Acre Hall Primary School- Science Long Term Curriculum Map

Long Term Overview

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery (Seasons throughout year)	Senses (Animals and Humans) Materials, Hot and Cold		Growing plants and baby animals		Forces	
Reception (Seasons throughout year)	Exploring materials and processes Floating and Sinking, Light and Dark		Plants, growing and animal life cycles		Keeping Healthy, Brushing Teeth and Dental Care	
1	Seasonal change	Animals including humans	Plants		Materials	
2	Animals including humans		Plants	Materials	Living things and their habitats	
3	Rocks	Forces and Magnets	Animals including humans	Plants		Light
4	Living things and their habitats	Animals including humans	States of matter		Sound	Electricity
5	Earth and Space	Forces	Living things and their habitats	Animals including humans	Properties and changes of material	
6	Evolution and Inheritance	Electricity	Light	Animals including humans	Living things and their habitats	

Biology	Physics	Chemistry

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Science EYFS

At Acre Hall we plan teaching and learning in our specific subjects in the afternoons, during topic weeks eg Science week. The pupils can access provision in both Reception classrooms. They are encouraged to participate in a daily topic session and enhancements and challenges in the provision link to that days/weeks teaching as part of the subject in focus that week. We endeavour to cover every subject each half term.

Science in the early years is taught **through a variety of practical adult led and child initiated activities** which are linked to:

Toothbrushing and oral hygiene
Keeping healthy
Planting and growing
Animal life cycles
Exploring materials and processes, such as floating and sinking
Exploring seasons and different environments

At Acre Hall in Early Years we take a 'Planning in the moment approach'. This follows the pupils's natural interests, this is added to retrospectively throughout the year; previous examples includelooking at Mammoths by studying the animal species including where they live and what they eat.

Curriculum EYFS development matters statements	
	C&L • Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts. **PSED** • Make healthy choices about food, drink, activity and toothbrushing. • Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian **Understanding the world** • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things.

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	• Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice. • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
Reception ELG	**PSED** • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. **Understanding the world** • 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.
Books linked to teaching	• A scientist like me • The Hungry Caterpillar • Jack and the Bean stalk • Whatever next • Handa's Surprise

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Year One

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Topic Enquiry Question	**Can you build a snowman in summer?**	**Is a human an animal?**	**How does a garden grow?**		**Which material makes the best boat?**	
National Curriculum Expectations	Seasonal Changes • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies.	Animals (including humans) • 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.	Plants • 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.		Everyday Materials • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, 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.	
Component Knowledge	By the end of the unit, pupils will: Recognise spring as a season, stating the months that spring usually occurs and the key characteristics of spring, including weather. (Lesson 1) Recognise summer as a season, stating the months that summer usually occurs and the key characteristics	By the end of the unit, pupils will: Identify the names of common animals and state the group to which they belong, based on their features. (Lesson 1) State similarities and differences between some common animals using key scientific vocabulary to describe features. (Lesson 2)	By the end of the unit, pupils will: Identify what a plant is and recognise different types of plants from a selection of objects. (Lesson 1) Label the basic parts of a plant. (Lesson 2) Explain that plants grow from different seeds and that they continue to change as they grow. (Lesson 3) Name a variety of plants that grow wildly and find some examples in the local area. (Lesson 4) Sort plants based on their features. (Lesson 5)		By the end of the unit, pupils will: Name different types of materials. (Lesson 1) Describe basic properties of different materials. (Lesson 2) Name the material from which different objects are made. (Lesson 3) Sort materials based on physical properties. (Lesson 4) Investigate the most effective material to make an umbrella from, recognising which materials are waterproof, light and strong. (Lesson 5)	

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	of summer, including weather. (Lesson 2) Recognise autumn as a season, stating the months that autumn usually occurs and the key characteristics of autumn, including weather. (Lesson 3) Recognise winter as a season, stating the months that winter usually occurs and the key characteristics of winter, including weather. (Lesson 4) Name different types of weather and in which seasons they commonly occur. Explain what rain is and suggest the best materials for keeping dry. (Lesson 5) Explain when and how the days get longer and shorter and which seasons have the longest and shortest days. (Lesson 6)	Know that animals do not all eat the same thing, recognising some animals that are herbivores, omnivores and carnivores. (Lesson 3) Name different parts of the human body and locate these parts on their own bodies. (Lesson 4) Name the 5 senses and identify the body parts associated with each sense. (Lesson 5) Compare similarities and differences between humans based on appearance. (Lesson 6)	Recognise plants that we can eat. (Lesson 6) Explain that trees are a type of plant and recognise basic features. Identify deciduous and evergreen trees. (Lesson 7) Identify similarities and differences between different leaves. Sort leaves based on appearance. (Lesson 8)	Recognise see-through materials. State which material would make the most effective curtains and why. (Lesson 6)
Lesson Sequence **Key Questions:**	1. KQ: What is spring? 2. KQ: What is summer? 3. KQ: What is autumn? 4. KQ: What is winter?	1. KQ: How can we group animals? 2. KQ: All animals have 4 legs. True or false? 3. KQ: Do all animals eat meat? 4. KQ: What are our body parts called?	1. KQ: What is a plant? 2. KQ: What are the parts of a plant called? 3. KQ: How do you grow a plant? 4. KQ: Do wild plants grow in our local area? 5. KQ: How can we group plants? 6. KQ: Can we eat plants?	1. KQ: What are materials? 2. KQ: How are materials different? 3. KQ: What are objects made from? 4. KQ: How can we sort materials? 5. KQ: Which material would be best for an umbrella? 6. KQ: Which material would be best for curtains?

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	5. KQ: How can we keep dry when it rains? 6. KQ: How does the day change throughout the seasons?	5. KQ: Can you see with your ears? 6. KQ: Are all humans the same?	7. KQ: Are trees a type of plant? 8. KQ: What is a leaf?	
Practical Enquiry	● Keep a weather diary ● Measuring rainfall – make a simple rain gauge	● Investigating and comparing height/hand size	● Planting seeds, instructional writing, monitoring weekly growth ● Plant fruit/vegetables and eat produce ● Nature walk in local area - plant & tree identification (arrange visit to Dutton's Pond?)	● Investigate properties of various materials and select the best materials to create an umbrella, a pair of curtains and a boat
Vocabulary	Seasons, summer, autumn, winter, spring, changes, dark, light, growing, colour, meteorologist	Amphibians, birds, fish, mammals, reptiles, carnivore, herbivore, omnivore, sight, hearing, touch, taste, smell	Wild plants, garden plants, evergreen, deciduous, fruit, vegetables, bulb, seeds, plant, leaves, bud, flowers, blossom, petals	Wood, metal, plastic, fabric, brick, wood, marble. shiny, smooth, absorbent, hard, rough, waterproof, stretchy, bendy, absorbent, transparent, opaque.
Cross curricular Links	Y1 AUT 2- Geo (Four seasons- weather patterns) Y2 SUM 2- GEO (Let's go to the Arctic- climate) Y4 SPR 2- GEO (Exploring Scandinavia- climate) Y4 SUM 2- GEO (Rainforests- climate) Y5 AUT 2- GEO (Extreme Earth- climate) Y5 AUT 2- GEO (Extreme Earth- rainfall, water cycle). Y5 SUM 2- GEO (Water World – water cycle) Y6 AUT 1- GEO (North America- climate) Y6 SUM 2-GEO (British Empire- temperature and rain fall) Y6 SPR 1- PSHE (One world- water resources)	Y1 SPR 1- DT Fruit & Veg Y2 AUT 2- DT Balanced diet Y3 AUT 2- DT Eating seasonally Y5- AUT 1- DT (What could be healthier?) Y5 SPR 2 – DT (Monitoring devices- animal's needs) Y1 SUM 1- PSHE (It's my body) Y3 SUM 1- PSHE (It's my body) Y5+Y6 SUM- PSHE (Relationships and sex ed) Statistics- see statistics progression document.	Y1 SPR 1- DT (where fruit grows+ classifying fruit/veg) Y2 SPR 1- ART (Giuseppe Arcimboldi) Y3 AUT 2- DT (Eating seasonally- climate effecting growth) Y3 SPR 2- GEO (Land Use-Plants) Y3 SUM2- GEO (Volcanoes- Plants in volcanic areas) Y4 SUM 1- GEO (Rainforests) Y6 AUT 2- GEO (TRADE, Rainforests) Statistics- see statistics progression document.	Y2 AUT 1- DT (Fairground Wheel- select materials) Y3 SPR 1- DT (Castles- select materials) Y3 SPR 2- DT (eCharm- materials for pouch) Y4 SPR 1- DT (Pavilions- select materials) Y5 SUM 1- DT (Bridges- select materials) Y6 AUT 1- DT (Playgrounds- select materials) Y6 SPR 2- DT (Digital world-Select sustainable materials) Y1 AUT 2- Geo (Four seasons- weather patterns) Y2 SUM 2- GEO (Let's go to the Arctic- climate) Y4 SPR 2- GEO (Exploring Scandinavia- climate) Y4 SUM 2- GEO (Rainforests- climate) Y5 AUT 2- GEO (Extreme Earth- climate) Y5 AUT 2- GEO (Extreme Earth- rainfall, water cycle, change in water state). Y5 SUM 2- GEO (Water World – water cycle) Y6 AUT 1- GEO (North America- climate) Y6 SUM 2-GEO (British Empire- temperature and rain fall) Statistics- see statistics progression document.

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Revisit and review opportunities	Y2 SUM 2- Living things and habitats. Y5 SPR 1- Living things and their habitats Y6 SUM 1- Living things and their habitats.	Y1 AUT 2- Animals inc Humans Y2 AUT 2- DT Balanced diet Y4 AU2- Animals inc Humans Y5 SUM 1- Animals inc Humans Y6 SPR 2- Animals inc Humans Y2 SUM 2- Living things and habitats. Y5 SPR 1- Living things and their habitats Y6 SUM 1- Living things and their habitats.	Y1 SPR 2- PLANTS Y2 SPR 1-PLANTS Y5 SUM2- Living things + habitats		Y1 SUM 1- Everyday Materials Y3 AUT 2- Forces and Magnets Y5 AUT 1- Earth and space (magnetic field). Y5 SPR 2- Properties and changes of materials (magnetic) Y5 AUT 2- Forces Y6 AUT 1- Evolution and Inheritance (streamlined adaptations) Y6 AUT 2- Electric forces.
Curriculum Driver Links					
	Growing independence and perseverance in answering key questions	Explore the local area to investigate which type of trees and wild plants grow	Learning about our bodies and how we change and grow Nutrition – opportunities to sample different fruits and vegetables	Answer key questions each lesson Present findings in various ways (verbal, written, drawings, photographs, video recordings)	Recognise how the world changes around us (seasons and weather) Recognise different habitats and how the land provides us with food Recognise real life jobs relating to STEAM e.g. meteorologists

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Year Two

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Topic Enquiry Question:	**How can humans keep healthy?**		**Can plants grow anywhere?**	**How are materials chosen in design?**	**How do we know that something is alive?**	
National Curriculum Expectations	Animals (including humans) • 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.		Plants • 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.	Everyday Materials • 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	Living Things & Their Habitat • 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.	
Component Knowledge:	By the end of the unit, pupils will: Identify and explain the basic needs for humans to survive (water, food and air). (Lesson 1) Identify and name the offspring of key animals. (Lesson 2) Know that animals can have offspring and that babies grow and change into adults. (Lesson 3) Recognise that we do not all grow at the same rate and that an older age does not always mean a larger size. (Lesson 4) Explain the importance and effects of exercise on the human body. (Lesson 5)		By the end of the unit, pupils will: Name a variety of different plants that we can eat. (Lesson 1) Describe the similarities and differences between different types of seeds (e.g. size, shape, colour). (Lesson 2) List what a plant needs to grow and how to keep plants healthy. (Lesson 3) Know the best location and conditions for growing cress	By the end of the unit, pupils will: Name and describe basic properties of a range of materials. (Lesson 1) Name the material that a range of everyday items are made from. (Lesson 2) Identify the most suitable material for building a house by comparing a range of materials. (Lesson 3) Identify the most suitable material for protecting an	By the end of the unit, pupils will: Know what a living thing is and recognise the difference between things that are alive and have never been alive. (Lesson 1) Name several different microhabitats in the local area and list some living things that might be found there. (Lesson 2) Name several large habitats around the world. Know the difference between different habitats and list living things that might live there. (Lesson 3) Know which conditions woodlice prefer. (Lesson 4) List characteristics that living things have that make them best suited to their environment. (Lesson 5)	

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	Explain what makes a healthy diet and why it is important for humans to eat a healthy diet. (Lesson 6) List examples of good hygiene and explain the importance and effects of good hygiene on the human body. (Lesson 7) Name ways we can prevent illness and ways we can feel better if we become ill. (Lesson 8)	seeds and explain why these conditions are most favourable. (Lesson 4) Explain how plants grow and change throughout their life cycle. (Lesson 5)	egg by comparing a range of materials. (Lesson 4) Explain how some materials can be changed through squashing, bending, twisting and stretching. (Lesson 5)	Know what some living things eat in different habitats and how they are linked in a food chain. (Lesson 6)
Lesson Sequence **Key Questions:**	1. KQ: What do humans need to survive? 2. KQ: What are offspring? 3. KQ: How do animals change as they grow into adults? 4. KQ: Do we all grow the same? 5. KQ: Do we need to exercise? 6. KQ: What is a healthy diet? 7. KQ: Why do we need to have good hygiene? 8. KQ: How can we feel better when we are ill?	1. KQ: Which plants can we eat? 2. KQ: Are all seeds the same? 3. KQ: What do plants need to grow? 4. KQ: Where can plants grow? 5. KQ: How do plants grow and change?	1. KQ: What are materials? 2. KQ: What are things made from? 3. KQ: Which material should the 3 Little Pigs make their house from? 4. KQ: Which material will best protect Humpty Dumpty? 5. KQ: How can materials be changed?	1. KQ: Is it living, dead or never been alive? 2. KQ: What is a microhabitat? 3. KQ: What are different habitats around the world? 4. KQ: What conditions do woodlice prefer? 5. KQ: How are living things adapted to their habitat? 6. KQ: What is a food chain?
Practical Enquiry	● Investigate whether our feet grow bigger as we get older ● Investigate pulse rate after exercise ● Investigate the spread of germs using glitter and the impact hand washing has	● Cut open a variety of fruits to find seeds – Explore whether seeds always grow on the inside? ● Investigate the best environment to grow a plant (e.g. windowsill,	● Investigate the best material to build a house from ● Investigate the best material to protect an egg ● Investigate the effect of bending, twisting,	● Explore microhabitats around school ● Investigate which conditions woodlice prefer

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		dark cupboard, no water etc) record results	squashing and squeezing different materials	
Vocabulary	Amphibians, birds, fish, mammals, reptiles, carnivore, herbivore, omnivore, offspring, survival, exercise, healthy, nutrition, hygiene, sight, hearing, touch, taste, smell	Plant, flower, tree, fruit, vegetable, root, leaf, stem, flower, trunk, branch, seed, bulb, blossom, pollen, seed dispersal, seedling, adult plant, compost, grow, reproduce, air, light, nutrients & soil.	Wood, metal, plastic, fabric, brick, wood, marble. Shiny, smooth, absorbent, hard, rough, waterproof, stretchy, bendy, absorbent, transparent, opaque.	Skeleton, muscle, bone, skull, dead, alive, habitats, micro-habitats, conditions, food chain, woodland, ocean, rainforest, hot, warm, cold, dry, damp, wet, bright, desert,
Cross curricular Links	Y1 SPR 1- DT Fruit & Veg Y2 AUT 2- DT Balanced diet Y3 AUT 2- DT Eating seasonally Y5- AUT 1- DT (What could be healthier?) Y5 SPR 2 – DT (Monitoring devices- animal's needs) Y1 SUM 1- PSHE (It's my body) Y3 SUM 1- PSHE (It's my body) Y5+Y6 SUM- PSHE (Relationships and sex ed) Statistics- see statistics progression document.	Y1 SPR 1- DT (where fruit grows+ classifying fruit/veg) Y2 SPR 1- ART (Giuseppe Arcimboldi) Y3 AUT 2- DT (Eating seasonally- climate effecting growth) Y3 SPR 2- GEO (Land Use-Plants) Y3 SUM2- GEO (Volcanoes- Plants in volcanic areas) Y4 SUM 1- GEO (Rainforests) Y6 AUT 2- GEO (TRADE, Rainforests) Statistics- see statistics progression document.	Y2 AUT 1- DT (Fairground Wheel- select materials) Y3 SPR 1- DT (Castles- select materials) Y3 SPR 2- DT (eCharm- materials for pouch) Y4 SPR 1- DT (Pavilions- select materials) Y5 SUM 1- DT (Bridges- select materials) Y6 AUT 1- DT (Playgrounds- select materials) Y6 SPR 2- DT (Digital world-Select sustainable materials) Y1 AUT 2- Geo (Four seasons- weather patterns) Y2 SUM 2- GEO (Let's go to the Arctic- climate) Y4 SPR 2- GEO (Exploring Scandinavia- climate) Y4 SUM 2- GEO (Rainforests- climate) Y5 AUT 2- GEO (Extreme Earth- climate) Y5 AUT 2- GEO (Extreme Earth- rainfall, water cycle, change in water state). Y5 SUM 2- GEO (Water World – water cycle) Y6 AUT 1- GEO (North America- climate) Y6 SUM 2-GEO (British Empire- temperature and rain fall) Statistics- see statistics progression document.	Y1 SPR 2- GEO (Biomes + habitats) Y2 SPR 2- GEO (Around the world- animals) Y2 SUM 2- GEO (Let's go to the Arctic- animals) Y3 SPR 2- GEO (Land Use- farming) Y3 SUM2- GEO (Volcanoes- animals in volcanic areas) Y4 AUT 2- GEO (Settlements- good settlement features) Y4 SPR- ENG (Escape from Pompeii) Y5 SPR- GEO (The River Nile- land use) Y6 SPR- GEO (Rivers) Y5 +Y6 SUM- PSHE (Reproduction) Statistics- see statistics progression document.
Revisit and review opportunities	Y1 AUT 2- Animals inc Humans Y2 AUT 2- DT Balanced diet Y4 AU2- Animals inc Humans Y5 SUM 1- Animals inc Humans Y6 SPR 2- Animals inc Humans	Y1 SPR 2- PLANTS Y2 SPR 1-PLANTS Y5 SUM2- Living things+habitats	Y1 SUM 1- Everyday Materials Y3 AUT 2- Forces and Magnets Y5 AUT 1- Earth and space (magnetic field). Y5 SPR 2- Properties and changes of materials (magnetic) Y5 AUT 2- Forces Y6 AUT 1- Evolution and Inheritance (streamlined adaptations) Y6 AUT 2- Electric forces.	Y2 SUM 2- Living things and habitats. Y5 SPR 1- Living things and their habitats Y6 SUM 1- Living things and their habitats.
Curriculum Driver Links					
	● Growing independence and perseverance ● Gain confidence in planning and carrying out a scientific experiment	● Explore microhabitats around school grounds	● Learning how to keep clean and healthy. Learning about our bodies and how we change.	● Present scientific findings	● Recognising the changes of the world around us. Acknowledging the importance of different materials, places and habitats around the world

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Year Three

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Topic Enquiry Question:	**How can we classify rocks?**	**How do magnets work?**	**How do the systems inside our body work to make a healthy human?**	**How does each part of the plant fulfil its function?**		**How does light help us to see?**
National Curriculum Expectations	Rocks •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 and organic matter. **Working Scientifically** • Ask relevant questions and use different types of scientific enquiries to answer them. • Make systematic and careful observations. •Gather, record, classify and present data in a variety of ways to help in answering questions. • Use scientific evidence to answer questions and support findings.	Forces and Magnets •compare how 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. **Working Scientifically** • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. •using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. •identifying differences, similarities or changes related to simple scientific ideas and processes. •Using straightforward scientific evidence to answer questions or to support their findings.	Animals (including humans) •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 **Working Scientifically** • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations • recording findings using simple scientific language • reporting on findings from enquiries	Plants • Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, 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. **Working Scientifically** •. Setting up simple practical enquiries, comparative and fair tests. • Making systematic and careful observations. • Take accurate measurements using standard units. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.		Light •Recognise that 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. **Working Scientifically** •. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • identifying differences, similarities or changes related to simple scientific ideas and processes. • using straightforward scientific evidence to answer questions or to support their findings.

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Component Knowledge:	By the end of the unit, pupils will: State what a rock is and group rocks based on their appearance. (Lesson 1) Know that rocks can be grouped based on their physical properties. (Lesson 2) Name the 3 types of rock and explain how they are formed. (Lesson 3) Name and describe the different layers of the Earth. (Lesson 4) Know that there are different types of soils and describe their properties. (Lesson 5) Explain what a fossil is and how they can be formed in rock. (Lesson 6)	By the end of the unit, pupils will: Know that pushes and pulls are types of forces and name examples. Explain how a range of objects move using these forces. (Lesson 1) Explain how an object moves on different surfaces. Explain how to make testing fair. (Lesson 2) Know that some forces require contact and some do not. Know that magnetic forces do not require contact and can act at a distance. (Lesson 3) Name a range of magnetic and non-magnetic materials. (Lesson 4) Know that magnets have two poles, a north and a south. Know that opposite poles attract and same poles repel. (Lesson 5) Know that not all magnets have the same strength. (Lesson 6)	By the end of the unit, pupils will: Name some of the bones in the human body and know that we need bones for support, protection and movement. (Lesson 1) Know that our skeletons help us complete certain tasks. (Lesson 2) Know that humans need muscles for support, protection and movement. (Lesson 3) Recognise differences in the skeletons of different animals. Group animals based on whether they have a backbone. (Lesson 4)	By the end of the unit, pupils will: Know what plants need to grow. (Lesson 1) Label different parts of a plant and explain their function. (Lesson 2) Identify where roots are on different plants and explain the function of roots. (Lesson 3) Explain how water is transported through plants. (Lesson 4) Name the parts of a flowering plant that play a role in pollination. (Lesson 5) Explain how seeds are formed in flowering plants and how they can be dispersed. (Lesson 6)	By the end of the unit, pupils will: Recognise natural and man-made light sources. Explain what darkness is and sort light sources according to criteria. (Lesson 1) Understand how light is reflected and identify reflective materials. Know that reflective materials can be used to keep us safe. (Lesson 2) Explain how the sun can be harmful to our eyes when looked at directly. Know ways that we can protect ourselves from sun damage. (Lesson 3) Know how shadows are formed. Know that different materials can affect the appearance of shadows. (Lesson 4) Know that the height/angle of the light source can alter the length of the shadow. (Lesson 5) Know that mirrors reflect light. Explain how light behaves when reflected. (Lesson 6)

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Lesson Sequence **Key Questions:**	1. KQ: What are rocks? 2. KQ: Are all rocks the same? 3. KQ: How are rocks formed? 4. KQ: Which rocks make up the Earth? 5. KQ: What are soils? 6. KQ: How are fossils formed?	1. KQ: What is a force? 2. KQ: How do objects move on different surfaces? 3. KQ: How do magnetic forces work? 4. KQ: Which materials are magnetic? 5. KQ: Do magnets attract each other? 6. KQ: Are all magnets the same strength?	1. KQ: How does our skeleton help us? 2. KQ: Do our bones affect what we can do? 3. KQ: What do our muscles do? 4. KQ: Do all animals have the same skeleton? 5. KQ: What types of nutrition do we need?	1. KQ: What do plants need? 2. KQ: Do the different parts of a plant have different functions? 3. KQ: What are roots? 4. KQ: How do plants transport water? 5. KQ: How do plants reproduce? 6. KQ: How are seeds dispersed?	1. KQ: What is light? 2. KQ: What is reflected light? 3. KQ: Is the sun dangerous? 4. KQ: What is a shadow? 5. KQ: Does moving the light source change the shadow? 6. KQ: How do mirrors work?
Vocabulary	Rocks, soils, stone, pebble, slate, marble, chalk, granite, sandstone, clay, hard, soft, permeable, acid, fossil, Sedimentary, metamorphic, igneous, magma & bedrock.	Force, pull, push, magnet, poles, attract, repel, magnetic, non-magnetic, metal, stronger, weaker, horseshoe magnet, bar magnet, ring magnet, movement, bigger force & smaller force.	Skeleton, muscle, bone, skull, ribs, spinal column, backbone, joints, sockets, femur, collar bone, humerus, ulna, radius, hip, Pelvis, fibula, tibia, knee cap, shoulder blade, Movement, support, protection, contract & relax.	Plant, flower, tree, fruit, vegetable, root, leaf, stem, flower, trunk, branch, seed, bulb, blossom, pollen, seed dispersal, seedling, adult plant, compost, grow, reproduce, air, light, nutrients & soil.	See, light, light source, eyes, travel, torch, sun, shadow, opaque, translucent, transparent, reflection block, reflect, reflective, mirror, direction & straight lines.
Cross curricular Links	Y3 AUT 1- HIS (Stone Age) Fossils Y3 SUM 2- GEO (Volcanoes- formation of rock) Y5 AUT 1- Space Rocks Y5 AUT 2- GEO (Extreme Earth- difference between a mountain and volcano) Statistics- see statistics progression document.	Y1 AUT 1- DT(Wheels +Axels) stop and motion Y1 SPR 2- DT Moving book (pull/push) Y2 AUT 1- DT (Fairground wheel- rotate wheel) Y2 SUM 1- DT (Moving monsters- input+ output) Y3 SUM 1- DT (Pneumatic toys) Y4 AUT 1- DT (Slingshot cars- air resistance + thrust) Y5 SPR 1- DT (pop-up book, input/output) Y6 AUT 2- DT (CAMS)	Y1 SPR 1- DT Fruit & Veg Y2 AUT 2- DT Balanced diet Y3 AUT 2- DT Eating seasonally Y5- AUT 1- DT (What could be healthier?) Y5 SPR 2 – DT (Monitoring devices- animal's needs) Y1 SUM 1- PSHE (It's my body) Y2 PSHE (It's my body) Teeth and oral hygiene Y3 SUM 1- PSHE (It's my body)	Y1 SPR 1- DT (where fruit grows+ classifying fruit/veg) Y2 SPR 1- ART (Giuseppe Arcimboldi) Y3 AUT 2- DT (Eating seasonally- climate effecting growth) Y3 SPR 2- GEO (Land Use-Plants) Y3 SUM2- GEO (Volcanoes- Plants in volcanic areas) Y4 SUM 1- GEO (Rainforests) Y6 AUT 2- GEO (TRADE, Rainforests) Statistics- see statistics progression document.	Y3 SUM 1- DT (eCharm) Y4 SUM 1- DT (Torches) Y6 SPR 1- COMPUTING (Tech + data) Y6 PSHE (It's my body) Sun exposure. Statistics- see statistics progression document.

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		Y6 SPR 2- DT (Digital world- magnetic field) Statistics- see statistics progression document.	Y6 PSHE (It's my body) Teeth, oral hygiene and effects of smoking. Statistics- see statistics progression document.		
Revisit and review opportunities	Y1 SUM 1- Materials (rocks inc.) Y2 SPR 2- Materials (rocks inc.) Y4 SPR 1- States of matter-solid Y5 SPR 2- Properties and changes of materials. Y6 AUT 1- Evolution and inheritance. (Fossils)	Y1 SUM 1- Everyday Materials Y5 AUT 2- Forces Y5 SPR 2- Properties and changes of materials (magnetic) Y5 AUT 1- Space (gravity) Y6 AUT 2- Electric forces.	Y1 AUT 2- Animals inc Humans Y2 AUT 2- DT Balanced diet Y4 AU2- Animals inc Humans Y5 SUM 1- Animals inc Humans Y6 SPR 2- Animals inc Humans	Y1 SPR 2- PLANTS Y2 SPR 1-PLANTS Y5 SUM2- Living things+habitats	Y1 AUT 1- Seasonal Changes (light during the day) Y5 AUT 1- SPACE Y6 SPR 1- LIGHT
Curriculum Driver Links					
	● Space rocks, astronauts.	● Investigating magnets and forces at a distance.	● Learning about the nutrients our bodies need.	●Feeding back scientific findings. ●Creating posters about the dangers of the sun. Posters about reflective clothing.	●Learning about the cycle of plants and pollination

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Year Four

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Topic Enquiry Question:	**Which living things can be found in our local area?**	**What happens to the food we eat?**	**Can materials change state?**		**How do ears hear?**	**How does a circuit work?**
National Curriculum Expectations	Living things and their habitats • recognise that living things can be grouped in a variety of ways. • 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. **Working Scientifically** • Make systematic and careful observations. •Gather, record, classify and present data in a variety of ways to help in answering questions. • reporting on findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • reporting on findings from enquiries, including oral and written explanations, displays or presentations.	Animals (including humans) • Describe the simple functions of the basic parts of the digestive system in humans. •Identify the different types of teeth in humans and their simple functions. •Construct and interpret a variety of food chains, identifying producers, predators and prey. **Working Scientifically** • Setting up simple practical enquires, comparative and fair tests. • Making systematic and careful observations. • reporting on findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • reporting on findings from enquiries, including oral and written explanations, displays or presentations. •Use results to draw simple conclusions.	States of Matter •Compare and group materials 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. **Working Scientifically** • Setting up simple practical enquires, comparative and fair tests. • Making systematic and careful observations. • reporting on findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. • reporting on findings from enquiries, including oral and written explanations, displays or presentations. •Use results to draw simple conclusions.		Sound •identify how sounds are made, associating some of them with 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. **Working Scientifically** • Setting up simple practical enquires, comparative and fair tests. • Making systematic and careful observations. • Take accurate measurements using standard units, using a range of equipment. • reporting on findings from enquiries, including oral and written explanations, displays or presentations. •Use results to draw simple conclusions.	Electricity •identify common appliances that run on electricity. •construct a simple series electrical 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. **Working Scientifically** • Setting up simple practical enquires, comparative and fair tests. • Making systematic and careful observations. • reporting on findings using simple scientific language, drawings, labelled diagrams. • reporting on findings from enquiries, including oral and written explanations, displays or presentations. •Use results to draw simple conclusions.

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Component Knowledge	By the end of the unit, pupils will:	By the end of the unit, pupils will:	By the end of the unit, pupils will:	By the end of the unit, pupils will:	By the end of the unit, pupils will:
	Name the seven life processes. Explain how animals and plants complete each of the life processes. Distinguish living from non-living objects in relation to the seven life processes. (Lesson 1) Name the five main animal groups and sort animals based on their characteristics. Know the meaning of herbivore, carnivore, omnivore and sort animals according to their diet. (Lesson 2) Know the difference between vertebrates and invertebrates and sort animals accordingly. (Lesson 3) Know how identification keys can be used to name a variety of living things including mini-beasts. Name living things that can be found in the local area. (Lesson 4) Know what a classification key is how they can be used to identify living things. (Lesson 5) Explain the effects that human activity can have on the environment. Explain how litter can be harmful to our environment. (Lesson 6)	Name and label a diagram of the twelve main parts of the digestive system and describe the basic functions. (Lesson 1) Name different teeth and recognise that the shape of the teeth determines their function. (Lesson 2) Know the effect that certain liquids can have on human teeth. (Lesson 3) Know how to construct and interpret a variety of food chains. Identify animals that are herbivores, carnivores and omnivores. Describe the producer, pretty and predator within a food chain. (Lesson 4 & 5)	Know what a solid, liquid and gas is. List examples of each. Describe characteristics of each state of matter, describing how particles are organised. (Lesson 1) Know that not all liquids behave in the same way and that viscosity refers to how fast or slowly a liquid will flow. (Lesson 2) Know what a thermometer is and how it can be used to measure temperature. (Lesson 3) Know that heating and cooling can change the state of materials. (Lesson 4) Know what the water cycle is and explain the process of evaporation and condensation in the cycle. (Lesson 5) Explain the process of evaporation. Know which variables could be changed or kept the same in an investigation when planning a fair test. (Lesson 6) Know that temperature can affect the rate of evaporation. (Lesson 7)	Know how sounds are made and say what is vibrating when a sound is made. (Lesson 1) Explain how sound travels as vibrations through solids, liquids and gases to the ear. Know that sound travels more quickly through solids compared to gases, using knowledge of particle structure. (Lesson 2) Describe the parts and functions of the outer, middle and inner ear. (Lesson 3) Know that the size of the pinna can affect the volume of the sound. (Lesson 4) Know what pitch is and describe the relationship between length of pipe and pitch. (Lesson 5) Know what volume is and how volume can be altered. Know that volume is measured in decibels. Know that the strength of vibrations affect the volume of a sound. (Lesson 6) Know that certain materials can muffle sounds. (Lesson 7)	Know that mains electricity is transported from power stations. Know why batteries run out of charge. Name a variety of household appliances and state whether they are powered by battery or mains. (Lesson 1) Know what a circuit is. Name different types electrical components. (Lesson 2) Know whether a circuit will work or not and explain why. Know how to fix a circuit. (Lesson 3) Know the difference between a conductor and an insulator. Know how conductors and insulators are used in everyday life. (Lesson 4) Know what a switch is and how it can control the flow of electricity in a circuit. (Lesson 5)

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Lesson Sequence **Key Questions:**	1. KQ: What are the seven life processes? 2. KQ: How can we sort and group animals? 3. KQ: What are vertebrate animals? 4. KQ: Which living things can be found in the local area? 5. KQ: What is a classification key? 6. KQ: How is our environment changing?	1. KQ: What is the digestive system? 2. KQ: Why are teeth different shapes? 3. KQ: What drink causes the most tooth decay? 4. KQ: What is a food chain? 5. KQ: How can I construct a food chain?	1. KQ: What are states of matter? 2. KQ: Do all liquids behave the same? 3. KQ: What is a thermometer used for? 4. KQ: How do materials change state? 5. KQ: What is the water cycle? 6. KQ: Do all liquids evaporate? 7. KQ: Does temperature affect the rate of evaporation?	1. KQ: How are sounds made? 2. KQ: What are sound vibrations? 3. KQ: What is inside your ear? 4. KQ: How does the size of the pinnae affect the volume of sound? 5. KQ: What is pitch? 6. KQ: What is volume? 7. KQ: Which material is best at muffling sound?	1. KQ: Which appliances use electricity? 2. KQ: How can I make a simple circuit? 3. KQ: Will the bulb light up? 4. KQ: How can we test if a material is a conductor or an insulator? 5. KQ: How do switches affect a circuit?
Vocabulary	Movement, habitats, mammal, key, respiration, environment, reptile, classify, senses, nature, fish, classification key, growth, carnivore, bird, positive impact, reproduction, herbivore, amphibian, negative impact, excretion, omnivore, minibeast insect, nutrition, vertebrate invertebrate & environmental changes.	digestion, system, mouth, chew, swallow, peristalsis, salivary glands, function, oesophagus, stomach, liver, large intestine, small intestine, pancreas, anus, bolus, nutrients, rectum, churn, enzymes, acid, absorb, internal organs, stool, urine, saliva dentist, tooth decay, plaque, hygienist, canine, toothbrush, incisor, wisdom, toothpaste, premolar, molar, dental care, oral hygiene, gums, teeth	Solid, temperature, water cycle, precipitation, solidify, carbon dioxide, measure, liquid, heat, condensation, collection, boiling, oxygen, compare, Gas, cool, condense, run off, particle, states of matter, group, properties, thermometer, evaporation, melting/melt, droplet, helium, research, change, degrees, Celsius, evaporate, freezing/freeze, air, natural gas & observe.	Sound, source, quiet, loud, soft, vibrate, vibration, travel, loudness, volume, Pitch, high, low, muffle, tension, ear, pinnae, particle, air, faint and noise.	Appliance, battery, circuit, components, conductor, electrical, insulator, mains powers, portable and pylon.

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		healthy, unhealthy, producer, food, prey, predator, carnivore, consumer, omnivore, herbivore, hunt			
Cross curricular Links	Y1 SPR 2- GEO (Biomes + habitats) Y2 SPR 2- GEO (Around the world- animals) Y2 SUM 2- GEO (Let's go to the Arctic- animals) Y3 SPR 2- GEO (Land Use- farming) Y3 SUM2- GEO (Volcanoes- animals in volcanic areas) Y4 AUT 2- GEO (Settlements- good settlement features) Y4 SPR- ENG (Escape from Pompeii) Y5 SPR- GEO (The River Nile- land use) Y6 SPR- GEO (Rivers) Statistics- see statistics progression document.	Y1 SPR 1- DT Fruit & Veg Y2 AUT 2- DT Balanced diet Y3 AUT 2- DT Eating seasonally Y5- AUT 1- DT (What could be healthier?) Y5 SPR 2 – DT (Monitoring devices- animal's needs) Y1 SUM 1- PSHE (It's my body) Y2 PSHE (It's my body) Teeth and oral hygiene Y3 SUM 1- PSHE (It's my body) Y6 PSHE (It's my body) Teeth, oral hygiene and effects of smoking. Statistics- see statistics progression document.	Y2 AUT 1- DT (Fairground Wheel- select materials) Y3 SPR 1- DT (Castles- select materials) Y3 SPR 2- DT (eCharm- materials for pouch) Y4 SPR 1- DT (Pavilions- select materials) Y5 SUM 1- DT (Bridges- select materials) Y6 AUT 1- DT (Playgrounds- select materials) Y6 SPR 2- DT (Digital world-Select sustainable materials) Y1 AUT 2- Geo (Four seasons- weather patterns) Y2 SUM 2- GEO (Let's go to the Arctic- climate) Y4 SPR 2- GEO (Exploring Scandinavia- climate) Y4 SUM 2- GEO (Rainforests- climate) Y5 AUT 2- GEO (Extreme Earth- climate) Y5 AUT 2- GEO (Extreme Earth- rainfall, water cycle). Y5 SUM 2- GEO (Water World – water cycle) Y6 AUT 1- GEO (North America- climate) Y6 SUM 2-GEO (British Empire- temperature and rain fall) Y6 SPR 1- PSHE (One world- water resources) Statistics- see statistics progression document.	Maths- Measurement (Decibels) DT- Designing ear muffs to a suitable specification. Statistics- see statistics progression document.	Y3 SPR 2- DT (Electronic charm) Y4 SUM 1- DT (Torches) Y5 AUT 2- DT (Doodlers) Y5 SPR 2- DT (Digital monitors) Y6 SPR 1- DT (Steady hand game) Y6 SPR 2- HIS (Morse code machines) Venn diagrams Statistics- see statistics progression document.
Revisit and review opportunities	Y2 SUM 2- Living things and habitats. Y5 SPR 1- Living things and their habitats Y6 SUM 1- Living things and their habitats.	Y1 AUT 2- Animals inc Humans Y2 AUT- Animals inc Humans Y3 SUM 1- Living things and their habitats. Y4 AUT 1- Living things and their habitats- Mrs Gren Y4 AU2- Animals inc Humans Y5 SUM 1- Animals inc Humans Y6 SPR 2- Animals inc Humans	Selecting materials- Y1 SUM 1- Materials (rocks inc.) Y2 SPR 2- Materials (rocks inc.) Y4 SPR 1- States of matter-solid Y5 SPR 2- Properties and changes of materials. Y5 SPR 2- Properties and changes of material (solids, liquids + gases)	Y6 SPR 1- Light (nerve signals to the brain)	Y5 SPR 2- Properties and changes of material (conductors and insulators) Y6 AUT 2- Electricity
Curriculum Driver Links					
					• Looking at environmental changes.

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Year Five

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Topic Enquiry Question:	**What is the solar system?**	**Are there different types of forces?**	**How do living things reproduce and why is this important in a life cycle?**	**How do we change as we grow older?**	**How do materials change?**	
National Curriculum Expectations	Earth and Space •describe the movement of the 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. **Working Scientifically** • Report and present findings from enquiries 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.	Forces •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 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. **Working Scientifically** • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary •taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. •recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs •identifying scientific evidence that has been used to support or refute ideas or argument.	Living things and their habitats •recognise that living things can be grouped in a variety of ways. •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. **Working Scientifically** • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Report and present findings from enquiries in oral and written forms such as displays and other presentations.	Animals including humans •describe the changes as humans develop to old age. **Working Scientifically** • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	Properties and changes of material •compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. •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 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. **Working Scientifically** • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary •taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. •recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graph • using test results to make predictions to set up further comparative and fair tests	
Component Knowledge	By the end of the unit, pupils will: Name the planets in the solar system and their order based on distance from the sun. Know that the Sun is a star and not a planet. Know some facts about a chosen planet. (Lesson 1) Know that the Earth is a spherical body.	By the end of the unit, pupils will: Know that gravity is a force. Know who Sir Isaac Newton was and what he discovered about the laws of gravity. Know that the weight of an object can affect the time taken to fall. (Lesson 1)	By the end of the unit, pupils will: Name the seven life processes and explain how animals and plants complete each of the life processes to distinguish living from non-living things. (Lesson 1)	By the end of the unit, pupils will: Know the main stages of the human life cycle. Know the ways that humans change as they grow older. (Lesson 1) Know how a foetus grows in the womb at	By the end of the unit, pupils will: Know the properties of solids, liquids and gases, listing examples of each. Know how states of matter change and name these processes. (Lesson 1) Know the meaning of taught scientific vocabulary (durable, flexible, absorbent, waterproof, magnetic, permeable, conductive, transparent) and use appropriate language to describe the properties of materials. (Lesson 2)	

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	Know who Aristotle was and how he discovered that the Earth is round, not flat. (Lesson 2) Describe the movements of Earth and other planets in relation to the Sun. Know that a year is the amount of time taken to orbit the sun and is different on each planet. (Lesson 3) Describe the movement of the Moon in relation to the Earth. Know that the Moon is the largest object to orbit Earth and that we can only see one side of the Moon from Earth. (Lesson 4) Know why there is day and night on Earth. (Lesson 5) Know why the Moon appears to change shape. Describe the movement of the Moon in relation to the Earth, naming some of the phases of the Moon. (Lesson 6)	Know that friction is a force that acts between two surfaces or objects that are moving. Give examples of when friction can be useful and when it is an unhelpful force. (Lesson 2) Know that different materials can affect the amount of friction created. (Lesson 3) Know that air resistance is a type of frictional force that slows down objects travelling through air. Know that the shape of an object can alter how air resistance affects it. Know what streamlined means. (Lesson 4) Know that water resistance is a type of frictional force. Know that the shape of an object can alter how water resistance affects it. (Lesson 5) Know what a gear, lever and pulley is and list examples in everyday objects. Describe how mechanisms use a smaller force to have a greater effect. (Lesson 6)	Name the five animal groups and know that reproduction may differ across the animal groups. Know that the gestation period for different mammals may vary. (Lesson 2 & 3) Know which groups of animals lay eggs and which do not. Know that some animals look after their young but some do not. (Lesson 3) Know how pollination and fertilisation occurs in plants. Identify parts of a flower and explain the purpose of each part. Know what seed dispersal is and name some methods of dispersal. (Lesson 4) Know what a life cycle is. Know some differences and similarities in life cycles of mammals, amphibians, reptiles, insects and birds. (Lesson 5) Know the order of the stages in the life cycle of a strawberry and/or a dandelion plant. Know similarities and differences between the two life cycles. (Lesson 6)	different stages. (Lesson 2) Know what puberty is and how the human body changes during puberty for both males and females. (Lesson 3) Know what it means to be a senior and describe the changes humans may face as they grow old. (Lesson 4)	Know what a thermal insulator is and recognise the most effective insulating material. (Lesson 3) Know that some materials have magnetic properties. (Lesson 4) Know that some materials can dissolve in liquid to make a solution (soluble) and some do not (insoluble). Explain the process of dissolving using scientific vocabulary (soluble, insoluble, solution). Know that solutions have a saturation point. (Lesson 5) Know that some mixed materials can be separated through different processes – evaporation, filtering, sieving or use of magnets. Know that material properties will affect the method that can be used for separating. (Lesson 6) Know that some changes are reversible and some are irreversible, stating examples of each type of change. (Lesson 7)
Lesson Sequence	1. KQ: What are the names of the planets in our solar system?	1. KQ: What is gravity? 2. KQ: What is friction?	1. KQ: What are the	1. KQ: How do humans change	KQ: What are the properties of solids, liquids and gases?

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Key Questions:	2. KQ: How do we know that the Earth is a sphere? 3. KQ: How long does it take the Earth and the other planets to orbit the sun? 4. KQ: What is the largest object that orbits Earth? 5. KQ: Why is there day and night on Earth? 6. KQ: Does the moon change shape?	3. KQ: Whose shoe creates the most friction? 4. KQ: What is air resistance? 5. KQ: What is water resistance? 6. KQ: What are gears, levers and pulleys?	seven life processes? 2. KQ: How do mammals reproduce? 3. KQ: Do animals reproduce in the same way? 4. KQ: How do plants reproduce? 5. KQ: What is a life cycle? 6. KQ: What are the stages in a life cycle of a plant?	throughout life? KQ: How do we develop in the womb? KQ: How do we change through puberty? KQ: How do we change when we are senior?	KQ: How can I describe the properties of materials? KQ: Which materials make the best thermal insulators? KQ: Which materials are magnetic? KQ: Which materials are soluble and which are insoluble? KQ: How can mixed materials be separated? KQ: What is irreversible change?
Vocabulary	Gibbous, Neptune, waxing , gibbous, shadow, waxing, crescent, time zones, last Quarter, full moon, first quarter, new moon, waning, crescent, Mercury, Venus Mars, Jupiter, Saturn, Uranus, Earth, Sun, Moon, planet, star, space, revolve , orbit, spin, rotate, axis, solar system and reflect.	Friction, air resistance, water resistance, Newton meter, surface area, Push, pull, force, gravity, movement, drag, grip, slippery, contact & streamlined.	Mammal, reptile, amphibian, bird, fish, movement, respiration, life cycle, reproduction, excretion, Nutrition, egg, womb, insect, sensitivity, growth, fertilisation & pollination.	Baby, toddler, child, teenager, adult, senior, Death, puberty, fertilise, egg, sperm, conception, Foetus, womb, birth, develop, grow & change	Solid, liquid, gas, change, reversible, flexible, soluble, insoluble, magnetic, dissolving, evaporating, sieving, filtration, durable, thermal insulations, magnets, heat & irreversible
Cross curricular Links	Y2 SPR 2- Computing, (Computers in space.) Y3 AUT 2- GEO (UK- Time Zones) Y5 AUT 2- GEO (Water cycle) Y5 SPR 1- Computing- Mars Rover Y6 AUT 1- GEO (North America- time zones) Y5 SUM 2- GEO (Water World – water cycle)	Y1 AUT 1- DT(Wheels +Axels) stop and motion Y1 SPR 2- DT Moving book (pull/push) Y2 AUT 1- DT (Fairground wheel- rotate wheel) Y2 SUM 1- DT (Moving monsters- input+ output) Y3 SUM 1- DT (Pneumatic toys) Y4 AUT 1- DT (Slingshot cars- air resistance + thrust) Y5 SPR 1- DT (pop-up book, input/output)	Y1 SPR 2- GEO (Biomes + habitats) Y2 SPR 2- GEO (Around the world- animals) Y2 SUM 2- GEO (Let's go to the Arctic- animals) Y3 SPR 2- GEO (Land Use- farming) Y3 SUM2- GEO (Volcanoes- animals in volcanic areas) Y4 AUT 2- GEO (Settlements- good settlement features)	Y1 SPR 1- DT Fruit & Veg Y2 AUT 2- DT Balanced diet Y3 AUT 2- DT Eating seasonally Y5- AUT 1- DT (What could be healthier?) Y5 SPR 2 – DT (Monitoring devices- animal's needs) Y1 SUM 1- PSHE (It's my body)	Y2 AUT 1- DT (Fairground Wheel- select materials) Y3 SPR 1- DT (Castles- select materials) Y3 SPR 2- DT (eCharm- materials for pouch) Y4 SPR 1- DT (Pavilions- select materials) Y5 SUM 1- DT (Bridges- select materials) Y6 AUT 1- DT (Playgrounds- select materials) Y6 SPR 2- DT (Digital world-Select sustainable materials) Y5 AUT 2- GEO (Extreme Earth- rainfall, water cycle, change in water state). Y5 SUM 2- GEO (Water World – water cycle) Statistics- see statistics progression document.

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	Maths- Ordering numbers, ordering and converting earth days (units of time) Statistics- see statistics progression document.	Y6 AUT 2- DT (CAMS) Y6 SPR 2- DT (Digital world- magnetic field) Maths- measurement (newtons, time Statistics- see statistics progression document.	Y4 SPR- ENG (Escape from Pompeii) Y5 SPR- GEO (The River Nile- land use) Y6 SPR- GEO (Rivers) Y5 +Y6 SUM- PSHE (Reproduction) Statistics- see statistics progression document.	Y3 SUM 1- PSHE (It's my body) Y5+Y6 SUM- PSHE (Relationships and sex ed) Statistics- see statistics progression document.	
Revisit and review opportunities	Y3 AUT- GEO (UK-Times Zones) Y4 SPR- SCI WATER CYCLE Y5 AUT 2- Forces (Gravity) Y6 AUT- GEO (World time zones)	Y1 SUM 1- Everyday Materials Y3 AUT 2- Forces and Magnets Y5 AUT 1- Space (gravity) Y6 AUT 1- Evolution and Inheritance (streamlined adaptations) Y6 AUT 2- Electric forces.	Y2 SUM 2- Living things and habitats. Y4 AUT 1- Living things and their habitats. (Mrs Gren) Y4 AUT 2- Animals including humans (mrs gren) Y6 SUM 1- Living things and their habitats. Y6 AUT 1- Evolution and inheritance.	Y1 AUT 2- Animals inc Humans Y2 AUT- Animals inc Humans Y3 SUM 1- Living things and their habitats. Y4 AUT 1- Living things and their habitats- Mrs Gren Y4 AU2- Animals inc Humans Y5 SPR 1- Living things and their habitats.(life cycles, gestation) Y5 SUM 1- Animals inc Humans Y6 SPR 2- Animals inc Humans	Y1 SUM 1- Everyday Materials Y3 AUT 2- Forces and Magnets Y5 AUT 1- Earth and space (magnetic field). Y5 SPR 2- Properties and changes of materials (magnetic) Y5 AUT 2- Forces Y6 AUT 1- Evolution and Inheritance (streamlined adaptations) Y6 AUT 2- Electric forces.
Curriculum Driver Links					
	Aristotle, Ptolemy, Copernicus Isaac Newton	Setting up own experiments	Learning about the human life cycle and changes over our lifetime. How to keep ourselves healthy during puberty.	Presenting findings from experiments.	Looking at environmental changes. Learning about sustainability and life.

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Year Six

	Autumn One	Autumn Two	Spring One	Spring Two	Summer One	Summer Two
Topic Enquiry Question:	**What is evolution?**	**How can we use and control electricity to enhance our daily lives?**	**How does the human eye see?**	**How do animal living systems work together to maintain a healthy body?**	**What is classification?**	
National Curriculum Expectations	Evolution and Inheritance •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. **Working Scientifically** • Report and present findings from enquiries 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. •planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Electricity •associate the brightness of a 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. **Working Scientifically** • Use results to draw simple conclusions. •. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. •planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Light •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 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. **Working Scientifically** • Use results to make predictions to set up further comparative and fair tests. •. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. •planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	Animals including humans •identify and name the main parts of 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. **Working Scientifically** • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary •taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. •recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs •identifying scientific evidence that has been used to support or refute ideas or argument.	Living things and their habitats •describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. •give reasons for classifying plants and animals based on specific characteristics.	
Component Knowledge	By the end of the unit, pupils will: Know what adaption is and explain how cacti are adapted to live in hot/dry conditions. Know some simple adaptions of other plants. (Lesson 1) Know how some animals are adapted to their environment. (Lesson 2)	By the end of the unit, pupils will: Recognise a range of scientific symbols that represent each component. Know how to draw a circuit diagram. Identify if a circuit will work or not, explaining why. (Lesson 1)	By the end of the unit, pupils will: Know a range of light sources. Know how light travels in a straight line from a light source. (Lesson 1) Know that some materials are reflective, explaining how light is reflected.	By the end of the unit, pupils will: Know the main parts of the human circulatory system and how the system works. (Lesson 1) Know the names of the main parts of the heart and know how the heart pumps blood around the body. (Lesson 2)	By the end of the unit, pupils will: Know how to group animals using different criteria, such as nutrition (omnivore, carnivore, herbivore) animal groups (fish, reptiles, amphibians, mammals, birds, insects) or vertebrates/invertebrates. (Lesson 1) Know how to use a classification key to identify animals. Know how to create a classification key using yes/no questions to identify animals. (Lesson 2)	

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	Know what natural selection is, using the peppered moth as an example. Know that adaption and natural selection leads to species changing (evolving) over time to survive. (Lesson 2) Know how adaptions lead to evolution. Know that certain beak shapes are better adapted to pick up seeds. (Lesson 3) Know what genetic traits are and understand that they are passed on from parents to offspring. Know which characteristics are possible to inherit. (Lesson 4) Know how fossils evidence evolution. (Lesson 5)	Know that increasing the voltage in a circuit can affect the brightness of a bulb. (Lesson 2) Know that there can be variations in how components function. (Lesson 3) Know how to draw scientific conclusions based on an investigation. (Lesson 4) Know that there are renewable and non-renewable types of energy and list examples of each. (Lesson 5)	Know which materials and properties make good reflectors. (Lesson 2) Know that light from a light source is reflected from an object and enters the eye. Name and label parts of the eye and know basic functions of each part. (Lesson 3) Know how shadows change throughout the day. (Lesson 4) Know what refraction is and how it is different from reflection. Know why objects appear to be bent in water. (Lesson 5) Know that mirrors reflect light. Know how light behaves when it is reflected, drawing a diagram to show the path of reflected light. (Lesson 6)	Know how to find your own pulse and calculate heart rate. Know that certain activities can increase heart rate. (Lesson 3) Know the role blood plays in transporting nutrients and water around the body. (Lesson 4) Know how humans can keep healthy by exercising, eating a healthy diet and taking care of hygiene. (Lesson 5) Know the effects of unhealthy choices on the body. (Lesson 6)	Know which criteria could be used to sort plants into groups. (Lesson 3) Know that a microorganism is a living thing. Know that yeast respires, therefore it is a living microorganism. (Lesson 4) Know the five main groups that scientists use to classify microorganisms, giving examples and some characteristics of each group. (Lesson 5) Know who Carolus Linnaeus was and why he is an important scientist. (Lesson 6)
Lesson Sequence **Key Questions:**	1. KQ: How are plants adapted to the environment? 2. KQ: How are animals adapted to their environment? 3. KQ: What is natural selection and how does this lead to evolution?	1. KQ: How do I draw a scientific diagram of a circuit? 2. KQ: How does voltage in a circuit affect the brightness of a bulb? 3. KQ: How do I plan a fair test experiment to investigate variations in how	1. KQ: How does light travel? 2. KQ: Which materials make the best reflectors? 3. KQ: How does the eye work? 4. KQ: How do shadows change during the day? 5. KQ: Why do objects look	1. KQ: What is the circulatory system? 2. KQ: How does our heart work? 3. KQ: How does exercise affect my heart rate? 4. KQ: What does the blood transport around the body? 5. KQ: How can I live a healthy lifestyle?	1. KQ: How are animals classified? 2. KQ: What is a classification key? 3. KQ: How can we classify plants? 4. KQ: Is yeast a living microorganism? 5. KQ: What are the five main groups of microorganisms? 6. KQ: Who was Carolus Linnaeus?

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	4. KQ: How do adaptions lead to evolution? 5. KQ: What characteristics can you inherit from your parents? 6. KQ: How can fossils help us explain evolution?	components function? 4. KQ: How do I write a conclusion for my investigation? 5. KQ: What is a renewable and non-renewable energy?	different in water? 6. KQ: How do mirrors work?	6. KQ: What can damage our health?	
Vocabulary	Evolution, change over time, species, population, features, trait, inherited, characteristics, reproduce, offspring, variation, mutation, survive, survival of the fittest & adaptation.	Resistance, electrons, symbol, voltage, amps, current, battery/cell & circuit.	Light source, light ray, eyes, travel, torch, light beam, sun, shadow, cast, reflection, block, rainbow, reflect, reflective, colours, mirror, direction, straight lines, bend, opaque, translucent and transparent.	Heart, heartbeat, pulse, muscle, blood vessel, lungs, oxygen, oxygenated blood, deoxygenated blood, circulate, vein, artery, diet, exercise, unhealthy, harmful, healthy, nutrients, water transport, hygiene, smoking, alcohol & overweight	Micro-organism, bacteria, virus, fungi, characteristics, classify, environment, habitat, compare, features, classification key, key, sort, flowering plant and non-flowering plant
Cross curricular Links	Y3 AUT 1- HIS (Stone Age-Fossils). English- Y6 SPR 1- The Island (Galapagos islands, Charles Darwin and finches) Statistics- see statistics progression document.	Y3 SPR 2- DT (Electronic charm) Y4 SUM 1- DT (Torches) Y5 AUT 2- DT (Doodlers) Y5 SPR 2- DT (Digital monitors) Y6 SPR 1- DT (Steady hand game) Y6 SPR 2- HIS (Morse code machines) Y6 SPR 1- PSHE (One world- Power sources) Venn diagrams Statistics- see statistics progression document.	Y3 SUM 1- DT (eCharm) Y4 SUM 1- DT (Torches) Y6 SPR 1- COMPUTING (Tech + data) Y6 PSHE (It's my body) Sun exposure. Maths- Measuring shadows. Angles Symmetry Statistics- see statistics progression document.	Y1 SPR 1- DT Fruit & Veg Y2 AUT 2- DT Balanced diet Y3 AUT 2- DT Eating seasonally Y5- AUT 1- DT (What could be healthier?) Y5 SPR 2 – DT (Monitoring devices- animal's needs) Y1 SUM 1- PSHE (It's my body) Y3 SUM 1- PSHE (It's my body) Y5+Y6 SUM- PSHE (Relationships and sex ed) Statistics- see statistics progression document.	Y1 SPR 2- GEO (Biomes + habitats) Y2 SPR 2- GEO (Around the world- animals) Y2 SUM 2- GEO (Let's go to the Arctic- animals) Y3 SPR 2- GEO (Land Use- farming) Y3 SUM2- GEO (Volcanoes- animals in volcanic areas) Y4 AUT 2- GEO (Settlements- good settlement features) Y4 SPR- ENG (Escape from Pompeii) Y5 SPR- GEO (The River Nile- land use) Y6 SPR- GEO (Rivers) Y5 +Y6 SUM- PSHE (Reproduction) Statistics- see statistics progression document.
Revisit and review opportunities	Y1 AUT 1- Seasonal Changes (Spring matching animals to their offspring) Y1 AUT 2- Animals inc Humans Y2 AUT- Animals inc Humans Y3 SUM 1- Living things and their habitats. Y4 AUT 1- Living things and their habitats- Mrs Gren Y4 AU2- Animals inc Humans Y5 SPR 1- Living things and their habitats.(life cycles, gestation) Y5 SUM 1- Animals inc Humans Y6 SPR 2- Animals inc Humans	Y4 SPR 2- Electricity. Y5 SPR 2- Properties and changes of material (conductors and insulators)	Y1 AUT 1- Seasonal Changes (light during the day) Y3 SPR 1- Light Y5 AUT 1- SPACE Y5 SPR 2- Properties and changes of material. Y6 SPR 1- LIGHT	Y1 AUT 2- Animals inc Humans Y2 AUT- Animals inc Humans Y3 SUM 1- Living things and their habitats. Y4 AUT 1- Living things and their habitats- Mrs Gren Y4 AU2- Animals inc Humans Y5 SPR 1- Living things and their habitats.(life cycles, gestation) Y5 SUM 1- Animals inc Humans	Y2 SUM 2- Living things and habitats. Y4 AUT 1- Living things and their habitats. (Mrs Gren) Y4 AUT 2- Animals including humans (mrs gren) Y5 SPR 1- Living things and their habitats. Y6 AUT 1- Evolution and inheritance.

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Curriculum Driver Links					
		Learning about sustainable energy and renewable energy sources.	Learning about how to keep the heart healthy, effects of diet and exercise.		