EYFS

EYFS	Autumn 1	Autumn 2	Spring 1
Lead Enquiry Question (Composite Outcome)	Understanding the world How do the seasons change? *Link to Key stage 1 science Seasonal changes*	Understanding the world What animals are active at night? . *Link to Key stage 1 science Year 1 Animals*	Understanding the world What will I find down on the farm? *Animals and plants link to KS1 science*
Vocabulary	Season, change, temperature, weather, leaves, veins.	Active, inactive, nocturnal, diurnal, active.	Cow, calf, horse, foal, goat, kid, sheep lamb, hen chick. plant, edible, grow, diary, meat, vegetables
Component Questions (components to be explored throughout the unit)	CQ1: What are the names of the season and what is the order of them? CQ2: How are the seasons different? CQ3: What is the weather like in each season and which clothes are best to wear? CQ2: How are the seasons different and what might that look like in my environment?	CQ1: What is light and dark? Can I explore light and dark using a torch? CQ2: What is the difference between daytime and nighttime? CQ3: Which animals come out in the daytime and which animals come out in the nighttime?	CQ1: What are the names of different groups of farm animals? CQ2: Can I talk about farm animals and their young? CQ3: How do plants and seeds change? CQ4: Where does food come?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Describe what they see, hear and feel in Autumn.	Children who are **secure** will be able to: ✓ Name nocturnal and diurnal animals. ✓ I can name sources of light.	Children who are **secure** will be able to: ✓ Name and classify animals ✓ Explore a range of animals ✓ Know that we can eat some plants Identify and name farm animals and their young

Science Enquiry Questions and Assessment Checkpoints

	Spring 2	Summer 1	Summer 2
Lead Enquiry Question (Composite Outcome)	Understanding the world Are we there yet? *Pushes and pulls KS1 science link*	Which house will you choose? *Materials KS1 science link*	Can I find a star fish in the woods? *Animals- minibeasts KS1 science link*
Vocabulary	push, pull, surface, distance, speed	Materials, strong, weak, clear, hard. - sturdy. Experiment investigate	Minibeasts, insects, sort, classify. lifecycle, metamorphosis, habitat, wings, horns, antennae head, thorax, abdomen , legs, shell, chrysalis, cocoon ant, butterfly ,caterpillar, bee, beetle, dragonfly, ladybird, grasshopper, fly.
Component Questions (components to be explored throughout the unit)	CQ1: What happens when I push a car on a flat surface? CQ2: What happens when I push a car on a ramp? CQ3: How can we measure how far a car has travelled?	CQ1: Can I find different materials and name them? CQ2: How are materials different and how are some materials the same? CQ3: Can I talk about the properties of materials using descriptive vocabulary? CQ2: How can I investigate the strength of materials?	CQ1: How can I explore the environment for different bugs? CQ2: What are the names of different minibeasts and how are they different? CQ3: Can I explain where you might find minibeasts?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Investigate and discuss pushing objects. ✓ Investigate and discuss the effects of ramps.	Children who are **secure** will be able to: ✓ Create houses using different materials ✓ Investigate how strong materials are ✓ Plant beans ✓ Identify what plants need	Children who are **secure** will be able to: ✓ Identify and name common minibeasts ✓ Describe features of insects. ✓ Explain where minibeasts are most likely to be found

Year One

Year 1	Autumn 1	Autumn 2	Spring 1
Lead Enquiry Question (Composite Outcome)	Animals Including Humans All About Me What makes me human?	Animals Including Humans- All About Animals	Exploring Everyday Materials What are materials?
Enquiry Approaches	Identifying, Grouping and Classifying Pattern Seeking Research	Identifying, Grouping and Classifying Research	Identifying, Grouping and Classifying Comparative/Fair Testing
Enquiry Skills	Recording Data Observing and Measuring Setting Up Tests	Recording Data Observing and Measuring	Observing and Measuring Recording Data Setting Up Tests Making Predictions
Key Vocabulary	Head, body, brain, pupil, ear, sound, tongue, taste	Fish, amphibian, reptile, mammal, bird, warm-blooded, cold-blooded, herbivore	Material, fabric, wood, plastic, metal, property, opaque, transparent
Scientists Across the Curriculum *Historical figures, Underrepresented Groups and Modern Scientists*	Leonardo Da Vinci (Anatomical drawing, 'Vitruvian Man') Miller Hutchinson - search document for information (Engineer who invented the first electric hearing aid)	Tanesha Allen (Zoologist who studies badgers) Joan Beauchamp Procter - search document for information (Herpetologist and Curator of Reptiles, London Zoo)	Chester Greenwood (Inventor of earmuffs)
Component Questions (components to be explored throughout the unit)	CQ1: What are the basic parts of the human body? CQ2: How do my eyes see? CQ3: What can my ears do? CQ4: How does my tongue taste? CQ5: What is my sense of touch? CQ6: How does my nose smell?	CQ1: What are animal families? CQ2: What is the difference between mammals and birds? CQ3: How are amphibians, reptiles and fish different? CQ4: What food do living things eat? CQ5: What is the difference between wild animals and pets? CQ6: What are the characteristics of an animal?	CQ1: What are different materials called? CQ2: What is the difference between an object and a material? CQ3: What are the properties of materials? CQ4: Which objects are natural and which are manmade? CQ5: Which objects will float? CQ6: Which materials are best for different objects?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Name different parts of the human body and explain what they are used for	Children who are **secure** will be able to: ✓ Name a variety of common animals	Children who are **secure** will be able to: ✓ Predict which materials will float ✓ Name and identify common materials

	✓ Understand that our eyes allow us to see and know the basic parts of the eye and their functions ✓ Understand that our ears allow us to hear and know the direction of sound. ✓ Explain that sound is made up of vibrations ✓ Explain that our tongue allows us to taste and why our sense of taste is important ✓ Describe how our skin helps us to feel and that our sense of touch can identify different textures ✓ Know that our nose allows us to smell different flavours and that our sense of smell can help to keep us safe	✓ Identify the 5 groups of animals and describe the key characteristics ✓ Name, describe and compare common birds and mammals ✓ Name, describe and compare common amphibians, reptiles and fish ✓ Group animals based on their diet and explain the differences between herbivores, carnivores and omnivores ✓ Sort animals that are wild and those that are suitable for a pet ✓ Describe the needs of a pet ✓ Draw, label and describe an animals characteristics, using scientific language.	✓ Explain the difference between an object and the material that makes it ✓ Describe the properties of materials
	Spring 2	**Summer 1**	**Summer 2**
Lead Enquiry Question (Composite Outcome)	Uses of materials How can materials be used?	Plants What is a plant and where do they grow?	Seasons How do seasons change?
Enquiry Approaches	Comparative/ Fair Testing Problem Solving Identifying, Grouping and Classifying	Observation Over Time Identifying, Grouping and Classifying Research	Observation Over Time Identifying, Grouping and Classifying Pattern Seeking
Enquiry Skills	Setting Up Tests Recording Data Observing and Measuring	Making Predictions Observing and Measuring Recording Daya Interpreting and Communicating Results	Observing and Measuring Recording Data Interpreting and Communicating Results

Science Enquiry Questions and Assessment Checkpoints

Key Vocabulary	Strong, clay, brick, roof, slate, windowpane, window frame, cotton	Seed, plant, stem, petal, deciduous, evergreen, fruit, vegetable	Season, spring, summer, autumn, winter, hibernate, temperature, weather
Scientists Across the Curriculum *Historical figures, under-represented groups and Modern Scientists*	Becky Schroeder - links to free resources requiring a login (Inventor of Glo-sheets which she patented as a 12-year-old)	Maria Sibylla Merian (German artist, scientific illustrator, and naturalist)	Jim Cantore (Meteorologist and storm tracker)
Component Questions (components to be explored throughout the unit)	CQ1: How can a structure be strong? CQ2: What makes something waterproof? CQ3: What properties does glass have? CQ4: Which materials make furniture? CQ5: What properties do fabrics have? CQ6: Why are certain materials suitable for certain things?	CQ1: How does a seed grow into a plant? CQ2: What are the basic parts of a plant? CQ3: How can different plants grow in the same environment? CQ4: What is the difference between evergreen and deciduous trees? CQ5: Are fruits and vegetables plants?	CQ1: How many seasons are there? CQ2: What changes happen in Autumn? CQ3: What happens in winter? CQ4: What changes happens in spring? CQ5: What is summer like? CQ6: How can you measure rainfall?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Name and identify common materials ✓ Explain the difference between an object and the material that makes it ✓ Describe the properties of materials ✓ Compare and group materials based on properties	Children who are **secure** will be able to: ✓ Identify and name a variety of common plants ✓ Describe the basic structure of plants and trees	Children who are **secure** will be able to: ✓ Observe changes across the 4 seasons ✓ Observe and describe weather associated with the seasons ✓ Investigate ways to measure and compare rainfall

Year Two

Year 2	Autumn 1	Autumn 2	Spring 1
Lead Enquiry Question (Composite Outcome)	Plants What do plants need?	Materials How can I group materials?	Animals Including Humans- Health and Survival (Growth) What do animals and humans need to stay healthy and survive?
Enquiry Approaches	Research Comparative/ Fair Testing Pattern Seeking Identifying, Grouping and Classifying	Identifying, Grouping and Classifying Comparative/ Fair Testing	Research Identifying Grouping & Classifying Problem Solving comparative/ Fair Testing
Enquiry Skills	Observing and Measuring Asking Questions Recording Data Interpreting and Communicating Results Recording Data	Observing and Measuring Setting Up Tests Recording Data Interpreting and Communicating Results Evaluating	Observing and Measuring Recording Data Interpreting and Communicating Results Setting Up Tests
Key Vocabulary	Photosynthesis, carbon dioxide, oxygen, glucose, pollination, germination, crop, forests	Material, property, obstacle, construction, stretchy, elastic, force, bend	Nutrition. Healthy, protein, carbohydrate, dairy, fat, exercise, hygiene
Scientists Across the Curriculum *Historical figures, Underrepresented Groups and Modern Scientists*	Daniel Solander (Botanist who worked with Joseph Banks on Captain Cook's voyage around the World) Joseph Banks (Naturalist on Captain Cook's voyage around the World) Poppy Okotcha (Horticulturalist interested in the connection between healthy environments, healthy food, and healthier people)	Charles Macintosh - links to free resources requiring a login (Chemist and inventor of waterproof clothing) John McAdam (Inventor of the modern road surface) Victoria Callaghan (Develops sustainable packaging for BASF plc) Dr Pearl Agyakwa (Materials scientist who studies why some materials wear out and other don't)	Florence Nightingale (Nurse and founder of modern nursing) Elizabeth Garrett Anderson (First English woman to qualify as a doctor)
Component Questions (components to be explored throughout the unit)	CQ1: What is the difference between seeds and bulbs? CQ2: What do plants need to grow? CQ3: What is the life cycle of a plant? CQ4: How long does a plant take to grow?	CQ1: What are different materials used for? CQ2: How are materials suitable for different purposes? CQ3: What materials are suitable to build a bridge? CQ4: Which materials are stretchy?	CQ1: What does an animal need to survive? CQ2: What does a human need to survive? CQ3: Why is it important to eat the right food? CQ4: What does a healthy and balanced diet look like?

Science Enquiry Questions and Assessment Checkpoints

	CQ5: How do plants adapt to suit their environment?	CQ5: How can materials change their shape? CQ6: Which materials change shape?	CQ5: How does exercise impact our bodies? CQ6: Why is being hygienic important?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Describe and observe how seeds/blubs grow into plants ✓ Find out how plants need water, light and temperature to grow ✓ Know the difference between seeds and bulbs ✓ Explain how a plant makes its own food through photosynthesis ✓ Explain that plants use carbon dioxide, sunlight and water to create glucose ✓ Draw and explain the life cycle of a plant ✓ Record results and compare them to a prediction. ✓ Identify, sort and explain how plants adapt to their environment.	Children who are **secure** will be able to: ✓ Identify and compare the suitability of materials for particular uses ✓ Compare the strength of different materials ✓ Understand that materials can differ in strength and this can be changed through strengthening their structure ✓ Understand that the shapes of objects can be changed and how some objects return to their original form ✓ Know that objects can be changed when they are twisted, bent, squashed and stretched. Explain why this is important in every day life. ✓ Link the suitability of materials for particular purposes ✓ Discuss how some materials can be melted and mixed to change their properties	Children who are **secure** will be able to: ✓ Name and explain the basic needs of animals and humans ✓ Explain how animals adapt and survive ✓ Name and explain what humans need to survive ✓ Explain the difference between basic human needs and things humans want ✓ Name the 5 food groups ✓ Sort food into food groups ✓ Explain why the 5 food groups are important for staying healthy ✓ Describe a balanced diet and give examples ✓ Discuss healthy chooses by comparing precooked/ processed foods to healthier choices ✓ Know and explain how exercise keeps us healthy ✓ Explain the importance of good hygiene and a healthy routine
	Spring 2	**Summer 1**	**Summer 2**
Lead Enquiry Question (Composite Outcome)	Animals Including Humans- Life Cycles What Is a Life Cycle?	Living Things and Their Habitats What is a habitat?	Habitats From Around the World What habitats are around the world?

Science Enquiry Questions and Assessment Checkpoints

Enquiry Approaches	Identifying, Grouping and Classifying Research Pattern Seeking	Identifying, Grouping and Classifying Research	Identifying, Grouping and Classifying Research
Enquiry Skills	Recording Data Observing and Measuring	Recording Data Observing and Measuring	Recording Data Interpreting and Communicating Results
Key Vocabulary	Life cycle, foetus, womb, offspring, reproduction, transformation, metamorphosis, froglet	Reproduce, excrete, respire, habitat, microhabitat, survive, producer, consumer	Organism, rainforest, endangered, biodiversity, ocean, ecosystem, desert, Arctic
Scientists Across the Curriculum *Historical figures, under-represented groups and Modern Scientists*	Dr Kelly Blacklock (Veterinary Surgeon) Daniella Dos Santos (Veterinary Surgeon	William Kirby (Father of modern entomology, the study of insects)	Prem Singh Gill (Polar Scientist who studies where Antarctic seals live, breed and feed, so we can know more about where they prefer to live) Dawood Qureshi (Marine Biologist who studies wildlife in the ocean)
Component Questions (components to be explored throughout the unit)	CQ1: What are the stages of the human life cycle? CQ2: What is stage like? CQ3: What is the offspring and parent of ….? CQ4: What is the life cycle of a chicken like? CQ5: What is the life cycle of a butterfly like? CQ6: What is the life cycle of a frog like?	CQ1: What is the difference between living things, dead things and things that have never been alive? CQ2: Which plants and animals can we find a microhabitat? CQ3: What does a living thing need to survive in a micro habitat? CQ4: What do animals eat to survive in their habitats? CQ5: What is a food chain? CQ: How does food travel from the farm to the supermarket?	CQ1: Recap, what is a habitat? CQ2: How do environments change? CQ3: What is rainforest habitat like? CQ4: What is life like in the ocean? CQ5: What are Artic and Antarctic Habitats like? CQ6: Can I create a model habitat?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Order, identify and draw the human life cycle ✓ Match and describe each stage of the human life cycle.	Children who are **secure** will be able to: ✓ Explore and compare living/dead/never alive things ✓ Name and explain the 7 characteristics of living things	Children who are **secure** will be able to: ✓ Explain what a habitat is and identify which animals might live in a range of habitats

	✓ Compare two stages of the human life cycle. ✓ Match offspring with their parents and identify features inherited from a parent. ✓ Compare the life cycle of a chicken and a human. ✓ Create a bar chart and predict the height of a chick. ✓ Name and describe the stages of a butterfly's life. ✓ Explain the process of metamorphosis. ✓ Name and describe how a front moves between the stages in its life cycle. ✓ Compare similarities and differences between the life cycle of a frog and other animals.	✓ Explain the difference between a habitat and a microhabitat. ✓ Name a range of microhabitats ✓ Understand that living things depend on each other for survival ✓ Design a microhabitat where living things could survive ✓ Explain why an animal may or may not be suited to certain conditions ✓ Name what specific animals eat and ask diverse questions about what animals eat and where they find their food ✓ Model how all animals and humans relate to each other in a food chain ✓ Explain how the food we eat comes from natural source	✓ Understand how environments are changing ✓ Identify what you can do to help reduce the impact humans have on a habitat ✓ Kown what can do to care for a habitat ✓ Understand the importance of rainforests and explain how they are endangered ✓ Plan a campaign to help protect a rainforest ✓ Describe an ocean habitat ✓ Explain the difference between the Arctic and Antarctic and name animals which live in both polar habits ✓ Describe Arctic and Antarctic climates

Year Three

Year 3	Autumn 1	Autumn 2	Spring 1
Lead Enquiry Question (Composite Outcome)	Scientific Enquiry (Scientific Skills needed for KS2) What scientific skills will I need for KS2?	Rocks Are all rocks the same?	Animals Including Humans Are human bodies the same as animal bodies?
Enquiry Approaches	Comparative/ Fair Testing Observation Over Time	Research comparative/ Fair Testing Problem Solving Research	Identifying, Grouping and Classifying Research Problem Solving
Enquiry Skills	Asking Questions Recording Data Making Prediction Interpreting and Communicating Results Setting Up Tests	Interpreting and Communicating Results Observing and Measuring Evaluating Setting Up Tests	Recording Data Interpreting and Communicating Results Observing and Measuring
Key Vocabulary	Scientific investigation, prediction, plausible, record, data, method, control experiment, equipment, enquiry, practical, conclusion, fair test.	Igneous, metamorphic and sedimentary rock Chalk, flint, marble, limestone, sandstone, granite. Erode, receding, submerged, texture. Fragment, decompose, sandy soil, chalky soil, clay soil.	Vitamin, mineral, nutrition label, balanced, endoskeleton, exoskeleton, radius, tibia, rib cage, spine, hamstrings, biceps.
Scientists Across the Curriculum *Historical figures, Underrepresented Groups and Modern Scientists*		James Hutton (Scientist who studied rocks and the effects of natural processes on them, such as rain, running water, tides, and volcanoes, on the development of the Earth) Florence Bascom (Geologist who studied the origin and formation of mountains) Anjana Khatwa (Geologist who collects rocks and fossils from the beach and studies them to learn about the creatures that lived in the sea and on Earth over 150 million years ago) Brianna Green (Biogeochemist who collects soil to see what kind of living things are in it to study the effects of climate change)	Wilhelm Roentgen (Physicist who discovered x-rays) Marie Curie (Physicist who invented the first mobile x-ray machine to treat soldiers wounded on the battlefield in WWI) Adelle Davis (Biochemist & Nutritionist who linked health and diet) Michelle Williams (Radiologist)

Science Enquiry Questions and Assessment Checkpoints

Component Questions (components to be explored throughout the unit)	CQ1: How can we pose questions and write predictions? CQ2: What is the best way to record results? CQ3: How do scientists explain their method and carry out a practical test? CQ4: What makes a good, scientific method? CQ5: How do you keep a test fair? CQ6: What is a scientific enquiry and how can I make one?	CQ1: How are igneous rocks formed and what are their properties? CQ2: How are sedimentary and metamorphic rocks formed and what are their properties? CQ3: How do rocks weather and what are the purposes of rocks? CQ4: Why does water impact the weathering of rocks? CQ5: How are fossils formed? CQ6: Are all soils the same?	CQ1: What are the 5 key food groups? CQ2: What are the nutrients in different foods? CQ3: What are the different types of skeletons? CQ4: What is the human skeleton like? CQ5: What is an animal skeleton like? CQ6: Why are muscles important?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Pose a scientific investigation with a variable ✓ Provide a plausible prediction ✓ Take careful measurements and record results, putting data into a graph	Children who are **secure** will be able to: ✓ Understand that igneous rocks come from beneath the earth's surface and explain how they are formed ✓ Describe the difference between intrusive and extrusive igneous rock ✓ Know and identify the properties of the types of rocks that are formed on Earth ✓ Explain the difference between igneous, sedimentary and metamorphic rocks. ✓ Identify and define the different types of weathering and explain the effect. ✓ Understand that water can erode rocks and explain how this happens ✓ Understand what a fossil is and how they are created. ✓ Name and describe the different types of soil. ✓ Explain which type of soil certain flowers and vegetables grow better in	Children who are **secure** will be able to: ✓ Name the 5 key food groups and explain how many portions of food we should have from food group a day, to grow healthily. ✓ Understand that food labels help us to make healthy choices and give us in depth information about the different food groups within a product. ✓ Identify which animals have an endoskeleton, exoskeleton and a hydrostatic exoskeleton ✓ Explain the functions of the human skeleton and identify the main bones in the human body ✓ Explain the functions of the main parts of the human body ✓ Match animals to their skeletons and explain how animals' skeletons have adapted to help them move in their environment. ✓ Explain that we have voluntary and involuntary muscles ✓ Name some muscles in the human body and explain how they work.

Science Enquiry Questions and Assessment Checkpoints

	Spring 2	Summer 1	Summer 2
Lead Enquiry Question (Composite Outcome)	Light What is light?	Forces What is a force?	Plants How do plants survive?
Enquiry Approaches	Identifying, Grouping and Classifying Comparative/ Fair Testing Pattern Seeking Observation Over Time	Comparative/ Fair Testing Identifying, Grouping and Classifying Problem Solving	comparative/ Fair Testing Research Observation Over Time Pattern Seeking
Enquiry Skills	Recording Data Making Predictions Observing and Measuring	Observing and Measuring Setting Up Tests Making Predictions Recording Data	Asking Questions Interpreting and Communicating Results Observing and Measuring Recording Data
Key Vocabulary	Light, reflect, vitamin D, ultraviolet rays, fluorescent, high visibility, shadow, ray, cast, position, shape, puppet,	Force, friction, motion, texture, magnet, attract, repel, magnetic field, non-contact force, magnetism, compass, orienteering	Fertiliser, potassium, chlorphyll, photosynthesis, xylem, phloem, anther, filament, transpiration, pollen, nectar
Scientists Across the Curriculum *Historical figures, under-represented groups and Modern Scientists*	Percy Shaw (Inventor of the cat's eye)	William Gilbert (Doctor who developed the theory of magnetism) Leonardo Da Vinci - search document for information (First person to plan and carry out tests on friction) Eric Laithwaite (Electrical Engineer who developed the technology behind the Maglev train)	Jan Ingenhousz (Doctor & Scientist who discovered the process of photosynthesis) Carl Linnaeus (Botanist who studied the conditions for successfully growing bananas and developed a method to reproduce them in Europe) Dr Kelsey Byers (Biologist who studies flower smells and how they attract insects) Jagadish Chandra Bose - search document for information (Biophysicist who measured plant response to different stimuli)
Component Questions (components to be explored throughout the unit)	CQ1: How are shadows formed? CQ2: How do we know light travels in a straight line? CQ3: What are different mirrors for?	CQ1: What is magnetism? CQ2: What can different magnets do? CQ3: How do magnetic fields work?	CQ1: What factors affect plant growth? CQ2: What are the functions of plant parts? CQ3: How does water move in plants?

Science Enquiry Questions and Assessment Checkpoints

	CQ4: How does a periscope work? CQ5: How do reflective surfaces keep us safe? CQ6: How do we protect ourselves from the sun?	CQ4: How does a compass work? CQ5: How does the surface affect friction? CQ6: What forces are out there?	CQ4: What is the life cycle of a plant? CQ5: What is pollination?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Notice that light is reflected from surfaces ✓ Associate shadows with light ✓ Describe that light from the sun can be dangerous ✓ Explain how we can stay safe in the dark ✓ Investigate how a periscope works	Children who are **secure** will be able to: ✓ Use the term friction to describe how things move on different surfaces ✓ Investigate the way magnets attract or repel each other ✓ Compare the magnetism of different materials and make conclusions about them ✓ Describe a variety of forces ✓ Explore how a compass works Use poles to describe magnets and predict whether they will repel or attract each other.	Children who are **secure** will be able to: ✓ Describe what a plant needs to grow ✓ Explain methods of pollination ✓ Investigate the life cycle of a plant ✓ Explore the functions of a plant ✓ Describe how water moves in a plant and is important for plants

Year Four

Year 4	Autumn 1	Autumn 2	Spring 1
Lead Enquiry Question (Composite Outcome)	Animals including Humans- digestion How do we digest food?	Living Things and Their Habitats How can we explore, classify and group living things?	Sound How do we hear?
Enquiry Approaches	Identifying, Grouping and Classifying Comparative/ Fair Testing Pattern Seeking Research	Identifying, Grouping and Classifying Research Problem-solving	Identifying, Grouping and Classifying Pattern-seeking Problem-solving Comparative/ fair testing
Enquiry Skills	Interpreting and Communicating Results Recording Data Observing and Measuring	Interpreting and Communicating Results Recording Data Observing and Measuring	Interpreting and Communicating Results Observing and Measuring Setting Up Tests Recording Data Evaluating
Key Vocabulary	Digestive system, oesophagus, saliva, peristalsis, incisors, molars, enamel, fluoride, consumer, predator, tundra, hide.	Adapted, camouflage, coastal, grassland, classify, species, sub-group, classification key, region, blubber, ecosystem, oxygenised	Vibration, medium, source, energy, materials, reflect, volume, decibels, pitch, instruments, particles, sound source
Scientists Across the Curriculum *Historical figures, Underrepresented Groups and Modern Scientists*	William Beaumont (Surgeon who first observed and studied human digestion as it occurs in the stomach) Washington & Lucius Sheffield (Dentists who invented toothpaste in a tube) Paul Sharpe (Bioengineer who studies how to regrow teeth if they become damaged)	Jacques Cousteau (Oceanographer and coinventor of the aqualung) Kelsey Archer Barnhill (Deep Sea Ecologist who sends robots to the seafloor to collect samples of different animals to study) Liz Bonnin (TV Presenter & Wildlife Conservationist)	Aristotle (Philosopher who developed the concept that sound travels through air due to the movement of air particles) Isaac Newton - search document for information (Mathematician & Physicist who measured the speed of sound)
Component Questions (components to be explored throughout the unit)	CQ1: What is the role of salivary glands and taste buds? CQ2: What are vitamins and minerals? CQ3: What are the different types of teeth? CQ4: How does the digestive system work? CQ5: What is the food pyramid? CQ6: What is a food chain?	CQ1: Are all habitats the same? CQ2: What different habitats exist? CQ3: How can animals be classified? CQ4: How are classification keys created? CQ5: How can species be classified and how do they adapt? CQ6: How can pond plants be classified?	CQ1: How does sound travel? CQ2: What causes sound? CQ3: Does sound travel faster than light? CQ4: How do sounds differ? CQ5: How does sound travel in different states of matter?

Science Enquiry Questions and Assessment Checkpoints

Assessment Checkpoint	Children who are **secure** will be able to: ✓ Explain what makes a good diet ✓ Describe the different teeth and what they are used for ✓ Identify and describe the parts of the digestive system ✓ Classify animals based on specific characteristics ✓ Make and explore food chains	✓ Group living things according to the environment they are suited to and identify the similarities between animals that live in the same habitat ✓ Describe habitats in the UK and name characteristics of the environment along with the challenges and threats they face ✓ Organise animals into different classification groups and sub-groups	Children who are **secure** will be able to: ✓ Identify the way sounds are made ✓ Describe how sounds travels using the word vibration ✓ Investigate how sound travels through different states of matter ✓ Compare the speed of sound and light
	Spring 2	**Summer 1**	**Summer 2**
Lead Enquiry Question (Composite Outcome)	States of Matter How can materials be grouped together and what happens when they change state?	Electricity How does electricity work?	Living things: Conservation What is conservation?
Enquiry Approaches	Identifying, grouping and classifying Pattern-seeking Observation Over Time Research Comparative/ Fair Testing Problem-solving	Problem Solving Pattern Solving Comparative/ Fair Testing	Research Problem Solving Observation Over Time
Enquiry Skills	Interpreting and Communicating Results Setting Up Tests Recording Data Making Predictions	Interpreting and Communicating Results Setting Up Tests Asking Questions	Interpreting and Communicating Results Observing and Measuring Recording Data

Science Enquiry Questions and Assessment Checkpoints

Key Vocabulary	Thermometer, melting point, freezing point, boiling point, solid, liquid, gas, evaporation, particles, condensation, water vapour, substance.	Electricity, batteries, circuit, voltage, current, bulb, conductor, insulator, switch, control, wind turbines, hydropower	Migrate, monsoon, deforestation, biodiversity, emissions, pollution, pesticide, contaminate, drought, freshwater, marine sanctuaries, conservation areas
Scientists Across the Curriculum *Historical figures, under-represented groups and Modern Scientists*	Joseph Priestley (Clergyman who discovered oxygen at about the same time as Carl Wilhelm Scheele) Carl Wilhelm Scheele (Chemist who discovered oxygen at about the same time as Joseph Priestley) Daniel Fahrenheit (Physicist who invented the Fahrenheit temperature scale and the thermometer)	Thomas Edison (Inventor of the lightbulb and power grid) Joseph Swan (Physicist & Chemist who developed a primitive electric light 20 years before Thomas Edison) Lewis Howard Latimer (Electronic Engineer who improved the design of Edison's light bulb and brought street lighting to the world) Ronit Kanwar - links to free resources requiring a login (Businessman who set up company to provide affordable, sustainable solar-powered lights for poor in rural India) William Kamkwamba - search document for information (Inventor who used wind turbines to bring electricity to his village in Malawi) Zubera Iqbal (Chemist who explores sustainable ways to recycle electric vehicle batteries)	Rachel Carson (Aquatic Biologist who wrote about environmental pollution
Component Questions (components to be explored throughout the unit)	CQ1: How are the 3 states of matter different to one another? CQ2: How do solids, liquids and gases behave? CQ3: At what temperature do materials start to melt? CQ4: At what temperature do materials start to freeze? CQ5: What is evaporation and condensation? CQ6: What is the water cycle?	CQ1: How is electricity transported? CQ2: When will a lamp light? CQ3: What are the basic parts of a circuit? CQ4: What are conductors and insulators? CQ5: What are series and parallel circuits?	CQ1: What is an ecosystem? CQ2: How is nature balanced? CQ3: How do humans impact ecosystems? CQ4: What is air pollution? CQ5: What is water pollution? CQ6: How do we conserve water? CQ7: How can we change the future?

Science Enquiry Questions and Assessment Checkpoints

Assessment Checkpoint	✓ Identify the 3 states of matter and describe their properties ✓ Describe how particles behave and how substances change state ✓ Name the temperature at which water changes state ✓ Observe and record the temperature at which food changes state ✓ Predict the melting points of different foods ✓ Describe freezing and boiling points. ✓ Record information in a bar chart accurately ✓ Define evaporation and condensation ✓ Order the stages of the water cycle and describe each stage in detail	Children who are **secure** will be able to: ✓ Identify things that run on electricity ✓ Construct simple electrical circuits ✓ Identify and name parts of a circuit ✓ Recognise common conductors and insulators ✓ Explain if/why a lamp will light or not in a simple circuit	Children who are **secure** will be able to: ✓ Recognise that environments can change and that this can pose a threat to living things ✓ Investigate different types of pollution ✓ Explain how we can conserve water ✓ Develop ideas for conservation

Year Five

Year 5	Autumn 1	Autumn 2	Spring 1
Lead Enquiry Question (Composite Outcome)	Forces What happens to unsupported objects?	Earth and Space What's out there?	Animals including humans How do humans change?
Enquiry Approaches	Comparative/ Fair Testing Problem-Solving	Identifying, Grouping and Classifying Research Pattern-Seeking Observation Over Time Problem-Solving	Observation Over Time Research Pattern- Seeking Comparative/ Fair Testing Identifying, Grouping and Classifying Problem-Solving
Enquiry Skills	Making Predictions Setting Up Tests Interpreting and Communicating Results Evaluating Observing and Measuring	Interpreting and Communicating Results Observing and Measuring Making Predictions Recording Data	Recording Data Interpreting and Communicating Results Observing and Measuring
Key Vocabulary	Sir Isaac Newton, gravity, Galileo Galilei, parachute, water resistance, streamlined, buoyant, upthrust, friction, newton, lever, pulley	Heliocentric, geocentric, solar system, astronomy, terrestrial planet, gas giants, axis, orbit, moon, phase, waxing, waning	Offspring, foetus, dependent, adolescent, puberty, gestation, pregnant, toddler, prenatal, breeding, embryo, hormones
Scientists Across the Curriculum *Historical figures, Underrepresented Groups and Modern Scientists*	Galileo Galilei - links to free resources requiring a login (Astronomer, Mathematician & Physicist who was the first person to use the scientific method to test theories about gravity and the Solar System) Isaac Newton - links to free resources requiring a login (Mathematician & Physicist who developed theories about gravity) - search document for information (Mathematician & Astronomer who was the first scientist to talk about gravity)	Galileo Galilei - search document for information (Astronomer, Mathematician & Physicist who made the first telescope and discovered Neptune and the rings of Saturn) Johannes Kepler - search document for information (Mathematician, Astronomer and Astrologer who developed the theory that the planets moved on oval paths around the Sun) Stephen Hawking - links to free resources requiring a login (Physicist & Cosmologist who developed the theory that the Big Bang may have been caused by a black hole in reverse) Neil Armstrong (Astronaut who was the first human to walk on the Moon) Caroline Herschel (Astronomer who was the first woman to discover a comet)	Virginia Apgar (Doctor & Medical Researcher who developed a method of evaluating the well-being of new-born babies) Robert Winston (Professor of Science and Society, Emeritus Professor of Fertility Studies & TV presenter)

		Valentina Tereshkova (Astronaut and first woman in space) Helen Sharman (Astronaut who was the first British citizen to go into space) Tim Peake (Astronaut who was the first British person to walk in space)	
Component Questions (components to be explored throughout the unit)	CQ1: What is gravity and who was Isaac Newton? CQ2: Is there a connection between air resistance and parachutes? CQ3: What affects water resistance? CQ4: How is friction effected on different surfaces? CQ5: What are levers and pulleys and why are they useful? CQ6: What are mechanisms? What are gears?	CQ1: What is the solar system? CQ2: What is the heliocentric model of our solar system? CQ3: How does the Earth move in space? CQ4: How does the Earth rotate? CQ5: How does it change from night into day? CQ6: How does the moon move?	CQ1: What are the key stages of a mammal's life cycle? CQ2: What is the gestation period of mammals? CQ3: What is foetal development? CQ4: How does age impact hand span? CQ5: What changes are experienced during puberty? CQ6: What changes might humans experience in old age?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Explain who Isaac Newton was and talk share an understanding of his work ✓ Investigate the relationship between mass and gravity ✓ Demonstrate an understanding of how air resistance acts on objects and draw an accurate diagram of the forces acting on a parachute ✓ Describe the forces acting on an object floating in water and identify the similarities and differences between air and water resistance ✓ Describe how friction acts on objects and accurately use a Newton meter to measure a force. ✓ Name the forces acting on a range of objects and explain how gears work	Children who are **secure** will be able to: ✓ Name the characteristics of a planet ✓ Order the plants from the Sun ✓ Describe the Sun, Earth, Moon and other celestial bodies as spheres ✓ Name the differences between a heliocentric and geocentric model of the solar system ✓ Represent visual characteristics of a planet ✓ Recognise that time can be different in various parts of the world and show how time can be recorded using a 'solar clock' ✓ Draw how the sun transitions across the sky ✓ Describe how the Earth and Move relative to the Sun ✓ Describe how movement of the Moon relative to the Earth	Children who are **secure** will be able to: ✓ Describe the changes as humans develop to old age ✓ Investigate the correlation between age and hand span ✓ Explain the life cycle of a mammal ✓ Describe and identify changes in the human life cycle ✓

Science Enquiry Questions and Assessment Checkpoints

	✓ Explain how gears work and notice patterns in the workings of gears	✓ Explain that the Moon orbits the Earth, not the Sun	
	Spring 2	**Summer 1**	**Summer 2**
Lead Enquiry Question (Composite Outcome)	Living things: Life Cycles How do life cycles of different animals differ?	Materials- properties How do the properties of different materials differ?	Materials- changes How can materials change?
Enquiry Approaches	Pattern-Seeking Identifying, Grouping and Classifying Observation Over Time Research Problem-Solving	Comparative/ Fair Testing Problem-Solving Pattern-Seeking	Observation Over Time Problem-Solving Comparative/ Fair Testing
Enquiry Skills	Making Predictions Interpreting and Communicating Results Recording Data	Making Predictions Observing and Measuring Setting Up Tests Evaluating	Setting Up Tests Interpreting and Communicating Results Recording Data
Key Vocabulary	Living organism, primatologist, metamorphosis, endangered, asexual, reproduction, fertilisation, placental mammal, monotreme mammal	Conductive, magnetic, thermal, conduction, hardness, force, dissolve, solute, solvent, substance, filtering, evaporation	Solute, solvent, reversible, evaporate, chemical change, effervescence, fair test, corrosion, combustion, extinguish, reaction, carbon dioxide.
Scientists Across the Curriculum *Historical figures, under-represented groups and Modern Scientists*	David Attenborough - links to free resources requiring a login (Naturalist & TV Presenter) Jane Goodall (Wildlife Researcher & Conservationist who studied chimpanzees) Roger Arliner Young - search document for information (Zoologist who studied reproduction in marine organisms) Ernest Everett Just - search document for information (Zoologist who studied the early development of marine invertebrates)	Spencer Silver & Arthur Fry (Chemical Engineer & Chemist respectively who invented the post it note) Ruth Benerito (Chemist who developed wrinkle-free cotton fabric)	Jamie Garcia - links to free resources requiring a login (Chemist who discovered a fully recyclable plastic) Raquel Prado (Chemist who develops a sustainable fabric that looks like leather but comes from pineapple leaves that would otherwise be burnt)

Science Enquiry Questions and Assessment Checkpoints

Component Questions (components to be explored throughout the unit)	CQ1: What are the life processes of a plant? CQ2: What are the life processes of an animal? CQ3: How do the life cycles of insects and amphibians compare? CQ4: How do the life cycles of birds and reptiles compare? CQ5: What are David Attenborough and Jane Goodall famous for? CQ6: Can you present the life cycle of a specific animal?	CQ1: What properties do materials have? CQ2: What are thermal conductors and insulators? CQ3: Which materials are hard? CQ4: Which materials are soluble in water? CQ5: How are materials soluble? CQ6: How can mixtures be separated?	CQ1: How can evaporation recover a solute from a solution? CQ2: What is a reversable change? CQ3: How are new materials made? CQ4: What is rust? CQ5: What makes a burning reaction? CQ6: What is a chemical reaction?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Describe the life cycles of different animals ✓ Research animals ✓ Compare and contrast the life cycles of different types of animals	Children who are **secure** will be able to: ✓ Compare and group materials based on hardiness, solubility, conductivity and magnetism ✓ Investigate how some materials will dissolve ✓ Use knowledge of solids, liquids and gasses to decide how mixtures should be separated Give reasons for the uses of particular materials	Children who are **secure** will be able to: ✓ Describe how to recover a substance from a solution ✓ Demonstrate that dissolving, mixing and changes of state are reversable changes ✓ Explain that some changes result in the formation of new materials ✓ Compare reversable and irreversible changes

Year Six

Year 6	Autumn 1	Autumn 2	Spring 1
Lead Enquiry Question (Composite Outcome)	Light How does light travel?	Living Things and Their Habitats What are the kingdoms of life?	Electricity
Enquiry Approaches	Identifying, Grouping and Classifying Research Comparative/ Fair Testing Observation Over Time Problem-Solving	Identifying, Grouping and Classifying Research Comparative/ Fair Testing Observation Over Time Problem-Solving	Identifying, Grouping and Classifying Comparative/ Fair Testing Problem-Solving
Enquiry Skills	Recording Data Interpreting and Communicating Results Setting Up Tests Observing and Measuring	Recording Data Interpreting and Communicating Results Setting Up Tests Observing and Measuring	Recording Data Making Predictions Interpreting and Communicating Results Evaluating Observing and Measuring
Key Vocabulary	Light, light source, reflected, variable, angle, mirror, opaque, transparent, sunshade, rotate, optical, spectrum	Classification, microorganism, habitat, living organism, species, microscopic, ecosystem, kingdom, Linnaean System, cell.	Circuit, battery, electricity, resistor, variable resistor, dimmer switch, output, systematically, synchronised, signal, conductor, insulator
Scientists Across the Curriculum *Historical figures, Underrepresented Groups and Modern Scientists*	Euclid - search document for information (Mathematician who predicted that light travels in straight lines and we only see things that light falls on) Colin Webb (Professor of Laser Physics) Colin Webb (Professor of Laser Physics)	Carl Linnaeus (Botanist & Zoologist who developed a taxonomy for classifying organisms) Agnes Arber (Botanist and first woman to become a fellow of the Royal Society who studied aquatic flowering plants and monocots, a group of flowering plants) Beatrix Potter (Mycologist, study of fungi, and Scientific Illustrator)	Nikola Tesla - links to free resources requiring a login (Electrical & Mechanical Engineer who developed the AC electrical system and made important advances in technologies such as x-rays, neon lights and robotics) Alessandro Volta (Physicist who developed the electric battery) Mildred S Dresselhaus (Materials Scientist whose research led to the development of the rechargeable batteries in all modern electronic equipment)
Component Questions (components to be explored throughout the unit)	CQ1: How does light travel? CQ2: What is a reflection? CQ3: How can a reflection be used to help us see things? CQ4: How do shadows change?	CQ1: How can I classify living organisms? CQ2: What are the kingdoms of life? CQ3: What is the Linnaean system? CQ4: What are the characteristics of different types of microorganisms? CQ5: What is asexual reproduction?	CQ1: What are the parts of an electric circuit? CQ2: What is the impact of voltage on an electrical circuit? CQ3: How can we identify and correct problems in a circuit?

	CQ5: Do shadows have the same shape as the object that cast them? CQ6: What is light phenomena?		CQ4: What affects the output of a circuit? CQ5: Can we build a set of functioning traffic lights? CQ6: What is a conductor and insulator?
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Explain that light travels in a straight line and draw a scientific diagram to show this ✓ Understand that light is reflected off of surfaces ✓ Understand how to set up a fair test and carry it out	Children who are **secure** will be able to: ✓ Classify living things ✓ Identify the kingdoms of life ✓ Investigate mould growth	✓ Create a simple electrical circuit and identify components from their symbol and definition ✓ Create an accurate circuit diagram ✓ Create complex electrical circuits and use a voltometer to measure voltage ✓ Describe how the brightness of a bulb is affected by the voltage/ number of cells in a circuit ✓ Identify problems in a circuit and fix them ✓ Design and conduct an investigation and explain what affects the output of a circuit ✓ Design and create a set of traffic lights and explain how they work ✓ Identify electrical conductors and insulators and follow instructions to create a loop and wire game
	Spring 2	**Summer 1**	**Summer 2**
Lead Enquiry Question (Composite Outcome)	Evolution and Inheritance What is evolution?	Animals Including Humans: Circulation and Lifestyle, Diet and Exercise What does blood do?	Looking After Our Environment What is the climate and how does it change? What responsibilities do we have?
Enquiry Approaches	Problem-Solving Research	Identifying, Grouping and Classifying Comparative/ Fair Testing	Observation Over Time Research Pattern-Seeking Problem-Solving

Science Enquiry Questions and Assessment Checkpoints

Enquiry Skills	Interpreting and Communicating Results Asking Questions Observing and Measuring	Recording Data Observing and Measuring Setting Up Tests Evaluating Interpreting and Communicating Results	Observing and Measuring Interpreting and Communicating Results Recording Data
Key Vocabulary	Inherit, adaptation, epiphytes, fossil, Mary Anning, palaeontologist, ichthyosaurus, Charles Darwin, evolved, natural selection, ancestor, Homo sapiens	Circulatory system, BPM, diet, pulse, oxygenated, deoxygenated, atrium, ventricle, vessel, valve, diffusion, osmosis	Weather, global warming, recycle, biodegrade, net zero, greenhouse gases, industrial revolution, combustion, COP, conference, species, habitat
Scientists Across the Curriculum *Historical figures, under-represented groups and Modern Scientists*	Mary Anning - links to free resources requiring a login (Fossil hunter who developed the theory that dinosaurs had become extinct a long time ago) Charles Darwin - links to free resources requiring a login (Natural Historian who developed the theory of evolution by natural selection) Alfred Wallace (Natural Historian who developed the theory of evolution by natural selection)	Animals, including humans Evolution and inheritance Light Electricity Carl Linnaeus (Botanist & Zoologist who developed a taxonomy for classifying organisms) William Harvey (Doctor who discovered the nature of blood circulation and the function of the heart as a pump) Santorio Santorio (Doctor who invented an instrument to measure pulse accurately using a pendulum and did the first scientific study of the metabolism) Richard Doll (Doctor who proved the link between lung cancer and smoking) Ruth Ella Moore - search document for information (Bacteriologist who researched immunology, blood groups and tuberculosis) Nettie Stevens - search document for information (Geneticist who concluded that sex is inherited as a chromosomal factor and that males determine the gender of offspring)	
Component Questions (components to be explored throughout the unit)	CQ1: How do offspring vary? CQ2: How have animals adapted? CQ3: How do plants adapt? CQ4: What can we learn from fossils? CQ5: What is the theory of evolution?	CQ1: What is the function of the heart? CQ2: What are blood vessels? CQ3: What is blood? CQ4: How does the body transport water and nutrients? CQ5: What affects your heart rate? CQ6: How do drugs and alcohol affect the body?	CQ1: What is climate change? CQ2: How can we reduce how much rubbish is sent to landfill? CQ3: How can we reduce energy consumption? CQ4: What happens when fuels are burnt? CQ5: What are the outcomes of COP26?

Science Enquiry Questions and Assessment Checkpoints

Assessment Checkpoint	Children who are **secure** will be able to: ✓ Discover links between extinct animals and those living today ✓ Describe the theory of evolution ✓ Research the work of Charles Darwin and Mary Anning	Children who are **secure** will be able to: ✓ Identify the parts of the circulatory system ✓ Describe the function of the heart, blood vessels and blood ✓ Recognise the impact of diet, exercise drugs and lifestyle ✓ Describe how nutrients and water are transported in animals ✓ Describe the impact of lifestyle, diet and exercise on the body ✓ Investigate the impact of exercise	Children who are **secure** will be able to: ✓ Describe the difference between climate change and the weather and explain the effects of climate change ✓ Understand what recycling is and what happens to waste that is sent to landfill ✓ Make suggestions about ways in which the school can reduce the amount of waste that is sent to landfill ✓ Understand where the energy that the UK uses comes from ✓ Explain the difference between renewable and non-renewable energy ✓ Share ways to reduce the amount of energy used ✓ Understand what the industrial revolution was and how this played a part in climate change ✓ Understand what COP is and our role in meeting targets