



Science Overview

	Term 1 Identity and Social Justice	Term 2 Power, Leadership and Invasion	Term 3 Sustainability and the Impact on our World
	Nursery		
Unit Title/Enquiry	Topic Title: I wonder... What makes me wonderful?	Topic Title: I wonder... What Adventure Awaits?	Topic Title: I wonder... What might I find down on the farm?
Unit Overview	In this unit children will learn more about themselves and who they are as a unique individual.	<i>See the history and geography overview.</i>	In this unit children will develop the understand of the world. They will be shown and explain the concepts of growth, change and decay with natural materials. Through the unit Food and Farming, children will explore where food comes from such as fruit and vegetables growing in and above the ground and animal produce. Suggestions include: <ul style="list-style-type: none"> • plant seeds and bulbs so children observe growth and decay over time • observe an apple core going brown and mouldy over time • help children to care for animals and take part in first-hand scientific explorations of animal life cycles, such as caterpillars or chick eggs. Teachers will plan and introduce new vocabulary related to the exploration. Children will be encouraged to use it within their discussions, as they care for living things.
Prior Knowledge	0-3 DM Explore and respond to different natural phenomena within settings / at home or on day trips. Explore materials with different properties. Explore natural materials.	0-3 DM Repeat actions that have an effect	0-3 DM Understand and explore different plants and animals
Future Links to this Unit	Reception – Term 1	Reception – Term 2	Reception – Term 3
New Knowledge	Understanding the World Use all their senses in hands-on exploration of natural materials both inside and outside. Explore collections of materials with similar and/or different properties. Talk about the differences between materials and changes they notice (ice melting).	Understanding the World Explore how things work. Explore and talk about different forces they can feel (introduce magnets and look at how they work).	Understanding the World Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things.
Communication and Language	Develop their communication but may continue to have problems with irregular tenses and plurals, such as ‘runned’ for ‘ran’, ‘swimmed’ for ‘swam’.	Be able to express a point of view and to debate when they disagree with an adult or a friend, using words as well as actions.	Use a wider range of vocabulary. Understand a question or instruction that has two parts, such as: “Get your coat and wait at the door”.

	<p>Develop their pronunciation but may have problems saying:</p> <ul style="list-style-type: none"> • some sounds: r, j, th, ch, and sh • multi-syllabic words such as 'pterodactyl', 'planetarium' or 'hippopotamus'. <p>Children may use ungrammatical forms like 'I swimmied'. Instead of correcting them, recast what the child said. For example: "How lovely that you swam in the sea on holiday".</p> <p>When children have difficulties with correct pronunciation, reply naturally to what they say. Pronounce the word correctly so they hear the correct model.</p> <p>Use longer sentences of four to six words.</p> <p>Sing a large repertoire of songs.</p> <p>Know many rhymes, be able to talk about familiar books, and be able to tell a long story. Enjoy listening to longer stories and can remember much of what happens.</p> <p>Pay attention to more than one thing at a time, which can be difficult.</p>	<p>Start a conversation with an adult or a friend and continue it for many turns.</p> <p>Use talk to organise themselves and their play: "Let's go on a bus... you sit there... I'll be the driver."</p> <p>Sing a large repertoire of songs.</p> <p>Know many rhymes, be able to talk about familiar books, and be able to tell a long story.</p> <p>Enjoy listening to longer stories and can remember much of what happens.</p> <p>Pay attention to more than one thing at a time, which can be difficult.</p>	<p>Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"</p> <p>Sing a large repertoire of songs.</p> <p>Know many rhymes, be able to talk about familiar books, and be able to tell a long story.</p> <p>Enjoy listening to longer stories and can remember much of what happens. Pay attention to more than one thing at a time, which can be difficult.</p>
Significant People or Places	<p>The home Outdoor Environment Forest School Nursery Classroom</p>		
Additional Experiences	<p>Forest Fridays Melting / Freezing experiments</p>	<p>Egg Hatching Caterpillar to Butterfly experience</p>	
Career Links	<p>Teacher Scientist Forest School Leader</p>	<p>Engineer Builder</p>	<p>Gardener Farmer Vet</p>
Reception			
Unit Title/Enquiry	Topic Title: I wonder... All about the wider world	Topic Title: I wonder... Who helps us?	Topic Title: I Wonder... What might we find at the bottom of the garden?
Unit Overview	<p>This unit builds upon early understanding of self, family and children's own home from Nursery.</p>	<p>Children will learn 'rules' that we have to keep us healthy in body and mind. They will delve deeper into different occupations and look at the people within our community that keep us safe such as: police officers, doctors, fire fighters and teachers.</p>	<p>Children will also build upon previous knowledge where they cared for living creatures in Nursery. They will look further about the types of animals living in our gardens and what we can do to help protect them; looking at their environment and what conditions they need to survive.</p>

			Children will explore the seasons throughout the year building about some of their previous learning on growing and farming to consider what environment different things need to grow well.
Prior Knowledge	Nursery – Term 1 Hands on exploration of the natural world	Nursery – Term 2 Exploring and talking about forces	Nursery – Term 3 Caring for animals
Future Links to this Unit			
New Knowledge	Explore the natural world around them. Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences. Recognise some environments that are different from the one in which they live.	Observe and interact with natural processes, such as sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water.	Create opportunities to discuss how we care for the natural world around us. After close observation, draw pictures of the natural world, including animals and plants. Understand the effect of changing seasons on the natural world around them.
Communication and Language	<p>Understand how to listen carefully and why listening is important.</p> <p>Learn new vocabulary.</p> <p>Use new vocabulary through the day</p> <p>Ask questions to find out more and to check they understand what has been said to them.</p> <p>Articulate their ideas and thoughts in well-formed sentences.</p> <p>Connect one idea or action to another using a range of connectives.</p> <p>Describe events in some detail.</p> <p>Develop social phrases.</p> <p>Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</p> <p>Engage in story times.</p> <p>Engage in non-fiction books.</p> <p>Learn rhymes, poems and songs.</p> <p>Listen carefully to rhymes and songs, paying attention to how they sound.</p> <p>Listen to and talk about stories to build familiarity and understanding.</p> <p>Use new vocabulary in different contexts.</p> <p>Retell the story, once they have developed a deep familiarity with the text, some as exact repetition and some in their own words</p> <p>Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary.</p>		
Significant People or Places	<p>The Home</p> <p>Outdoor Environment</p> <p>Forest School</p> <p>Nursery Classroom</p>		
Additional Experiences	Forest School Sessions	Scientific experiments – floating and sinking	Trip to the Yorkshire Wildlife Park
Career Links	Forest school leader Teacher	Scientist Sailor	Vet Zoologist Conservationist

Unit Title/Enquiry	Everyday Materials	Animals, including humans	Plants Seasonal Changes
National Curriculum Link	Pupils should be taught to: <ul style="list-style-type: none"> - 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 	Pupils should be taught to: <ul style="list-style-type: none"> - identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - identify and name a variety of common animals that are carnivores, herbivores and omnivores - describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) - identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense 	Pupils should be taught to: <ul style="list-style-type: none"> - identify and name a variety of common wild and garden plants, including deciduous and evergreen trees - identify and describe the basic structure of a variety of common flowering plants, including trees Pupils should be taught to: <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
Prior Knowledge	EYFS- Exploration of the Natural World <ul style="list-style-type: none"> • Pupils in EYFS will have explored a variety of resources that are made of different materials • Most will be familiar with the name of the material, i.e. wood, glass, metal, 	EYFS- Understanding the World <ul style="list-style-type: none"> • In EYFS children will have been taught nursery rhymes to include parts of the body, e.g. head, shoulders, knees and toes • They may have pets at home and will have observed what they eat • They will have come across a variety of animals but may not have classified them as in Year 1 	EYFS- <ul style="list-style-type: none"> • In EYFS children will have grown plants from seeds • They will have observed plants and will know names such as leaf, flower, petal, etc. • They may have walked in a woodland area or noticed trees in Forest School • They will have named the four seasons • They will have knowledge of months of the year linked to their birthdays • They will know that summer is a hot period and winter is generally cold
Future Links to this Unit	Year 2- Term 1- Uses of Everyday Materials: <ul style="list-style-type: none"> ➢ Know how materials can be changed. ➢ Know why materials picked for specific jobs. 	Year 2- Living Things and their Habitats <ul style="list-style-type: none"> • Classify things by living, dead or never lived • Know how a specific habitat provides for the basic needs of things living there (plants and animals) • Match living things to their habitat • Name some different sources of food for animals • Know about and explain a simple food chain Year 2- Animals Inc Humans <ul style="list-style-type: none"> • Know the basic stages in a life cycle for animals, (including humans) • Know why exercise, a balanced diet and good hygiene are important for humans 	Year 2 – Plants <ul style="list-style-type: none"> • Know and explain how seeds and bulbs grow into plants • Know what plants need in order to grow and stay healthy (water, light & suitable temperature)
Year 1 New Knowledge			Plants <ul style="list-style-type: none"> • Know and name the petals, stem, leaves and root of a plant • Know and name the roots, trunk, branches and leaves of a tree • Know that some trees are evergreen and some are deciduous

			<ul style="list-style-type: none"> • Know how to classify if a plant is a wild plant, garden plant or tree.
<p>Core (substantive) Knowledge – models, concepts and theories Key vocabulary (bold)</p>	<p>Pupils know that objects are made of different materials, including wood, plastic, glass, metal, rock, water, paper/card and fabric.</p> <p>Pupils know the properties of these materials: hard, soft, rough, smooth, shiny, dull, heavy, light, transparent, opaque, bendy, not bendy, stretchy, stiff, waterproof, not waterproof, absorbent, and not absorbent.</p> <p>Pupils know that materials are used based on their properties.</p> <p>Pupils know that glass is used for windows because it is transparent.</p> <p>Pupils know that metal is used for construction (buildings, cars etc.) because it is strong.</p> <p>Pupils know that fabrics and paper are used in cleaning, as they are absorbent. They know that some fabrics/paper are more absorbent than others.</p> <p>Pupils know that fabrics are stretchy.</p> <p>Pupils know that plastics, glass and metal are waterproof. They know that plastics are used in umbrellas because they are waterproof and light.</p>	<p>Pupils know that animals can be grouped based on their features.</p> <p>Pupils know that animals include vertebrates (with a backbone) and invertebrates (without backbones).</p> <p>Pupils know that vertebrates include mammals, fish, birds, reptiles and amphibians.</p> <p>Pupils know that amphibians must live both on land and water.</p> <p>Pupils know that although some reptiles can enter water, they mainly live on land.</p> <p>Pupils know that most reptiles and amphibians have similar features: four legs, bulging eyes and gaping mouths.</p> <p>Pupils know that amphibians have soft skin, while reptiles have scaly skin.</p> <p>Pupils know that fish have gills for breathing underwater and scaly skin.</p> <p>Pupils know that birds have feathers, that are warm and light.</p> <p>Pupils know that herbivores are animals that eat mostly plants.</p> <p>Pupils know that carnivores are animals that eat mostly other animals.</p> <p>Pupils know that omnivores are animals that eat both plants and animals.</p> <p>Pupils know the parts of the human body (head, neck, shoulders, arms, elbows, hands, legs, knees, foot, face, eyes, ears, nose, teeth, mouth, hair).</p> <p>Pupils know that humans have 5 senses (sight, hearing, taste, touch and smell) and that these help us to find out about the world around us.</p> <p>Pupils know that the mouth and tongue is associated with taste.</p> <p>Pupils know that the ears are associated with hearing.</p> <p>Pupils know that touch can be felt all over the body.</p> <p>Pupils know that smell is associated with the nose.</p>	<p><u>Seasonal Changes</u></p> <p>Pupils know that in the UK we have four seasons: Spring (March to May), Summer (June to August), Autumn (September to November) and Winter (December to February).</p> <p>Pupils know which months are in which season.</p> <p>Pupils know that leaves fall off many trees in Autumn, and in Spring there is lots of growth.</p> <p>Pupils know that it is more likely to snow in Winter than any other season.</p> <p>Pupils know that the day length varies across the seasons. They know that Summer has the longest day on 21st June and Winter the shortest on 21st December.</p> <p>Pupils know that weather is a description of what the conditions are like in a particular place, e.g. hot or cold, wet or dry, windy or calm, stormy.</p> <p>Pupils know that weather symbols are signs that can be used to help us understand more about our weather.</p> <p>Pupils know temperature is a measure of how hot something is. They know that Summer is the hottest season and Winter the coldest.</p> <p>Pupils know that a thermometer can be used to measure temperature.</p>
<p>Year 1 Working Scientifically skills</p>		<ul style="list-style-type: none"> • I can be curious and ask questions about what they notice • I can begin to use simple scientific language to talk about what I have found out and communicate my ideas • I can read and spell scientific vocabulary at a level consistent with word reading and spelling knowledge at key stage 1 • I can ask simple questions and recognise that they can be answered in different ways • I can identify and classify findings 	<ul style="list-style-type: none"> • I can be curious and ask questions about what they notice • I can begin to use simple scientific language to talk about what I have found out and communicate my ideas • I can read and spell scientific vocabulary at a level consistent with word reading and spelling knowledge at key stage 1 • I can ask simple questions and recognise that they can be answered in different ways • I can observe closely, using simple equipment safely • I can perform simple tests

		<ul style="list-style-type: none"> I can use my observations and ideas to suggest answers to questions 	
Disciplinary Knowledge (working scientifically skills)	<p>Pupils group and classify materials based on the material they are made from. <u>Everyday materials - Lesson 1 and 2</u></p> <p>Pupils carry out simple comparative tests when they compare different types of paper, based on their properties <u>Everyday materials – Lesson 3</u></p> <p>Pupils group and classify fabrics, based upon their properties. <u>Everyday materials – Lesson 4</u></p> <p>Pupils record findings using tables, sorting hoops and Venn diagrams when classifying objects by their material, including for objects made of multiple materials. <u>Everyday materials – Lesson 5</u></p> <p>Pupils suggest how objects have been grouped and suggest the best material to use for different purposes, based on their properties. <u>Everyday material – Lesson 6</u></p> <p>Pupils use Carroll diagrams to record their findings, when sorting objects based on their material. <u>Everyday materials – Lesson 7</u></p> <p>Pupils observe, measure and record information when investigating how stretchy and bendy different materials are. <u>Everyday materials – Lesson 8</u></p> <p>Pupils carry out simple tests to investigate how absorbent different objects are. <u>Everyday materials – Lesson 9.</u></p>	Pupils know how to group and classify animals in to groups, based on their features .	<p>Pupils observe and describe changes over time, across the seasons. They use these observations and ideas to suggest answers to questions, when suggesting clothing to be worn in different seasons (making links to materials work). <u>Sensing Seasons – Lesson 1.</u></p> <p>Pupils gather and record data to help answer questions when collecting evidence for the current season (Summer), including flowers (dandelions and daisies), bright green leaves and bees. They observe and describe what they find, comparing the day length (hours of daylight) to months in other seasons. <u>Sensing Seasons – Lesson 2.</u></p> <p>Pupils identify and classify leaves as to whether they are found in different seasons (based on colour and position). <u>Sensing Seasons – Lesson 3.</u></p> <p>Pupils gather and record data to help answer questions when they collect daily records of weather for 2 weeks, including performing simple tests of temperature using a thermometer, observing closely. They choose symbols to represent the weather and look for patterns. They use this data to answer questions about what the weather is like most of the time in this season (Summer). <u>Sensing Seasons – Lesson 4.</u></p> <p>Pupils observe and describe changes, by comparing what weather is like most of the time across different seasons. <u>Sensing Seasons – Lesson 5.</u></p>
Scientific Vocabulary			<p>deciduous, evergreen, tree, leaf, flower (blossom), petals, fruit, bulb, seed, roots, stem, trunk, branches</p> <p>season, spring, summer, autumn, winter, month, year, day, night, sun, moon, light, dark</p>
Significant Individual	<p>Find out 3 Facts about:</p> <p>Charles Macintosh-inventor of waterproof fabrics</p>	<p>Find out 3 Facts about:</p> <p>George Mottershead OBE- Founder of Chester Zoo</p>	<p>Find out 3 Facts about:</p> <p>Jane Colden- Botanist</p> <p>George James Symons- Meteorologist</p>
Year 2			
Unit Title/Enquiry	Uses of Everyday Materials	Living Things and their Habitats	Plants

		Animals, including Humans	
National Curriculum Link	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - 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 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 <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - 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 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - 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
Prior Knowledge	<p>Year 1- Pupils will know-</p> <ul style="list-style-type: none"> • Names of the materials • The properties of everyday materials • and be able to, group materials by their properties • The properties of a material help determine how that material is used. • That materials can come from the earth, animals and plants. 	<p>Year 1 Pupils will know-</p> <ul style="list-style-type: none"> • Know the name of parts of the human body that can be seen • Know about the five senses and link them with parts of the body • Know the names of a range of common animals • Know how to classify a range of animals by amphibian, reptile, mammal, fish and bird • Know and classify animals by their body parts • Know and classify common animals by what they eat (carnivore, herbivore and omnivore) 	<p>Year 1 Pupils will know-</p> <ul style="list-style-type: none"> • To name the petals, stem, leaves and root of a plant • To name the roots, trunk, branches and leaves of a tree • That some trees are evergreen and some are deciduous • To classify if a plant is a wild plant, garden plant or tree.
Future Links to this Unit	<p>Year 3- Materials and their Properties</p> <ul style="list-style-type: none"> • Compare and group rocks based on their appearance and physical properties, giving reasons 	<p>Year 3- Animals Inc Humans</p> <ul style="list-style-type: none"> • Know about the importance of a nutritious, balanced diet • Know how nutrients, water and oxygen are transported within animals and humans • Know about the skeletal and muscular system of a human and some other animals • Know that humans and some other animals have skeletons and muscles for support, protection and movement 	<p>Year 3 –Plants</p> <ul style="list-style-type: none"> • Know the function of different parts of flowering plants and trees • Know how water is transported within plants • Know the plant life cycle, especially the importance of flowers

Substantive Knowledge

- Know how materials can be changed by squashing, bending, twisting and stretching
- Know how to sort materials by their properties using words such as: flexible, rigid, stretchy, bendy, squashy, stiff including: samples of materials: fabrics (including woollen, stretchy, waterproof and carpet); plastic (including transparent plastic bag type and rigid, coloured plastic); wood; foil; metal; card; slate (identified as rock); glass; wrapping paper.
- Know why a material might be suitable used for a specific job- e.g. waterproof, light weight, stretchy.
- Know why a material might not be suitable for a specific job e.g. glass is waterproof but is also heavy and breaks easily.
- Know the names of different materials that an object can be made from and say which are suitable for how it will be used: for example, thin plastic for disposable forks or spoons; metal for forks and spoons to be washed and used over and over again.
- Know the reasons why a materials is more suitable than another for a purpose- comparing and giving reasons.
- Know the advantages and disadvantages of some properties: for example, rubber is good for wellies because it is waterproof, but this keeps in sweat from your feet.

- Know and explain how seeds and bulbs grow into plants through the stages seed or bulb, starting with a root emerging from a seed or a shoot and roots growing from a bulb.
- Know the difference between bulbs and seeds
- Know that growth happens above and below the ground
- Know how plants that they have grown themselves have changed over time,
- Know that seeds and bulbs need water to start them growing (but don't need light)
- Know what plants need in order to grow and stay healthy light, air, water, soil and the right temperature to grow
- Know what happens when a plant has not had sufficient water, light, a suitable temperature using pictures for support
- Know and describe the gradual growth of the plant over time, and the changes that take place with the development and growth of leaves, flowers and seeds.

	<p>Pupils know that some plastics and glass are transparent. They know that they are therefore used for windows. They know that glass is used in buildings as it is also hard.</p> <p>Pupils know that denim is used for children’s dungarees as it is hard wearing.</p> <p>Pupils know that materials can be changed through physical force (twisting, stretching, bending and squashing).</p>	<p>Pupils know that a habitat is where an animal or plant lives, and that microhabitats are where the habitat is small.</p> <p>Pupils know that food chains show the sequence of how animals and plants depend on each other for food.</p> <p>Pupils know that animals have adaptations that make them suited to their habitat.</p> <p>Pupils know that animals have offspring, that grown in to adults.</p> <p>Pupils know that animals change over time, that some are born live and others hatch from eggs.</p> <p>Pupils know that living things have similar characteristics (e.g. they move, make sound, eat, drink, breathe, see, hear).</p> <p>Pupils know that humans need air, food, water and warmth to survive.</p> <p>Pupils know that babies differ to children in their appearance, physical capabilities, independence, diet, communication and ability to take care of themselves.</p> <p>Pupils know that humans need the right amounts of different food (nutrition), including dairy, meat, fruit, vegetables, fish, beans, fat, sugar, cereals, bread and potatoes.</p> <p>Pupils know that fatty and sugary food forms part of a balanced diet, but should be eaten less frequently and in smaller amounts.</p> <p>Pupils know that physical activity is important for getting the body functioning well (developing breathing, circulation, strengthen muscles and increase flexibility).</p> <p>Pupils know that keeping our bodies clean (hygiene) is important to remove dirt, waste products, prevent the build up of micro-organisms (bacteria and viruses), which will reduce body odour and the risk of spreading disease.</p>	
<p>Disciplinary Knowledge (Skills)</p>	<ul style="list-style-type: none"> • I can be curious and ask questions about what they notice • I can begin to use simple scientific language to talk about what I have found out and communicate my ideas • I can read and spell scientific vocabulary at a level consistent with word reading and spelling knowledge at key stage 1 • I can ask simple questions and recognise that they can be answered in different ways • I can observe closely, using simple equipment safely • I can perform simple tests 	<ul style="list-style-type: none"> • I can be curious and ask questions about what they notice • I can begin to use simple scientific language to talk about what I have found out and communicate my ideas • I can read and spell scientific vocabulary at a level consistent with word reading and spelling knowledge at key stage 1 • I can ask simple questions and recognise that they can be answered in different ways • I can observe closely, using simple equipment safely • I can perform simple tests 	<ul style="list-style-type: none"> • I can be curious and ask questions about what they notice • I can begin to use simple scientific language to talk about what I have found out and communicate my ideas • I can read and spell scientific vocabulary at a level consistent with word reading and spelling knowledge at key stage 1 • I can ask simple questions and recognise that they can be answered in different ways • I can observe closely, using simple equipment safely • I can perform simple tests • I can gather and record data to help in answering questions • I can identify and classify findings • I can use my observations and ideas to suggest answers to questions

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Tier 2 and 3 Vocabulary	brick, fabric, elastic, foil, property, solid, waterproof, absorbent, opaque, transparent, Flexible, rigid, stretchy, elastic, squashy, stiff	living, dead, habitat, microhabitat, woodland, meadow, hedgerow, pond survival, water, air, food reproduce, adult, baby, offspring, kitten, calf, puppy food chain, prey, predator, camouflage, protection exercise, hygiene, balanced diet	Bulb, seed, leaves, roots, shoot, stem, growth, germinate, light, temperature reproduce, lifecycle,
Scientist of the term	Find out and write a fact file for either: John Loudon McAdam – inventor of macadam road surfacing material John Boyd Dunlop – Inventor of inflatable rubber tyres	Find out and write a fact file for: Elizabeth Garrett Anderson –First British female physician and surgeon	Find out and write a fact file for: Sir Joseph Banks

Year 3

Unit Title/Enquiry	Who has the biggest impact on Doncaster?	Who were the Ancient Egyptians and what marks did they leave behind?	Are Rivers a Friend or Foe?
National Curriculum Link	<p>Light Pupils should be taught to:</p> <ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object find patterns in the way that the size of shadows change <p>Rocks Pupils should be taught to:</p> <ul style="list-style-type: none"> compare and group together different kinds of rocks on the basis of their appearance and simple physical properties describe in simple terms how fossils are formed when things that have lived are trapped within rock recognise that soils are made from rocks and organic matter 	<p>Animals, including humans Pupils should be taught to:</p> <ul style="list-style-type: none"> identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify that humans and some other animals have skeletons and muscles for support, protection and movement <p>Forces and magnets Pupils should be taught to:</p> <ul style="list-style-type: none"> compare how things move on different surfaces notice that some forces need contact between 2 objects, but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing 	<p>Plants Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

Unit Overview	<p>In this unit, the children will take a journey through time as they look at the Stone Age to the Iron Age in order to evaluate who had the biggest impact on Doncaster and life today.</p>	<p>This unit allows for the children to start to build their chronological understanding of different time periods and to connect them to historical timelines that we have around school. Children will learn about the Ancient Egyptians' inventions and the impact that they have on life today.</p>	<p>Linked to learning about the River Nile in the previous term, in this unit the children will learn about the water cycle and about the journey of a river from the source to the mouth of the river.</p>
Prior Knowledge	<p>Year 1, term 3 – animals including humans Year 2, term 3 - animals including humans</p>	<p>EYFS - Exploring the natural world</p>	<p>Year 1, term 2 – plants Year 2, term 3 – plants</p>
Future Links to this Unit	<p>Year 4, term 1 – forces and magnets Year 5, term 1 – forces</p>	<p>Year 6, term 2 - light Year 4, term 2 - animals including humans Year 5, term 3 – animals including humans and living things Year 6, term 1 – animals including humans Year 4, term 2 - animals including humans Year 4, term 3 – living things Year 5, term 3 – animals including humans and living things Year 6, term 1 – animals including humans Year 6, term 3 – living things</p>	
Core (substantive) Knowledge – models, concepts and theories Key vocabulary (bold)		<p>Pupils know that humans need food, warmth, sleep and water to survive. Pupils know that animals need to eat food in order to get nutrition that their bodies need to function. Pupils know that a balanced diet included carbohydrates, protein, fats, water, fibre, vitamins and minerals, and that we get these from the food we eat. Pupils know that the total amount and variety of foods a person eats is called their diet.</p> <p>Pupils know that some animals have skeletons for support, protection and movement. Pupils know that the skull, ribs and spine protect the brain, heart, lungs and spinal cord. Pupils know that animals with skeletons inside their bodies are called vertebrates. Pupils know that bones are joined together at joints to allow movement. Pupils know that the knee, ankle and shoulder are joints. Pupils know that muscles are used for moving the skeleton, attached with tendons. Pupils know where the trapezius, pectoral, deltoid, latissimus dorsi and hamstrings are located.</p>	<p><u>Parts of a plant</u> Pupils know the main parts of the plant: root, stem/trunk, leaves and flower. They know the role of the different plant parts and how they are suited to their functions. <u>How Does Your Garden Grow? Lesson 1, 2, 3, 4, 6.</u> Pupils know structures that are only found in some plants, such as bulbs and runners.</p> <p><u>Reproduction in plants</u> Pupils know the main parts of a flowering plant (bud, petal, sepal, carpel, stamen, pollen) involved in the reproductive process. They know the functions of these parts. <u>How does your garden grow? Lesson 8.</u> Pupils know the meaning of pollination. Pupils know the role of insects, birds and the wind in the process of pollination. They know that some plants produce nectar or fruit to attract animals. <u>How does your garden grow? Lesson 9.</u> Pupils know that fertilisation takes place when pollen and ovules fuse together in the ovary to form seeds. Pupils know that, in some plants, fertilisation causes the ovary to swell to produce a fruit. Pupils know that seed dispersal is important as it increases a species' chances of survival. Pupils know a range of methods by which seeds can be dispersed (wind, animal, explosion).</p>

Disciplinary Knowledge (working scientifically skills)	Grouping and classifying Carrying out comparative and fair tests Observing over time Comparative and fair tests Using secondary sources	Grouping and classifying Comparative and fair tests Noticing patterns Exploration	Pupils group and classify leaves based on their properties, as they observe similarities that help the leaf to make food for the plant (flat, thin, large surface area, veins and stalk). How does your garden grow? Lesson 2 Pupils carry out comparative and fair tests to investigate how removing the leaves of a plant affects its growth. They make observations and measurements over time, recording these in tables and bar charts (Maths – Block 5). How does your garden grow? Lesson 3 Pupils group and classify root systems based on their properties, as they observe similarities that help the roots access nutrients for the plant (long and branching). How does your garden grow? Lesson 4 Pupils use secondary sources of information when explaining the function of the stem. How does your garden grow? Lesson 6 Pupils record findings using labelled diagrams, when sequencing the stages in the life cycle of a flowering plant. How does your garden grow? Lesson 7 Pupils group and classify seeds/plants by their method of dispersal. How does your garden grow? Lesson 10. Pupils compare the effect of different factors on plant growth, including the amount of light and the amount of fertiliser
Tier 2 and 3 Vocabulary	soils, organic matter, fossil, crystal, sandstone, granite, marble, pumice absorbent, crumble sedimentary, layer, sediment igneous, magma, lava, gas bubbles (tiny holes/spaces) metamorphic, change, squeeze, pressure force, contact, surface, magnetic, attract, repel, poles	light source, mirror, reflect, reflective, reflection shadow, blocked transparent, translucent, opaque skeleton, skull, bones, muscles, movement, support, protection, nutrition	air, water, transportation, nutrients, soil, reproduction, seed formation, seed dispersal, pollination
Scientist of the term	Mary Anning – Palaeontologist and fossil collector		
Additional Experiences	Geologist talk		
Career Links			

Year 4

Year Group and Title	Why do we export from Doncaster?	What was the impact of the Roman invasion on Britain and what have they left behind?	Year 4 – What makes the Earth angry? Natural disasters/Impact of global warming
National Curriculum Link	States of matter Pupils should be taught to: <ul style="list-style-type: none"> - compare and group materials together, according to whether they are solids, liquids or gases 	Animals, including humans Pupils should be taught to: <ul style="list-style-type: none"> - describe the simple functions of the basic parts of the digestive system in humans - identify the different types of teeth in humans and their simple functions 	Electricity Pupils should be taught to: <ul style="list-style-type: none"> - identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers

	<ul style="list-style-type: none"> - observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 	<ul style="list-style-type: none"> - construct and interpret a variety of food chains, identifying producers, predators and prey <p>Living things and their habitats</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - recognise that living things can be grouped in a variety of ways - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - recognise that environments can change and that this can sometimes pose dangers to living things 	<ul style="list-style-type: none"> - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - recognise some common conductors and insulators, and associate metals with being good conductors <p>Sound</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> - identify how sounds are made, associating some of them with something vibrating - recognise that vibrations from sounds travel through a medium to the ear - find patterns between the pitch of a sound and features of the object that produced it - find patterns between the volume of a sound and the strength of the vibrations that produced it - recognise that sounds get fainter as the distance from the sound source increases
Unit Overview	In this unit, the children will use the history of transport knowledge from Year 2 and build on this with understanding the history of the railways and the significance of the developments in Doncaster.	In this unit, the children will develop their knowledge of the Romans and the impact of the Romans on Britain in the past and what impact we can still see today.	The main focus of this unit is to understand the causes and effects of natural disasters (physical geography) and the impact global warming is having on the frequency and occurrence of natural disasters.
Prior Knowledge	Year 1, term 1 – everyday materials Year 2, term 1 – everyday materials	Year 1, term 3 – animals including humans Year 2, term 3 - animals including humans Year 3, term 1 and 2 - animals including humans Year 2, term 2 – living things	
Future Links to this Unit	Year 5, term 2 – changing materials	Year 5, term 3 – living things Year 6, term 3 – living things	Year 6, term 2 - electricity
New Knowledge			
Scientific Enquiry Skills	Grouping and classifying things Exploration Carrying out simple comparative and fair tests Noticing patterns	Grouping and classifying things Looking for patterns Finding things out using secondary sources of information	Observing over time leading to fair testing Grouping and classifying things Fair testing Observing changes over time Exploration

Tier 2 and 3 Vocabulary	solid, liquid, gas, evaporation, condensation, particle, temperature, freezing, heating	mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, nutrients, absorb, canine, incisor, molar producer, consumer, apex predator vertebrates, invertebrates (+ 1 example of each) environment, habitat, classification key	appliance, battery power, main power, circuit, series, cell, battery, wire, bulb, switch, break in circuit conductor, insulator vibration, wave, volume, pitch, tone, insulation
Scientist of the term		Jane Goodall - Primatologist	Lewis Latimer
Additional Experiences			Building an electric train Visiting the National Railway Museum
Career Links			

Year 5

Unit Title/Enquiry	Year 5 - Should Britain be proud of the British Empire? The British Empire and the Slave trade - 16-19th Century	Who were the Tudors and what impact did the period in time have on modern Britain?	What will happen when all the forests are gone? How can we stop deforestation?
National Curriculum Link	<p>Properties and changes of materials Pupils should be taught to:</p> <ul style="list-style-type: none"> - compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets - know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution - use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - demonstrate that dissolving, mixing and changes of state are reversible changes - explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda 	<p>Earth and space Pupils should be taught to:</p> <ul style="list-style-type: none"> - describe the movement of the Earth and other planets relative to the sun in the solar system - describe the movement of the moon relative to the Earth - describe the sun, Earth and moon as approximately spherical bodies - use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky <p>Forces Pupils should be taught to:</p> <ul style="list-style-type: none"> - explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - identify the effects of air resistance, water resistance and friction, that act between moving surfaces - recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 	<p>Animals, including humans Pupils should be taught to:</p> <ul style="list-style-type: none"> - describe the changes as humans develop to old age <p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> - describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird - describe the life process of reproduction in some plants and animals
Unit Overview	In this unit, the children will continue to develop their knowledge of Britain in the past.	In this unit, the children will live about the Tudor family and the impact they had on Britain in the past and the lasting impact they have had on modern Britain.	In this unit, the children will learn about forests around the world and the impact caused by deforestation (human geography).

Prior Knowledge	Year 1, term 1 – everyday materials Year 2, term 1 – everyday materials Year 4, term 2 – states of matter	Year 3, term 3 – forces Year 4, term 1 – forces	Year 1, term 3 – animals including humans Year 2, term 3 - animals including humans Year 3, term 1 and 2 - animals including humans Year 4, term 2 - animals including humans Year 2, term 2 – living things Year 4, term 3 – living things
Future Links to this Unit			Year 6, term 1 – animals including humans Year 5, term 3 – animals including humans and living things
New Knowledge			
Scientific Enquiry Skills	Observing over time Comparative and fair tests	Observing over time Comparative and fair tests Secondary sources of information Grouping and classifying Noticing patterns	Secondary sources of information Comparative and fair tests Noticing patterns Observations over time
Tier 2 and 3 Vocabulary	hardness, transparency, conductivity (electrical, thermal) solubility, solution dissolve, filter, evaporate, sieve, reversible, irreversible	Earth, sun, moon, solar system, axis of rotation, day, night, phases of the moon, star, constellation air resistance, water resistance, friction, gravity lever, gear, pulley, Newtons	womb, foetus, embryo, gestation, baby, toddler, teenager, elderly growth, development, puberty life process, reproduction, offspring,
Scientist of the term		Maggie Aderin-Pocock –astronomer Galileo Galilei - Polymath	Sir David Attenborough - Naturalist
Additional Experiences			Visit to National Space Museum
Career Links	Architect, mechanical engineer	Astronomer, engineer	Naturalist, biologist

Year 6

Unit Title/Enquiry	Which people have fought for my rights?	What are we fighting for?	Why are we fighting for our future?
National Curriculum Link	Light Pupils should be taught to: <ul style="list-style-type: none"> - recognise that light appears to travel in straight lines - use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye 	Animals including humans Pupils should be taught to: <ul style="list-style-type: none"> - identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood - recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function 	Electricity Pupils should be taught to: <ul style="list-style-type: none"> - associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches

	<ul style="list-style-type: none"> - explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes - use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them <p>Evolution and inheritance Pupils should be taught to:</p> <ul style="list-style-type: none"> - recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago - recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution 	<ul style="list-style-type: none"> - describe the ways in which nutrients and water are transported within animals, including humans <p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> - describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals - give reasons for classifying plants and animals based on specific characteristics 	<ul style="list-style-type: none"> - use recognised symbols when representing a simple circuit in a diagram
Unit Overview	In this unit, the children will understand the achievements and influence of the Ancient Greeks before moving onto looking a civil rights (Women’s rights, workers’ rights, Children’s rights, Early children’s acts and education acts) building on their learning from Year 5 about the slave trade.	In this unit, children will learn about the cause and effect of events in 1939 that resulted in the outbreak of WWII.	In this final unit, the children will learn about climate change and being involved in actively raising awareness and having a positive impact on the world.
Prior Knowledge	<p>Year 1, term 3 – animals including humans Year 2, term 3 - animals including humans Year 3, term 1 and 2 - animals including humans Year 4, term 2 - animals including humans Year 5, term 3 - animals including humans</p> <p>Year 2, term 2 – living things Year 4, term 3 – living things Year 5, term 1/3 - living things</p> <p>Jigsaw – Changing Me – Y1, Y2, Y3, Y4, Y5, Y6</p>	Year 3, term 3 – light	Year 4, term 1 - electricity
New Knowledge		<p>Pupils know that animals can be classified as vertebrates and invertebrates.</p> <p>Pupils know that vertebrates can be classified as mammals, reptiles, amphibians, fish and birds.</p> <p>Pupils know that invertebrates can be classified as worms, molluscs, arthropods, insects and arachnids.</p> <p>Pupils know that plants can be classified as flowering, conifers, ferns and mosses.</p>	

		<p>Pupils know that classification is similarities that show objects belong in the same group.</p> <p>Pupils know that identification is the specific properties that allow us to name an item.</p> <p>Pupils know that classification trees can be used to group.</p> <p>Pupils know that microorganisms, or microbes, include fungi, Protista and Monera.</p>	
Scientific Enquiry Skills	<p>Secondary sources of information</p> <p>Grouping and classifying</p> <p>Comparative and fair testing</p>	<p>Comparative and fair testing</p> <p>Secondary sources of information</p> <p>Noticing patterns</p> <p>Exploration</p>	<p>Grouping and classifying</p> <p>Pattern seeking</p> <p>Observations over time</p> <p>Secondary sources of information</p>
Tier 2 and 3 Vocabulary	<p>adaptation, evolution, characteristic, reproduction, genetics, survival</p> <p>characteristic, classification, organism, micro-organism</p>	<p>refraction, reflection, spectrum, rainbow</p> <p>function, circulatory system, heart, valve, blood vessel, vein, artery transport, oxygenated, deoxygenated lifestyle, drug</p>	<p>circuit - series, parallel voltage, volts, amps</p>
Scientist of the term	Charles Darwin		Nicolas Tesla/Thomas Edison
Additional Experiences			
Career Links	Naturalist, biologist, vet, zookeeper	Optician,	electrician, engineer