

Year group	SCIENCE	Essential knowledge	Opportunities to revisit	Development opportunities	Key Concepts
Year 1	Plants	<ul style="list-style-type: none"> Names of key individuals and their significance to the topic: George Washington Carver Identify and name common names of flowers (deciduous, evergreen trees, etc.) and plant structures. Use the local environment to explore and ask questions about plants growing in their habitat – use the raised beds in the garden, pond area, and forest area AND local visit to Lawrence Weston Moor to look at wild flowers. Observe closely to compare and contrast familiar plants. Observe and record how plants change over time – plant flowers or herbs in the classroom or in the garden; take photographs of the change. 		Year 2 and 3 Plants Year 4 and 5 Living things and habitats Year 6 Living things	Variation Change
	Seasonal Changes	<ul style="list-style-type: none"> Observe changes across four seasons including: weather, day length, nature, temperature, clothes that people wear. Record those changes on a chart. 			Variation Change
	Animals including humans	<ul style="list-style-type: none"> Names of key individuals and their significance to the topic: David Attenborough – compare humans and animals. Identify, name, draw and label the basic parts of the human body. Identify and name a variety of common animals including fish. Use the local environment to investigate animals and their habitats – Visit to a local farm Use observations to compare and contrast animals, identify and groups them according to what they eat and how they use their senses. Understand the difference between carnivores, herbivores and omnivores 		Year 2 – 6 Animals including humans	Variation
	Everyday Materials	<ul style="list-style-type: none"> Explore and name everyday materials and their properties using scientific vocabulary. Perform a simple test to explore questions, for example: What is the best material to make a parachute? Compare and group together a variety of every day materials. 		Year 2 Uses of Everyday Materials Year 3 Forces Year 4 Electricity Year 5 Properties and changes of materials	Change
Year 2	Living Things and habitats	<ul style="list-style-type: none"> Sort and classify things according to whether they are living, dead or were never alive. Record findings using charts. Identify and study variety of plants and animals within their habitat and observe how living things depend on each other. Construct a simple food chain Understand the difference between habitat and micro-habitat. Use the local environment such as the wooded area to look under logs and tree branches and leaves to observe insects. 	Year 1 Animals including humans: Identifying and grouping animal, naming basic parts of the human body. Year 1 Plants: identifying and naming main parts of plants.	Year 4 and 5 Living things and habitats Year 6 Living things	Variation
	Animals including humans	<ul style="list-style-type: none"> Names of key individuals and their significance to the topic: David Attenborough Understand basic needs of animals for survival as well as exercise and nutrition for humans. Observe that animals have offspring which grow into adults. Visit Lawrence Weston Farm, Zoo or the Wild Place. In class observe changes in development in butterflies or frogs Describe the importance for humans to keep good hygiene – focus on oral hygiene. Carry out Smiles 4Children Programme teaching children how to brush their teeth. 	Year 1 Animals including humans: naming and grouping animals.	Year 3-6 Animals including humans	Variation
	Plants	<ul style="list-style-type: none"> Names of key individuals and their significance to the topic: Alan F. Mitchell - botanist Use local environment (wooded area, school gardens) to observe how different plants grow. Set up simple test to demonstrate the requirements of plants for germination, growth and survival. Observe the difference in the above requirements based on the type of plant (seed or bulb). Visit Botanical Garden in Bristol 	Year 1 Plants: Observe how plants change when they grow. Identify basic plant parts.	Year 3 Plants Year 4 and 5 Living things and habitats Year 6 Living things	Variation
	Uses of Everyday Materials	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Johannes Gutenberg, John Dunlop, Charles Macintosh, John McAdam. Identify and discuss the use of everyday materials for more than one thing and different materials used for the same thing. Carry out simple tests to see which materials are suitable or unsuitable for particular purposes. Possible link with recycling – Visit Avonmouth Household Waste Recycling Centre or arrange for a visit from Bristol Waste Company. 	Year 1 Everyday Materials: exploring materials and their properties. Comparing and grouping materials.	Year 3 Forces Year 4 Electricity Year 5 Properties and changes of materials	Change
Year 3	Forces	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Michael Faraday Experiment to explore how things move on different surfaces, including carrying out a fair test. Investigation in magnetic forces. Explore the strengths of different magnets and compare them Predict and note patterns in magnets' behaviour in relation to each other. 	Year 1 Everyday Materials: exploring materials and their properties. Comparing and grouping materials. Year 2 Uses of Everyday Materials for more than one thing.	Year 5 - Forces	Scientific Processes
	Light	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Thomas Edison, Ibn al-Haytham Enquire what is light and darkness. Using scientific language, drawings and labelled diagrams investigate how light is reflected from different surfaces. Carry out a fair test to see which materials block light. Using scientific language, drawings and labelled diagrams investigate how shadows are formed. Compare shadows made by different materials/objects. Set up an enquiry and look for patterns in what happens to shadows when light source moves. Visit from Explorer Dome. 	Year 1 Everyday Materials: Explore and name everyday materials and their properties using scientific vocabulary.	Year 6 Light	Scientific Processes

	Rocks	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Mary Anning, Florence Bascom Explore different kinds of rocks and soils, including those in the local environment. Observe rocks and explore how and why they might change over time. Compare and group rocks based on their appearance, permeability and what they are made of identifying their similarities and differences. Carry out test for hardness and permeability. Discuss changes and processes that take place in Fossil formation. Raise questions about the way soils are formed. Fossil Hunting in Aust Beach – Ed Drewitt 	Year 1 Everyday Materials: Explore and name everyday materials and their properties using scientific vocabulary. Year 2 Uses of Everyday Materials for more than one thing.	Year 5 Earth and Space	Scientific Processes
	Plants	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Rachel Carson Explore questions about the role of roots, stem, leaves and flowers. Investigate how water is transported within plants. Compare the effect of different factors on plant growth. Observe to see how seeds are formed and what a plant life cycle looks like over a period of time. Using labelled diagrams, bar charts and tables record finding about how the patterns in the structure of fruits relate to how the seeds are dispersed. Use the local environment to explore and ask questions about plants growing in their habitat – use the raised beds in the garden, pond area, and forest area AND local visit to Lawrence Weston Moor to look at wild flowers. Plant herbs, vegetables and flowers in the school garden. 	Year 1: Identify and name common names of flowers and plant structures. Year 2 Plants: Identify requirements of plants for germination, growth and survival. Year 2 Living things and Habitats: Identify and study variety of plants and animals within their habitat.	Year 4 and 5 Living things and habitats Year 6 Living things	Variation
	Animals including humans	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Leonardo da Vinci Identify and group animals with and without skeletons and compare their movement. Explore the ideas about what would happen if humans did not have skeletons. Compare and contrast the diets of different animals and group them. Explore the importance of nutrition. Identify main body parts associated with the skeleton, muscles and their function. 	Year 1 Animals including humans: Identify, name, draw and label the basic parts of the human body. Year 2 Animals including humans: Understand basic needs of animals for survival as well as exercise and nutrition for humans.	Year 4-6 Animals including humans	Variation Change
Year 4	Sound	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Alexander Graham Bell Identify parts of an ear. Explore and identify the way sound is made through vibration in different musical instruments from around the world. Carry out a fair test to find out how the pitch and volume of sound can be changed in variety of ways. Work systematically to find patterns in the sounds that are made by different objects. Using scientific evidence, make earmuffs and/or instruments from variety of materials. Visit from Explorer Dome or visit We The Curious. 	Year 1 Everyday Materials: exploring materials and their properties. Comparing and grouping materials. Year 2 Uses of Everyday Materials for more than one thing.		Scientific Processes
	Electricity	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Nikola Tesla, Benjamin Franklin Identify common appliances that run on electricity. Construct and test simple circuits, trying different components. Draw the circuit as a pictorial representation. Carry out a fair test and observe patters in bulb brightness. Recognise some common conductors and insulators. 	Year 1 Everyday Materials: exploring materials and their properties. Year 2 Uses of Everyday Materials for more than one thing.	Year 6 Electricity	Scientific Processes
	States of Matter	<ul style="list-style-type: none"> Explore a variety of everyday materials and develop simple descriptions of the states of matter. Carry out a scientific investigation in change of the state of matter. Group and classify a variety of different materials exploring the effect of temperature on substances. Observe and record evaporation over time. Trip to a chocolate factory, sweets factory or The Water Cycle workshop at We The Curious. 		Year 5 Properties and changes of materials	Scientific Processes
	Living things and habitats	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Robert Hooke Group living things in variety of ways. Raise and answer questions that help to identify and study plants and animals in their habitat. Identify changes in the habitats throughout the year. Explore examples of positive and negative human impact on environments. 	Year 2 Living things and habitats: identifying variety of habitats, animals and plants that are within them.	Year 5 Living things and habitats Year 6 Living things	Variation
	Animals including humans	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Louis Pasteur Identify main body parts associated with the digestive system and their functions. Work scientifically to compare the teeth of carnivores and herbivores and suggest reasons for differences. Revise the importance for humans to keep good hygiene – focus on oral hygiene. Consider carrying out Smiles 4Children Programme teaching children how to brush their teeth again (This would be done in Year 2 as well). 	Year 1: basic human body parts. Identify and classify animals. Compare and contrast animals, identify and groups them according to what they eat. Year 2: Understand basic needs of animals. Observe that animals have offspring. Year 3: Identify main body parts associated with the skeleton, muscles and their function.	Year 5 and 6 Animals including humans	Diversity/Evolution and Variation

			Explore importance of nutrition.		
Year 5	Living things and habitats	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: David Attenborough (already mentioned in Year 1), Jane Goodall (already mentioned in Year 1 when comparing human to chimpanzee). Observe life-cycle changes in variety of living things including plants. Distinguish between sexual and asexual reproduction in plants and sexual in animals. Compare the life cycle of local plants with tropical plants. Work scientifically to grow new plants from different parts of the parent plant. Trip to the Zoo 	Year 1: Identify and name common names of flowers and plant structures. Year 2 Plants: Identify requirements of plants for germination, growth and survival. Year 1 Animals including humans: naming and grouping animals. Year 2 Living things and habitats: identifying variety of habitats, animals and plants that are within them. Year 4: Living things and habitats: changes in the habitats throughout the year.	Year 6 Living things	Diversity/Evolution and Variation
	Animals including humans	<ul style="list-style-type: none"> Describe the changes as humans develop to old age. Draw a time line to indicate stages in the growth and development. Identify changes experienced in puberty. Compare gestation periods of humans and other animals. 	Year 1: grouping animals and identifying basic human body parts. Year 2: animals including humans growing and developing from an offspring to adults. Year 3: PSHE lessons on puberty and physical changes of the body. 4 Animals including humans: understand digestive system, compare the teeth of carnivores and herbivores	Year 6 Animals including humans	Variation
	Forces	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Isaac Newton, Galileo Galilei Explain the unsupported objects fall towards the Earth and the role of gravity. Explore falling objects and raise questions about air resistance. Carry out a fair test to explore air or water resistance and friction. Identify the effects of air resistance, water resistance and friction. Experience forces that make things move, get faster and slow down. (Consider visiting 'We the Curious' or inviting the Explorer Dome). Explore effects and function of pulleys and simple machines on movement. 	Year 3 Forces: Exploring movement on different surfaces, Investigation in magnetic forces. Comparing strength of magnets.		Scientific Processes
	Earth and Space	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Steven Hawking, Zhang Heng, Ptolemy, Alhazen, Nicolaus Copernicus. Describe Sun, Earth and Moon as approximately spherical bodies. Describe movements of Earth and other planets in relation to the Sun which is a star at the centre of our solar system. Create simple models of the solar system. Identify eight planets and their location. Explain day and night. Compare the time of day at different places on the Earth through internet links. Describe the movement of the moon relative to the Earth. Compare Earth's moon with moons of other planets. Discuss Sun safety and the risk of looking at the Sun even with dark sunglasses on. Trip to Planetarium 	Year 3 Rocks: Explore different kinds of rocks and soils Observe rocks and explore how and why they might change over time. Carry out test for hardness and permeability. Raise questions about the way soils are formed.		Scientific Processes
	Properties and changes of materials	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Anders Celsius, Daniel Fahrenheit, Lord Kelvin, Antoine Lavoisier Compare and group together everyday materials based on their properties (hardness, solubility, transparency, conductivity, response to magnets). Explore reversible changes (evaporation, filtering, sieving, melting, and dissolving). Use knowledge of solids, liquids and gases to decide how mixtures might be separated. Carry out a comparative test to determine uses of everyday materials including metals, wood and plastic). Explore changes that are difficult to reverse (burning, rusting). Explain that some changes result in the formation of new materials with is usually irreversible (burning and action of acid on bicarbonate of soda). Investigate how chemists create new materials (Spencer Silver or Ruth Benerito). Compare materials in order to make a switch in a circuit. Use various conductors to make a circuit and observe the brightness of the bulb with each material to compare them. Work scientifically to test and find the best material to fit the purpose such as: making a warm jacket, stop ice from melting, or making blackout curtains. 	Year 1 Everyday Materials: exploring materials and their properties. Year 2 Uses of Everyday Materials for more than one thing. Year 3 Forces: Explore how things move on different surfaces, Investigation in magnetic forces. Explore the strengths of different magnets and compare them Year 4 Electricity: Construct and test simple circuits, trying different components. Carry out a fair test and observe patters in bulb brightness. Recognise some common conductors and insulators.		Scientific Processes
Year 6	Light	<ul style="list-style-type: none"> Recognise that light travels in a straight line and make a periscope to demonstrate it. Investigate why shadows have the same shape as the objects that cast them. Investigate the relationship between light sources, objects and shadows – make shadow puppets (This objective is the same as 	Year 3 Light: Understand what is light and darkness. Investigate how light is reflected from different surfaces.		Scientific Processes

	<ul style="list-style-type: none"> in Year 3. Use this opportunity to embed the knowledge of light and shadows). Explain that objects are seen because they give out or reflect light into the eye. Explain how we see things. Explore range of phenomena such as: rainbows, colours on soap bubbles, objects looking bent in water and coloured filters. Visit from Explorer Dome 	<p>Carry out a fair test to see which materials block light. Investigate how shadows are formed.</p>		
Living things	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Carl Linnaeus Classify living things into groups according to observable characteristics including micro-organisms, plants and animals. Use the local environment (pond area, moorland, woods) to classify animals and plants. Give reasons for classifying plants and animals based on specific characteristics. Research unfamiliar animals and plants in range of habitats. 	<p>Year 1: Identify and name common names of flowers and plant structures. Year 1: basic human body parts. Identify and classify animals. Compare and contrast animals, identify and groups them according to what they eat. Year 2 Plants: Identify requirements of plants for germination, growth and survival. Year 2 Living things and Habitats: Identify and study variety of plants and animals within their habitat. Understand basic needs of animals. Year 4: Living things and habitats: changes in the habitats throughout the year. Year 5: Living things and habitats: Observe life-cycle changes in variety of living things including plants. Distinguish between sexual and asexual reproduction in plants and sexual in animals.</p>		Diversity/Evolution and Variation and Change
Animals	<ul style="list-style-type: none"> Identify and name the main body parts of the human circulatory system. Describe functions of the heart, blood vessels and blood and record it as a diagram. Recognise impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the way in which nutrients and water are transported within animals. 	<p>Year 1: grouping animals and identifying basic human body parts. Year 2: animals including humans growing and developing from an offspring to adults. Year 3: Compare and contrast the diets of different animals and group them. Explore the importance of nutrition. Identify main body parts associated with the skeleton, muscles and their function. Year 4 Animals including humans: understand digestive system, compare the teeth of carnivores and herbivores Year 5: Animals including humans: Describe the changes as humans develop to old age.</p>		Variation and Change
Electricity	<ul style="list-style-type: none"> Construct simple series circuits. Investigate the change in brightness of a lamp or volume of a buzzer with the number and voltage of cells used in a circuit. Represent a simple circuit in a diagram using recognised symbols. Compare and give reasons for variations in how components function. Design a circuit for a purpose e.g. set of traffic lights, a burglar alarm. 	<p>Year 4 Electricity: Identify common appliances that run on electricity. Construct and test simple circuits, trying different components. Draw the circuit as a pictorial representation. Carry out a fair test and observe patters in bulb brightness. Recognise some common conductors and insulators.</p>		Scientific Processes
Evolution and inheritance	<ul style="list-style-type: none"> Names of key individuals and their significance to the event: Gregor Mendel, Charles Darwin Recognise that living things have changed over time. Identify fossils as evidence of living things that inhabited Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally not identical to their parents. Observe different breeds of dogs and what happens when two races are crossed with each other to make a new breed. Identify how animals and plants adapted to suit their environment in different ways; e.g. exploring how giraffes' necks got longer or the development of insulating fur on the arctic fox. Observe and raise questions about local animals and how they have adapted to their environment. Explore the Evolution Theory. 	<p>Year 1: grouping animals and identifying basic human body parts. Year 1: Identify and name common names of flowers and plant structures. Year 1: basic human body parts. Identify and classify animals. Compare and contrast animals, identify and groups them according to what they eat. Year 2: animals including humans growing and developing from an offspring to adults.</p>		Diversity/Evolution and change

			<p>Year 2 Plants: Identify requirements of plants for germination, growth and survival.</p> <p>Year 2 Living things and Habitats: Identify and study variety of plants and animals within their habitat.</p> <p>Understand basic needs of animals.</p> <p>Year 3: Rocks: Discuss changes and processes that take place in Fossil formation.</p> <p>Raise questions about the way soils are formed.</p> <p>Year 4: Living things and habitats: changes in the habitats throughout the year.</p> <p>Year 5: Animals including humans: Describe the changes as humans develop to old age.</p> <p>Year 5: Living things and habitats: Observe life-cycle changes in variety of living things including plants.</p> <p>Distinguish between sexual and asexual reproduction in plants and sexual in animals.</p>		
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