



William Penn Curriculum Map - Science

	Autumn		Spring		Summer	
Cycle A						
Year R	How to?	Who Lives in Fairy Tales?	Who Made these Footprints?	What's in our Garden?	What Makes a Hero?	How Have we Grown this Year?
Year 1/2	Once Upon a Rhyme	Fire, Fire! (Great Fire of London)	From Arctic to Africa	Pop Art	Postcards from the Past (Victorians)	Make, Move and Perform Puppets
Year 3/4	Raging Rivers	Rocks, Soils and Fossils	The Roman Empire	Volcanoes	Vikings (Life and Legend)	Good Vibrations
Year 5/6	We'll Meet Again (WW2)	Light	Heads Will Roll (Tudors)	Counties of the UK	Ancient Mayan Civilization	Rainforests and Sustainability
Cycle B						
Year R	How to?	Who Lives in Fairy Tales?	Who Made these Footprints?	What's in our Garden?	What Makes a Hero?	How Have we Grown this Year?
Year 1/2	Who Lives Here?	Maps, Moats and Mighty Castles	Wacky Weather	Spring has Sprung (Plants)	Back in Time for... (Decades)	Down in the Jungle
Year 3/4	Ancient Ancestors	Changing State	We're Sailing Down the Nile (Ancient Egypt)	Opposites Attract (Magnets)	Born in the USA	Plants
Year 5/6	Across the Universe (Space)	Frosty Relations (Cold War)	'Toil and Trouble' (Macbeth)	Crime and Punishment	Friends and Heroes (Quakerism And Democracy)	The Final Year

24/09/2026

Science Coverage Overview

Skills/Themes	Living things and their habitats	Plants	Animals, including humans	Materials	Evolution and inheritance
	Rocks	Sound	Electricity	Properties or changes in materials	Seasonal changes
	Earth and Space	Light	Forces		States of matter

	Autumn	Spring	Summer
Cycle A			
Year R	Living things and their habitats	Plants	Animals, including humans
Year 1/2	Materials	Habitats: Darwin Plants	Seasonal changes
Year 3/4	Teeth & Digestion States of matter	Light and shadow Circuits and conductors	Living things & their habitats Plants
Year 5/6	Electricity Nicholas Copernicus Galileo Galilei Light	Evolution: Charles Darwin	Classifying Criteris: Carl Linneaus Healthy Bodies
Cycle B			
Year R	Living things and their habitats	Plants	Animals, including humans
Year 1/2	Animals	Animals	My Body
Year 3/4	Rocks & Soils Fossils: Mary Anning	Circuits Thomas Edison	Health & Movement Sound
Year 5/6	Electricity Light	Classifying Organisms Forces: Rube Goldberg	Properties and changing materials



Working Scientifically

Year 1 and 2 Scientist	Year 3 and 4 Scientists	Year 5 and 6 Scientists
- ask simple questions and recognise that they can be answered in different ways - observe closely - use simple equipment - perform simple tests - identify and classify - use their observations and ideas to suggest answers to questions - gather and record data to help answer questions	- ask relevant questions and use different types of scientific enquiries to answer them - set up simple practical enquiries, comparative and fair tests - make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - gather, record, classify and present data in a variety of ways to help in answering questions - record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions - use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - identify differences, similarities or changes related to simple scientific ideas and processes - use straightforward scientific evidence to answer questions or to support their findings.	- plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - use test results to make predictions to set up further comparative and fair tests - report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations - identify scientific evidence that has been used to support or refute ideas or arguments

EYFS Coverage:

EYFS Expectations – Understanding the World – The world - Science overview			
Science ELG - Explore the natural world around them, making observations and drawing pictures of animals and plants - Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class - Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter			
Focus Biology	Living things and their habitats	Plants	Animals, including humans
Reception	- Describe what they see, hear & feel whilst outside - Observational drawings of the natural world - Discuss how to care for the living things & their habitats - Observe how flora & fauna behave differently as the seasons change - Examine change over time - Use correct terms e.g. chrysalis, pupa when observing some life cycles - Express opinions on natural & built environments	- All plants need water, light and warmth to grow and survive - A seed produces roots to allow water to get into the plant and shoots to produce leaves to collect the sunlight - Extend vocabulary: blossom, buds, bulb, evergreen, deciduous - Describe what they see, hear & feel whilst outside - Name & describe some plants - Draw pictures of plants - Understand the effect of changing seasons on the natural world around them	- Shows some understanding that good practices with regard to exercise, eating, drinking water, sleeping & hygiene can contribute to good health - Describe what they see, hear & feel - Identify different parts of their body & animals - Be able to show care and concern for living things - Know the effects exercise has on their bodies - Have some understanding of growth and change - Talk about things they have observed including animals
Focus Chemistry	- Observe & interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object & a boat floating on water - Use vocabulary to name specific features of the natural world, both natural & man-made - Notice & discuss patterns around them		
Reception	How to? / Who Lives in Fairy Tales?	Who Made these Footprints? / What's in our Garden?	What Makes a Hero? How Have we Grown this Year?
	By the end of this Unit: Pupils will know: What materials will make the best house for The Three Little Pigs?	By the end of this Unit: Pupils will know: Can I plant a seed and look after it? What are the key features of animal life cycle?	By the end of this Unit: Pupils will know: What is a food chain? What materials would be most suitable for a

	Can I explore the natural world around me? Can I explore the effect of changing seasons on the natural world around them e.g. weather, plants, animals etc? What do I see, hear, feel whilst outside? Children will be able to: Talk about and explore different materials, natural and man-made Explore and talk about forces in every day life Explore the natural world around them Describe what they see, hear, feel whilst outside Forest school	Children will be able to: Recognise some environments are different to the one in which they live in – comment and discuss similarities and differences Explore the natural world around them Forest School provision Plant seeds and care for growing plants Understand the key features of the life cycle of a plant and an animal Plant seeds and care for plants Key features of animal and plant life cycle	butterfly habitat? How can I melt ice? What are the four seasons? How can we help the environment? Children will be able to: Explore the natural world around them using observations Forest school Provision Investigate and understand some important processes and changes in the natural world around them- changing states
Links to Year 1	Science Working scientifically Materials Identify and describe plants and animals (including humans)		

Key Stage 1 Coverage:

Year 1/2 Cycle A	Once Upon a Rhyme / Fire! Fire!	From Arctic to Africa / Pop Art	Postcards from the Past / Make, Move and Perform Puppets
	Animals	Animals	My Body
	By the end of these units: Pupils will know: Can you label body parts in a science drawing? How can we use our senses in science and what else could we investigate using our senses?	By the end of these units: Pupils will know: - What are the key parts of a penguin's body? Are there any other animals live in Antarctica, how are they adapted? - In which temperature condition do you	By the end of these units: Pupils will know: - Which body parts they think is most important and why? What our bodies would be like without bones/skeleton? - How are our organs protected?

	2. What comparisons did you make between the structures of a variety of common animals, which you can sort into groups? 3. Why is it important for scientists to be able to describe animals as endangered? 4. What do pets need to keep them safe and healthy? 5. What animals are herbivores, omnivores or carnivores? What happens if a food source disappears? Children will be able to: • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • Explore and compare the differences between things that are living, dead, and things that have never been alive. • 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. • Describe how animals obtain their food from plants and other animals, using the	think an ice cubes will last? 3. Do any animals live in Africa, how are they adapted? 4. Does the surface area (the larger) the item make it more or less likely to float? Why? 5. What were your predictions for the investigation? Children will be able to: • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). • Notice that animals, including humans, have offspring which grow into adults. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • Explore and compare the differences between things that are living, dead, and things that have never been alive. • 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. • Identify and name a variety of plants and animals in their habitats, including microhabitats. • Describe how animals obtain their food	3. Can you use your sense of touch to explore different textures, pressures, pain, cold and hot? How do our ears work? 4. How can we detect the flavours of different foods? What happens if we turn off our sense of smell? 5. How do digital microscopes help us? Children will be able to: • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • Notice that animals, including humans, have offspring which grow into adults. • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. <i>Essential vocabulary:</i> <u>Names of animal groups:</u> fish, amphibians, reptiles, birds, mammals. <u>Animal diets:</u> carnivore, herbivore, omnivore. <u>Human and animal body parts:</u> body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills.
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	idea of a simple food chain, and identify and name different sources of food. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). <i>Essential vocabulary:</i> <u>Names of animal groups:</u> fish, amphibians, reptiles, birds, mammals. <u>Animal diets:</u> carnivore, herbivore, omnivore. <u>Human and animal body parts:</u> body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills. <u>Human senses:</u> sight, hearing, touch, smell, taste. <u>Exploring senses:</u> loud, quiet, soft, rough. <u>Other:</u> human, animal, pet. <u>Survival and staying healthy:</u> basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs. <u>Food groups:</u> fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar. <u>Life processes:</u> movement, sensitivity, growth, reproduction, nutrition, excretion, respiration.	from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). <i>Essential vocabulary:</i> <u>Names of animal groups:</u> fish, amphibians, reptiles, birds, mammals. <u>Animal diets:</u> carnivore, herbivore, omnivore. <u>Human and animal body parts:</u> body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills. <u>Human senses:</u> sight, hearing, touch, smell, taste. <u>Exploring senses:</u> loud, quiet, soft, rough. <u>Other:</u> human, animal, pet. <u>Survival and staying healthy:</u> basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs. <u>Food groups:</u> fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar. <u>Life processes:</u> movement, sensitivity, growth, reproduction, nutrition, excretion, respiration.	<u>Human senses:</u> sight, hearing, touch, smell, taste. <u>Exploring senses:</u> loud, quiet, soft, rough. <u>Other:</u> human, animal, pet. <u>Survival and staying healthy:</u> basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, hygiene, germs. <u>Food groups:</u> fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar. <u>Life processes:</u> movement, sensitivity, growth, reproduction, nutrition, excretion, respiration. <u>Food chains:</u> food sources, food, producer, consumer, predator, prey.
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	<u>Food chains:</u> food sources, food, producer, consumer, predator, prey.	<u>Food chains:</u> food sources, food, producer, consumer, predator, prey. <u>Working Scientifically:</u> Experience, observe, changes, patterns, grouping, sorting, classifying, compare, identify (name), data, measure, record, equipment, questions, test, investigate, explore, magnifying, glass / hand lens, same, different	
Year 1/2 Cycle B	Who Lives Here? / Maps, Moats and Mighty Castles	Wacky Weather / Spring Has Sprung	Back in Time for... / Down in the Jungle
	Materials	Plants Charles Darwin	Living Things Seasonal changes
	By the end of these units: Pupils will know: 1. If you were going to organise these materials into two groups, how would you do it? 2. Which of these are natural and which are man-made and how would you describe them using your senses? 3. Why are raw materials chosen to make some objects and not others? 4. Why are certain raw materials used to make particular objects and is it good thing or a bad thing that not all materials can change shape? 5. Can we recycle every material and what happens when we recycle a material? Children will be able to: ▪ Distinguish between an object and the material from which it is made; ▪ Identify and name a variety of everyday materials, including wood, plastic, glass,	By the end of these units: Pupils will know: 1. What makes a plant a plant? 2. What are the names of the different parts of a plant? 3. Which common garden and wild plants can I name? 4. How many different types of tree can I identify? 5. Can I name, sort and compare different fruit and vegetable plants? 6. Can I name and compare a range of plants and trees? 7. What was Charles Darwin's contribution to the field of plant biology? Children will be able to: ▪ Observe and describe how seeds and bulbs grow into mature plants. ▪ Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	By the end of these units: Pupils will know: 1. What can we call things that are not living? 2. What are your rules that you would use to explain to someone what makes an object living, dead or never alive? 3. What are the features of your creature that makes it a living thing? 4. Where do animals and plants live and who lives in each habitat? 5. What changes take place during the four seasons? 6. Did Michael Fish get it right about the Great Storm of 1987? Does the UK have hurricanes? 7. What can we do as a school to help the climate change, because what is the impact of rubbish being carried away by the wind? Children will be able to:

	metal, water, and rock; - Describe the simple physical properties of a variety of everyday materials; - Compare and group together a variety of everyday materials on the basis of their simple physical properties. - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses; - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <i>Essential vocabulary:</i> <u>Names of materials:</u> wood, plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric. <u>Changing shape:</u> squash, bend, twist, stretch. <u>Properties of materials:</u> hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff, strong, flexible, light, hard-wearing, elastic. <u>Other:</u> object, suitability, recycle, pollution.	- Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. - Identify and describe the basic structure of a variety of common flowering plants, including trees. - Explore and compare the differences between things that are living, dead, and things that have never been alive. - 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. - Identify and name a variety of plants and animals in their habitats, including microhabitats. <i>Essential vocabulary:</i> <u>Growth of plants:</u> germination, shoot, seed dispersal, grow, food store, life cycle, die, wilt, seedling, sapling. <u>Needs of plants:</u> sunlight, nutrition, light, healthy, space, air. <u>Name different types of plant/tree:</u> e.g. bean plant, cactus. <u>Names of different habitats:</u> e.g. rainforest, desert. <u>Living or dead:</u> living, dead, never living, not living, alive, never been alive, healthy.	- Explore and compare the differences between things that are living, dead, and things that have never been alive. - 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. - Identify and name a variety of plants and animals in their habitats, including microhabitats. - 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. - Observe changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies <i>Essential vocabulary:</i> <u>Names of habitats and microhabitats:</u> under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat. <u>Habitats including microhabitats:</u> depend, shelter, safety, survive, suited, space, minibeast, air. <u>Being born and growing:</u> Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk. <u>Young and adult names:</u> lamb and sheep, kitten and cat, duckling and duck.
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Year 3/4

Key Stage 2 Coverage:

Year 3/4 Cycle A	Raging Rivers / Rocks, Soils and Fossils	The Roman Empire / Volcanoes		Vikings (Life and Legend) / Good Vibrations	
	Rocks & Soils & Fossils Mary Anning	Light & Shadow	Circuits	Health & Movement	Sound
	By the end of these units: Pupils will know: 1. What are some common rock types that you know that you can categorise? 2. How did you plan and investigate different rock characteristics? What did your investigation show? 3. Where are the rocks found that have different uses for particular jobs, more than others? 4. What different types of soil are there and how do they effect the fossils that are formed? 5. How do you identify fossil remains that you can excavate? 6. Who was Mary Anning and what was her legacy? Children will be able to: • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties; • Describe in simple terms how fossils are formed when things that have lived are trapped within rock; • Recognise that soils are made from rocks	By the end of these units: Pupils will know: 1. What is a light source? 2. How can we create shadows? 3. How would you define day and night? 4. What was your predictions about the position of shadows that are cast by the sun? 5. What were your results from your investigation about the length of a shadow during the course of the day? Children will be able to: ▪ Recognise that	By the end of these units: Pupils will know: 1. What is electricity? 2. What is mains electricity and how do we keep each ourselves safe? 3. What are conductors and insulators? 4. What is a switch? 5. How do you change the brightness of a bulb? Children will be able to: • Identify common appliances that run on electricity. • Construct a simple series electrical	By the end of these units: Pupils will know: 1. How does a balanced diet help humans get the nutrition they need? 2. What does an animal's diet look like? 3. Why do we have bones? 4. What do we need to make us move? 5. How do invertebrates support themselves? Children will be able to: • Construct and interpret a variety of food chains, identifying	By the end of these units: Pupils will know: 1. What are sounds and how are they made? 2. What happens to a sound the further away it gets? 3. How can you change the pitch of sound? 4. What happens to a string when you shorten it? 5. What happens when air vibrates at different speeds? Children will be able to: • Identify how sounds are made, associating some of them with

	and organic matter. <i>Essential vocab:</i> <u>Types of rock:</u> sedimentary rock, igneous rock, metamorphic rock. <u>Properties of rocks:</u> permeable, semi-permeable, impermeable, durable. <u>Names of rocks:</u> e.g. marble, chalk, granite, sandstone, slate. <u>Formation of rocks and fossils:</u> natural, human-made, magma, lava, molten rock, sediment, erosion, fossilisation, layers, bone, fossil. <u>Soil:</u> sandy, chalky, clay, peaty, loamy, topsoil, subsoil, bedrock, mineral, organic matter, compost. <u>Other:</u> palaeontology. <i>Previously introduced vocabulary: soil, water, air.</i>	they need light In order to see things and that dark is the absence of light. ▪ Notice that light is reflected from surfaces. ▪ Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. ▪ Recognise that shadows are formed when the light from a light source is blocked by an opaque object. ▪ Find patterns in the way that the size of shadows change. <i>Essential vocab:</i> <u>Light and seeing:</u> dark, absence of light, light source, illuminate, visible, shadow, translucent, energy, block. <u>Light sources:</u> e.g. candle, torch, fire, lantern, lightning.	circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • 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. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors and insulators, and associate metals with being good conductors. <i>Essential vocab:</i> <u>Electricity:</u> mains-powered, battery-powered, mains electricity, plug, appliances, devices.	producers, predators and prey. • 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. • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. <i>Essential vocab:</i> <u>Food chains and animal diets:</u> decomposer, food web. <u>Food groups and nutrients:</u> fibre, fats (saturated and unsaturated), vitamins, minerals. <u>Skeletons and muscles:</u> skeleton, muscles, tendons,	something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear. • Find patterns between the pitch of a sound and features of the object that produced it. • Find patterns between the volume of a sound and the strength of the vibrations that produced it. • Recognise that sounds get fainter as the distance from the sound source increases. <i>Essential vocab:</i> <u>Parts of the ear:</u> eardrum. <u>Making sound:</u> vibration, vocal cords, particles. <u>Measuring sound:</u> pitch, volume, amplitude, sound wave, quiet, loud, high, low, travel, distance. <u>Other:</u> soundproof,
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		<u>Reflective light:</u> reflect, reflection, surface, ray, scatter, reverse, beam, angle, mirror, moon. <u>Sun safety:</u> dangerous, glare, damage, UV light, UV rating, sunglasses, direct. <i>Previously introduced vocabulary: opaque, transparent, sunlight, sun.</i>	<u>Circuits:</u> circuit, simple series circuit, complete circuit, incomplete circuit. <u>Circuit parts:</u> bulb, cell, wire, buzzer, switch, motor, battery. <u>Materials:</u> electrical conductor, electrical insulator. <u>Other:</u> safety. <i>Previously introduced vocabulary: names of materials.</i>	joints, protection, support, organs, voluntary muscles, involuntary muscles, biceps, triceps, contract, relax, bone, cartilage, shell, vertebrate, invertebrate, endoskeleton, exoskeleton, hydrostatic skeleton. <u>Names of human bones:</u> e.g. skull, spine, backbone, vertebral column, ribcage, pelvis, clavicle, scapula, humerus, ulna, pelvis, radius, femur, tibia, fibula. <u>Other:</u> energy.	absorb sound.
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Year 3/4 Cycle B	Ancient Ancestors / Changing State		We're Sailing down the Nile / Opposites Attract		Born in the USA / Plants	
	Teeth & Digestion	States of Matter	Forces & Magnets	Magnets & Springs	Living things & their habitats	Plants
	By the end of these units: Pupils will know: 1. What is a food chain? 2. How many different types of teeth do humans have and what are their functions? 3. How do you keep your teeth healthy to prevent tooth decay? 4. How does the digestive system work? 5. How do you identify and classify carnivores, herbivores and omnivores? Children will be able to: • Describe the simple functions of the basic parts of the digestive system in humans;	By the end of these units: Pupils will know: 1. What comparisons can be made between solids and liquids? 2. What are the properties of gases? 3. How does the states of matter change when the materials are heated or cooled in degrees Celsius? 4. How does the evaporation process work? 5. What are the different parts of the water cycle and where does condensation play a part? Children will be able to: • Compare and group materials	By the end of these units: Pupils will know: 1. What is a force and what is its impact on an object? 2. How do you use a force meter to measure forces? 3. What factors increase friction between solid surfaces and will describe how to measure forces? 4. How does the Earth act like a giant magnet, how does this affect a compass? 5. What happens when magnets are put together? 6. What is Newton's law? What does it explain? Children will be able to: • Compare how	By the end of these units: Pupils will know: 1. Which materials are magnetic? 2. Which magnet has the strongest force? 3. What happens to springs when they are compressed and stretched? 4. How far does an object travel when an elastic band is stretched? 5. How do you make sure your are conducting a fair test? Children will be able to: • Compare how things move on. • Different surfaces; • Notice that some forces need contact between 2 objects, but magnetic forces	By the end of these units: Pupils will know: 1. How do you identify habitats and the animals that live there? 2. How do you group organisms based on their characteristics? 3. Which classifications did you group your animals into, using the classification key? 4. Which British plants did you identify and classify? 5. What is the human impact on habitats and environments? Children will be able to: • Recognise that living things can be grouped in a variety of ways;	By the end of these units: Pupils will know: 1. What are the 4 main parts of a plant? 2. What makes plants grow well? 3. What are the functions of leaves in flowering plants? 4. What are the stages of the life cycle of a plant? 5. How do flowering plants disperse their seeds? What is the structure of seeds and their importance as a food source? Children will be able to: • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk,

Identify the different types of teeth in humans and their simple functions; <i>Essential vocab:</i> <u>Digestive system:</u> digest, digestion, tongue, teeth, saliva, salivary glands, oesophagus, stomach, liver, pancreas, gall bladder, small intestine, duodenum, large intestine, rectum, anus, faeces, organ. <u>Types of teeth and dental care:</u> molar, premolar, incisor, canine, wisdom teeth, tooth decay, plaque, enamel, baby (milk) teeth. <i>Previously introduced vocabulary:</i> producer, consumer, prey, predator, excretion, habitat.	together, according to whether they are solids, liquids or gases. - 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). - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <i>Essential vocab:</i> <u>States of matter:</u> solids, liquids, gases, particles. <u>State change:</u> evaporate, condense, melt, freeze, heat, cool, melting point, freezing point, boiling point, water vapour.	things move on. - Different surfaces; - Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. - Observe how magnets attract or repel each other and attract some materials and not others. - Compare and group together. - A variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. - Describe magnets as having 2 poles. - Predict whether 2 magnets will attract or repel each other, depending on which poles are facing. <i>Essential vocab:</i> <u>How things move:</u>	can act at a distance. - Observe how magnets attract or repel each other and attract some materials and not others. - Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. - Describe magnets as having 2 poles. - Predict whether 2 magnets will attract or repel each other, depending on which poles are facing. <i>Essential vocab:</i> <u>How things move:</u> move, movement, surface, distance, strength. <u>Types of forces:</u> push, pull, contact force, non-contact force,	- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment; - Recognise that environments can change and that this can sometimes pose dangers to living things. <i>Essential vocab:</i> <u>Living things:</u> organisms, specimen, species. <u>Grouping living things:</u> classification, classification keys, classify, characteristics. <u>Names of invertebrate animals:</u> snails and slugs, worms, spiders, insects. <u>Invertebrate body parts:</u> e.g. wing case, abdomen, thorax, antenna, segments, mandible, proboscis,	leaves and flowers; - 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; - Investigate the way in which water is transported within plants; - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <i>Essential vocab:</i> <u>Water transportation:</u> transport, evaporation, evaporate, nutrients, absorb, anchor. <u>Life cycle of flowering plants:</u> pollination (insect/wind), pollen,
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		<u>Water cycle:</u> precipitation, evaporation, condensation, ground run-off, collection, underground water, bodies of water (sea, river, stream), water droplets, hail. <u>Other:</u> atmosphere. <i>Previously introduced vocabulary: temperature, rain, cloud, snow, wind, sun, hot, cold, absorb, carbon dioxide</i>	move, movement, surface, distance, strength. <u>Types of forces:</u> push, pull, contact force, non-contact force, friction. <u>Magnets:</u> magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, magnetic poles (north pole, south pole), attract, repel, compass. <u>Magnetic and non-magnetic materials:</u> e.g. iron, nickel, cobalt. <i>Previously introduced vocabulary: metal, names of materials.</i>	friction. <u>Magnets:</u> magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, magnetic poles (north pole, south pole), attract, repel, compass. <u>Magnetic and non-magnetic materials:</u> e.g. iron, nickel, cobalt. <i>Previously introduced vocabulary: metal, names of materials</i>	prolegs. <u>Environmental changes:</u> environment, environmental dangers, adapt, natural changes, climate change, deforestation, pollution, urbanisation, invasive species, endangered species, extinct. <i>Previously introduced vocabulary: carbon dioxide, fish, bird, mammal, amphibian, reptile, skeleton, bone, vertebrate, invertebrate, backbone, names for animal body parts, names of common plants, photosynthesis.</i>	nectar, pollinator, seed formation, seed dispersal (animal/wind/water), reproduce, fertilisation, fertilise, stamen, anther, filament, carpel (pistil), stigma, style, ovary, ovule, sepal, carbon dioxide. <i>Previously introduced vocabulary: life cycle.</i>
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Year 5/6
Key Stage 2 Coverage:

Year 5/6 Cycle A	We'll Meet Again (WWII) / Light		Heads Will Roll / Counties of the UK		Ancient Mayan Civilization / Rainforests and Sustainability	
	Electricity	Light	Healthy Bodies	Evolution	Properties and changes materials	Forces
	By the end of these units: Pupils will know: 1. What is needed to make a bulb light? 2. How do you make a circuit from a diagram? 3. How do you change components in a circuit? 4. How did you draw your diagrams of the circuits that others made? 5. How can alternative forms of energy help save our planet? 6. Who was Thomas Edison and what was his legacy? Children will be able to: ▪ Associate the brightness of a	By the end of these units: Pupils will know: 1. How does light travel? 2. How do you alter the size of shadows? 3. How can we see things? 4. What does white light consist of? 5. What are the properties of light? Children will be able to: ▪ Recognise that light appears to travel in straight lines. ▪ Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light	By the end of these units: Pupils will know: 1. What are the different food groups and why they are important for our bodies? 2. How does our body transport the nutrients in our digestive system to the rest of our bodies? 3. What are the functions of the heart? 4. How do muscles work to move different parts of the skeleton? 5. Are drugs always harmful? Children will be able to: ▪ Identify and name the main parts of	By the end of these units: Pupils will know: 1. How do living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents? 2. How do animals and plants adapt to suit their environment in different ways? 3. How are animals' adaptation lead to evolution? 4. How have living things changed over time? 5. How do fossils provide information about living things that inhabited the Earth millions of	By the end of these units: Pupils will know: 1. What are different materials used for and why? 2. What is the best foam to stop ice cream melting? 3. What factor affect dissolving? 4. What processes can be used to separate materials? 5. What is a reversible chemical change and why does it happen? Children will be able to: ▪ Compare and group together everyday materials on the basis of their	By the end of these units: Pupils will know: 1. How do you construct a table for repeat readings? 2. Can you draw up a line graph from a table? 3. How do levers, springs, pulleys and gears transmit force and motion? 4. Who is Rube Goldberg? 5. What was included in your design to make a Rube Goldberg machine that contain at least four different simple machines? Children will be able to: ▪ Explain that unsupported

lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. - 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. - Use recognised symbols when representing a simple circuit in a diagram. <i>Essential vocab:</i> <u>Flow and measure of electricity:</u> voltage, amps, resistance, electrons, volts (V), current. <u>Circuits:</u> symbol, circuit diagram, component, function, filament. <u>Variations:</u> dimmer, brighter, louder, quieter.	into the eye. - 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. - Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. <i>Essential vocab:</i> <u>Reflection:</u> periscope. <u>Seeing light:</u> visible spectrum, prism. <u>How light travels:</u> light waves, wavelength, straight line, refraction. <i>Previously introduced vocabulary: names and properties of materials, absorb.</i>	the human circulatory system, and describe the functions of the heart, blood vessels and blood. - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. - Describe the ways in which nutrients and water are transported within animals, including humans. <i>Essential vocab:</i> <u>Circulatory system:</u> circulation, heart, pulse, heartbeat, heart rate, lungs, breathing, blood vessels, blood, pump, transported, oxygenated blood, deoxygenated blood, oxygen, arteries, veins, capillaries, chambers, plasma, platelets, white blood cells, red blood cells. <u>Lifestyle:</u> drug, alcohol, smoking, disease, calorie,	years ago? 6. What was Charles Darwin's theory of relativity? What was his legacy? Children will be able 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. - Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. - Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <i>Essential vocab:</i> <u>Evolution and</u>	properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets - Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution - Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - Demonstrate that dissolving, mixing	objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. - Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. <i>Essential vocab:</i> <u>Types of forces:</u> air resistance, water resistance, buoyancy, upthrust, Earth's gravitational pull, gravity, opposing forces, driving force. <u>Mechanisms:</u> levers, pulleys, gears/cogs. <u>Measurements:</u> weight, mass, kilograms (kg), Newtons (N), scales,
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	<u>Types of electricity:</u> natural electricity, human-made electricity, solar panels, power station. <u>Other:</u> positive, negative.		energy input, energy output. <u>Other:</u> water transportation, nutrient transportation, waste products. <i>Previously introduced vocabulary: carbon dioxide.</i>	<u>inheritance:</u> evolve, adaptation, inherit, natural selection, adaptive traits, inherited traits, mutations, theory of evolution, ancestors, biological parent, chromosomes, genes, Charles Darwin. <u>Other:</u> selective breeding, artificial selection, breed, cross breeding, genetically modified food, cloning, DNA. <i>Previously introduced vocabulary: classification, offspring, characteristics, habitat, environment, adapt, variations, human, fossil, suited, cells, names of different habitats, names of animals and their body parts, species, sedimentary rock, lava, igneous rock, metamorphic rock, magma, heat, fossilisation.</i>	and changes of state are reversible changes 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. <i>Essential vocab:</i> material, property, magnetic, hard, transparent, flexible, permeable, dissolve, soluble, insoluble, liquid, solid, reversible, irreversible, physical, chemical, reaction, reactant, product, separate, mixture, solution, suspension, soluble, insoluble, dissolve, evaporate, solid, liquid, filter, sieve, magnet, attract, particles.	speed, fast, slow. <u>Other:</u> streamlined, Earth. <i>Previously introduced vocabulary: air, heat, moon.</i>
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Year 5/6 Cycle B	Across the Universe / Frosty Relations		Toil and Trouble / Crime and Punishment		Friends And Heroes / The Final Year	
	Earth & Space	Gravity & Friction	Classification	Classifying Criteris	Lifecycles	Lifecycles
	By the end of these units: Pupils will know: 1. What is the Solar System? 2. Can children make a simple model of the Solar system? 3. What is the difference between the geocentric and heliocentric models of the Solar system? Who were the scientists behind these different belief systems? 4. How have people's ideas of the Solar system changed over time? 5. How does the moon orbit the Earth to cause a month? Children will be able to: - Describe the movement of the	By the end of these units: Pupils will know: 1. Why do unsupported objects fall to the ground? 2. What factors affect how objects fall to the Earth? 3. What is friction? 4. Which forces slow things down? 5. What did you create to show your understanding of forces? Children will be able to: - Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - Identify the effects of air	By the end of these units: Pupils will know: 1. Do you know anything about the methods used to produce these dairy foods? 2. How do you classify microorganisms? 3. How could we test the effectiveness of a glue? 4. What is phenomena? 5. Where is the water line of boats with hull shapes? Children will be able to: - Describe how living things are classified into broad groups according to common - Observe characteristics and based on similarities and	By the end of these units: Pupils will know: 1. How are livings things classified? 2. How can I distinguish between organisms that have similar features? 3. How are plants classified? 4. What are the positive and negative consequences of scientific and technological developments? 5. How do you use a key to classify physical features of micro-organisms? Children will be able to: - Describe how living things are classified into broad groups	By the end of these units: Pupils will know: 1. What is asexual reproduction? 2. How do you define sexual reproduction? 3. Can you think of some words to describe the environment near or around your school where plants and animals live? 4. What does internal fertilisation mean? 5. Who is Sylvia Earle? Children will be able to: - Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. - Describe the life process of reproduction in	By the end of these units: Pupils will know: 1. What is sexual reproduction in a plant? 2. How do plants reproduce asexually? 3. How do animals reproduce asexually? 4. How are the lifecycles of animals different? 5. How do animals reproduce and grow? 6. What do naturalisits do? Children will be able to: - Describe the differences in how plants and animals reproduce. - Explain what asexual reproduction is in plants and animals - Describe and

	Earth and other planets relative to the Sun in the solar system. - Describe the movement of the Moon relative to the Earth. - Describe the Sun, Earth and Moon as approximately spherical bodies. - Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <i>Essential vocab:</i> <u>Solar system:</u> star, planet. <u>Names of planets:</u> Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune, Uranus. <u>Shape:</u> spherical bodies, sphere. <u>Movement:</u> rotate, axis, orbit, satellite. <u>Theories:</u> geocentric model, heliocentric model, astronomer.	resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. <i>Essential vocab:</i> <u>Types of forces:</u> air resistance, water resistance, buoyancy, upthrust, Earth's gravitational pull, gravity, opposing forces, driving force. <u>Mechanisms:</u> levers, pulleys, gears/cogs. <u>Measurements:</u> weight, mass, kilograms (kg), Newtons (N), scales, speed, fast, slow. <u>Other:</u> streamlined, Earth. <i>Previously introduced vocabulary:</i> air, heat, moon.	differences, including microorganisms, plants and animals - Give reasons for classifying plants and animals based on specific characteristics. - Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - Use test results to make predictions to set up further comparative and fair tests - Report 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	according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. <i>Essential vocab:</i> <u>Classifying:</u> Carl Linnaeus, Linnaean system, flowering and non-flowering plants, variation. <u>Microorganisms:</u> bacteria, single-celled, microbes, microscopic, virus, fungi, fungus, mould, antibiotic, yeast, ferment, microscope, decompose.	some plants and animals. <i>Essential vocab:</i> Previously introduced vocabulary: life cycle, pollination, offspring, fertilise, fertilisation, sepal, filament, anther, stamen, pollen, petal, stigma, style, ovary, carpel, ovule, stem, bulb, roots, mammal, adult, baby, sperm, cells, live young.	compare how animals grow and age Discuss the validity of naturalists Rachel Carson and Sylvia Earle <i>Essential vocab:</i> <u>Reproduction:</u> asexual reproduction, sexual reproduction, gestation, metamorphosis, gametes, tuber, runners/side branches, plantlet, cuttings, embryo, adolescent, penis, vagina, egg, pregnancy, gestation.
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	<u>Day length:</u> sunrise, sunset, midday, time zone. <i>Previously introduced vocabulary: Sun, moon, shadow, day, night, heat, light, reflect.</i>		Identify scientific evidence that has been used to support or refute ideas or arguments. <i>Essential vocab:</i> Preservatives, bacteria, Micro-organisms, microscopic cyanobacteria, protists, bacteria and fungi, protein-based glue adhesives superabsorbent polymers			
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