Science Curriculum

Aspect	Year 1	Year 2
Areas taught	Animals, including humans Plants and growing Everyday materials Seasonal changes Local habitats	Animals, including humans Plants Uses of everyday material Living things and their habitats
Working Scientifically – Questioning, planning and predicting	C: Ask simple questions about own observations **C: As a class, plan a teacher-led experiment** **C: Make simple predictions about what they expect to see in a test**	C: Ask questions and understand that they can be answered in different ways **C: Plan a teacher-led experiment, and carry out as a group** **C: Make predictions about what they expect to see in a test, relating predictions to prior knowledge and experience**
Working Scientifically – Enquiring, testing and collecting data	C: Make simple observations visually **C: Gather simple data based on observations** C: Perform simple observational tests	C: Make observations, using simple equipment, and use these to suggest answers to questions **C: Gather data by observing outcomes of tests** C: Perform tests, understanding how they can be made fair
Working Scientifically – Recording, interpreting and reporting	**C; Gather and record data to help answer simple questions** **C: As a class, summarise their findings from their test**	**C: Gather, record and compare data to help answer questions** **C: Summarise findings from a class test**

Specific Knowledge and Concepts – Life processes and living things	**1. Identify and name the basic parts of the human body** **2. Identify which part of the body is associated with each sense.** **3. Identify and name common animals including fish, amphibians, reptiles, birds and mammals.** 4. Identify and name common animals that are carnivores, herbivores and omnivores. 5. Describe and compare the anatomical features of common animals (fish, amphibians, reptiles, birds and mammals, including pets) 6. Identify and name common wild and garden plants, including deciduous and evergreen trees. **7. Identify and describe the basic structure of common flowering plants, including trees.**	**1. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).** 2. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **3. Know that animals, including humans, have offspring that grow into adults.** **4. Explore and compare the differences between things that are living, dead and things that have never been alive.** **5. Identify how living things are suited to their habitats** 6. Describe how animals and plants depend on each other within their habitats. 7. Identify and name plants and animals in their habitats, including micro-habitats. 8. Describe simple food chains and identify different sources of food. **9. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.** 10. Observe and describe how seeds and bulbs grow into mature plants.
Specific Knowledge and Concepts – Materials and their properties	**1. Identify and name everyday materials including wood, plastic, glass, metal, water and rock.** **2. Distinguish between an object and the material from which it is made.** **3. Describe the simple physical properties of a variety of everyday materials.** **4. Compare and group together a variety of everyday materials on the basis of their simple physical properties.**	**1. Identify and compare the suitability of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.** 2. **Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.**
Specific Knowledge and Concepts – Physical Processes		**1. Observe changes across the four seasons.** 2. **Observe and describe weather associated with the seasons** and how day length varies.
Featured Scientists	David Attenborough	Chris Packham

Aspect	Year 3	Year 4
Areas taught	Rocks Forces and magnets Plants Animals, including humans Light	Sound Electricity States of matter Living things and their habitats Animals, including humans
Working Scientifically – Questioning, planning and predicting	C: Ask questions to develop enquiries **C: Set up simple practical enquiries and fair tests** **C: Make predictions for new values** based on your conclusions	C: Ask relevant questions using different types of scientific enquiries to answer them **C: Set up simple practical enquiries, comparative and fair tests** **C: Make predictions for new values based on your conclusions,** justifying with reasons
Working Scientifically – Enquiring, testing and collecting data	C: Make careful observations, taking accurate measurements using standard units **C: Gather and classify data to help answer questions**	C: Make systematic and careful observations, taking accurate measurements using standard units, using a range of equipment including data loggers **C: Gather and classify data in appropriate ways to help answer questions**
Working Scientifically – Recording, interpreting and reporting	**C: Record findings using simple scientific language, simple diagrams, bar charts and tables** C: Report on findings from enquiries, including oral and written explanations of results and conclusions **C: Use results to draw simple conclusions** and suggest improvements C: Identify differences, similarities or changes related to simple scientific ideas and processes	**C: Record findings using simple scientific language, labelled diagrams, keys, bar charts and tables** C: Report on findings from enquiries, including written explanations, displays, presentations of results and conclusions **C: Use results to draw simple conclusions, suggest improvements** and raise further questions C: Use straight-forward scientific evidence to answer questions or to support their findings

Specific Knowledge and Concepts – Life processes and living things	**1. Identify and describe the functions of different parts of flowering plants including roots, stem/trunk, leaves and flowers.** **2. Explore and compare the requirements of different plants for life and growth (air, light, water, nutrients from soil, and room to grow)** 3. Investigate the way in which water is transported within plants 4. Understand the part that flowers play in the lifecycle of flowering plants, including pollination, seed formation and seed dispersal. 5. **Identify that animals, including humans, need the right types of food and amount of nutrition**, **6. Understand that animals, including humans, get nutrition from what they eat** **7. Identify that humans and some other animals have skeletons and muscles for support, protection and movement**	1. Recognise that living things can be grouped in a variety of ways **2. Use classification keys to help group, identify and name a variety of living things in their local and wider environment** **3. Recognise that environments can change and that this can sometimes pose dangers to living things** **4. Construct and interpret a variety of food chains, identifying producers, predators and prey** 5. Describe the basic functions of the basic parts of the digestive system in humans 6. Identify the different types of teeth in humans and their basic functions
Specific Knowledge and Concepts – Materials and their properties	**1. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.** **2. Describe, in simple terms, how fossils are formed.** **3. Recognise that soils are made from rocks and organic matter.**	**1. Compare and group materials together, according to whether they are solids, liquids or gases** 2. **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 (°C) 3. **Identify the part played by evaporation and condensation in the water cycle** and associate the rate of evaporation with temperature
Specific Knowledge and Concepts – Physical Processes	**1. Recognise that light is needed in order to see things.** 2. Recognise that dark is the absence of light. **3. Notice that light is reflected from surfaces.** **4. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.** 5. **Recognise that shadows are formed when the light from a light source is blocked by an opaque object**. 6. Find patterns in the way that the size of shadows change 7. Compare how objects move on different surfaces. **8. Notice that some forces need contact between two objects, but magnetic forces can act at a distance.** **9. Observe how magnets attract or repel each other and attract some materials and not others.** 10. Compare and group together everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials **11. Describe magnets as having two poles.** 12. Predict whether two magnets will attract or repel each other, depending on which poles are facing.	**1. Understand that sounds are made through vibration.** 2. Recognise that sound vibrations travel through a medium to the ear **3. Find patterns between the pitch of a sound and features of the object that produced it** **4. Find patterns between the volume of a sound and the strength of the vibrations that produced it** 5. Recognise that sounds get fainter as the distance from the sound source increases 6. Identify common appliances that run on electricity **7. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers** 8. 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 circuit with a battery **9. Recognise some common conductors and insulators, and know that metals are good conductors** **10. Recognise that a switch opens and closes a circuit and use this to predict whether or not a lamp lights in a simple series circuit**
Featured Scientists	Mary Anning	Guglielmo Marconi

Aspect	Year 5	Year 6
Areas taught	Properties and changes of materials Earth and space Forces Living things and their habitats Animals, including humans	Light Electricity Animals, including humans Evolution and inheritance Living things and their habitats
Working Scientifically – Questioning, planning and predicting	**C: In small groups, plan scientific enquiries to answer questions, recognising and controlling variables where necessary** **C: Use test results to make predictions** to set up investigations	**C: In small groups/pairs plan scientific enquiries to answer questions, identifying the specific variables to be controlled** **C: Use test results to make predictions** to set up further comparative and fair tests
Working Scientifically – Enquiring, testing and collecting data	**C: Take measurements, using a range of scientific equipment**, with increasing accuracy and precision, taking repeat readings when appropriate	**C: Take measurements, using a range of scientific equipment,** with accuracy and precision, understanding the scientific need for repeat readings
Working Scientifically – Recording, interpreting and reporting	**C: Record data and results clarifying complex information using scientific diagrams and labels, classification keys, bar and line graphs** C: Report and present findings from enquiries, including conclusions and causal relationships, in oral and written forms such as displays	**C: Record data and results clarifying complex information independently choosing between scientific diagrams and labels, classification keys, tables graphs including scatter graphs** C: Report and present findings from enquiries, including conclusions, and degree of trust in results, in oral and written forms such as presentations C: Identify scientific evidence that has been used to support or refute ideas or arguments
Specific Knowledge and Concepts – Life processes and living things	1. **Describe the differences in the life cycles of a mammal, an amphibian**, an insect and a bird **2. Describe reproduction process in some plants and animals** 3. Describe the changes as humans develop to old age	**1. Describe how living things are classified into broad groups according to common observable characteristics, including micro-organisms, plants and animals** 2. Give reasons for classifying plants and animals based on specific characteristics **3. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function** 4. Describe the ways in which nutrients and water are transported within animals, including humans 5. Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood **6. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents** **7. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution** 8. **Understand that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago**

Specific Knowledge and Concepts – Materials and their properties	**C: 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** **C: Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic** 1. **Know that some materials will dissolve in liquid to form a solution,** and describe how to recover a substance from a solution **2. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating** **3. Demonstrate that dissolving, mixing and changes of state are reversible changes** 4. Explain how certain changes result in the formation of new materials and that this kind of change is not usually reversible.	
Specific Knowledge and Concepts – Physical Processes	1. Understand that sun, Earth and moon are approximately spherical bodies **2. Describe the movement of the Earth and other planets relative to the sun in the solar system** **3. Describe the movement of the moon relative to the Earth** **4. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky** **5. Explain how unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object** **6. Identify the effects** of air resistance, water resistance and friction, **that act between moving surfaces** 7. Understand that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	**1. Recognise that light appears to travel in straight lines** **2. 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** 3. 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 **4. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them** **5. Use standard symbols when representing a simple circuit in a diagram** **6. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit** 7. 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
Featured Scientists	Maggie Aderin-Pocock	Charles Darwin