Curriculum Map for Science



Early Years

To support our play based learning in Early Years, our skilled Early Years teachers will identify and plan opportunities for all children to develop key knowledge and skills which will support them in successfully accessing the National Curriculum for Science when they enter Year One. Using the Key Stage One programmes of study of: investigative skills, living things and their habitats, plants, animals including humans, everyday materials and seasonal changes; the key skills and knowledge are identified below:

Working scientifically:

- Being curious and starting to ask questions
- Performing simple tests and using equipment
- Using senses to observe and look closely
- Looking closely at things and noticing changes
- Making simple notes of what I notice or how things change
- Early Years

 Finding things that are similar or different

 Sorting and matching things
 Talking about what I have done and noticed

 Making simple records of what I notice or how things change

 Making simple at things and noticing changes

 Looking closely at things and noticing changes
- Talk about what I have done and noticed
- Sorting and matching things
- Finding things that are similar and different
- Being curious and starting to ask questions

Living things and their habitats

Understanding the World:

Begin to understand the need to respect and care for the natural environment and all living things. They explore the natural world around them They describe what they see, hear and feel while outside.

Talk about what they see, using a wide vocabulary.

Vocabulary:

<u>Plants</u>

Understanding the World:

Plant seeds and care for growing plants.

Understand the key features of the life cycle of a plant.

Begin to understand the need to respect and care for the natural environment and all living things.

Explore the natural world around them

Describe what they see, hear and feel while outside. Talk about what they see, using a wide vocabulary.

Seasonal Changes

Understanding the World:

Understand the effect of changing seasons on the natural world around them.

Describe what they see, hear and feel whilst outside. Explore the natural world around them.

Talk about what they see, using a wide vocabulary.

The Natural World ELG:

Explore the natural world around them.

Grow, growing, growth, tall, height, weight, length, baby, child, teenager, adult, elderly, life cycle, tadpole, froglet, frog, eggs, caterpillar, chrysalis, butterfly, see, hear, smell, touch, taste, senses

The Natural World ELG:

Explore the natural world around them, making observations and drawing pictures of animals and plants;

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.

Vocabulary:

Garden, tree, flower, stem, petal, leaf, roots, water, light, grow, seed, bulb, blossom, trunk, branch, bark, sunflower, daffodil, daisy, poppy, shade, sun, warm, cool, spring, summer, autumn, winter, soil

The Natural World ELG:

Explore the natural world around them, making observations and drawing pictures of animals and plants:

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;

Understand some important processes and changes in the natural world around them, including the seasons.

Vocabulary:

Autumn, Spring, Summer, Winter, fog, frost, snow, shade, sun, warm, cool, hail, season, buds, blossom, bare tree, colour, change, orange, brown, difference, day length, dark, light

Animals including humans

Understanding the World:

Understand the key features of the life cycle of an animal.

Understand the need to respect and care for the natural environment and all living things.

Explore the natural world around them

Describe what they see, hear and feel while outside.

Talk about what they see, using a wide vocabulary.

Personal, Social and Emotional Development:

Be increasingly independent in meeting their own care needs, e.g., brushing teeth, using the toilet, washing and drying their hands thoroughly.

Make healthy choices about food, drink, activity and tooth brushing.

Vocabulary:

Grow, growing, growth, tall, height, weight, length, baby, child, teenager, adult, elderly, life cycle, tadpole, froglet, frog, eggs, chrysalis, butterfly, caterpillar, see, hear, smell, touch, taste, senses, healthy

The Natural World ELG:

Everyday Materials

Understanding the World:

Explore collections of materials with similar and/or different properties.

They can talk about the difference between materials and changes they notice.

They use all their senses in hands-on exploration of natural materials.

They explore collections of materials with similar and/or different properties.

They talk about what they see, using a wide range of vocabulary.

Expressive Arts and Design:

Explore different materials freely, to develop their ideas about how to use them and what to make.

Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures.

Vocabulary:

clear, see through, hard, soft, shiny, smooth, rough, prickly, bumpy, wood, plastic, metal, glass, fabric, hot, cold, wet, dry, melt, freeze

The Natural World ELG:

Explore the natural world around them.

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;

Explore the natural world around them, making observations and drawing pictures of animals and plants;

Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.

Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. Creating with Materials ELG:

Managing Self ELG:

Manage their own basic hygiene and personal needs, understanding the importance of healthy food choices.

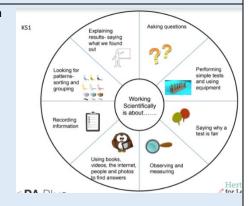
Safely use and explore a variety of materials.

Key Stage One

Our Key Stage One curriculum follows the National Curriculum. Using The Association for Science Education, we have identified the key skills and knowledge we ensure our pupils reach by the end of Key Stage One in order to access the Key Stage 2 curriculum when they move into Year 3.

Each lesson sees at least one focus on working scientifically:

- Asking questions
- Performing simple tests and using equipment
- Saying why a test is fair
- Observing and measuring
- Using books, videos, the internet, people and photos to find answers
- Recording information
- Looking for patterns sorting and grouping
- Explaining results saying what we have found



Yea	Autumn	Spring	Summer
r A			
	Animals including humans	<u>Plants</u>	Living things and their habitats
	Identify and name a variety of common animals	Observe and describe how seeds and bulbs grow into	Explore and compare the differences between
	including fish, amphibians, reptiles, birds and	mature plants.	things that are living, dead, and things that have
	mammals.	Find out and describe how plants need water, light and	never been alive.
	Identify and name a variety of common animals	a suitable temperature to grow and stay healthy.	Identify that most living things live in habitats to
	that are carnivores, herbivores and omnivores.	Identify and name a variety of common wild and	which they are suited and describe how different
	Describe and compare the structure of a variety	garden plants, including deciduous and evergreen	habitats provide for the basic needs of different
	of common animals (fish, amphibians, reptiles,	trees.	kinds of animals and plants, and how they depend
	birds and mammals, including pets).	Identify and describe the basic structure of a variety of	on each other.
	Identify, name, draw and label the basic parts of	common flowering plants, including trees.	Identify and name a variety of plants and animals
	the human body and say which part of the body		in their habitats, including microhabitats.
	is associated with each sense.		Describe how animals obtain their food from
	Notice that animals, including humans, have		plants and other animals, using the idea of a
	offspring which grow into adults.		simple food chain, and identify and name
	Find out about and describe the basic needs of		different sources of food.
	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.

Key vocabulary:

Words I already know from Early Years and will use in this topic:

Grow, growing, growth, tall, height, weight, length, baby, child, teenager, adult, elderly, life cycle, tadpole, froglet, frog, eggs, chrysalis, butterfly, caterpillar, see, hear, smell, touch, taste, senses, healthy

New vocabulary:

scales, claw, fin, feathers, fur, beak, hooves, senses (touch, see, smell, taste, hear), offspring, growth, survival, heartbeat, breathing, hygiene, germs, disease, food types, herbivore, omnivore, carnivore

Key vocabulary:

Words I already know from Early Years and will use in this topic:

Garden, tree, flower, stem, petal, leaf, roots, water, light, grow, seed, bulb, blossom, trunk, branch, bark, sunflower, daffodil, daisy, poppy, shade, sun, warm, cool, spring, summer, autumn, winter, soil

New vocabulary:

fruit, berry, root, seed, stalk, bud, names of local trees, names of garden and wild flowering plants in Reed, light, space, healthy, bulb, germinate, shoot, seedling

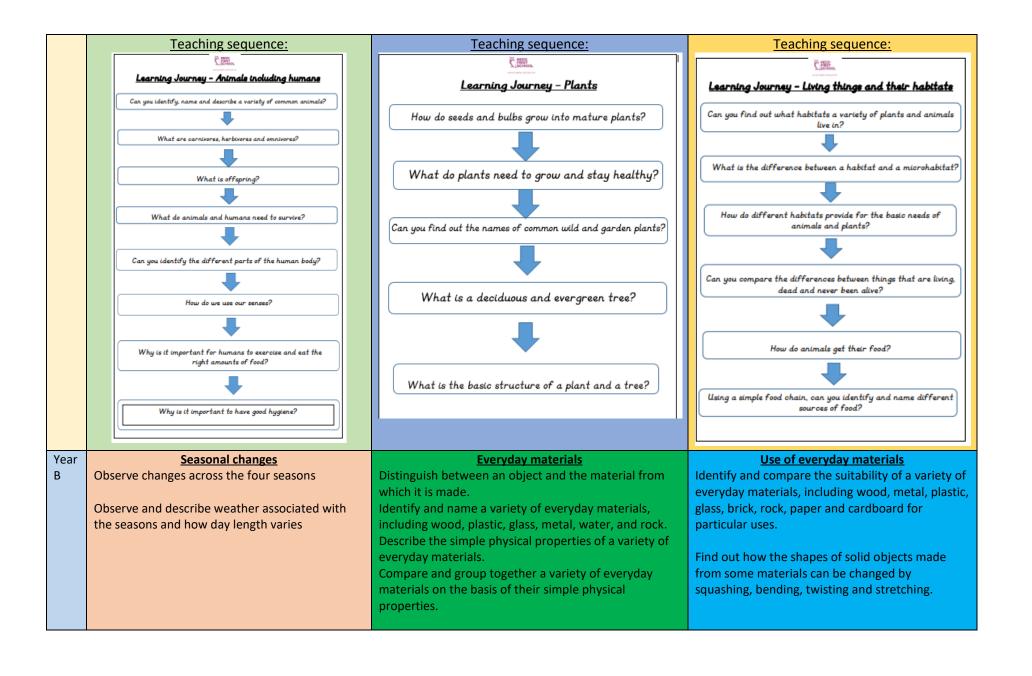
Key vocabulary:

Words I already know from Early Years and will use in this topic:

Grow, growing, growth, tall, height, weight, length, baby, child, teenager, adult, elderly, life cycle, tadpole, froglet, frog, eggs, caterpillar, chrysalis, butterfly, see, hear, smell, touch, taste, senses

New vocabulary:

living, dead, never been alive, suited, suitable, basic needs, food chain, shelter, move, names of local habitats (for example, pond, woodland), names of micro-habitats (for example, under logs, in bushes), conditions, shady, sunny, damp, names of living things in the habitats and microhabitats studied



Key Vocabulary:

Words I already know from Early Years and will use in this topic:

Autumn, Spring, Summer, Winter, fog, frost, snow, shade, sun, warm, cool, hail, season, buds, blossom, bare tree, colour, change, orange, brown, difference, day length, dark, light, weather, sunny, rainy, raining, windy, cold, hot, snowy, cloudy

New vocabulary:

shower, storm, thunder, lightning, sleet, icy, puddles, rainbow, sunrise, sunset,

Key Vocabulary:

Words I already know from Early Years and will use in this topic:

clear, see through, hard, soft, shiny, smooth, rough, prickly, bumpy, wood, plastic, metal, glass, fabric, hot, cold, wet, dry, melt, freeze

New vocabulary:

Object, material, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, dull, transparent, translucent, opaque

Key Vocabulary:

Words I already know from Early Years and will use in this topic:

clear, see through, hard, soft, shiny, smooth, rough, prickly, bumpy, wood, plastic, metal, glass, fabric, hot, cold, wet, dry, melt, freeze

New vocabulary:

Opaque, transparent, translucent, reflective, nonreflective, flexible, rigid, shape, pushing, pulling, twisting, squashing, bending, stretching

Teaching sequences:

Learning Journey - Seasonal Changes

What changes happen across the four seasons?

How can you describe the weather associated with autumn and winter?

How can you describe the weather associated with spring and summer?

How does the day length vary over the year?

Teaching sequences:

<u>Learning Journey - Everyday materials</u>

Can you identify and name a variety of everyday materials?

Can you describe the physical properties of a variety of everyday materials?

Can you find different ways to compare everyday materials?

Can you find out what materials different objects are made from?

Teaching sequences:

REED FIRST SCHOOL

Learning Journey - Uses of everyday materials

What different uses do materials have?



Can you find out and compare what materials are more suitable for a particular use than others?



How can the shape of some solid materials be changed?

Continuous learning throughout Year A and Year B:

Children in KS1 will have opportunities to further their Science understanding through:

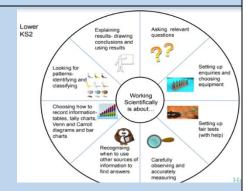
- Learning about scientists and people who's jobs connect to Science
- Weekly Forest School sessions have been planned to incorporate Science elements
- Science exploration area in the classroom
- Access to non-fiction Scientific books

Key Stage Two

Our Key Stage Two curriculum follows the National Curriculum. Using The Association for Science Education, we have identified the key skills and knowledge we ensure our pupils reach by the end of Year 4 in order to access the upper Key Stage 2 curriculum when they move into Year 5.

Each lesson sees at least one focus on working scientifically:

- Asking relevant questions
- Setting up enquiries and choosing equipment
- Setting up fair tests with help



- Carefully observing and accurately measuring
- Recognising when to use other sources of information to find answers
- Choosing how to record information tables, tally charts,
 Venn and Carroll diagrams and bar charts
- Looking for patterns identifying and classifying
- Explaining results drawing conclusions and results

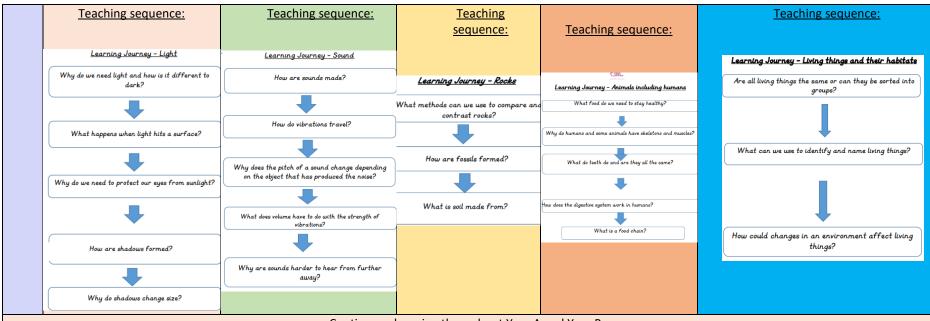
Yea	Autumn		Spring	Summer
r A				
	States of Matter Forces		<u>Plants</u>	<u>Electricity</u>
	Compare and group materials Compare how things move		Identify and describe the functions of different parts	Identify common appliances that run on
	together, according to on different surfaces		of flowering plants: roots, stem/trunk, leaves and	electricity
	whether they are solids, Notice that some forced		flowers	Construct a simple series electrical
	liquids or gases need contact between 2		Explore the requirements of plants for life and	circuit, identifying and naming its basic
	Observe that some materials objects, but magnetic forces		growth (air, light, water, nutrients from soil, and	parts, including cells, wires, bulbs,
	change state when they are can act at a distance		room to grow) and how they vary from plant to	switches and buzzers
	heated or cooled, and Observe how magnets attract		plant	Identify whether or not a lamp will light
	measure or research the or repel each other and		Investigate the way in which water is transported	in a simple series circuit, based on
	temperature at which this attract some materials and		within plants	whether or not the lamp is part of a
	happens in degrees Celsius not others			complete loop with a battery
	(°C)			

Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	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	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	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
Key Vocabulary Key Vocabulary		<u>Key Vocabulary</u>	Key Vocabulary
		Words I already know from Early Years and Key	
Words I already know from New vocabulary:		Stage 1 I will use in this topic:	<u>New vocabulary:</u>
Early Years and Key Stage 1 Force, push, pull, twist,		Garden, tree, flower, stem, petal, leaf, roots, water,	Electricity, electrical appliance/device,
will use in this topic: contact force, non-contact		light, grow, seed, bulb, blossom, trunk, branch, bark,	mains, plug, electrical circuit, complete
hot, cold, melt, freeze force, magnet, strength, bar		sunflower, daffodil, daisy, soil, poppy, shade, sun,	circuit, component, cell, battery,
magnet, ring magnet, button		warm, cool, spring, summer, autumn, winter, fruit,	positive, negative, connections, loose
New vocabulary: magnet, horseshoe magnet,		berry, root, seed, stalk, bud, names of local trees,	connection, short circuit, crocodile clip,
Solid, liquid, gas, heating,	attract, repel, magnetic	names of garden and wild flowering plants in Reed,	bulb, switch, buzzer, motor, conductor,
cooling, state, change, material, metal, iron, steel,		light, space, healthy, bulb, germinate, shoot,	insulator, metal, non-metal, symbol,
melting, freezing, melting poles, north pole, south pole,		seedling	wire
point, boiling, boiling point, surfaces, contact, distance,		New Vocabulary:	
evaporation, condensation,	non-magnetic	Photosynthesis, pollen, insect/wind pollination,	
temperature, water cycle		male, female, seed formation, seed dispersal (wind,	
		animal and water dispersal), air, nutrients, minerals,	
		soil, absorb, transport, ballistic	

	Teaching sequence:	<u>Teaching sequence:</u>	<u>Teaching sequence:</u>		<u>Teaching sequence:</u>
	<u>Learning Journey - States of Matter</u>	Learning Journey - Forces	Learning Jo	ourney - Plants	<u> Learning Journey – Electricity</u>
	How would we compare and group a range of different materials?	Why do some forces need contact between two objects, but magnetic forces can act at a distance?		ring plant can you identify e their functions?	What appliances do you know, that run on electricity?
	What have forward and add to the	•		<u> </u>	•
	Why do some forces need contact between two objects, but magnetic forces can act at a distance?	Why do magnets attract or repel each other?			
	•	•	What part do flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal?	What materials make good conductors and insulators?	
	What part is played by evaporation and condensation in the water cycle?	Why do magnets attract some materials but not others?			•
	•	•	How is water tr	unsported in plants?	What equipment would you need to create a simple
	What would make a liquid evaporate faster or slower?	How do different surfaces affect the way things move?			electrical circuit?
			What do plants need for life and growth?		•
					Can you create a simple electrical circuit that will turn a lamp on?
					•
					What would you add to a circuit to turn a light on and off again?
ear	<u>Light</u>	Sound	<u>Rocks</u>	Animals including	Living things and their habitats
В	Recognise that they need light in order to see things	Identify how sounds are made, associating some of	Compare and group together different kinds	Humans Describe the simple	Recognise that living things can be grouped in a variety of ways
	and that dark is the absence of light	them with something vibrating	of rocks on the basis of their appearance and	functions of the basic parts of the digestive	Explore and use classification keys to help group, identify and name a variety
	Notice that light is reflected from surfaces	Recognise that vibrations from sounds travel through a medium to the ear	simple physical properties	system in humans	of living things in their local and wider environment

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	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	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	Identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey 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	Recognise that environments can change and that this can sometimes pose dangers to living things
Key vocabulary New vocabulary: Light, light source, dark, absence of light, surface, shadow, reflect, mirror, sunlight, dangerous, patterns	Key vocabulary New vocabulary: Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, quiet, loud, insulation, medium, ear	New vocabulary: Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (peaty, sandy, chalky, clay)	words I already know from Early Years and KS1 that I will use in this topic: Grow, growing, growth, tall, height, weight, length, baby, child, teenager, adult, elderly, life cycle, tadpole, froglet, frog, eggs, chrysalis, butterfly, caterpillar, see, hear, smell, touch, taste, senses, healthy, scales, claw, fin, feathers, fur, beak, hooves, food chain,	Key vocabulary Words I already know from Early Years and KS1 that I will use in this topic: Grow, growing, growth, tall, height, weight, length, baby, child, teenager, adult, elderly, life cycle, tadpole, froglet, frog, eggs, caterpillar, chrysalis, butterfly, see, hear, smell, touch, taste, senses, living, dead, never been alive, suited, suitable, basic needs, food chain, shelter, move, names of local habitats (for example, pond, woodland), names of micro-habitats (for example, under logs, in bushes), conditions, shady,

		senses (touch, see, smell, taste, hear), offspring, growth, survival, heartbeat, breathing, hygiene, germs, disease, food types, herbivore, omnivore, carnivore New vocabulary Nutrients, nutrition, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine, digestive system, digestion, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, incisor, canine, molar, premolar, producer, prey, predator	sunny, damp, names of living things in the habitats and microhabitats studied Key vocabulary: classification, classification keys, environment, human impact, positive, negative, migrate, hibernate, vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects



Continuous learning throughout Year A and Year B:

 $\label{thm:children} \textbf{Children in KS2 will have opportunities to further their Science understanding through:}$

- Learning about scientists
- Weekly Forest School sessions have been planned to incorporate Science elements
- Science exploration area in the classroom
- Access to non-fiction Scientific books