

# Science Long Term Plan 2024-25

## Archbishop Runcie CE First School



### 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.”

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.

In light of our ever changing community, we seek to develop [love and determination](#) and, in doing so, enable everyone associated with our school to experience life in all its fullness, as promised by Jesus.

### Current Mission

Inspired by the parable of the lost sheep, our mission is to enable everyone within our school community to flourish through our unconditional [love and determination](#), as demonstrated by the good shepherd. We are reminded that every single member of our school community is equally valued and loved in the image of God.



### Vision

In 1 Corinthians 16:13-14, Paul urged the church in Corinth to:

**Be courageous; be strong.  
Do everything in love.**

This epistle helps us understand;

- that God's love sets self aside, over and over, endlessly, for the good of others.
- that our thoughts and deeds should spring from, and be done, in [love](#) and with strength and courage – referred to as [determination](#).

### Values

Rooted in the epistle above, the Christian values of [love and determination](#) are at the core of teaching and culture within the school.

# Science

Intent	Implementation	Impact and Next Steps
<p>Our intent is to provide an <b>ambitious, progressive and transformative</b> science curriculum that not merely fulfils the National Curriculum objectives but celebrates science, encourages children to <b>think of themselves as scientists from a young age</b> 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 <b>discover life in all its fullness</b>. 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. Our curriculum aims to <b>develop a sense of excitement and curiosity about natural phenomena</b> and an understanding of how the scientific community contributes to our past, present and future.</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 <b>deep bodies of knowledge</b> are required within each science topic taught, knowing that this knowledge is delineated into <b>substantive</b> (or declarative) and <b>disciplinary</b> (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>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"> <li>- 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.</li> <li>- A strong understanding of scientific education pedagogy, particularly ways in which subject material in lessons is presented and ordered.</li> <li>- High expectations of work, including high standards of literacy, both scientific and English.</li> </ul> <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 <b>substantive knowledge first</b> before application through <b>disciplinary knowledge</b>. This means avoiding 'cold' tasks e.g. 'what you know, what you would like to know...' tasks and avoiding experimentation too early. As suggested in Ofsted's Science research review (April 2021), the 'working scientifically' skills are integrated with conceptual understanding rather than taught discretely. This provides frequent, but relevant, opportunities for developing scientific enquiry skills. 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>Each science unit is based upon one of the key science disciplines: Biology, Chemistry and Physics and shows progression throughout the year groups. At ARFS, teaching will use a lot of <b>whole-class discussion</b>, 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-directed instruction, including <b>teacher-led demonstrations and experimentation</b>, to model high standards of scientific practice. As a result, <b>teachers will ensure they have excellent subject knowledge</b>.</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>The impact of our science LTP can be constantly monitored through both formative and summative assessment opportunities. Each lesson provides teachers with the opportunity in assessing pupils against the learning objectives and any relevant scientific enquiry skills. Children's books will begin each unit with a Knowledge Organiser which is used to develop their learning through exposure to supportive pictures, key vocabulary and a clear sequence of learning shared with children. Furthermore, each unit will end with a Knowledge Catcher (end of unit quiz) to provide a summative assessment and identify gaps to be plugged before moving on. Opportunities for children to communicate using scientific vocabulary will also form part of the assessment process in each unit.</p> <p>When children leave ARFS ready for their transition to middle school, they will have the necessary tools to confidently and meaningfully question and explore the world around them as well as critically and analytically experiencing and observing phenomena. They will be inspired about their experiences, from our rising 3s to those ready for their transition. Pupils will understand the significance and impact of science on society including being 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).</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 be from the very beginning of school life towards preparation for middle school and beyond.

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.

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. 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.

In turn, our curriculum encourages: a strong focus on **developing knowledge alongside scientific skills** across Biology, Chemistry and Physics, developing curiosity and excitement about familiar and unknown observations, the opportunity to challenge misconceptions and demystifying truths. Our curriculum allows **continuous progression** by building on practical and investigative skills across all units. Finally, it provides children the opportunity for critical thinking, with the ability to ask questions and explain and analyse evidence. Our key vocabulary has been mapped out to ensure it is progressive and specific to the unit of learning.

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 control. This will be taught through a progressive model for writing up experimentation.

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.

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.

The expected impact of our science curriculum beyond science is that children will:

- Understand the importance of resilience and a growth mind set, particularly in reference to scientific enquiry
- Standards of work will be very high in whichever way it is presented.
- Use evidence to formulate explanations and conclusions.
- Demonstrate scientific literacy through presenting concepts and communicating ideas using specific vocabulary.

<b>*Sp</b>	Opportunity for spiritual development
<b>*Mo</b>	Opportunity for moral development
<b>*So</b>	Opportunity for social development
<b>*Cu</b>	Opportunity for cultural development

**Science Overview** – EYFS, Key Stage 1 (KS1) and Key Stage 2 (KS2)

<b>National Curriculum progression of knowledge and understanding</b>	<b>Key code:</b>
Plants	
Animals, including humans	
Living things and their habitats	
Materials	
Energy (light and sound)	
Forces, earth and space	

Year group	Weeks 1 – 12		Weeks 13 - 25		Weeks 26- 38	
<b>1</b> *Seasonal Changes to be taught throughout the year	Animals & living things (Comparing animals)	Animals & living things (Sensitive bodies)	Everyday materials		Plants	
<b>2</b>	Habitats	Microhabitats	Everyday materials & uses	<i>Plant-based materials</i>	Plant growth	Life cycles & health
<b>3</b>	Rocks & soils	Forces & magnets	Movement & nutrition	<i>Does hand span affect grip strength?</i>	Plant reproduction	Light & shadows
<b>4</b>	Digestion & food	Electricity & circuits	States of matter	<i>How does the flow of liquids compare?</i>	Sound & vibration	Classification & changing habitats

Nursery	WEEKS					
Topic Title – Cycle 1	Once upon a time...	Dark Nights, Bright Lights	Long ago, Dinosaur Roar!	All Creatures Great and Small	What a wonderful world!	We're off 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 Jasper's Beanstalk	The Train Ride Penguin on Holiday
Topic Title – Cycle 2	Once upon a time...	Dark nights, bright lights	Helpful Heroes	Animals Near and Far	Journey to Space	All at Sea and Shore
Texts – Cycle 2	Goldilocks Baby Bear's Birthday	Pinecone & Penguin Dear Santa	Supertato A superhero like you	Rumble in the Jungle What Pet to Get?	Whatever Next Goodnight Spaceman	Commotion in the Ocean Pirate Pete
Scientific Skills	<ul style="list-style-type: none"> <li>• UtW (3-4) Use all their senses in hands-on exploration of natural materials.</li> <li>• UtW (3-4) Explore collections of materials with similar and/or different properties.</li> <li>• UtW (3-4) Talk about what they see, using a wide vocabulary.</li> <li>• UtW (3-4) Talk about the differences between materials and</li> </ul>	<ul style="list-style-type: none"> <li>• UtW (3-4) Use all their senses in hands-on exploration of natural materials.</li> <li>• UtW (3-4) Explore collections of materials with similar and/or different properties.</li> <li>• UtW (3-4) Talk about what they see, using a wide vocabulary.</li> <li>• UtW (3-4) Talk about the differences between</li> </ul>	<ul style="list-style-type: none"> <li>• UtW (3-4) Use all their senses in hands-on exploration of natural materials.</li> <li>• UtW (3-4) Explore collections of materials with similar and/or different properties.</li> <li>• UtW (3-4) Talk about what they see, using a wide vocabulary.</li> <li>• UtW (3-4) Talk about the differences between</li> </ul>	<ul style="list-style-type: none"> <li>• UtW (3-4) Use all their senses in hands-on exploration of natural materials.</li> <li>• UtW (3-4) Explore collections of materials with similar and/or different properties.</li> <li>• UtW (3-4) Talk about what they see, using a wide vocabulary.</li> <li>• C&amp;L (3-4) Use a wider range of vocabulary</li> </ul>	<ul style="list-style-type: none"> <li>• UtW (3-4) Use all their senses in hands-on exploration of natural materials.</li> <li>• UtW (3-4) Explore collections of materials with similar and/or different properties.</li> <li>• UtW (3-4) Talk about what they see, using a wide vocabulary.</li> <li>• C&amp;L (3-4) Use a wider range of vocabulary</li> <li>• UtW (3-4) Begin to understand the need to respect and care for the natural environment and all living things</li> </ul>	<ul style="list-style-type: none"> <li>• UtW (3-4) Explore collections of materials with similar and/or different properties.</li> <li>• UtW (3-4) Talk about what they see, using a wide vocabulary.</li> <li>• C&amp;L (3-4) Use a wider range of vocabulary</li> <li>• UtW (3-4) Explore how things work.</li> <li>• UtW (3-4) Explore and talk about different forces they can feel.</li> <li>• UtW (3-4) Show interest in different occupations.</li> </ul>

	<p>changes they notice.</p> <ul style="list-style-type: none"> <li>• C&amp;L (3-4) Use a wider range of vocabulary</li> </ul>	<p>materials and changes they notice.</p> <ul style="list-style-type: none"> <li>• UtW (3-4) Explore and talk about different forces they can feel.</li> <li>• UtW (3-4) Know that there are different countries in the world and talk about the differences they have experienced or seen in photos.</li> <li>• C&amp;L (3-4) Use a wider range of vocabulary</li> </ul>	<p>materials and changes they notice.</p> <ul style="list-style-type: none"> <li>• C&amp;L (3-4) Use a wider range of vocabulary</li> </ul>	<ul style="list-style-type: none"> <li>• UtW (3-4) Begin to understand the need to respect and care for the natural environment and all living things.</li> <li>• UtW (3-4) Know that there are different countries in the world and talk about the differences they have experienced or seen in photos</li> </ul>	<ul style="list-style-type: none"> <li>• UtW (3-4) Plant seeds and care for growing plants.</li> <li>• UtW (3-4) Understand the key features of the life cycle of a plant and an animal.</li> </ul>	
<b>Continuous</b>	<p>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</p>					
<b>Specific vocabulary to teach</b>	<p><b>Tier 2 vocab:</b>  Colours  Weather vocabulary  Key body parts</p> <p><b>Tier 3 vocab:</b>  Recipe  Ingredients  Method</p>	<p><b>Tier 2 vocab:</b>  Light/dark  Day/night  Float/sink  Ice, water</p> <p><b>Tier 3 vocab:</b>  Freeze/melt</p>	<p><b>Tier 2 vocab:</b>  Volcanoes</p> <p><b>Tier 3 vocab:</b>  Fossils  Palaeontologist  Eruption  Experiment</p>	<p><b>Tier 2 vocab:</b>  Farm Animal names and names of their young.  Zoo animal names  Minibeast names</p> <p><b>Tier 3 vocab:</b>  Enclosure  Habitat  Endangered</p>	<p><b>Tier 2 vocab:</b>  Butterfly  Caterpillar  Plant pot  Seed  Growing  Names of fruits and vegetables</p> <p><b>Tier 3 vocab:</b>  Life Cycle  Compost  Hatch</p>	<p><b>Tier 2 vocab:</b>  Magnet  Metal</p> <p><b>Tier 3 vocab:</b>  Attract  Repel</p>

<p><b>Why this?</b> <b>Why now?</b></p>	<p>Children are new to school; colours are linked to text and used for sorting. Body parts linked to body percussion Baking linked to Birthdays</p>	<p>Introduction to seasonal change to winter. Links to Penguin and Pinecone and Antarctica.</p>	<p>Links to Literacy - Dinosaur Roar!</p>	<p>Links to Dear Zoo and driving my tractor.</p>	<p>Links to Literacy texts Seasonal growth/changes</p>	<p>Linked to transport and how trains and carriages link together. Floating and sinking linked to boats (transport)</p>
<p><b>Possible lesson sequence</b></p>	<p><b>*Sp/*So/*Cu</b></p> <p>Seasonal Change – Children to observe and talk about the changing seasons</p> <p>Changing States of matter – following a recipe to make cakes for Baby bears Birthday.</p>	<p><b>*Sp/*Cu</b></p> <p>Light and dark – Using the dark tent, light box, shadows. Explore light and dark and day and night.</p> <p>Children begin to talk about and explore environments different to their own – Read penguin and Pinecone and discuss the environment including animals, ice and why pinecone would not grow in Antarctica. Children to investigate floating and sinking.</p> <p>Investigate floating and sinking with a range of resources</p>	<p><b>*Sp/*So</b></p> <p>Understands the role of a palaeontologist and what is meant by a fossil. - Children learn that a scientist who excavates fossils is called a palaeontologist. Children go on a ‘dig’ in the sand with scientific tools (magnifying glasses and brushes to excavate fossils. Children excavate fossils from clay.</p> <p>Children become scientist and make predictions about experiments. Children observe a range of experiments, including a volcanic eruption.</p>	<p><b>*Sp/*So</b></p> <p>Understand where animals live, how they move, sounds they make and names of their young – linked to wild/zoo animals. Children look at Farm animals and their young, the farm environment and the role of the farmer.</p> <p>Explore minibeasts and their habitats.</p> <p><b>Educational visit:</b> Farm visit and tractor visit</p>	<p><b>*Sp/*So</b></p> <p>Understand a life cycle and can talk about the changes they have observed, linked the the hungry caterpillar. Plant and care for a living plant grown from seed. Children can name fruit and vegetables and can distinguish between fruits and vegetables. They understand how fruit and vegetables are grown.</p> <p>Space – learn about different planets and what it is like to be in space. Explore what a spaceman needs to survive.</p>	<p><b>*Sp/*So</b></p> <p>Explore Magnetism, and look at objects which attract and repel.</p> <p>Look at creatures which live in the ocean, what grows in the ocean. Food chains within the ocean.</p>



		to make a boat for penguin.				
	<p><u>Scientific Concepts taught throughout the year</u></p> <p><b><u>Skills</u></b></p> <ol style="list-style-type: none"> <li>1. Ask questions - Demonstrate curiosity about the world around them.</li> <li>2. Make predictions - With support or prompting, talk about what they think might happen based on their own experiences.</li> <li>3. Decide how to carry out an enquiry - Respond to prompts to say what happened to objects, living things or events.</li> <li>4. Take measurements - Use senses and simple equipment to explore the world around them, e.g. binoculars and magnifying glasses.</li> <li>5. Record data - Talk to an adult about what has been found/found out. Draw pictures of scientific observations/results</li> <li>6. Present data - Talk to an adult about what has been found/found out. Draw pictures of scientific observations/results</li> <li>7. Answer questions using Data - With support, explain why some things occur.</li> <li>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.</li> </ol> <p><b><u>Knowledge</u></b></p> <p><b><u>Children know about similarities and differences via observation and hands on exploration and can talk about what they see in relation to:</u></b></p> <ul style="list-style-type: none"> <li>• Places – The town they live in, the seaside, the farm and animal habitats.</li> <li>• Objects – fruits and vegetables, floating and sinking, magnetic objects.</li> <li>• Materials – freezing and melting, solid and liquid, recyclable.</li> <li>• Living Things - Body parts, animals (adult and baby), growth of plants.</li> </ul>					

Reception						
Topic Title	Traditional Tales	The North Pole	Growing	Woodland Areas	Kenya	Toys
<b>Texrs</b>	The Enormous Turnip Pumpkin Soup The Squirrels who Squabbled	The Elves and the Shoemaker Arctic White Harvey Slumfenburger's Christmas Present	Once There Were Giants What Will I Be? Jack and the Beanstalk What Did The Tree See? The Oak Tree	Owl Babies Peter Rabbit The Spring Rabbit	Handa's Surprise Lila and the Secret of Rain Let's Explore Kenya We're Going on a Lion Hunt	Dogger Lost in the Toy Museum The Toymaker
<b>Continuous</b>	Daily day of the week and weather chart – also includes month of the year and season, using scientific vocabulary Identifying weather patterns and linking it to the season Seasonal display and identifying changes caused by the seasons					

	Identifying trees and leaf cycles (understanding that some trees don't lose their leaves)					
<b>DM and ELGs</b>	<p><b>Development Matters:</b></p> <ul style="list-style-type: none"> <li>Understand the effect of changing seasons on the natural world around them.</li> <li>Explore the natural world around them.</li> <li>Describe what they see, hear and feel whilst outside.</li> <li>Recognise some environments that are different to the one in which they live.</li> </ul> <p><b>ELGs - The Natural World:</b></p> <ul style="list-style-type: none"> <li>Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> <li>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.</li> <li>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>					
<b>Specific vocabulary to teach</b>	<p><b>Tier 2 vocab:</b> vegetable, soup, heat</p> <p><b>Tier 3 vocab:</b> ingredients, equipment, observe</p>	<p><b>Tier 2 vocab:</b> water, ice</p> <p><b>Tier 3 vocab:</b> solid, liquid, reversible</p>	<p><b>Tier 2 vocab:</b> bean, plant, growth</p> <p><b>Tier 3 vocab:</b> observe, explain, senses</p>	<p><b>Tier 2 vocab:</b> animals</p> <p><b>Tier 3 vocab:</b> habitats, urban, rural, nocturnal</p>	<p><b>Tier 2 vocab:</b> habitats, place, senses</p> <p><b>Tier 3 vocab:</b> savannah</p>	<p><b>Tier 2 vocab:</b> plastic, wood, glass, fabric</p> <p><b>Tier 3 vocab:</b> material, grouping</p>
<b>Why this? Why now?</b>	Links with class novel The Enormous Turnip and additional text Pumpkin Soup	Taught after previous unit of turning pumpkin from solid to liquid in soup making	Links with class novel Jack and the Beanstalk	Links with woodland areas through novels including Peter Rabbit and Owl Babies	Links with geography unit of Africa (Kenya)	Planned visit to Discovery Museum for toy past/present unit
<b>Proposed Lesson Progression and Justification</b>	<p><b>*Sp/*So</b></p> <ol style="list-style-type: none"> <li>Use senses to explore vegetables including turnips and pumpkins.</li> <li>Plan ingredients and equipment to conduct an experiment.</li> <li>Make pumpkin soup.</li> </ol>	<p><b>*Sp/*So</b></p> <ol style="list-style-type: none"> <li>Explore solids and liquids.</li> <li>Conduct an investigation to change ice to water.</li> <li>Conduct an investigation to change water to ice.</li> </ol>	<p><b>*Sp/*So</b></p> <ol style="list-style-type: none"> <li>Investigate beans.</li> <li>Carry out an investigation to plant beans.</li> <li>Observe changes in investigations.</li> </ol>	<p><b>*Sp/*So</b></p> <ol style="list-style-type: none"> <li>Compare and group animals to their home.</li> <li>Classification of urban and rural animals.</li> <li><b>Educational Visit:</b> Visit Gibside to explore the features of a woodland.</li> </ol>	<p><b>*Sp/*So/*Cu</b></p> <ol style="list-style-type: none"> <li>Explore which animals live in Kenya.</li> <li>Investigate Kenyan habitats.</li> <li>Use senses to explore different fruits.</li> </ol>	<p><b>*Sp/*So</b></p> <ol style="list-style-type: none"> <li>Investigate the materials used to make every day things.</li> <li>Sort and group toys by their characteristics.</li> <li>Visit the Discovery Museum to explore toys.</li> </ol>

# Key Stage 1

Year 1	Weeks 1 - 6	Weeks 7 – 12	Weeks 14 - 19	Weeks 20 - 25	Weeks 27 - 32	Weeks 34 - 39
	<b>Animals, including humans (Comparing animals)</b>	<b>Animals, including humans (Sensitive bodies)</b>	<b>Materials (Everyday materials)</b>		<b>Plants</b>	
<b>SMSC</b>	*Sp/*So	*Sp/*So	*Sp/*So		*Sp/*So	
<b>Scientific knowledge &amp; understanding (substantive knowledge)</b>	A variety of common animals (including fish, amphibians, reptiles, birds and mammals). The main body parts of common animals. To know a carnivore, herbivore and omnivore and their differences	The key parts of the human body. The five main senses: sight, smell, hearing, taste and touch. The uses of body parts.	To know that objects are items or things. To know that a material is what an object is made from. To identify and name a variety of everyday materials. To know that property refers to how a material can be described. To describe the physical properties of a variety of everyday materials. To understand that materials can be grouped based on their physical properties.		To know a variety of common plants, and how they differ. To know that deciduous trees lose their leaves seasonally, but evergreen trees do not. To know the basic structure (including leaves, flowers (blossom), fruit, roots, bulb, seed, trunk, branches, and stem) of a variety of common plants, including flowering plants and trees.	
<b>Working scientifically (procedural knowledge)</b>	Posing questions and recognising different responses Planning investigations Observing using senses Measuring by reading simple scales Recording in diagrams Grouping based on visible characteristics Using results to answer questions	Observing using senses Measuring using non-standard units Recording in diagrams Recording in pre-prepared tables Grouping based on visible characteristics Using results to answer questions	Posing questions with suggestions on responses Planning investigations – how to make a test fair Making predictions Observing using senses Recording simple results Grouping and classifying based on observations Using results to answer questions		Posing questions with suggestions on responses Planning investigations of a simple method Making predictions and justifying with personal experiences Observing using senses (and describing) Measuring using non-standard units Recording in diagrams – drawing and labelling Grouping and classifying based on observations Using results to answer questions	
<b>Specific vocabulary to teach</b>	<b>Tier 2 vocab:</b> compare, group, differences	<b>Tier 2 vocab:</b> feeling, hearing, blind <b>Tier 3 vocab:</b> investigation, obstacle, direction	<b>Tier 2 vocab:</b> fabric, glass, plastic, metal <b>Tier 3 vocab:</b> absorbent, transparent, opaque		<b>Tier 2 vocab:</b> flower, fruit, leaf <b>Tier 3 vocab:</b> deciduous, evergreen, edible	

	<b>Tier 3 vocab:</b> amphibian, carnivore, herbivore					
<b>Why this? Why now?</b>		Building on from Receptions human life cycle and senses	Children will be able to make links between materials other areas of the curriculum e.g. DT	Builds on knowledge of seasonal changes from throughout the year In geography, children are exploring weather patterns Progression in skills needed for this unit		
<b>Proposed Lesson Progression and Justification</b>	<ol style="list-style-type: none"> <li>1. Identify and group animals</li> <li>2. Describe a variety of animals</li> <li>3. Compare the features of animals</li> <li>4. Identify animals that are carnivores, herbivores and omnivores</li> <li>5. Recognise animals that make suitable pets</li> <li>6. <i>Seasonal change</i></li> </ol>	<ol style="list-style-type: none"> <li>1. Name parts of the human body</li> <li>2. Name the body parts used for each sense</li> <li>3. Identify the body parts used for the sense of taste, touch and hearing</li> <li>4. Identify the body parts used for the sense of smell and sight</li> <li>5. Recognise how the senses are used in everyday life</li> <li>6. <i>Seasonal change</i></li> </ol>	<ol style="list-style-type: none"> <li>1. Identify everyday materials</li> <li>2. Recognise the difference between objects and materials</li> <li>3. Describe the properties of materials</li> <li>4. <i>Seasonal change</i></li> </ol>	<ol style="list-style-type: none"> <li>1. Group materials based on their properties (absorbency)</li> <li>2. Group materials based on their properties (waterproofness)</li> <li>3. Group materials based on their properties (toughness)</li> <li>4. Investigate similarities and difference between everyday materials]</li> <li>5. <i>Seasonal change</i></li> </ol>	<ol style="list-style-type: none"> <li>1. Identify plants in the school grounds</li> <li>2. Identify parts of a flowering plant</li> <li>3. Identify and name wild and garden plants</li> <li>4. <i>Seasonal change</i></li> </ol>	<ol style="list-style-type: none"> <li>1. Identify and name deciduous and evergreen trees</li> <li>2. Recognise that new plants come from seeds and bulbs</li> <li>3. Conduct an experiment to plant seeds</li> <li>4. Recognise the importance of a scientist's role</li> <li>5. <i>Seasonal change</i></li> </ol>
<b>Scientist of the term</b>	Alfred Nobel, TNT then dedicated his life to peace	Alexander Fleming and Louis Pasteur, vaccinations and antibiotics	Katherine Johnson, NASA Mathematician (and other lesser known female mathematicians, such as Annie Easley, Dorothy Vaughan) <i>Neil Armstrong, History</i>	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	Weeks 1 - 6	Weeks 7 – 12	Weeks 14 - 19	Weeks 20 - 25	Weeks 27 - 32	Weeks 34 - 39
	Living things and their habitats (Habitat)	Living things and their habitats (Microhabitats)	Materials (Everyday materials)	Plant-based materials	Plants (Plant growth)	Animals, including humans (Life cycles and health)
<b>SMSC</b>	*Sp/*So	*Sp	*Sp/*Mo/*So	*Sp/*Mo/*So	*Sp/*Mo	*Sp/*So
<b>Scientific knowledge &amp; understanding (substantive knowledge)</b>	<p>Understand some life processes.</p> <p>Know the difference between living, dead and things that have never been alive.</p> <p>Variety of plants and animals and some differences.</p> <p>Name a variety of habitats (the environment where an animal or plant lives).</p> <p>What a food chain is.</p>	<p>A variety of plants and animals and describe some differences.</p> <p>That a habitat is the environment where an animal or plant lives/grows, because it provides what they need to survive.</p> <p>That a microhabitat is a very small habitat (e.g. under stones, logs and leaf litter).</p> <p>That living things depend upon each other (e.g. for food, shelter).</p>	<p>To know why objects are made from particular materials and to give examples of their suitability.</p> <p>To know that one material can be used for a range of purposes.</p> <p>To know that different materials can be used for the same purpose.</p> <p>To know why certain materials are unsuitable for particular objects.</p> <p>To know that a push or pull must be applied to change the shape of a solid object.</p> <p>To know that solid objects can be squashed, bent, twisted or stretched.</p>	<p>To know seeds and bulbs grow into seedlings.</p> <p>Know seeds need water and warmth and plants need water, light and a suitable temperature.</p> <p>To know some of the life processes and the difference between things that are living, dead and never been alive.</p> <p>Know why objects are made from particular materials.</p> <p>Know about famous scientists throughout history and the work of modern-day scientists.</p>	<p>To know that seeds and bulbs grow into seedlings by producing roots and shoots.</p> <p>To know that seedlings grow into mature plants by developing parts such as roots, stems, leaves and flowers. To know that seeds need water and warmth to germinate. To know that plants need water, light and a suitable temperature for growth and health.</p>	<p>To understand how living things change, and that animals have offspring that grow into adults.</p> <p>To know which offspring comes from which parent animal. To know the stages in some animal life cycles.</p> <p>To know that animals, including humans, need water, food and air to survive.</p> <p>To understand the importance of exercise, a balanced diet and hygiene for humans.</p>
<b>Working scientifically</b>	Posing questions and recognising different ways to answer	Posing own simple questions and providing	Posing questions and recognising different ways to answer	Organising objects into groups Recording data	Posing questions and recognising different ways to answer	Posing questions and recognising different ways to answer

<b>(procedural knowledge)</b>	Classify objects into groups. To gather and record data in a simple table. To carry out research to find answers to questions.	suggestions of how to answer Planning – is the test fair? Are observations suitable? Making predictions Observing using senses (and describing) Recording data using tally marks Organising questions to create classification keys Using results to answer questions	Measuring using non-standard units Recording with numbers Representing data using graphs Using results to answer questions	Using results to answer questions	Planning – is the test fair? Are observations suitable? Making predictions and justifying with personal experiences Observing using senses (and describing) Measuring using quantitative data using standard units and reading simple scales Recording in diagrams – drawing and labelling Creating conclusions	Measuring using simple equipment Recording with numbers Using results to answer questions Gathering information from a secondary source
<b>Specific vocabulary to teach</b>	<b>Tier 2 vocab:</b> classify, depend, habitat <b>Tier 3 vocab:</b> camouflage, excretion, analyse	<b>Tier 2 vocab:</b> fair test, identify, food chain <b>Tier 3 vocab:</b> invertebrate, botanist, microhabitat	<b>Tier 2 vocab:</b> material, bend, block graph <b>Tier 3 vocab:</b> elastic, flexible, property	<b>Tier 2 vocab:</b> sunlight, growth, sensitivity <b>Tier 3 vocab:</b> germinate, reproduction, excretion	<b>Tier 2 vocab:</b> energy, growth, measure <b>Tier 3 vocab:</b> germinate, nutrient, condition	<b>Tier 2 vocab:</b> adult, baby, child <b>Tier 3 vocab:</b> carbohydrates, fitness, exercise
<b>Why this? Why now?</b>	Can build on prior knowledge of school environment as a habitat for certain animals (Reception / Year 1 units)	Follows previous habitats unit in Autumn 1	Builds on from Year 1 materials unit Children will be able to make links between materials other areas of the curriculum e.g. DT	Builds on from material unit.	Builds on from Year 1 plants unit and previous forest school activities Weather improvement for planting opportunities	Builds on from Year 1 animals unit More complex unit requiring prior knowledge from other areas of the curriculum e.g. PSHE Progression in skills needed for this unit e.g. research
<b>Proposed Lesson Progression and Justification</b>	<ol style="list-style-type: none"> <li>1. Identify some of the characteristics of living things</li> <li>2. Recognise the difference between things that are alive, were once alive or have never been alive</li> <li>3. Identify plants and animals in different habitats</li> </ol>	<ol style="list-style-type: none"> <li>1. Classify a variety of mini beasts</li> <li>2. Recognise how scientists answer questions</li> <li>3. Recognise that living things live in habitats to which they are suited</li> <li>4. Ask questions and plan how to carry out an experiment</li> </ol>	<ol style="list-style-type: none"> <li>1. Sort objects that can be grouped</li> <li>2. Recognise that objects are made from materials that suit their uses</li> <li>3. Recognise that the shape of some solid objects can be changed</li> <li>4. Compare the suitability of</li> </ol>	<ol style="list-style-type: none"> <li>1. Understand how the 3Rs contribute to sustainable products</li> <li>2. To group based on characteristics</li> <li>3. Perform a test and gather data</li> <li>4. Use simple observations to answer a simple question</li> </ol>	<ol style="list-style-type: none"> <li>1. Recognise seeds need conditions to grow</li> <li>2. Recognise that seeds and bulbs can grow into a plant</li> <li>3. Describe what plants need to germinate</li> <li>4. Describe the effect of light on plant growth</li> <li>5. Identify the stages of a plant's life cycle</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify different stages of the human life cycle</li> <li>2. Know which offspring come from which parent animal</li> <li>3. Observe and measure growth in humans</li> <li>4. Identify and list the basic needs for</li> </ol>

	<p>4. Identify how a habitat provides animals and plants with what they need to survive</p> <p>5. Recognise how animals and plants depend on each other</p> <p>6. Recall how animals get their food from plants and other animals</p>	<p>5. Carry out an experiment and record data in a table</p> <p>6. Identify a variety of flowering plants</p>	<p>materials for particular uses</p> <p>5. Recognise that the strength of some materials can be changed</p> <p>6. Compare the suitability of materials for particular uses</p>	<p>5. Identify and classify living things</p>	<p>6. Recognise what plants need for healthy growth</p>	<p>survival for humans and animals</p> <p>5. Recognise the importance of exercise and personal hygiene</p> <p>6. Identify how to have a balanced diet</p>
<b>Scientist of the term</b>	Copernicus and the way that science can disrupt the way people think (heliocentrism)	Charles Mackintosh and John Dunlop <i>Everyday Materials</i>	Gladys Mae West, inventor of GPS <i>Pole to Pole in Geography</i>	George Washington Carver, former slave turned expert botanist <i>Plants</i>	Rosalind Franklin, worked with Watson and Crick to discover DNA but was not credited with Nobel	Isaac Newton, sequence of physicists (see next two)

# Key Stage 2

Year 3	Weeks 1 - 6	Weeks 7 – 12	Weeks 14 - 19	Weeks 20 - 25	Weeks 27 - 32	Weeks 34 - 39
	Materials (Rocks and soil)	Forces (Forces and magnets)	Animals, including humans (Movement and nutrition)	Does hand span affect grip strength?	Plants (Plant reproduction)	Energy (Light and shadows)
SMSC	*Sp/*Mo/ *So	*Sp/*Mo/ *So	*Sp/*So/*Cu	*Sp/*So	*Sp/*So	*Sp/*So/*Cu
<b>Scientific knowledge &amp; understanding (substantive knowledge)</b>	<p>That rocks can be grouped based on their appearance or properties. That rocks may contain grains, crystals or fossils. That grains and crystals appear differently and can be used to classify rocks.</p> <p>That soils are made from rocks and dead matter. The relationship between the properties of rocks and their uses.</p> <p>That fossils can form from the remains of living things.</p> <p>That rocks can change over time (e.g. erosion and weathering).</p>	<p>That some forces are a result of contact between two surfaces but some forces can act at a distance (e.g. magnetism). That magnets have a north and south pole. Name different examples of magnets and some uses.</p> <p>Know contact and non-contact forces.</p> <p>That rougher surfaces have more friction between them than smoother surfaces.</p> <p>That the strength of different magnets may vary.</p>	<p>That animals can be grouped based on the presence of a skeleton. That the skeleton in humans and some animals is used for movement, protection and support.</p> <p>That the muscular system in humans and some animals works with the skeleton for movement.</p> <p>Know the main bones in the body.</p> <p>Understand humans cannot make their own food.</p> <p>Know the main food groups and functions. Explain different diets.</p>	<p>Know the muscular system in humans and some animals works with the skeleton for movement.</p> <p>Know the main food groups and their simple functions.</p> <p>Know that friction is a contact force that acts between two surfaces to slow an object down.</p> <p>Understand the relationship between the properties of rocks and their uses.</p> <p>Know that shadows are formed when the light from a source is blocked by an opaque object.</p> <p>Understand the process of pollination and seed formation.</p>	<p>Know the functions of a plant and the relationship between structure/function.</p> <p>Know the way in which water is transported through the plant.</p> <p>A lifecycle from seed to mature plant.</p> <p>Know the process of pollination, seed formation, seed dispersal and germination.</p>	<p>That light travels from a source.</p> <p>Light is needed to see things and that dark is the absence of light.</p> <p>Light from the Sun can be dangerous and how to protect their eyes.</p> <p>All materials reflect light.</p> <p>Shadows form when the light from a light source is blocked by an opaque object.</p> <p>Shadows change position and length throughout the day as the sun changes position in the sky.</p>
<b>Working scientifically (procedural knowledge)</b>	<p>Observing using senses and describing using scientific vocab</p> <p>Gather information from a source</p> <p>Recording using diagrams</p>	<p>Planning a simple method, verbally and in writing.</p> <p>Gathering specific information from a variety of sources.</p>	<p>Using standard units to measure and compare.</p> <p>Read scales with unmarked intervals.</p>	<p>Understand what makes a testable question.</p> <p>Record simple results.</p> <p>Record using various methods.</p> <p>Create conclusions.</p>	<p>Develop further questions during an enquiry process.</p> <p>Make predictions about what will happen using scientific vocabulary.</p>	<p>Beginning to recognise that there are different types of enquiry and that they are suitable for different questions.</p> <p>Making predictions about</p>



	Grouping based on visible characteristics Representing data using bar charts Suggest how one variable affect others	Beginning to draw more scientific diagrams by labelling. Representing data using bar charts. Suggest how one variable may have affected another. Quote results as evidence of relationships.	Using a table to record results inc. detailed observations. Writing conclusions to summarise findings using scientific vocabulary. Evaluate by identifying new questions.		Observe using senses and explain using scientific vocabulary. Measure using equipment with increasing accuracy. Recording using tables with more than 2 columns. Group based on visible characteristics and measurable properties. Beginning to identify steps in the method that need changing and suggest improvements.	what they think will happen by using scientific knowledge. Observing using senses and describing using scientific vocab Using a table to record results inc. detailed observations. Beginning to use identified patterns to predict new values or trends. Beginning to identify steps in the method that need changing and suggest improvements.
<b>Specific vocabulary to teach</b>	<b>Tier 2 vocab:</b> clay, fossil, bone <b>Tier 3 vocab:</b> absorbency, impermeable, acid rain	<b>Tier 2 vocab:</b> attract, repel, force <b>Tier 3 vocab:</b> electromagnet, magnetism, friction	<b>Tier 2 vocab:</b> muscle, balance diet, nutrient <b>Tier 3 vocab:</b> carbohydrate, invertebrate, fibre	<b>Tier 2 vocab:</b> muscle, joint, bone <b>Tier 3 vocab:</b> protein, nutrition, opaque	<b>Tier 2 vocab:</b> nutrients, seed, flower <b>Tier 3 vocab:</b> disperse, germination, formation	<b>Tier 2 vocab:</b> reflect, shadow, light source <b>Tier 3 vocab:</b> luminous, opaque, translucent, transparent
<b>Why this? Why now?</b>	Prior knowledge from KS1 everyday materials units	Builds on from Year 2 everyday materials unit	Prior knowledge from KS1 units	Builds on from previously taught units	Weather improvement for planting opportunities	Use of natural resource (sun) to create shadows
<b>Proposed Lesson Progression and Justification</b>	<ol style="list-style-type: none"> <li>1. Group rocks using their appearance</li> <li>2. Group rocks using their physical properties</li> <li>3. Describe the process of fossil formation</li> <li>4. Identify fossils and group rocks accordingly</li> <li>5. Compare soils and how they were formed</li> </ol>	<ol style="list-style-type: none"> <li>1. Describe the effects of contact forces</li> <li>2. Recognise the effects and uses of forces</li> <li>3. Interpret how and why things move differently on different surfaces</li> <li>4. Describe the effects of magnets</li> <li>5. Compare the properties of different types on magnets</li> </ol>	<ol style="list-style-type: none"> <li>7. Explain the role of a skeleton</li> <li>8. Recognise the main bones in the body</li> <li>9. Explain how muscles are used for movement</li> <li>10. Explain how food is an essential energy source for animals</li> </ol>	<ol style="list-style-type: none"> <li>1. Plan a pattern seeking enquiry to investigate the relationship between hand span and grip strength</li> <li>2. Gather and record data on whether hand span effects grip strength</li> <li>3. Conclude and evaluate the investigation</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify the growth and survival of plants</li> <li>2. Describe the relationship between structure and function</li> <li>3. Investigate how water is transported in plants</li> <li>4. Explore the role of a flower in a plants life cycle</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the role of light sources</li> <li>2. Compare light reflecting on different surfaces</li> <li>3. Recognise which materials cast a shadow</li> <li>4. Summarise how shadows change throughout the day</li> <li>5. Investigate how the distance of the light</li> </ol>

	6. Describe a soil sample using sedimentation	6. Explain the uses of magnets	11. Identify the main nutrient groups and their simple functions  Explains what makes a balanced diet	4. Use sets of data to inform design choices 5. Report on my findings using a shadow puppet display	5. Explore seed dispersal methods.	source affects the size of its shadow 6. Tell a story using shadow puppets
<b>Scientist of the term</b>	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	Weeks 1 - 6	Weeks 7 – 12	Weeks 14 - 19	Weeks 20 - 25	Weeks 27 - 32	Weeks 34 - 39
	<b>Animals, including humans (Digestion and food)</b>	<b>Energy (Electricity and circuits)</b>	<b>Materials (States of matter)</b>	<b>How does the flow of liquids compare?</b>	<b>Energy (Sound and vibrations)</b>	<b>Living things and their habitats (Classification and changing habitats)</b>
<b>SMSC</b>	*Sp/*Mo/ *So/*Cu	*Sp/*Mo/ *So	*Sp/*Mo/ *So	*Sp/*Mo/ *So	*Sp/*Mo/ *So/*Cu	*Sp/*Mo/ *So/*Cu
<b>Scientific knowledge &amp; understanding (substantive knowledge)</b>	Know the main organs of the human digestive system. Know different teeth (humans, carnivores and herbivores). Understand teeth health Know predators hunt for food and producers make their own food. Recap food chain.	Know that electrical appliances need a power source. Know the main components in a circuit. Understand working safely with electricity. Know some materials allow electric charge to pass through and some do not. Understand relationships between components within a circuit.	That all substances around us can exist as solids, liquids and gases. The properties of solid, liquids and gases. That heating causes solids to turn into liquids (melting) and liquids to turn into gases (evaporating). That cooling causes gases to turn into liquids (condensing) and liquids to turn into solids (freezing). Knowledge of the water cycle.	Know how to compare and group materials together. Use classification keys to group, identify and name living things. Know that a switch opens and closes a circuit. <sup>4</sup> Know some conductors and insulators. Know how sounds are made and how vibrations from sounds travel. Know the simple functions of the basic parts of the digestive system in humans.	That sound is a result of vibrations. The way in which vibrations travel. Properties of different materials e.g. insulation How to change pitch and/or volume of a sound.	Know living things can be grouped in different ways. Use classification keys to group plants/animals. Know main vertebrates and invertebrates. Understand how habitats change throughout the year. Recognise humans can have a positive/negative impact on the environment.

			That the rate of evaporation increases as temperature rises.			
<b>Working scientifically (procedural knowledge)</b>	<p>Planning to select variables that will be changed/ measured/ controlled.</p> <p>Record simple results.</p> <p>Group based on visible characteristics.</p> <p>Create conclusions.</p> <p>Evaluate and comment on the degree of trust by reflecting on the quality of results.</p>	<p>Understand what makes a testable question.</p> <p>Plan to select what equipment to use to aid investigations.</p> <p>Make predictions using trends in variables.</p> <p>Record using various methods.</p> <p>Group based on visible characteristics</p> <p>Create conclusions</p>	<p>Understand what makes a testable question.</p> <p>Record simple results using diagrams.</p> <p>Gathering specific information from a variety of sources.</p> <p>Writing a conclusion to summarise findings using simple scientific vocabulary.</p>	<p>Understand what makes a testable question.</p> <p>Record simple results.</p> <p>Record using various methods.</p> <p>Create conclusions.</p>	<p>Suggest what observations to make and how long to make them for.</p> <p>To observe closely how different instruments create a sound.</p> <p>To research how cetaceans communicate underwater.</p> <p>Present results using a bar chart.</p> <p>Analysing and drawing conclusions.</p> <p>Identify when results or observations do not match predictions.</p>	<p>Observe using senses and describe using scientific vocabulary.</p> <p>Record using various methods.</p> <p>Group based on visible characteristics.</p> <p>Gather specific information from a variety of sources.</p>
<b>Specific vocabulary to teach</b>	<p><b>Tier 2 vocab:</b> carnivore, herbivore, omnivore</p> <p><b>Tier 3 vocab:</b> oesophagus, intestine, incisor</p>	<p><b>Tier 2 vocab:</b> circuit, material, appliance</p> <p><b>Tier 3 vocab:</b> electrical conductor, component, electrical insulator</p>	<p><b>Tier 2 vocab:</b> freezing, gas, force</p> <p><b>Tier 3 vocab:</b> drought, condensing, evaporating</p>	<p><b>Tier 2 vocab:</b> liquid, temperature, water vapour</p> <p><b>Tier 3 vocab:</b> precipitation, pharmacologist, viscosity</p>	<p><b>Tier 2 vocab:</b> pitch, matter, eardrum</p> <p><b>Tier 3 vocab:</b> decibels, hertz, insulator of sound</p>	<p><b>Tier 2 vocab:</b> classify, invertebrate, observe</p> <p><b>Tier 3 vocab:</b> endangered, deforestation, conservationist</p>
<b>Why this? Why now?</b>	<p>Builds on from Year 3 animals unit</p> <p>Links with other curriculum areas e.g. PSHE</p>	<p>Builds on skills from Year 3 light/shadows unit</p>	<p>Fundamental knowledge taught in this unit in preparation for 'sound'</p>	<p>Follows on from States of Matter unit (previous) and revises key knowledge</p>	<p>Relies on previously taught knowledge in states of matter unit</p>	<p>Builds on from previous units</p> <p>Links with Geography Amazon rainforest unit</p> <p>Increased complexity in skills</p>
<b>Proposed Lesson Progression and Justification</b>	<ol style="list-style-type: none"> <li>Describe the function of the human digestive system</li> <li>Recognise the different types of</li> </ol>	<ol style="list-style-type: none"> <li>Recognise how electrical appliances are powered</li> <li>Construct an electrical circuit</li> </ol>	<ol style="list-style-type: none"> <li>Identify solids using their properties</li> <li>Identify liquids and gases using their properties</li> </ol>	<ol style="list-style-type: none"> <li>Plan a comparative test on how the viscosity of a liquid affects how quickly it flows.</li> </ol>	<ol style="list-style-type: none"> <li>Describe how sounds are made</li> <li>Describe how sounds are heard through different mediums</li> </ol>	<ol style="list-style-type: none"> <li>Group animals in various ways</li> <li>Group plants in various ways</li> </ol>

	<p>human teeth and their roles in eating</p> <ol style="list-style-type: none"> <li>3. Explain how to care for our teeth</li> <li>4. Recognise that differences in teeth relate to an animals working diet</li> <li>5. Recognise producers, predators and prey in food chains</li> <li>6. Recognise that animal poo can give us clues about digestion, teeth and diet</li> </ol>	<ol style="list-style-type: none"> <li>3. Explain the use of switches in a circuit</li> <li>4. Explain the use of materials as electrical conductors or insulators</li> <li>5. Investigate what affects bulb brightness</li> <li>6. Explain how to be safe around electricity</li> </ol>	<ol style="list-style-type: none"> <li>3. Describe melting and freezing</li> <li>4. Describe condensing and evaporating</li> <li>5. Describe the different stages of the water cycle</li> <li>6. Describe how temperature affects evaporation rates and the water cycle</li> </ol>	<ol style="list-style-type: none"> <li>2. Gather and record data to show speed</li> <li>3. Conclude and evaluate the investigation</li> <li>4. Observe carefully and apply these observations to problem solve the best viscosity medicine</li> <li>5. Report on my findings</li> </ol>	<ol style="list-style-type: none"> <li>3. Describe the relationship between vibration strength and volume</li> <li>4. Describe the relationship between volume and distance</li> <li>5. Describe pitch and how to change it</li> <li>6. Explain how insulating materials can be used to muffle sound</li> </ol>	<ol style="list-style-type: none"> <li>3. Make careful observations and make and use classification keys</li> <li>4. Recognise and describe different habitats and their inhabitants</li> <li>5. Recognise the impact humans can have on habitats</li> <li>6. Recognise the impact of natural disasters on habitats</li> </ol>
<b>Scientist of the term</b>	<p>Archimedes <i>Ancient Greece</i></p>	<p>Hippocrates, father of modern medicine including Hippocratic Oath <i>Greece topic continued</i> Elizabeth Garrett Anderson, first female doctor, suffragette (links to Hippocrates)</p>	<p>Jane Goodall, conservation work <i>Living things and their habitat</i></p>	<p>Charles Darwin <i>Animals including humans</i></p>	<p>Ada Lovelace, early computer scientist (and daughter of Byron) <i>Electricity and coding link</i></p>	<p>Nikola Tesla <i>Electricity continued</i></p>