrams - To use observations and ideas to suggest answers to questions. - To gather and record data in non-standard units to help answer questions. - To make charts & displays about the weather	Plants, including trees (Summer 2) - To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. - To identify and describe the basic structure of a variety of common flowering plants, including trees.	Everyday materials (Autumn 2/Summer 1) - To distinguish between the object and the material from which it is made. (Autumn 2) - To identify and name and variety of everyday materials, including wood, plastic, glass, metal, water and rock. (Autumn 2) - To describe the simple physical properties of a variety of everyday materials. (Autumn 2) - To compare and group together a variety of everyday materials on the basis of their simple physical properties. (Summer 1)	Seasonal Changes (Spring 2) - To observe changes across the four seasons. - To observe and describe weather associated with the seasons and how day length varies.	Charles Macintosh  (Autumn 2)
		Animals, including humans (Autumn 1/Spring 1) - To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Autumn 1) - To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Spring 1) - To identify and name and variety of common animals that are carnivores, herbivores and omnivores. (Spring 1) - To describe and compare the structure of a variety of common (fish, amphibians, reptiles, birds and mammals, including pets). (Spring 1)	(Macintosh)	Edward Wilson  (Summer 1)	
				Wes Larson  (Summer 2)	

Year group/ Expected level	Working Scientifically (on-going)	Biology	Chemistry	Physics	Linked Scientists
Year 1 Contd.					
Vocabulary linked to science units of study – in addition to that listed in the study unit columns above: Plants: Leaf, flower, blossom, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of some common trees e.g.: Horse chestnut, Oak, Conifer, Willow. Names of some common plants or flowers or wildflowers e.g.: rose, daisy, buttercup etc. Animals including humans: Head, body, eyes, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, senses, touch, feel, see, sight, smell, taste, hear, fingers, skin, tongue, mammals, tame, wild, nocturnal. Everyday materials: Wood, plastic, glass, rock, man-made, metal, brick, liquid, gas, stretch, stiff, firm, hard, inflexible, flexible, bend, floppy, elastic, waterproof, shiny, fabric, wool, cotton, silk, cardboard, paper, rough, smooth, , heavy, light, sink, float, absorbent, see-through, transparent, breaks/tears. Seasonal changes: Spring, summer, autumn, winter, weather, temperature, thermometer, hot, cold, warm, rain, sunshine, daylight, dark, sunshine, wind, breeze, snowy, sunrise, sunset, length of day.		Scientific enquiry skills:  Pattern seeking, observation, classification, fair testing, research Key progressive scientific vocabulary: Explore, types, scientific enquiry, compare, objects, materials, sort, group, pattern, relationship. CONDUCT ENQUIRIES → RECORD FINDINGS → INTERPRET EVIDENCE Progressive generic scientific skills in KS1: Questioning – encouraging pupils to ask simple questions, recognising they can be answered in different ways. Observing – Observing closely using simple equipment. Experimenting – Performing simple tests. Classifying – identifying and classifying Applying – Using observations and ideas to suggest answers to questions. Recording – Gathering and recording data in a simple format.		End of learning sequence questions (Assess and Review) Plants: Can you name three different parts of a plant? What is the difference between the evergreen and the deciduous trees? Animals including humans: What are our senses? Can you name a sense and say which part of our body that this sense comes from? What is the difference between carnivores, herbivores and omnivores? What does their diet contain? Materials: Can you name the different properties of materials? What is the difference between the waterproof and absorbent materials? Seasonal change: What happens to some trees during the autumn season? What happens during the winter and summer seasons?	

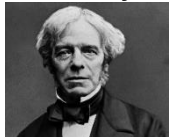
Year group/ Expected level	Working Scientifically (On-going)	Biology	Chemistry	Physics	Linked Scientists
Year 2 <i>Please refer to the curriculum and theme overview document and the knowledge organisers.</i> <i>For further information, please see National Curriculum programme of study for Science.</i>	- To ask simple questions, recognise that they can be answered in different ways and make suggestions for how find the answer - To observe closely using a range of simple equipment including measuring tapes, thermometers and magnifying glasses - To perform simple tests in pairs and groups – working collaboratively without needing close adult supervision - To identify and classify in a variety of ways, recognising there may be more than one way to classify data - To use observations and ideas to suggest answers to questions. - To gather and record data in standard and non-standard units to help answer questions.	Living things and their habitats (Spring 2/Summer 2)	Materials – uses of everyday materials (Autumn 2/Spring 1))		John Boyd Dunlop  (Autumn 2/Spring 1)
		- To explore and compare the differences between things that are living, dead and things that have never been alive. (Spring 2) (General/local) (Summer 2) (Seaside) - To identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. (Spring 2) (General/local) (Summer 2) (Seaside) To identify and name a variety of plants and animals in their habitats, including micro-habitats. (Spring 2) (General/local) (Summer 2) (Seaside) - To describe how animals, obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. (Spring 2) (General/local) (Summer 2) (Seaside)	- To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. - To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		
		Plants (Summer 1)			
		- To observe and describe how seeds and bulbs grow into mature plants. - To find out and describe how plants need water, light and a sustainable temperature to grow and stay healthy.			

Year group/ Expected level	Working Scientifically (on-going)	Biology	Chemistry	Physics	Linked Scientists
Year 2 Contd.		Animals, including humans (Life cycles) (Autumn 1)			Louis Pasteur
		- To notice that animals, including humans, have offspring which grow into adults. - To find out about and describe the basic needs of animals, including humans, for survival (water, food, air). - To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Louis Pasteur)			 (Autumn 1)
Vocabulary linked to science units of study – in addition to that listed in the study unit columns above: Living things and their habitats: Dinosaurs, habitat, shelter, suitable, basic needs, rivers, fish, woodland, ponds, sea, rainforest, desert, food, micro-habitats, logs, bushes, insects, protecting habitats, wildlife. Plants: Healthy, bulb, roots, water, sunlight, growth, grow, light, shade, sun, warm, cool, healthy. Animals including humans: Healthy, diet e.g., Meat, fish, fruit, vegetables, bread, rice, pasta, exercise, heartbeat, breathing, hygiene, germs. Stages of growth/offspring, e.g.: baby → child → adult. Young/old. Caterpillar →butterfly, chick → hen etc. Materials - Uses of everyday materials: Glass – windows, glasses, vases, mirrors, reflection Metal – strength, construction, cars, trains, aeroplanes Wood – doors, furniture Plastic – moulded or shaped, buckets, containers. Properties of materials: Opaque, translucent, reflective, flexible, rigid, shape, squash, bend, stretch.		Scientific enquiry skills:  Pattern seeking, observation, classification, fair testing, research Key progressive scientific vocabulary: Measurement, equipment, hand lenses, egg timers, simple tests, record. CONDUCT ENQUIRIES →RECORD FINDINGS→INTERPRET EVIDENCE Progressive generic scientific skills in KS1: Questioning – encouraging pupils to ask simple questions, recognising they can be answered in different ways. Observing – Observing closely using simple equipment. Experimenting – Performing simple tests. Classifying – identifying and classifying Applying – Using observations and ideas to suggest answers to questions. Recording – Gathering and recording data in a simple format.		End of learning sequence questions (Assess and Review) Living things and their habitats: What do we mean by habitat? What is a food chain? Plants: What do seeds and bulbs need to help them grow into strong plants? How do plants make their own food? Animals, including humans: What sort of foods are good for you? What is a life cycle? Materials: Uses for everyday materials: What materials can you name? Can you describe them? What are different materials used for?	

Year group/ Expected level	Working Scientifically (On-going)	Biology	Chemistry	Physics	Linked Scientists
Year 3 <i>Please refer to the curriculum and theme overview document and the knowledge organisers.</i> <i>For further information please see National Curriculum programme of study for Science.</i>	- To ask relevant questions and use different types of scientific enquiries to answer them. - To set up simple practical enquiries, comparative and fair tests. - To make systematic and careful observations and, where appropriate, take accurate measurements using standard units. - To gather, record, classify and present data in a variety of ways to help answer questions. - To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. - To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Plants (Summer 2)	Materials – Rocks, soils and fossils (Autumn 1)	Forces and magnets (Autumn 2)	Mary Anning  (Autumn 1)
		- To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. - To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. - To investigate the way in which water is transported within plants. - To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	- To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. - To describe in simple terms how fossils are formed when things that have lived are trapped within rock. - To recognise that soils are made from rocks and organic matter.	- To compare how things move on different surfaces. - To notice that some forces need contact between two objects, but magnetic forces can act at a distance. - To observe how magnets attract or repel each other and attract some materials and not others. - To describe magnets as having two poles. - To predict whether two magnets will attract or repel each other, depending on which poles are facing.	Holly Betts  (Autumn 1*) John McAdam  (Autumn 2) Julie Brusaw  (Autumn 2*)

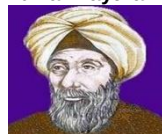
Year group/ Expected level	Working Scientifically (On-going)	Biology	Chemistry	Physics	Linked Scientists
Year 3 Contd.	- To use results to draw simple conclusions, making predictions based on data gathered and asking additional questions. - To identify differences, similarities or changes related to simple scientific ideas and processes. - To use straightforward scientific evidence to answer questions and support their findings	Animals, including humans (Summer 1)		Light (Spring 1 and Spring 2)	Thomas Edison  (Spring1) Joseph Swan  (Spring 1) Lewis Howard Latimer  (Spring 1*) Ibn al-Haytham  (Spring 2)
		- To identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. - To identify that humans and some other animals have skeletons and muscles for support, protection and movement.	- To recognise that shadows are formed when the light from a light source is blocked by a solid object. (Spring 1) - To find patterns in the way that the size of shadows changes. (Spring 1) - To recognise that they need light in order to see things and dark is the absence of light. (Spring 1) - To notice that light is reflected from surfaces. (Spring 2) - To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Spring 2)		
Vocabulary linked to science units of study – in addition to that listed in the study unit columns above: Plants: Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal & water dispersal, deciduous, evergreen, oxygen. Animals, including humans: Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, joints Materials - rocks, soils and fossils: Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, peat, sandy/chalk/clay soil. Forces and magnets: Force, push, pull, twist, contact, force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole. Light: Light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, protect.		Scientific enquiry skills:  Pattern seeking, observation, classification, fair testing, research Key progressive scientific vocabulary: Questioning, support findings, scientific evidence. CONDUCT ENQUIRIES →RECORD FINDINGS→INTERPRET EVIDENCE Developing generic scientific skills in Lower KS2: Questioning – Asking relevant questions using range of scientific enquiries to answer them. Using straightforward scientific evidence to answer questions or support findings. Observing – Making systematic, careful observations, taking accurate measurements. Using a range of equipment, including thermometers and data loggers. Experimenting – Setting up simple practical enquiries, comparative and fair tests. Classifying – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Applying – Using results to draw simple conclusions, make predictions, suggest improvements and raise further questions. Identifying differences, similarities or changes related to scientific ideas and processes. Recording – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Reporting on findings from enquiries, oral and written explanations, displays or presentations of results and conclusions.		End of learning sequence questions (Assess and Review) Plants: What is photosynthesis? How does the seed dispersal process happen? Animals, including humans: What do we mean by nutrition? Why is a nutritious diet important for animals including humans? Materials - rocks, soils and fossils: How are fossils formed? What are the three types of naturally occurring rocks? Forces and magnets: How do contact and non-contact forces make objects move? What can you do with a magnet? Light: How is a shadow formed? How can the sun damage our eyes?	

Year group/ Expected level	Working Scientifically (On-going)	Biology	Chemistry	Physics	Linked Scientists
Year 4 <i>Please refer to the curriculum and theme overview document and the knowledge organisers.</i> <i>For further information, please see National Curriculum programme of study for Science.</i>	- To ask relevant questions and use different types of scientific enquiries to answer them. - To set up simple practical enquiries, comparative and fair tests. - To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, and use a range of equipment, including thermometers and data loggers. - To gather, record, classify and present data in a variety of ways to help answer questions. - To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. - To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Living things and their habitats (Autumn 1) - To recognise that living things can be grouped in a variety of ways. - To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. - To recognise that environments can change and that this can sometimes pose dangers to living things.	Materials – States of matter (Summer 2) - To compare and group materials together, according to weather they are solids, liquids or gases. - To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius. - To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Sound (Summer 1) - To identify how sounds are made, associating some of them with vibrating. - To recognise that vibrations from sounds travel through a medium to the ear. - To find patterns between the pitch of a sound and features of the object that produced it. - To find patterns between the volume of a sound and the strength of the vibrations that produced it. - To recognise that sounds get fainter as the distance from the sound source increases.	Wangari Maathai  (Autumn 1) Alexander Graham Bell  (Summer 1)

Year group/ Expected level	Working Scientifically (on-going)	Biology	Chemistry	Physics	Linked Scientists
Year 4 Contd.	- To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - To identify differences, similarities or changes related to simple scientific ideas and processes. - To use straightforward scientific evidence to answer questions and support their findings.	Animals, including humans (Spring 1/2) - To describe the simple functions of the basic parts of the digestive system in humans. - To identify the different types of teeth in humans and their simple functions. - To construct and interpret a variety of food chains, identifying producers, predators and prey.		Electricity (Autumn 2) - To identify common appliances that run on electricity. - To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - To identify 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. (Michael Faraday) - To recognise that a switch opens or closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. - To recognise some common conductors and insulators, and associate metals with being good conductors.	Michael Faraday  (Autumn 2)
Vocabulary linked to science units of study – in addition to that listed in the study unit columns above: Living things and their habitats: Classification, environment, habitat, human impact, positive, negative, migrate, hibernate Animals, including humans: Digestive system, mouth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine. Teeth: incisor, canine, molar, premolars. Herbivore, carnivore, omnivore, producer, predator, prey, food chain. Materials – states of matter: Solid, liquid, gas, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle. Sound: Sound, source, vibrate, vibration, travel, pitch (high/low), volume, faint, loud. Electricity: Electrical appliance/device, mains, plug, cell, electrical circuit, complete circuit, component, battery, positive, negative, connect/connections, bulb, loose connections, short circuit, crocodile clip, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbols.		Scientific enquiry skills:  Pattern seeking, observation, classification, fair testing, research Key progressive scientific vocabulary: Processes, mechanism, source, filtering, device, precaution. CONDUCT ENQUIRIES →RECORD FINDINGS→INTERPRET EVIDENCE Developing generic scientific skills in Lower KS2: Questioning – Asking relevant questions using range of scientific enquiries to answer them. Using straightforward scientific evidence to answer questions or support findings. Observing – Making systematic, careful observations, taking accurate measurements. Using a range of equipment, including thermometers and data loggers. Experimenting – Setting up simple practical enquiries, comparative and fair tests. Classifying – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Applying – Using results to draw simple conclusions, make predictions, suggest improvements and raise further questions. Identifying differences, similarities or changes related to scientific ideas and processes. Recording – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Reporting on findings from enquiries, oral and written explanations, displays or presentations of results and conclusions.			End of learning sequence questions (Assess and Review) Living things and their habitats: What type of habitat do snails, slugs, worms, spiders and insects live in? What are the four main differences between vertebrates and invertebrates? Animals, including humans: Can you name the main parts of our digestive system? How is the energy transferred in a food chain? Materials – states of matter: What does evaporation mean? How do the particles behave in a solid, liquid and gas state? Sound: How is sound generated? What is the relationship between distance and volume? Electricity: How does an electrical switch work? Can you identify some common appliances that run on electricity?

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Year 5 <i>Please refer to the curriculum and theme overview document and the knowledge organisers.</i> <i>For further information please see National Curriculum programme of study for Science.</i>	- To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. - To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - To use test results to make predictions to set up further comparative and fair tests. - To report and present findings from enquiries, including conclusions, casual relationships and explanations of a degree of trust in results, in oral and written forms such as displays and other presentations.	Living things and their habitats (Spring 1) - To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. - To describe the life process of reproduction in some plants and animals.	Materials – properties and changes of materials (Spring 2) - To 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. - To know that some materials dissolve in liquid to form a solution and describe how to recover a substance from a solution. - To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. - To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. - To demonstrate that dissolving, mixing and changes of state are reversible changes. - To 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.	Earth and space (Autumn 1) - To describe the movement of the Earth, and other planets, relative to the Sun in the solar system. - To describe the movement of the Moon relative to the Earth. - To describe the Sun, Earth and Moon as approximately spherical bodies. - To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	Nicolaus Copernicus  (Autumn 1) Mae Jemison  (Autumn 1) Katherine Johnson  (Autumn 1) Isaac Newton  (Autumn 2) David Attenborough  (Spring 1) Stephanie Kwolek  (Spring 2)

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Year 5 Contd.	To identify scientific evidence that has been used to support or refute ideas or arguments.	Animals, including humans (Summer 1) To describe the changes as humans develop to old age.		Forces (Autumn 2) - To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - To identify the effects of air resistance, water resistance and friction, that act between moving surfaces. - To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Alexander Fleming  (Summer 2) The Wright Brothers  (Summer 2)
Vocabulary linked to science units of study – in addition to that listed in the study unit columns above: Living things and their habitats: Lifecycle, reproduce, fertilises, egg, live young, metamorphosis, bulbs. Animals, including humans: Growth, growing-up, life cycle of: a mammal, amphibian, insect, bird. Naturalist, animal behaviourists, types of reproduction, similarities, differences, observing, comparing. Materials – properties and changes of materials: Thermal/electric insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, evaporate. Earth and space: Earth, Sun, Moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets. Forces: Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears.		Scientific enquiry skills:  Pattern seeking, observation, classification, fair testing, research Key progressive scientific vocabulary: Concept, analyse, accurate, precise. CONDUCT ENQUIRIES → RECORD FINDINGS → INTERPRET EVIDENCE Developing generic scientific skills in Lower KS2: Questioning – Asking relevant questions using range of scientific enquiries to answer them. Using straightforward scientific evidence to answer questions or support findings. Observing – Making systematic, careful observations, taking accurate measurements. Using a range of equipment, including thermometers and data loggers. Experimenting – Setting up simple practical enquiries, comparative and fair tests. Classifying – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Applying – Using results to draw simple conclusions, make predictions, suggest improvements and raise further questions. Identifying differences, similarities or changes related to scientific ideas and processes. Recording – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Reporting on findings from enquiries, oral and written explanations, displays or presentations of results and conclusions.			End of learning sequence questions (Assess and Review) Living things and their habitats: Can you describe the life process of a plant? How do flowering plants reproduce? Animals, including humans: How does gestation differ between different species of animals? Describe the changes as humans develop to old age? Materials – properties and changes of materials: What materials can we use to build houses with – explain your reasoning. What is an irreversible change? Earth and space: What happen to the Earth, Sun and Moon to make day and night? How does the lunar cycle work? Forces: Scientifically, what do we mean by resistance? Can you give an example? What causes gravity?

Year group/ Expected level	Working Scientifically (on-going)	Biology	Chemistry	Physics	Linked Scientists
Year 6 <i>Please refer to the curriculum and theme overview document and the knowledge organisers.</i> <i>For further information, please see National Curriculum programme of study for Science.</i>	- To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. - To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - To use test results to make predictions to set up further comparative and fair tests. - To report and present findings from enquiries, including conclusions, causal relationships and explanations of a degree of trust in results, in oral and written forms such as displays and other presentations. - To identify scientific evidence that has been used to support or refute ideas or arguments	Living things and their habitats (Summer 1/2) - To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. - To give reasons for classifying plants and animals based on specific characteristics.		Light (Autumn 1) - To recognise that light appears to travel in straight lines. - To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. - To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. - To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	Isaac Newton  (Autumn 1)
		Animals, including humans (Autumn 2) - To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. - To describe the ways in which nutrients and water are transported within animals, including humans.			Ibn al-Haytham  (Autumn 1)
					Marie Maynard Daly  (Autumn 2)
					Alfred Russel Wallace  (Spring 1)
					Charles Darwin  (Spring 1)

Year group/ Expected level	Working Scientifically (on-going)	Biology	Chemistry	Physics	Linked Scientists
Year 6 Contd.		Evolution and Inheritance (Spring 1)		Electricity (Spring 2)	 (Summer 2)
		- To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. - To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. - To identify how animals and plants are adapted to suit their environment in different ways and that adaption may lead to evolution.		- To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. - To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. - To use recognised symbols when representing a simple circuit in a diagram.	
Vocabulary linked to science units of study – in addition to that listed in the study unit columns above: Living things and their habitats: Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering. Animals, including humans: Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, circulatory system, diet, exercise, lifestyle, medicine. Evolution and Inheritance: Offspring, reproduction, characteristics, adapted, environment, inherited, species, fossils. Light: As for Y3 plus: straight lines, light rays. Electricity: As for Y4: Circuit, complete circuit, cell, battery, buzzers etc. plus: circuit diagram, components, varying the volume, varying the brightness, circuit symbol, voltage, fuse, turbine, generator, socket, danger, electrocution.		Scientific enquiry skills:  Pattern seeking, observation, classification, fair testing, research Key progressive scientific vocabulary: Natural phenomena, biology, chemistry, physics, technical terminology, classification. CONDUCT ENQUIRIES →RECORD FINDINGS→INTERPRET EVIDENCE Developing generic scientific skills in Lower KS2: Questioning – Asking relevant questions using range of scientific enquiries to answer them. Using straightforward scientific evidence to answer questions or support findings. Observing – Making systematic, careful observations, taking accurate measurements. Using a range of equipment, including thermometers and data loggers. Experimenting – Setting up simple practical enquiries, comparative and fair tests. Classifying – Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Applying – Using results to draw simple conclusions, make predictions, suggest improvements and raise further questions. Identifying differences, similarities or changes related to scientific ideas and processes. Recording – Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Reporting on findings from enquiries, oral and written explanations, displays or presentations of results and conclusions.			End of learning sequence questions (Assess and Review) Living things and their habitats: How are living things classified? What are useful and harmful microbes? Animals, including humans: Name the main parts of the human circulatory system. Describe the functions of blood and blood vessels. Evolution and Inheritance: What is a fossil, where are they found? What do fossils tell us about evolution? Light: How does light travel? How are shadows made? How are reflections made? Electricity: Can you draw one of the electrical symbols that we have learned about and what does it mean? How do electrical circuits work?