

Science Long Term Plan

Archbishop Runcie CE First School



Vision

The school first existed as a force for social change and we remember this within our historic original mission as we continue to inspire and transform the minds and hearts of everyone we serve today and, thus, the wider world. Everyone associated with our school will experience life in all its fullness, as promised by Jesus. We do so with **Love and Determination**.

Our original Mission

“A school for the education of children only of the labouring mining and manufacturing and other poorer classes in the Parish of Gosforth and for no other purpose.”

Mission Statement:

At ARFS, we promote educational excellence, for everyone. Our purpose in education is to enable the children, families, staff, Governors and the wider community we serve to flourish. The Christian values of **Love and Determination** are at the core of teaching and culture within the school. We believe this makes us distinctive in the learning experience on offer. This is firmly rooted in the following epistle:

Be on your guard; stand firm in the faith; be courageous; be strong.

Do everything in love.

1 Corinthians 16:13-14

Intent	Implementation	Impact and Next Steps
<p>Our intent is to provide an ambitious, progressive and transformative Science curriculum that not merely fulfils the National Curriculum objectives but celebrates Science, encourages children to think of themselves as scientists from a young age and which challenges children to think deeply.</p> <p>This is not just because of our local context of children with high baselines and a proportion of families who work in Science industries, including academia, but also because of the school's uniquely Christian vision to transform the lives of all who we serve. It is rooted in the idea of wanting our education to lead our community to discover life in all its fullness. Science allows us to discover the glory of God's creation and to inspire awe and wonder, understanding the complex ways that the people have shaped our understanding of it and that this pursuit is an on-going one. As a result, children will learn not just about scientific knowledge, but also some of the many men and women who have changed the way we think about the world around us.</p> <p>The Archbishop Runcie CE First School curriculum and science pedagogy is rooted in research-based practice and which is owned by all teachers. Staff understand that deep bodies of knowledge are required within each science topic taught, knowing that this knowledge is delineated into substantive (or declarative) and disciplinary (or procedural) knowledge. The curriculum is planned around up-to-date research and understanding of what good Science teaching looks like, with staff understanding that teacher-directed instruction to encourage scientific enquiry is essential.</p> <p>A high-quality curriculum must be progressive, well-sequenced and with carefully planned and thought out vocabulary to ensure that children have the knowledge to become expert scientists. This must</p>	<p>Science is one of four core subjects at Archbishop Runcie CE First School and is a priority in school. Implementing the ambitious vision for Science requires:</p> <ul style="list-style-type: none"> - A clear, sequential and progressive sequence of lessons, collated by subject leaders, reviewed regularly by teaching staff with freedom to make suitable adjustments if necessary, particularly with relation to scientific misconceptions. - A strong understanding of scientific education pedagogy, particularly ways in which subject material in lessons is presented and ordered. - High expectations of work, including high standards of literacy, both scientific and English. <p>To ensure that deep bodies of knowledge are very well understood and embedded within children's thinking, teachers plan lessons in a systematic fashion using the long-term plans. This puts substantive knowledge first before application through disciplinary knowledge. This means avoiding 'cold' tasks e.g. 'what you know, what you would like to know...' tasks and avoiding experimentation too early. Staff understand that research shows that children often approach new topics with misconceptions and that teaching to 'wow' moments, particularly early on as a 'hook' can often further embed misconceptions.</p> <p>Teaching will use a lot of whole-class discussion, with the teacher modelling good use of scientific thinking and probing throughout the first school age range, scaffolding knowledge carefully. This is extended through the use of teacher-direct instruction, including teacher-led demonstrations and experimentation, to model high standards of scientific practice. As a result, teachers will ensure they have excellent subject knowledge.</p> <p>All children are given opportunities to extend and apply their disciplinary knowledge through experimentation, including that led by themselves, but this is very carefully sequenced and placed at the end of teaching substantive knowledge. Where there are gaps in substantive knowledge, teachers will ensure that this is well-addressed before children experiment themselves.</p> <p>As children progress through the school, they are given increasingly more freedom to design and conduct their own experiments, including understanding when experiments do not work properly and analysing why. This involves following the enquiry process of hypothesis, design, conduct, evaluate, with vocabulary differentiated according to each year group. The time children leave in Year 4, children will understand how experimentation is the careful control, evaluation and measuring of different variables, including the words dependent, independent and</p>	<p>Children will:</p> <ul style="list-style-type: none"> - Be inspired and talk positively about their scientific experiences, from our rising 3s to those about to leave for middle school. - Be expert scientists, in that they can confidently apply their scientific knowledge and principles. - Be ambitious for their own further science development, including their future career options (e.g. seeing a link between their scientific knowledge and becoming a doctor, or researching new inventions etc.) - Standards of work will be very high in whichever way it is presented.

<p>be from the very beginning of school life towards preparation for middle school and beyond.</p> <p>Our aim is that staff understand the need to address misconceptions carefully, in a thoughtful and planned manner. Misconceptions can be addressed too early and, given the age range with which we serve, understanding when to challenge and when to scaffold so children can independently undo their cognitive dissonance (an example of cognitive conflict) and celebrate this as part of the scientific enquiry process.</p> <p>We understand that working scientifically is a key part of the science curriculum and plan our application (the procedural knowledge) carefully to ensure it further embeds their knowledge and encourages all children to be scientists.</p> <p>The school understands that research shows science success is interdependently linked very closely with success in other subjects, particularly reading, and that opportunities to extend scientific knowledge within other subjects and vice versa should be taken, both planned and incidental.</p> <p>In turn, children will have the ability to think scientifically, independently, raising scientific questions about the world no matter their age or attainment, demonstrating their scientific capabilities to apply their secure, deep knowledge.</p>	<p>control. This will be taught through a progressive model for writing up experimentation.</p> <p>The curriculum will, in conjunction with other subjects, celebrate local links where relevant, both in terms of our immediate community, the historic role that Newcastle has played in terms of scientific discovery and the role it still plays today (e.g. the universities, the Centre for Life). Educational visits are well-planned and linked to topics and not merely incidental and other key events, including National Science Week, are also well-planned, relevant and which extends scientific knowledge as well as celebrates science. This will also raise the profile across the wider school community through stakeholder involvement.</p> <p>Children’s understanding of what Science is will be deepened not just by lessons and visits but also understanding who scientists are, understanding they are not merely “old white men in grey coats” but that science is an ongoing investigative process performed by a diverse group of people, both historically and today. In turn, this will help foster a passion for Science.</p>	
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Nursery	Autumn Term		Spring Term		Summer Term	
Overarching Topic Title	Once upon a time	Sparkling Celebrations	Awe & Wonder	Nature's Miracles	Our Wonderful World	We're going on a journey
Texts – Cycle 1	Goldilocks Baby Bear's Birthday	Pinecone & Penguin Dear Santa	The Gingerbread Man Dinosaur Roar	Dear Zoo Driving my tractor	The Very Hungry Caterpillar Jack and the Beanstalk	The Train Ride Penguin on Holiday
Texts – Cycle 2	No Rising 3s		Peace at Last How to Catch a Star	Noisy Farm Farmer Duck	Chick to Hen Oliver's Fruit Salad	Commotion in the Ocean Pirate Pete
Scientific Skills	<ul style="list-style-type: none"> • UtW (3-4) Use all their senses in hands-on exploration of natural materials. • UtW (3-4) Explore collections of materials with similar and/or different properties. • UtW (3-4) Talk about what they see, using a wide vocabulary. • UtW (3-4) Talk about the differences between materials and changes they notice. • C&L (3-4) Use a wider range of vocabulary 	<ul style="list-style-type: none"> • UtW (3-4) Use all their senses in hands-on exploration of natural materials. • UtW (3-4) Explore collections of materials with similar and/or different properties. • UtW (3-4) Talk about what they see, using a wide vocabulary. • UtW (3-4) Talk about the differences between materials and changes they notice. • UtW (3-4) Explore and talk about different forces they can feel. • UtW (3-4) Know that there are different countries in the world and talk about the differences they have experienced or seen in photos. 	<ul style="list-style-type: none"> • UtW (3-4) Use all their senses in hands-on exploration of natural materials. • UtW (3-4) Explore collections of materials with similar and/or different properties. • UtW (3-4) Talk about what they see, using a wide vocabulary. • UtW (3-4) Talk about the differences between materials and changes they notice. • C&L (3-4) Use a wider range of vocabulary 	<ul style="list-style-type: none"> • UtW (3-4) Use all their senses in hands-on exploration of natural materials. • UtW (3-4) Explore collections of materials with similar and/or different properties. • UtW (3-4) Talk about what they see, using a wide vocabulary. • C&L (3-4) Use a wider range of vocabulary • UtW (3-4) Begin to understand the need to respect and care for the natural environment and all living things. • UtW (3-4) Know that there are different countries in the world and talk about the differences they have experienced or seen in photos. 	<ul style="list-style-type: none"> • UtW (3-4) Use all their senses in hands-on exploration of natural materials. • UtW (3-4) Explore collections of materials with similar and/or different properties. • UtW (3-4) Talk about what they see, using a wide vocabulary. • C&L (3-4) Use a wider range of vocabulary • UtW (3-4) Begin to understand the need to respect and care for the natural environment and all living things • UtW (3-4) Plant seeds and care for growing plants. • UtW (3-4) Understand the key features of the life cycle of a 	<ul style="list-style-type: none"> • UtW (3-4) Explore collections of materials with similar and/or different properties. • UtW (3-4) Talk about what they see, using a wide vocabulary. • C&L (3-4) Use a wider range of vocabulary • UtW (3-4) Explore how things work. • UtW (3-4) Explore and talk about different forces they can feel. • UtW (3-4) Show interest in different occupations.

		<ul style="list-style-type: none"> C&L (3-4) Use a wider range of vocabulary 			plant and an animal.	
Substantive knowledge	Seasonal changes Colours Understand simple body parts Baking	Seasonal changes Light and Dark Floating and Sinking Ice – freezing and melting	Seasonal Changes Dinosaurs Fossils Scientific experiments	Seasonal Changes Farm animals and their young Minibeasts	Seasonal changes Planting/growing from seed Life cycles	Seasonal changes Magnetism Floating and sinking - boats
Continuous	Identifying weather patterns etc. outside Seasonal display and seasonal continuous provision within Investigation area. Materials to use in Investigation area – binoculars, magnets, mirror, sensory bottles, texture blocks					
Specific vocabulary to teach	Colours Weather vocabulary Key body parts Recipe Ingredients Method	Light/dark Day/night Float/sink Ice, water Freeze/melt	Fossils Palaeontologist Volcanoes Eruption Experiment	Farm Animal names and names of their young. Zoo animal names Enclosure Habitat Minibeast names Endangered	Life Cycle Butterfly Caterpillar Compost Plant pot Seed Growing Names of fruits and vegetables Hatch	Magnet Metal Attract Repel Summer Float Sink
Why this? Why now?	Children are new to school; colours are linked to text and used for sorting. Body parts linked to body percussion Baking linked to Birthdays	Introduction to seasonal change to winter. Links to Penguin and Pinecone and Antarctica.	Links to Literacy - Dinosaur Roar!	Links to Dear Zoo and driving my tractor.	Links to Literacy texts Seasonal growth/changes	Linked to transport and how trains and carriages link together. Floating and sinking linked to boats (transport)
Lesson Progression	<ol style="list-style-type: none"> Children are able to name primary and secondary colours found in a rainbow. Sort objects into groups by size, colour. Children observe weather conditions and explore rainbows in the environment. <p>Begin to identify and name body parts.</p> <ol style="list-style-type: none"> Children identify different parts of their body from a picture card. Children are able to identify and name key body parts to enable them to use within body percussion. 	<ol style="list-style-type: none"> Children talk about day and night, light and dark. Children experiment with light and dark using the dark tent Children begin to notice shadows. Children investigate shadows. <p>Children begin to talk about and explore environments different to their own.</p> <ol style="list-style-type: none"> Talk about the environment where Penguin lives. What is the weather like there? 	<p>Understands the role of a palaeontologist and what is meant by a fossil.</p> <ol style="list-style-type: none"> Children learn fossils remains and give us clues about how dinosaurs were in the past. Children learn that a scientist who excavates fossils is called a palaeontologist. Children excavate fossils from clay. They use pictures of dinosaur skeleton/fossils to enhance their work. 	<p>Understand where animals live, how they move, sounds they make and names of their young.</p> <ol style="list-style-type: none"> Children begin by looking at zoo animals. Talk about if the children are aware of any animal habitats. Go on an animal hunt. the role of the farmer. <ol style="list-style-type: none"> Which animals did the farmer have on his farm? Can the children name all of the animals? 	<p>Understand a life cycle and can talk about the changes they have observed.</p> <ol style="list-style-type: none"> Children listen to 'The Very Hungry caterpillar' Children observe the growth of the caterpillars and the changes they go through. Discuss and order the life cycle from egg to butterfly. <p>Plant and care for a living plant grown from seed.</p> <ol style="list-style-type: none"> Begin our growing topic by making cress heads. Plant using compost. 	<p>Explore Magnetism</p> <ol style="list-style-type: none"> Which items stick to the magnet and which don't? Why do you think this is? Explore around the Nursery. Can the children find more items that are attracted to the magnet? Explore the brio train set. Do all the carriages stick together? Consolidate children's learning that magnets are attracted to metal materials.

	<p>(head, hands, arms, legs, feet, back, knees and elbows)</p> <p>3. Children are able to think of an action using a named body part to make a sound.</p> <p>1. Follow a recipe and use some equipment and ingredients.</p> <p>2. Use the term method to explain the things we need to do.</p> <p>3. Once baked, observe the changes from a liquid to a solid. Uses senses to talk about taste and smell.</p>	<p>2. Explore an Antarctica small world set up using instant snow and ice.</p> <p>3. Talk about why pinecone could not grow in Antarctica</p> <p>4. Freeze water to make ice. Observe changes from a liquid to a solid.</p> <p>5. Talk about animals that live in the south pole with Penguin.</p> <p>Children to investigate floating and sinking.</p> <p>1. Ask the children for predictions of boats made from a range of different materials e.g. paper, plastic etc.</p> <p>2. Test out the children's theories.</p>	<p>Children observe a range of experiments.</p> <p>1. Volcano Eruption. Children witness the volcano erupt after using a range of materials.</p>	<p>2. Teach children the names of baby animals.</p> <p>3. Talk about the noises heard on the farm</p> <p>Children to investigate what a minibeast is.</p> <p>1. Can the children identify any minibeasts?</p> <p>2. Ask the children what equipment we might need. Explain as minibeasts are very small we might need a magnifying glass.</p> <p>3. Look at where minibeasts like to live.</p>	<p>3. Give each child a sunflower seed. Children care for their seed and observe the changes they see.</p> <p>Children can name fruit and vegetables and can distinguish between fruits and vegetables. They understand how fruit and vegetables are grown.</p> <p>1. Read Oliver's vegetables. Discuss how Oliver and his grandad grew the vegetables.</p> <p>2. Explore a range of vegetables using all of our senses. How does it feel, what does it smell like etc.</p> <p>3. Explore a range of fruit and make a fruit salad.</p> <p>4. Read Oliver's fruit smoothie. Use fruit to make a smoothie.</p>	<p>5. Look at a non-fiction text on floating and sinking.</p> <p>6. Floating and sinking. Experiment with different materials.</p> <p>7. Make boats from different material and test whether they will float or sink.</p>
<p><u>Scientific Concepts taught throughout the year</u></p> <p>Skills</p> <p>1. Ask questions - Demonstrate curiosity about the world around them.</p> <p>2. Make predictions - With support or prompting, talk about what they think might happen based on their own experiences.</p> <p>3. Decide how to carry out an enquiry - Respond to prompts to say what happened to objects, living things or events.</p> <p>4. Take measurements - Use senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses.</p> <p>5. Record data - Talk to an adult about what has been found/found out. Draw pictures of scientific observations/results</p> <p>6. Present data - Talk to an adult about what has been found/found out. Draw pictures of scientific observations/results</p> <p>7. Answer questions using Data - With support, explain why some things occur.</p> <p>8. Draw conclusions - With support, talk about what they have found out or what they think might happen next/ change based on their own experiences.</p> <p>Knowledge</p> <p><u>Children know about similarities and differences via observation and hands on exploration and can talk about what they see in relation to:</u></p> <ul style="list-style-type: none"> • Places – The town they live in, the seaside, the farm and animal habitats. • Objects – fruits and vegetables, floating and sinking, magnetic objects. • Materials – freezing and melting, solid and liquid, recyclable. • Living Things - Body parts, animals (adult and baby), growth of plants. 						

Reception	Autumn Term		Spring Term		Summer Term	
Topic Title	Fairytales	The North Pole	Changes	New Life	Africa	Toys
Texts	The Enormous Turnip The Elves and the Shoemaker	Arctic White (Northern Lights) Harvey Slumfenburger's Christmas Present	Once There Were Giants What the Tree Sees The Growing Story	Owl Babies Beatrix Potter- Peter Rabbit Woodland Animals (NF)	Handa's Surprise Lila and the Secret of the Rain In the Savannah (NF) African Animals (NF)	Major Glad, Major Dizzy Lost in the Toy Museums Dogger
Science Focus	Understanding changing states – Making soup	Understanding Changing States – Ice	Experimentation: How to grow cress	Animal habitats - the local area	Animal habitats - Africa	Healthy eating – sugar's effect on teeth
Continuous	Seasonal changes – Using observational drawing and scientific tools (e.g. magnifying glasses, thermometer) to investigate the environment around them and notice change. Begin to use more scientific language e.g. 'the temperature is getting warmer' and understanding that many weathers can happen in all seasons. Specific explanation around snow, hail and rain, including where they come from (clouds). Children will identify trees and their leaf cycles, whilst understanding that some trees don't lose their leaves.					
Continuous DM and ELG	<p><i>DM:</i> Understand the effect of changing seasons on the natural world around them.</p> <p><i>ELG:</i> Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Explore the natural world around them, making observations and drawing pictures of animals and plants</p>					
Specific Development Matters Coverage (Rest is covered continuously)	Rest taught continuously	Recognise some environments that are different to the one in which they live.	Rest taught continuously	Rest taught continuously	Recognise some environments that are different to the one in which they live.	Rest taught continuously
ELGs	All three Natural World ELGs are taught throughout the units.					
Specific scientific vocabulary to teach (Bold = spelling)	Cause and effect Heat Observe Equipment Ingredients Vegetable	Solid , liquid, gas States (e.g. 'The state is a solid') Ice, water, steam Melt , Experiment Arctic	Hypothesis Growth Hydrated/dehydrated Sunlight	Nocturnal Hunt Prey and predator Urban/rural Habitats	Habitats African plains Vegetation Drought	Effect Consumption Rot Decay [These will need reviewing for 2021-22]
Why this? Why now?	Settling of new and existing children with familiar fairy stories. Links to Harvest Festival/Autumn (vegetables).	Progressive from Nursery and building on prior knowledge (Antarctica).	Progressive from Nursery – growing seeds – and building up to Y1 where children design their own experiment for growing.	Links to Easter and RE teaching as well as seasonable changes.	Linked to Handa's Surprise (Lit focus) and comparison of Animals and their habitats.	Focus on healthy eating and promoting oral health. Transition to Y1: thinking about experimentation.
Lesson Progression	1. Read the Enormous Turnip.	1. Use a non-fiction book to look at the environment in the	1. Make a list of things a plant needs to grow.	1. After reading Owl Babies, discuss the word nocturnal.	1. Look at different non-fiction books about Kenyan animals.	1. Read 'Make Way for Tooth Decay'. Discuss what bacteria is and

	<ol style="list-style-type: none"> 2. Read Pumpkin Soup. 3. Reread Pumpkin Soup, ask the children to think about the equipment and ingredients used. 4. Make pumpkin soup and observe the changes. 	<p>Arctic.</p> <ol style="list-style-type: none"> 2. Look at ice, water and steam. 3. Explain that solid, liquid and gases are changing states of matter. 4. Carry out an experiment to change ice to water. 	<ol style="list-style-type: none"> 2. Carry out an experiment to grow cress. 3. After a few days, check which pots have begun to grow? Why do you think this is? 4. Look at all of the pots. Which pot has successfully grown? Which pot has not? 	<ol style="list-style-type: none"> 2. Discuss what owls eat. 3. Introduce the terms rural and urban and their meanings. 4. Look at photos of different animals and discuss whether the animals live in an urban or rural setting. 5. Look at urban foxes and discuss – where do they live? Why? 	<ol style="list-style-type: none"> 2. Recap which animals live in the Arctic. Would you find these animals in Kenya? 3. Look at different habitats within Kenya (plains, lake, and desert). Sort the animals by habitat. 4. Make your own animal for different scenarios. 	<p>what it does to your teeth.</p> <ol style="list-style-type: none"> 2. Read ‘Why should I brush my teeth?’ Discuss how to protect your teeth. 3. Conduct an experiment, use orange juice and water with an egg to represent enamel. Children to make predictions about what might happen to the enamel. 4. Discuss your findings. Were your predictions correct? What have we learnt?
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Year 1	Autumn Term		Spring Term		Summer Term	
Science Topic Title National Curriculum Coverage (substantive knowledge)	Animals, including humans Focus on animals only NC: Identify and name a variety of common animals that are birds, fish, amphibians, reptiles 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 (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets)	Animals, including humans Focus on humans NC: Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Everyday Materials NC: 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		Plants How does a plant grow	Plants Different types of plants/trees
Why this? Why now?	Long Term which allows opportunities for depth and embed complex knowledge. Builds on Reception Farm topic Links to birds in our school grounds	Links to DT/PE/Healthy living	Children will be able to make links between materials other areas of the curriculum.	Children will be able to make links between materials other areas of the curriculum. Links to DT Sc1 focus building on Materials knowledge in Spring 1	Links to Geog teaching, both previous term and this term Builds on knowledge of seasonal changes Consolidate capacity/length & height (WRMH Spring 2)	Links to Geog teaching Builds on knowledge of seasonal changes WRMH- Link to time/length of day Link to trees in our grounds Link to DT food topic
Working Scientifically (procedural knowledge)	Asking simple Qs/answer in diff ways (link also to English) Identify & classify Observe closely to use simple equipt (compare and contrast animals) in local habitat and in pictures	Asking simple Qs/answer in diff ways (link also to English) Observe closely- Senses to compare Designing experiments	Asking simple Qs/answer in diff ways (link also to English) Identify & classify	Asking simple Qs/answer in diff ways (link also to English) Identify & classify	Asking simple Qs/answer in diff ways (link also to English) Performing simple tests Using observations & ideas to answer Qs Gather and record data to answer Qs Observe closely to use simple equipt (ruler)	Asking simple Qs/answer in diff ways (link also to English) Identify & classify
Resources	Resources to identify living things in environment, including magnifying glasses and microscopes Animal skulls/teeth	Human body resources Feely bag Blindfolds	Everyday materials box (see below to materials) Example household objects to identify below materials Resources for building a den (see Spring 2 experiment)		Plants to grow (see below) Measuring cups Magnifying glasses	Magnifying glasses
Science vocabulary to teach	Fish (Name: goldfish, salmon, cod, maceral) Amphibian (Name: Frog, toad, newt) Reptiles (Name: lizard, snake, tortoise)	Head Neck Arms Elbows Legs Knees Face	Hard/soft Stretchy/stiff Shiny/dull Rough/smooth Bendy/rigid Waterproof/not waterproof Absorbent/not absorbent		Plant Roots Stem Leaves Flower (petals) Fruit Seed Evergreen	Deciduous Evergreen Trunk Branches Name: Hawthorn, oak, willow

	<p>Birds (Name: seagull, sparrow, robin, magpie, pigeon, blackbird) Mammals (Name: Human, whale, dolphin, cats, dogs, pigs) Pet Vertebrate (the above five groups) Invertebrate (at Year 1 level, anything that does not fit into the above five) Carnivore Herbivore Omnivore Similarity Difference</p>	<p>Ears Eyes Hair Mouth Teeth Experiment</p>	<p>Opaque/transparent Materials: Wood, plastic, glass, metal, water, rock, Fair test</p>	<p>Deciduous Vegetables (Variety of common plant names, e.g. geranium, dandelion, oak, bean)</p>		
Lesson progression	<ol style="list-style-type: none"> 1. Finding similarities and differences across animals already known (pets). 2. Finding similarities and differences across vertebrates 3. Group vertebrates according to their class 4. Group invertebrates 5. Group animals according to what they eat. 6. <i>Children should also do at least one additional dedicated lesson on plants or seasonal change, alternating between them across half-terms</i> 	<ol style="list-style-type: none"> 1. Understand and label parts of the human body. 2. Understand and name the five senses 3. Hypothesising for differences in body parts between humans and other animals <p>4&5: Produce and conduct an experiment about the senses</p> <p>6. <i>Children should also do at least one additional dedicated lesson on plants or seasonal change, alternating between them across half-terms</i></p>	<ol style="list-style-type: none"> 1. Find similarities and differences across different everyday items. 2. Identify materials and understand their link to everyday objects 3. Link everyday materials to their properties. 4. <i>Children should do an additional lesson on the on-going teaching (see below)</i> 	<ol style="list-style-type: none"> 1. Compare the properties of materials <p>2&3. Design and test a den to withstand different weather conditions</p> <p>4&5 EXPERIMENT WITH DT OVER TWO LESSONS <i>See DT plan</i> Ask the children to construct a frame for a swing using suitable construction kit parts.</p> <p>6. <i>Children should do an additional lesson on the on-going teaching (see below)</i></p>	<ol style="list-style-type: none"> 1. Label the parts of a plant (flowering) 2. Identify what plants need to survive. 3. What does a sunflower need to survive? <p>4&5: Design an experiment to test sunflower growth.</p> <p>6. Explain where the best place to grow a sunflower is</p>	<ol style="list-style-type: none"> 1. Identify and label the parts of a tree 2. Understand the difference between deciduous and evergreen trees, identifying examples of both 3. How do trees survive in the winter? 4. <i>Children should do at least one additional lesson on the on-going teaching, including a lesson on seasonal change that contrasts with their Autumn learning</i>
Ongoing Science Teaching	<p>Animals, including humans Use the local environment throughout the year to explore & answer Qs about animals in their habitat. (Be aware that invertebrates do not need to be known in depth and the animal groups they need to know and are unlikely to be ones seen in the local environment) – USE FOREST SCHOOL OPPS</p> <p>Plants</p>	<p>Animals, including humans Use the local environment throughout the year to explore & answer Qs about animals in their habitat – USE FOREST SCHOOL OPPS</p> <p>Plants Use the local environment throughout the year to explore & answer Qs about plants growing in their habitat- PLANT</p>	<p>Animals, including humans Use the local environment throughout the year to explore & answer Qs about animals in their habitat – USE FOREST SCHOOL OPPS</p> <p>Plants Use the local environment throughout the year to explore & answer Qs about plants growing in their habitat- PLANT</p>			

	<p>Use the local environment throughout the year to explore & answer Qs about plants growing in their habitat- PLANT VEG</p> <p>Seasonal Changes</p> <ul style="list-style-type: none"> • Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies <p>DO THROUGH CLASSROOM ROUTINES & DISPLAYS</p>		<p>VEG</p> <p>Name: daisy, daffodil, dandelion</p> <p>Seasonal Changes</p> <ul style="list-style-type: none"> • Observe changes across the 4 seasons • Observe and describe weather associated with the seasons and how day length varies <p>DO THROUGH CLASSROOM ROUTINES & DISPLAYS</p>		<p>VEG</p> <p>Name: hawthorn, oak, willow,</p> <p>Seasonal Changes</p> <ul style="list-style-type: none"> • Make tables and charts about the weather <p>DO THROUGH CLASSROOM ROUTINES & DISPLAYS</p>	
Scientist of the term	Alfred Nobel, TNT then dedicated his life to peace	Katherine Johnson, NASA Mathematician (and other lesser known female mathematicians, such as Annie Easley, Dorothy Vaughan) <i>Neil Armstrong, History</i>	Alexander Fleming and Louis Pasteur, vaccinations and antibiotics	Alexander Graham Bell and Elisha Gray: the fight over who invented the telephone (link to chronological change)	Thomas Edison and his copious inventions	Bill Nye, TV scientist who popularised and still popularises science for many children and adults.

Year 2	Autumn Term		Spring Term		Summer Term	
Science Topic Title National Curriculum Coverage (substantive knowledge)	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.	Uses of everyday materials identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses compare how things move on different surfaces. find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	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.	Living things & their habitats Content	Living things & their habitats Rock pool 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.
Why this? Why now?	Complex topic needing longer term. Link with Plants ongoing teaching. DT link (Healthy eating & hygiene) School Nurse visit	Depth of understanding opportunities within long term – run up to Christmas allows flexibility. DT link in Spring 1. Builds progressively on understanding about wooden houses from Aut 1 and 2.	Precursor to habitats	Link back to materials Studied plants and humans so can build into it	Builds on Summer 1 geog. Natural link with Summer 2 visit. Part of a wider Seaside Topic.	
Working Scientifically Skills (procedural knowledge)	Asking simple questions and recognising that they can be answered in different ways. Identify and classify	Asking simple Qs & answer in different ways Perform simple tests Identify & classify Using observations to answer Qs Gather & record data to answer Qs Observe closely using simple equip (ruler)	Asking simple Qs & answer in different ways Observe closely using simple equip (thermometer, ruler etc) Using observations to answer Qs Perform simple tests Gather & record data to answer Qs	Asking simple Qs & answer in different ways Identify & classify	Observe closely using simple equip (microscopes, nets, magnifying glasses)	

Science vocabulary to teach	Animal Human Basic needs Water Food Air Survival Food types Hygiene Growth Reproduction (<i>not how it occurs!</i>) Carnivore Omnivore Herbivore Baby Toddler Offspring Teenager Balanced diet Exercise Fitness	Wood Metal Plastic Glass Brick rock Paper Cardboard Squashing Bending Twisting Stretching Macintosh or Dunlop	Seed Germination Bulb Reproduction Growth Survival Mature Temperature Suitable conditions	Living Dead Never been alive Dormant Definition MRS GREN (see below)	Apply knowledge to Rock pool habitat: Habitat Microhabitat Food chain Shelter Sources of food	
Lesson progression	1 & 2 What happens to our bodies as we grow? 3 Do other animals grow in the same way as us? 4 What do we need to live and be healthy? 5 Understand why it is important to exercise. 6 Why is it important to keep clean?	1. Recap prior Y1 learning as to the different materials of different items. 2&3 Design an experiment to test the properties of different materials. 4. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 5. Consider why different substances are used in different ways	1&2 Design and conduct an experiment to measure why different materials can be manipulated in different ways 3&4 DT link – using everyday materials for specific purposes	1. Consolidate our understanding of what plants need to grow and what they start from 2&3 Create and conduct an experiment about how well a range of plants grow in our school 4. Evaluate the experiment and understand how different plants need different conditions	1&2 Understand life processes and what makes something ‘alive’ 3. Identify what is alive and what is dead. 4. Understand what a habitat is. 5. Understand what a food chain is.	1. Understand the relationship between habitats and food chains 2. Identify the relationship between habitats and food chains within the local environment. 3&4 Field trip – identifying the food chain and habitat of rock pools

<p>Ongoing Science Teaching</p>	<p>Plants</p> <p>Use the local environment throughout the year to observe how different plants grow. Be introduces to germination conditions for growth & survival.</p> <p>Plant seeds in winter and compare it to their Year 1 experiment. Read the Plants sequence in Spring closely and consider pre-teaching elements, particularly considering those who may struggle with the topic.</p>		<p>Plants</p> <p>Children should build up to their unit by being exposed to a wider variety of plants – as the weather improves, grow a variety of different plants, reiterating what children know about what plants need and having them consider the seasonality of different plants.</p>			
<p>Scientist of the term</p>	<p>Copernicus and the way that science can disrupt the way people think (heliocentrism)</p>	<p>Charles Mackintosh and John Dunlop <i>Everyday Materials</i></p>	<p>Gladys Mae West, inventor of GPS <i>Pole to Pole in Geography</i></p>	<p>George Washington Carver, former slave turned expert botanist <i>Plants</i></p>	<p>Rosalind Franklin, worked with Watson and Crick to discover DNA but was not credited with Nobel</p>	<p>Isaac Newton, sequence of physicists (see next two)</p>

Year 3	Autumn Term		Spring Term		Summer Term	
<p>Science Topic Title</p> <p>National Curriculum Coverage (substantive knowledge)</p>	<p>Light</p> <p>recognise that they need light in order to see things and that dark is the absence of light</p> <p>notice that light is reflected from surfaces</p> <p>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>find patterns in the way that the size of shadows change.</p>	<p>Magnets</p> <p>observe how magnets attract or repel each other and attract some materials and not others</p> <p>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</p> <p>describe magnets as having 2 poles</p> <p>predict whether 2 magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Forces</p> <p>compare how things move on different surfaces</p> <p>notice that some forces need contact between 2 objects</p>	<p>Plants</p> <p>identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>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</p> <p>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.</p>	<p>Rocks</p> <p>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>recognise that soils are made from rocks and organic matter.</p>	<p>Animals, including Humans</p> <p>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</p> <p>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>
<p>Working Scientifically Skills (procedural knowledge)</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Introduction of independent, dependent and control variables as explicit teaching topics</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p>	<p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p>using straightforward scientific evidence to answer questions or to support their findings.</p>	<p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>identifying differences, similarities or changes related</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>Sc4/1.1 asking relevant questions and using different types of scientific enquiries to answer them</p> <p>Sc4/1.2 setting up simple practical enquiries, comparative and fair tests</p> <p>Sc4/1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Sc4/1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>Sc4/1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p>

				to simple scientific ideas and processes	identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.	Sc4/1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Sc4/1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Sc4/1.8 identifying differences, similarities or changes related to simple scientific ideas and processes Sc4/1.9 using straightforward scientific evidence to answer questions or to support their findings.
Why this? Why now?	Seasonal influence (Summer – Autumn) Comparison between shadows at beg of Sept to Oct & why. Most straightforward to embed high working scientific objectives through active experimentation.	Introduction to forces through concept of magnets	Follows on from magnets	Seasonal influence	Links with Tyne topic & fieldwork. Precursor to Stone Age knowledge.	Longer term for a more complex topic. Builds upon prior learning.
Science vocabulary to teach	Light/dark Reflection Transparent Opaque Translucent Shadow Silhouette Light source Independent and dependent variables & controls (see L4)	Magnetic force Attract Repel Material Direct contact At a distance pole	Force Push Pull Direct contact properties	Roots Stem/trunk Leaves Flowers Air Light Water Nutrients from soil Space to grow Life cycle Pollination Seed formation Seed dispersal Fertiliser bulb, (tuber) leaf (petiole) root (root hairs) stem petals sepals stamens	Physical properties Appearance Sedimentary Soil Formation Fossil Crystals	Nutrition Skeleton Muscles Diet Carbohydrate Fat Protein Fibre

				ovary pollen fruit germination seedling reproduction		
Lesson progression	<ol style="list-style-type: none"> 1. What is light and where does it come from? 2. Which materials reflect light best? 3. Understand the difference between opaque, transparent and translucent. 4. Understand shadows and how and why their shape changes. 5. Understand why strong light can be dangerous 	<ol style="list-style-type: none"> 1. Begin to understand how magnets behave. 2. Explain how magnets work using appropriate vocabulary. 3. Understand which materials are magnetic 4. Understand that not all magnets are the same and what their uses are 	<ol style="list-style-type: none"> 1. Understand what a 'force' is 2. Understand how contact forces work 3. Understand and apply the concept of balanced and unbalanced forces 4. Measure forces using a newton meter 	<ol style="list-style-type: none"> 1. Name the parts of a plant 2. Recap the conditions plants need to grow and focus on the role of soil nutrition 3. Understand how water is transported around a plant 4. Understand the role of flowers on plants 5. Understand the role of pollination 6. Understand how plants spread their seed 	<ol style="list-style-type: none"> 1. Begin to identify basic understanding of different types of rock 2. Understand the different uses of rocks 3. Recognise fossils and how they are formed 4. Understand the relationship between soils and rock 5. Fieldwork link – see Geography plan, conducting soil and rock investigations 	<ol style="list-style-type: none"> 1. Understand what animals eat 2. Understand how energy comes in different forms within food <p>3&4 What is healthy food?</p> <p>5&6 Understand the purpose of skeletons</p> <p>7. Understand how human beings move</p>
Ongoing Science Teaching	<p>Plants</p> <p>Read Spring 2's Plants, as well as the Year 2 curriculum for Plants. Use a wider range of plants and have children tend to them, working more independently than in Key Stage 1 (accept that some plants may die which is fine – review what goes wrong with the children). Begin to introduce some of the more complex terminology for the parts of plants.</p>		<p>Plants</p> <p>Continue working on Plants and pre-teach elements as required for Spring 2. Consider the water dye experiment and whether it is worth doing this over a longer period of time as part of the on-going teaching.</p>		<p>Light</p> <p>Go back over some of the key aspects of light and linking it to changing day lengths and summer good practice for protecting self from UV light.</p>	
Scientist of the term	Albert Einstein, including being a Jew and links to the atom bomb	Stephen Hawking, including his life with motor neurone disease	Marie Curie, work on radioactivity and giving her life to her science <i>(Forces)</i>	Alan Turing and Tim-Berners Lee, computer scientists <i>(In History, class studies Swan, Armstrong and Stephenson)</i>	Mary Anning, palaeontologist, advances made ignored at time due to gender <i>Rocks</i>	Rachel Carson, marine biologist and conservationist <i>Animals including humans</i>

Year 4	Autumn Term		Spring Term		Summer Term	
<p>Science Topic Title National Curriculum Coverage (substantive knowledge)</p>	<p>States of matter compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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)</p> <p>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Sound identify how sounds are made, associating some of them with something vibrating</p> <p>recognise that vibrations from sounds travel through a medium to the ear</p> <p>find patterns between the pitch of a sound and features of the object that produced it</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>recognise that sounds get fainter as the distance from the sound source increases</p>	<p>All Living Things recognise that living things can be grouped in a variety of ways</p> <p>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Animals, including humans describe the simple functions of the basic parts of the digestive system in humans</p> <p>identify the different types of teeth in humans and their simple functions</p> <p>construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Electricity Knowledge identify common appliances that run on electricity</p> <p>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>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</p> <p>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Electricity Application</p>
<p>Working Scientifically Skills (procedural knowledge)</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them</p> <p>setting up simple practical enquiries, comparative and fair tests</p> <p>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</p> <p>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>

		identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.	identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.	identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.	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.	identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings.
Why this? Why now?	Fundamental to knowledge of sound and other Science in KS2	Relies on States of Matter understanding to see how sound travels through particle model	Amazon context (wider environment) builds on knowledge of local habitats from Autumn	Links to prev Science topic. Dental hygiene and how this has changed over time.	Dense topic, long term. Use Science labs at GCMS (support transition).	
Science vocabulary to teach	Solid Liquid Gas State Matter Freeze Melt Evaporate Condensation Water cycle Mountain River Stream Sea temperature	Vibration Volume (Amplitude) Pitch Wave Sound source Distance Decibel	Habitat Vertebrate Fish Amphibian Bird mammals Invertebrate Snails, slugs, worms, insects Deforestation Classification Classification key	Food chain Producer Predator Prey Consumer Mouth Tongue Teeth Oesophagus Stomach Small intestine Large intestine Anus Incisor Canine Molar Wisdom Premolar	Electricity Energy Renewable/non-renewable Circuit Battery/cell Bulb Buzzer Motor Wire Switch Conductor Insulator	
Lesson progression	1. Solids, liquids and gases 2 and 3: Understand what happens when substances change state 4. Understand evaporation and condensation in different contexts 5. Understand the water cycle	1&2 Understand what sound is 3&4 Understand how sound travels to the ear 5. Understand volume 6. Understand pitch	1. Group living things in different ways 2. Use a classification key. 3&4 Identifying living things within different habitats 5&6 (Geography link) Understand the way in which habitats can change.	1. Understand different types of teeth 2. Understand how to care for teeth 3. Recognise the role of digestion 4. Identify the parts of the human digestive system 5&6 Identify a range of food chains through food webs	1. Recognise the wide uses of electricity 2. Create a series circuit 3. Understand how switches work 4. Understand the role of conductors and insulators	1, 2 and 3. <i>Experimentation from the electricity sequence</i> Lessons beyond this with GCMS.

Ongoing Science Teaching	Living things in their habitats (local environment) Use the local environment throughout the year to raise & answer Qs that help them to identify and study plants and animals in their habitat. Classify what they see.		Living things in their habitats (local environment) Use the local environment throughout the year to raise & answer Qs that help them to identify and study plants and animals in their habitat. Look at how habitat changes throughout the year.		<i>Lessons at GCMS</i>	
Scientist of the term	Archimedes <i>Ancient Greece</i>	Hippocrates, father of modern medicine including Hippocratic Oath <i>Greece topic continued</i> Elizabeth Garrett Anderson, first female doctor, suffragette (links to Hippocrates)	Jane Goodall, conservation work <i>Living things and their habitat</i>	Charles Darwin <i>Animals including humans</i>	Ada Lovelace, early computer scientist (and daughter of Byron) <i>Electricity and coding link</i>	Nikola Tesla <i>Electricity continued</i>