

Cycle A	Identity and Diversity	Peace and Conflict	Social Justice	Environment	Our Heritage and Our World and Beyond
KS1	Stop! That's not my story.	Ganesha's Sweet Tooth	Mae Jemison	Somebody Swallowed Stanley	Kings and Queens
	Where did railway go? Where is Heath?	What is it like to live in India?	Who has visited space?	What is the weather like today? Which materials end up in the sea?	What is the role of our monarch? Which plants would the King find in his garden?
LKS2	Stone Age Boy	Escape From Pompeii	Earth Shattering Events	Greta's Story	Beowulf
	Who first lived in Britain? What can we learn from rocks?	What did we learn from the Romans? What do we know about the bodies of animals including humans?	What makes the earth angry? How do surfaces and materials impact movement and magnetic interactions?	Where would you choose to build a city? How does global warming impact living things, their classification, and their environments?	How did England change during the settlement of Anglo-Saxons, Vikings and Scots? How do solids, liquids, and gases behave and change in our everyday lives? Why don't we run out of water?
UKS2	The Golden Horsemen of Baghdad	Who Let The Gods Out?	I am Malala	The Tin Forest	Treason
	What happened during the rise and fall of the early Islamic civilization? Can you feel the force?	What was life like in Ancient Greece? Where is Greece?	How have living things changed and adapted over time? How do living things grow, reproduce, and differ from one another?	I'm a Heath Primary pupil, how do I find my way out of here?	What impact did the Tudors have on my life? What is the structure of our solar system?

Cycle B	Identity and Diversity	Peace and Conflict	Social Justice	Environment	Our Heritage and Our World and Beyond
KS1	Martha Maps	Where The Poppies Now Grow	Courageous People Who Changed Our World	Tinga Tanga Tales	Oliver Twist
	Where in the world? Why are humans not like other animals?	What makes a nurturing nurse? What happens during different seasons?	Who made our world great? How do animals grow and stay healthy?	What is it like to live in Africa? How do animals grow and stay healthy?	What was life like for a child at Heath during the Victorian era? What makes our world?
LKS2	Being you – Poems of Positivity.	Poppy Field	A Street Through Time	Wild Way Home	Egyptian Cinderella
	How are light and sound made?	Why was Remembrance so important?	Why is Sheffield such a cool place to live?	What can I find out about my local area? How do plants grow, reproduce, and survive in their environment?	What do all ancient civilisations have in common? Why is electricity so useful?
UKS2	Pig-Heart Boy	Once	The Boy Who Harnessed The Wind.	Journey to the river sea	The Kite Rider
	How does my area differ to others? How does my body keep me alive?	What was Hitler's role in WW2? What makes up a material?	How can we tell the time? How can electricity make things brighter and louder?	Why should rainforests be important to us all?	What was the Shang Dynasty? How does light help me see?



Spring Term		Environment	
<p align="center">Which materials end up in the sea?</p> <p align="center">Distinguish between an object and the material from which it is made.</p> <ul style="list-style-type: none">- Identify and name a variety of everyday materials, including wood, metal, plastic, glass, water and rock,- Describe the simple physical properties of a variety of everyday materials. <p>- Compare and group together a variety of everyday materials on the basis of their simple properties.</p> <p>- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>- Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>			
Substantive Knowledge		Procedural Knowledge	Key Vocabulary
<p>What objects do we use every day that might end up in the sea, and what materials are they made from?</p> <ul style="list-style-type: none">- Know that everyday objects like plastic bottles, metal cans, wooden sticks, and glass jars are made from materials like plastic, metal, wood, and glass, respectively.- Know that objects can be identified based on the materials we see and feel. <p>Can we feel and describe what some different materials are like?</p> <ul style="list-style-type: none">- Know that materials can have different textures and physical properties; for example, plastic is usually smooth, wood can be rough, and metal is hard.- Know that some physical properties to describe materials include hard, soft, smooth, rough, shiny, and dull. <p>Can we sort some everyday objects into groups based on the material they are made from?</p> <ul style="list-style-type: none">- Know that sorting helps us understand that different objects can be grouped based on the material they are made from.- Recognising materials: Plastic is often found in many toys and packaging, metal is found in cans and tools, wood is in furniture and pencils, and glass is in windows and bottles. <p>Why do we use certain materials to make specific objects?</p> <ul style="list-style-type: none">- Know that materials are chosen for objects based on their properties and suitability; for example, plastic is lightweight and doesn't break easily, making it suitable for water bottles.- Know that metal is strong and durable, which makes it suitable for cans that hold food and drink. <p>What happens to different materials when we try to bend, squash, twist, or stretch them? Can we find out which ones change shape easily?</p> <ul style="list-style-type: none">- Know that some materials are flexible and can easily be bent or twisted without breaking, like plastic or certain metals.- Know that other materials are rigid and can break or crack when force is applied, like glass or some rocks. <p>Which materials from the objects we use the most might float or sink in water, and how does this help us understand what ends up in the sea?</p> <ul style="list-style-type: none">- Know that lightweight materials like plastic often float in water, while heavier materials like metal usually sink.		<p>Use senses of see, touch, smell, hear or taste to help them answer questions.</p> <p>Observe and compare several things whilst recognising when doing so might not be fair.</p> <p>Carry out comparative tests.</p> <p>With support find things out using secondary sources.</p> <p>Talk about what they have found out and how they found it out.</p>	<p>Hard</p> <p>Soft</p> <p>Smooth</p> <p>Rough</p> <p>Shiny</p> <p>Dull</p> <p>Materials</p> <p>Properties</p> <p>Plastic</p> <p>Glass</p> <p>Metal</p> <p>Wood</p> <p>Suitable</p> <p>Bend</p> <p>Squash</p> <p>Twist</p> <p>Stretch</p> <p>Float</p> <p>Sink</p>





Summer Term			Our Hertiage and Our World and Beyond		
Which plant would the King find in his garden?					
NC - 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.					
- Identify and name the roots, trunk, branches and leaves of trees. - Observe and describe how seeds and bulbs grow into mature plants.					
- Find out and describe how plants need water, light and warmth to grow and stay healthy.					
Substantive Knowledge		Procedural Knowledge		Key Vocabulary	
<p>What are some common plants and trees and which might find in the King’s garden?</p> <p>- Know that common garden plants include roses, tulips, and daisies.</p> <p>- Know that common wild plans include nettles, buttercups and dandelions.</p> <p>- Know that common trees include oak and hawthorn (deciduous) and pine (evergreen).</p> <p>Can we identify parts of different plants in the King’s garden and describe what they look like?</p> <p>- Know that flowering plants have parts like petals, stems, leaves, and roots.</p> <p>- Know that each part plays a role, like stems support the plant, and leaves help with getting sunlight, roots absorb the nutrients and the stems hold the leaves/petals.</p> <p>What are the parts of a tree, and where can we find the roots, trunk, branches, and leaves?</p> <p>- Know that roots anchor the tree and absorb water and nutrients from the soil.</p> <p>- Know that the trunk supports the tree and carries nutrients between the roots and leaves.</p> <p>- Know that branches grow out from the trunk and hold the leaves.</p> <p>How do seeds and bulbs grow into mature plants that the King might find in his garden?</p> <p>- Know that all plants and trees start out as seeds or bulbs.</p> <p>- Know that seeds sprout into seedlings and then grow into mature plants.</p> <p>- Know that bulbs, like those of tulips, grow underground and bloom above ground.</p> <p>What do plants in the King’s garden need to grow strong and healthy?</p> <p>- Know that plants need water to stay hydrated and transport nutrients.</p> <p>- Know that plants need light (usually sunlight) to produce food.</p> <p>- Know that plants need warmth to grow efficiently; too cold or too hot can affect growth.</p>		Observe changes over time.		Common	
		Notice similarities, differences and patterns.		Wild	
		Group and classify.		Evergreen	
		Ask relevant questions about scientific enquiry.		Deciduous	
		Show their work using pictures, labels and captions.		Petal	
				Stem	
				Leaves	
				Roots	
				Branches	
				Nutrients	
				Trunk	
				Seeds	
				Seedlings	
				Bulb	
				Water	
				Light	
				Warmth	



Autumn Term		Identity and Diversity	
<p>Why are humans not like other animals?</p> <p>NC - 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</p> <p>-Describe and compare the structure of a variety of animals. (fish, amphibians, reptiles, birds and mammals including pets)</p> <p>Identify, name, draw and label the basic parts of the human body and say which parts of the body is associated with each sense.</p>			
Substantive Knowledge	Procedural Knowledge	Key Vocabulary	
<p>Are humans animals?</p> <ul style="list-style-type: none">- Know the names of different types of animals: mammal, amphibian, reptile, bird, fish.- Identify and name some common animals. <p>How am I different to other animals?</p> <ul style="list-style-type: none">- Know there are many different animals with different characteristics and structures. <p>Why do animals have certain body parts?</p> <ul style="list-style-type: none">- Know that animals have senses to help them survive, when animals sense things they are able to respond. <p>What do animals eat?</p> <ul style="list-style-type: none">- Know that animals need food to survive.- Know that herbivores eat plants, carnivores eat other animals and omnivores eat animals and plants.	<p>Use prompts to ask relevant questions about a scientific enquiry.</p> <p>Pupils should read and spell scientific vocabulary at a level consistent with their increasing word and spelling knowledge.</p> <p>Refer to and use specific scientific vocabulary for their year group.</p>	<p>animals</p> <p>leg</p> <p>living</p> <p>wing</p> <p>see</p> <p>smell</p> <p>taste</p> <p>paws</p> <p>fur</p> <p>claws</p> <p>mammal</p> <p>fish</p> <p>Reptile</p> <p>swim</p> <p>run</p>	<p>head</p> <p>body</p> <p>beak</p> <p>senses</p> <p>hear</p> <p>touch</p> <p>hands</p> <p>feathers</p> <p>scales</p> <p>talons</p> <p>bird</p> <p>amphibian</p> <p>fly</p> <p>crawl</p> <p>climb</p>



Autumn Term		Peace and Conflict
<p>What happens during different seasons?</p> <p>NC - Observe changes across the four seasons</p> <p>- Observe and describe weather associated with the seasons and how day length varies.</p> <p>Weather patterns will be observed in EYFS as a basis for this topic.</p>		
Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>-Know that each year we experience these four seasons.</p> <p>Why are there so many leaves on the ground in autumn?</p> <ul style="list-style-type: none"> - Know that autumn usually happens in September, October and November and the light days get shorter. - Know that leaves change colour and fall off the trees. <p>Why does it snow in winter?</p> <ul style="list-style-type: none"> - Know that spring is usually in December, January and February and that the weather is usually it the coldest and the days get darker earlier. <p>What will I see in spring?</p> <ul style="list-style-type: none"> - Know that spring is usually in March, April May and that it starts to get warmer and light days lasts longer. - Know that plants start to grow and many animals have babies. <p>Is it always hot in summer?</p> <ul style="list-style-type: none"> - Know that summer is usually in June, July and August it and it is when we see the warmest weather and longest light days. <p>Why can I see the sun for longer in the summer?</p> <ul style="list-style-type: none"> - Know that seasons are caused because the Earth is spinning on a tilt so different parts of the world are closer to the sun at different times of the year. 	<p>Pupils should read and spell scientific vocabulary at a level consistent with their increasing word and spelling knowledge.</p> <p>Refer to and use specific scientific vocabulary for their year group.</p> <p>Discuss and describe what they can see, touch, smell, hear or taste.</p>	<p>Spring</p> <p>Summer</p> <p>Autumn</p> <p>Winter</p> <p>Change</p> <p>Weather</p>





Spring Term		Social Justice	
How do animals grow and stay healthy?			
Know that animals, including humans, have offspring which grow into adults. - Know the basic stages in a life cycle for animals, including humans. - Find out 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.			
Substantive Knowledge	Procedural Knowledge	Key Vocabulary	
<p>Do all animals have offspring?</p> <p>- Know and describe a life-cycle for each type of animal: mammal, amphibian, reptile, bird, fish.</p> <p>What do all animals need to survive?</p> <p>- Know that water, food and air are an animal’s basic need in order to survive.</p> <p>Which foods should I eat everyday?</p> <p>- Know the different types of food: protein, carbohydrates, fats and sugars, dairy, fruit and vegetables.</p> <p>- Know that a balanced diet consists of varied amounts of the different food types.</p> <p>Why is it important to wash my hands?</p> <p>- Understand how to keep clean through good hygiene and how this keeps you healthy.</p> <p>Do I have to exercise everyday?</p> <p>- Know different types of exercise and the recommended daily amount.</p> <p>- Know that regular exercise keeps us healthy.</p>	<p>Observe changes over time.</p> <p>Notice similarities, differences and patterns.</p> <p>Group and classify.</p> <p>Pupils should read and spell scientific vocabulary at a level consistent with their increasing word and spelling knowledge.</p> <p>Refer to and use specific scientific vocabulary for their year group.</p>	<p>basic needs</p> <p>diet</p> <p>exercise</p> <p>hygiene</p> <p>illness</p> <p>medicine</p> <p>Offspring</p> <p>Survive</p> <p>seven basic needs – movement, respiration, sensitivity, growth, reproduction, excretion and nutrition</p>	



Spring Term		Environment	
Why are humans not like other animals?			
<div>-Explore and compare the difference between things that are living, dead and things that have never been alive.</div> <div>- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</div> <div>- Identify and name a variety of plants and animals in their habitats, including micro habitats.</div> <div>- Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food</div>			
Substantive Knowledge		Procedural Knowledge	Key Vocabulary
<div>How can we tell if something is living?</div> <div><div>- Know the 7 life processes:</div><div>Movement: Things that can wiggle, walk, or wave about on their own.</div><div>Respiration: Breathing or using air to get energy.</div><div>Sensitivity: Responding to touch, light, or sound – like when you tickle a plant and it moves.</div><div>Growth: Getting bigger and taller.</div><div>Reproduction: Making more of their own kind, like baby animals or seeds.</div><div>Excretion: Getting rid of waste, like going to the loo!</div><div>Nutrition: Eating food or, for plants, getting sunlight and water to stay healthy.</div></div> <div>What is a habitat?</div> <div><div>- Know that a habitat is where an animal or plant lives and where it’s basic needs are met.</div><div>- Know that the basic needs of an animal or plant are food and water. Animals need shelter and plants need light.</div></div> <div>Can you match an animal to its habitat?</div> <div><div>- Know that plants are animals are best suited to certain habitats.</div><div>- Know that a microhabitat is a small habitat within a large habitat.</div></div> <div>Mammals: Found in a wide range of habitats, including forests, grasslands, deserts, and polar regions.</div> <div>Birds: Can inhabit skies, trees, water bodies and ground; found almost everywhere from rainforests to deserts and oceans.</div> <div>Fish: Mainly found in aquatic habitats like oceans, rivers, lakes, and ponds.</div> <div>Amphibians: Generally live in or near water bodies for part of their life, often inhabiting wetlands and forests.</div> <div>Reptiles: Mostly found in warmer climates like deserts, rainforests, and marshlands but can be found in various habitats.</div> <div>Insects: Inhabit virtually all environments, including water, soil, trees, and even the air.</div> <div>What is a food chain?</div> <div><div>- Know that a food chain is a sequence in which animals obtain their food.</div><div>- Know that a food chain starts with a producer which is usually a plant and then there are primary and secondary consumers depending on the length of the food chain.</div></div>		<div>Ask relevant questions about scientific enquiry.</div> <div>Pupils should read and spell scientific vocabulary at a level consistent with their increasing word and spelling knowledge.</div> <div>Refer to and use specific scientific vocabulary for their year group.</div>	<div>alive</div> <div>dead</div> <div>Living</div> <div>Movement</div> <div>Respiration</div> <div>Sensitivity</div> <div>Growth</div> <div>Reproduction</div> <div>Excretion</div> <div>Nutrition</div> <div>habitat</div> <div>microhabitat</div> <div>conditions</div> <div>adapted</div> <div>food chain</div> <div>omnivore</div> <div>herbivore</div> <div>carnivore</div>



Identity and Diversity

What can we learn from Rocks?

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock
- Recognise that soils are made from rocks and organic matter.

Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>How can we classify rocks based on their appearance and composition?</p> <ul style="list-style-type: none"> - Know that rocks can be classified based on their texture (e.g., grain size), colour, and mineral content. - Know that different rocks have unique physical properties (e.g., hardness, luster). <p>What are the main differences between igneous, sedimentary, and metamorphic rocks?</p> <ul style="list-style-type: none"> - Know that igneous rocks are formed from the cooling of magma or lava and are typically hard and granular. - Know that sedimentary rocks are formed from the accumulation of sediments and often have layers and may contain fossils. - Know that metamorphic rocks are formed from existing rocks under high pressure and temperature. <p>What process leads to the formation of fossils within sedimentary rocks?</p> <ul style="list-style-type: none"> - Know that fossil formation begins when organisms are buried quickly by sediments. - Know that over time, layers of sediments build up, increasing pressure and causing mineralisation. - Know that minerals replace organic material, turning remains into stone and preserving them as fossils. <p>Why do sedimentary rocks often contain fossils while igneous and metamorphic rocks typically do not?</p> <ul style="list-style-type: none"> - Know that sedimentary rocks form in environments where organisms live and die, allowing their remains to be quickly buried and preserved. - Know that igneous rocks form from the cooling of molten rock, which would destroy any organic material. - Know that metamorphic rocks form under extreme heat and pressure, conditions that also destroy organic remains. <p>How do weathering and erosion contribute to soil formation?</p> <ul style="list-style-type: none"> - Know that weathering is the breaking down of rocks into smaller particles by physical, chemical, or biological processes. - Know that erosion involves the transport of these particles by wind, water, or ice. - Know that weathered rock particles mix with organic matter from decaying plants and animals to form soil. 	<p>Group and classify.</p> <p>Choose from a range of examples and carry out comparative and fair tests</p> <p>Ask relevant questions to answer different types of scientific enquiry.</p>	<p>Igneous</p> <p>Sedimentary</p> <p>Metamorphic</p> <p>Fossil</p> <p>Mineral</p> <p>Sediments</p> <p>Mineralisation</p> <p>Organic</p> <p>Organisms</p> <p>Molton Rock</p> <p>Particles</p> <p>Weathering</p> <p>Formation</p> <p>Decaying</p>



Autumn Term	Peace and Conflict
<p>What do we know about the bodies of animals including humans?</p> <ul style="list-style-type: none"> - Identify that humans and some other animals have skeletons and muscles for support, protection and movement. - Describe the digestive system in humans. - Identify the different types of teeth in humans and their simple functions. - Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat. 	
Substantive Knowledge	Key Vocabulary
<p>What is a skeleton?</p> <ul style="list-style-type: none"> - Know that skeletons are made up of lots of different bones. - Know that skeletons support our bodies; protect our organs and help us to move. - Know that mammals, birds, fish, amphibians and reptiles have skeletons. - Know that not all animal skeletons are the same. - Know that some animals do not have skeletons, such as worms, slugs, jellyfish and octopus <p>Why do we need bones?</p> <ul style="list-style-type: none"> - Know that bones have specific functions: <ul style="list-style-type: none"> ➤ The skull protects the brain. ➤ The femur helps humans to stand and move. ➤ The pelvis helps to support the spine. ➤ The spine helps humans to twist and be held upright. ➤ The ribcage protects the heart and lungs. brain, heart, lungs . <p>Why do we need muscles?</p> <ul style="list-style-type: none"> - Know that muscles are attached to bones to help them move. - Know that muscles work in pairs to help bones move. - Know that muscles contract and shorten or relax and lengthen. <p>Why do animals need to eat?</p> <ul style="list-style-type: none"> - Know that animals cannot produce their own food and they need to eat to stay alive. - Know that nutrients are substances found in food. - Know that there are seven nutrients: carbohydrates, fibre, fats, protein, vitamins, minerals and water. - Know the that the right types and amount of nutrition allows us to grow and stay healthy. 	<p>skeletons, bones, support, protect, move, skull, spine, ribcage, pelvis, femur, brain, heart, lungs, muscles, contract, shorten, relax, lengthen</p> <p>Vitamins, carbohydrates, protein, calcium, fats nutrients, nutrition, carbohydrates, fibre, fats, protein, vitamins, minerals and water, mouth, saliva, oesophagus, stomach, small intestine, large intestine, incisors, canines, pre-molars, molars.</p>



Autumn Term		Peace and Conflict
What do we know about the bodies of animals including humans? (page 2)		
<ul style="list-style-type: none">- Identify that humans and some other animals have skeletons and muscles for support, protection and movement.- Describe the digestive system in humans.- - Identify the different types of teeth in humans and their simple functions.- Identify that animals, including humans, need the right types and amount of nutrition, and they cannot make their own food; they get their nutrition from what they eat.		
Substantive Knowledge		Procedural Knowledge
<p>What is a balanced diet?</p> <ul style="list-style-type: none">- Know that fruit and vegetables should make up one third of the food we eat to provide the body with essential vitamins, which help keep the body healthy and well.- Know that potato, bread, rice and pasta should make up one third of the food we eat as a good source of energy.- Know that the rest of the food we eat should be made up of a balance of dairy and alternatives and beans, pulses, meat, fish, eggs and alternatives- Know that beans, pulses, meat, fish and eggs provide the body with protein, which helps with muscle growth and repair.- Know that dairy provides calcium which is good for teeth and bones.- Know that oils and spread should make up the smallest amount of what we eat. These contain healthy fats for energy.- Know that foods high in unhealthy fats and sugars should be eaten less often and in small amounts. <p>What do our teeth do?</p> <ul style="list-style-type: none">- Know that humans have 4 different types of teeth. <p>Incisors: These are the sharp, flat front teeth (four on the top and four on the bottom, so eight in total). Their job is to cut food into smaller pieces.</p> <p>Canines: These are the pointed teeth next to the incisors (two on the top and two on the bottom, so four in total). They are a bit like fangs and are used to tear food.</p> <p>Premolars: These teeth are located behind the canines (four on the top and four on the bottom, so eight in total). They are bigger and have a flat surface with ridges, and they help to crush and grind food into smaller, chewable pieces.</p> <p>Molars: These are the biggest teeth at the back of the mouth (six on the top and six on the bottom, so twelve in total). They have flat surfaces with ridges and are used for grinding and crushing food to make it small enough to swallow.</p> <p>How do we digest our food?</p> <ul style="list-style-type: none">- Know the functions of the main parts of the digestive system. <p>Mouth: When you eat, you chew your food in your mouth, making it smaller. Your spit (saliva) starts to break it down.</p> <p>Oesophagus: After you chew, you swallow your food, and it goes down a tube (oesophagus) to your stomach.</p> <p>Stomach: In your stomach, the food gets mixed up with liquid in your stomach.</p> <p>Small Intestine: This goes into a long tube called the small intestine. Here, your body adds more liquids to break the food into tiny bits. Your body then takes in the nutrients from the food.</p> <p>Large Intestine: The leftover bits that your body doesn't need go into another tube called the large intestine. This tube takes out extra water and makes the waste more solid.</p>		Use a range of secondary sources to find information.



Spring Term		Social Justice	
How do surfaces and materials impact movement and magnetic interactions?			
NC - compare how things move on different surfaces - notice that some forces need contact between two 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 two poles - predict whether two magnets will attract or repel each other, depending on which poles are facing.			
Substantive Knowledge		Procedural Knowledge	Key Vocabulary
<p>How does the type of surface affect the movement of objects?</p> <ul style="list-style-type: none">- Know that objects move more easily on smooth surfaces because there’s less resistance or friction.- Know that rough surfaces create more resistance, which makes it harder for objects to move. <p>What are contact forces, and how do they differ from magnetic forces?</p> <ul style="list-style-type: none">- Know that contact forces need two things to touch for them to work, like pushing a toy car.- Know that magnetic forces can make things move without touching them, like a magnet picking up a paperclip. <p>In what ways do magnets attract or repel each other?</p> <ul style="list-style-type: none">- Know that magnets stick together (attract) when their opposite ends (north and south) are close.- Know that magnets push away (repel) each other when their same ends (north-north or south-south) are close. <p>Which everyday materials are attracted to magnets, and why?</p> <ul style="list-style-type: none">- Know that things made of iron, like paperclips and some nails, are attracted to magnets.- Know that these materials stick to magnets because they have special tiny parts inside that line up with the magnet. <p>What are magnetic poles, and how do they influence magnet interactions?</p> <ul style="list-style-type: none">- Know that magnets have two ends called poles: a north pole and a south pole.- Know that the north pole of one magnet sticks to the south pole of another magnet, but two north poles or two south poles push away from each other.		<p>Perform simple comparative and fair tests and isolate variables.</p> <p>Carry out a fair test independently and in groups.</p> <p>Notice patterns and begin to explain them.</p> <p>Group and classify.</p> <p>Make and record a prediction based on prior knowledge.</p> <p>Set up simple comparative and fair tests and isolate variables.</p>	<p>Magnet</p> <p>Magnetic Field</p> <p>Pole (North Pole, South Pole)</p> <p>Attract</p> <p>Repel</p> <p>Friction</p> <p>Contact Force</p> <p>Non-Contact Force</p> <p>Force</p> <p>Magnetic Material</p> <p>Iron</p> <p>Metal</p> <p>Magnetic</p> <p>Opposite</p> <p>Same</p> <p>Smooth Surface</p> <p>Rough Surface</p> <p>Stick (to)</p> <p>Push</p> <p>Pull</p>



Spring Term			Environment
<p>How does global warming impact living things, their classification, and their environments?</p> <p>NC -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 danger to living things. - Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>			
Substantive Knowledge		Procedural Knowledge	Key Vocabulary
<p>How Can Living Things Be Grouped in Different Ways?</p> <ul style="list-style-type: none"> -Know that living things can be grouped into categories such as plants and animals, and further into subcategories like vertebrates and invertebrates. -Know that organisms are classified based on shared characteristics, such as body structure, reproduction methods, and feeding habits. <p>How Do We Use Classification Keys to Identify Living Things?</p> <ul style="list-style-type: none"> - Know that classification keys are tools that allow users to identify unknown organisms by answering a series of questions that lead to the correct name. <p>How Do Environmental Changes Affect Living Things?</p> <ul style="list-style-type: none"> - Know that environmental changes can be natural (like volcanic eruptions) or man-made (like deforestation and pollution). - Know that such changes can affect habitats, causing endangerment or extinction of species. <p>What Are Food Chains and How Do They Work?</p> <ul style="list-style-type: none"> - Know that a food chain starts with producers (plants) and ends with top predators, detailing the flow of energy from one organism to another. - Know that energy is transferred through different trophic levels: producers, primary consumers (herbivores), secondary consumers (carnivores), and tertiary consumers (top predators). <p>What Have We Learned About the Impact of Global Warming on Living Things?</p> <ul style="list-style-type: none"> - Know that global warming forces species to adapt, migrate, or face extinction due to changing environmental conditions. - Know that global warming disrupts food chains, leading to imbalances in ecosystems. 		<p>Group and classify.</p> <p>Ask relevant questions to answer different types of scientific enquiry.</p> <p>Record data using diagrams, labels, classification keys, tables.</p>	<p>Classification, Vertebrates, Invertebrates, Characteristics</p> <p>Classification Keys, Biodiversity, Identification</p> <p>Environmental Change, Natural Disasters, Habitat Loss, Endangerment</p> <p>Producers, Consumers, Predators, Trophic Levels, Energy Flow</p> <p>Adaptation, Migration, Extinction, Ecosystem</p> <p>Disruption, Global Warming</p>



Summer Term		Our Heritage and Our World and Beyond	
<p>How do solids, liquids, and gases behave and change in our everyday lives?</p> <p>-Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>- Observe that some materials change state when heated or cooled, and measure and research the temperature at which this happens in degrees Celsius.</p> <p>- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>			
Substantive Knowledge		Procedural Knowledge	Key Vocabulary
<p>What are Solids, Liquids, and Gases?</p> <p>- Know that solids have a definite shape and volume, liquids have a definite volume but take the shape of their container, and gases have neither a definite shape nor a definite volume.</p> <p>- Know that materials can be grouped based on their state of matter: solid, liquid, or gas.</p> <p>What happens to materials when they are heated or cooled?</p> <p>- Know that some materials change state when heated, such as ice melting into water (solid to liquid), and water boiling into steam (liquid to gas).</p> <p>- Know that cooling can reverse these changes, with steam condensing into water (gas to liquid) and water freezing into ice (liquid to solid).</p> <p>What temperatures cause materials to change state, and how do we measure them?</p> <p>- Know that the temperature at which water freezes into ice is 0 degrees Celsius, and the temperature at which water boils into steam is 100 degrees Celsius.</p> <p>- Know that we use a thermometer to measure temperature in degrees Celsius (°C).</p> <p>What is Evaporation and How Does It Happen?</p> <p>- Know that evaporation is the process by which a liquid changes into a gas.</p> <p>- Know that the rate of evaporation increases with higher temperatures.</p> <p>What is Condensation and How Does It Happen?</p> <p>- Know that condensation is the process by which a gas changes into a liquid.</p> <p>- Know that condensation occurs when the temperature of the gas decreases.</p> <p>Link with Geography unit on The Water Cycle.</p>		<p>Take measurements using different equipment and units of measure and record what they have found in a range of ways.</p> <p>Use a range of scientific equipment to take accurate measurements or readings.</p> <p>Record data using diagrams, labels, classification keys, tables, scatter graphs, bar graphs and line graphs.</p> <p>Interpret and present discrete and continuous data using graphical methods</p>	<p>Solid, Liquid, Gas, Shape, Volume</p> <p>Melting, Freezing, Condensation, Evaporation, Heating, Cooling</p> <p>Temperature, Degrees Celsius (°C), Thermometer, Freezing Point, Boiling Point</p> <p>Evaporation, Liquid, Gas, Temperature, Rate</p> <p>Condensation, Gas, Liquid, Temperature, Cooling</p>



Autumn Term		Identity and Diversity	
How are sound and light made? - 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 - 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.			
Substantive Knowledge	Substantive Knowledge	Procedural Knowledge	Key Vocabulary
Why is light important? - Know that we need light to see and without light source it is dark. How do mirrors work? - Know that beams of light bounce off some materials (reflection). - Know that shiny materials reflect light beams better than non-shiny materials. Is the sun dangerous? - Know that light from the sun is dangerous for eyes and skin. How are shadows made? - Know that transparent materials let light travel through them, and opaque materials don't let light through (causing shadows). How can I change my shadow? - Know that shadows can be changed with the position of the light source.	How are sounds made? - Know that sound is produced when an object vibrates. - Know that sound travels in all directions and spreads out as it travels. - Know that sound travel can be blocked. How does sound travel through my ear? - Know that parts of the ear(outer, middle, inner). - Know that sound moves through all materials by making it vibrate and we only hear it when it reaches our ears. What is volume? -Know that bigger vibrations produce louder sounds and smaller vibrations produce quieter sounds. What is pitch? - Know that faster vibrations (higher frequencies) produce higher pitched sounds.	Select relevant questions to answer different types of scientific enquiry. Use different ideas and suggest how to find something out. Make and record a prediction. Explain what data is required. Set up simple comparative and fair tests. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and knowledge skills. Refer to and use specific scientific vocabulary for their year group.	See reflection light block light source reflect eyes reflective travel mirror torch direction sun straight lines shadow transparent Opaque translucent pitch sound high source low quiet muffle loud tension ear particle soft air vibrate/vibration Travel volume



Spring Term		Environment
<p>How do plants grow, reproduce, and survive in their environment?</p> <p>NC - Identify and describe the functions of different parts of the flowering plant: roots, stem/trunk/leaves and flowers</p> <ul style="list-style-type: none"> - Explore the part flowers play in a flowering plants life cycle, including: pollination, seed formation and seed dispersal - Explain the requirements of plants for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary between plants - Know the way in which water is transported between plants 		
Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>Do plants have body parts?</p> <ul style="list-style-type: none"> - Know the parts of a plant and their functions. • Roots: Anchor the plant in the soil, absorb water and nutrients, and sometimes store food. • Stem/Trunk: Support the plant structure, transport water and nutrients between roots and leaves, and hold up the leaves towards the light. • Leaves: Carry out photosynthesis (the process by which plants use sunlight to create food), exchange gases (take in carbon dioxide and release oxygen), and transpire (release water vapour). • Flowers: Attract pollinators with their colour and scent, facilitate the reproduction process through pollination, which leads to seed formation. <p>What journey does a seed go on?</p> <ul style="list-style-type: none"> - Know the 3 main parts of a flowering plant's cycle. • Pollination: when pollen from one flower travels to another flower to help make seeds. • Seed Formation: After pollination, the flower starts making a seed. • Seed Dispersal: the seeds spread out and find new places to grow. Seeds can travel by wind, water, animals. <p>How can we make sure a plant can grow?</p> <ul style="list-style-type: none"> - Know that plants need air, light, water, nutrients from soil and room to grow. <p>How do plants transport water?</p> <ul style="list-style-type: none"> - Know that plants pull water up from the roots to the leaves. 	<p>Perform simple comparative and fair tests.</p> <p>Observe changes over different periods of time. Notice patterns. Group and classify. Follow and carry comparative and fair tests.</p> <p>Find things out using secondary sources.</p> <p>Explain why certain variables have been isolated.</p> <p>Observe changes over different periods of time.</p> <p>Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and knowledge skills.</p> <p>Refer to and use specific scientific vocabulary for their year group.</p>	<p>Roots Stem Trunk Leaves Photosynthesis Transpire Pollinators Pollination Pollen Formation Dispersal Nutrients Transport</p>



Summer Term

Our Heritage and Our World and Beyond

Why is electricity so useful?

NC -Identify common appliances that run on electricity. - Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. - Recognise that a switch opens and closes the 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. - Know the difference between a conductor and an insulator; giving examples of each.

Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>What is electricity?</p> <ul style="list-style-type: none"> - Know that electricity is a form of energy. - Know that many appliances (such as cookers, hairdryers, computers) run on electric power. - Know that electricity can be made using coal, gas and oil. - Know that electricity can be created through renewable sources (wind, solar, water). <p>How does electricity work?</p> <ul style="list-style-type: none"> - Electricity flows through a pathway to power an appliance. - Know the basic parts of a circuit: cells, wires, bulbs, switches, buzzers. <p>Why doesn't my circuit work?</p> <ul style="list-style-type: none"> - Know that circuits need to be part of a complete loops. - Know that switches can be used to open and close the electrical flow in a circuit. <p>What are insulators and conductors?</p> <ul style="list-style-type: none"> - Know that an insulator is a material that does not allow electricity to flow through it. - Know that a conductor is a material that does allow electricity to flow through it. <p>Which materials are best to use in a circuit?</p> <ul style="list-style-type: none"> - Know that metal is a conductor. - Know that paper, glass, wood, plastic and rubber are insulators. 	<p>Record their observations in different ways (labelled diagrams, charts etc.)</p> <p>Describe what they have found out using scientific language.</p> <p>Perform simple comparative and fair tests and isolate variables.</p> <p>Carry out a fair test independently and in groups.</p>	<p>Energy, appliances, mains powered, batteries, portable, renewable sources, solar, flow, circuit, cells, wires, bulbs, switches, buzzers, insulators, conductors, material</p>

Autumn Term
Identity and Diversity
Can you feel the force?

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object and the impact of gravity on our lives.
- Identify the effects of air resistance, water resistance and friction, which act between moving surfaces.
- Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>What is gravity and how does it work?</p> <ul style="list-style-type: none"> - Know that gravity is a force of attraction between two masses. - Know that Earth's gravity pulls objects towards its centre. - Know that Isaac Newton discovered gravity. <p>Know that gravitational pull can be measured using newton metres.</p> <p>What are air resistance, water resistance, and friction, and how do they affect the movement of objects?</p> <ul style="list-style-type: none"> - Know that air resistance (drag) is the force air exerts against a moving object. - Know that water resistance is the force water exerts against a moving object. - Know that friction is the force resisting the relative motion of solid surfaces sliding against each other. - Know that these forces can slow down or stop moving objects. <p>Experiment with air resistance, water resistance and friction linking to the procedural knowledge.</p> <p>How do levers, pulleys, and gears work?</p> <ul style="list-style-type: none"> - Know that levers change the direction and magnitude of a force. - Know that pulleys use wheels and ropes to change the direction of a force. - Know that gears transmit force between different parts of a machine, often multiplying the force or changing its direction. - Know that these mechanisms enable a smaller input force to lift heavier loads or move objects more easily. - Know that examples of levers include seesaws, crowbars, and scissors. - Know that pulleys are used in flagpoles, cranes, and elevators. - Know that gears are found in bicycles, clocks, and car engines. 	<p>Make precise measurements. Recognise, control variables accurately and fairly, including changes over different periods of time.</p> <p>Suggest how to improve their work and say why they think so.</p> <p>Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, pie charts and line graphs and models.</p> <p>Draw conclusions from their work. Report findings from investigations through written explanations and conclusions using appropriate scientific language.</p>	<p>Gravity, force, pull, newton metre, air resistance, water resistance, friction, drag, levers, pulleys, gears, direction, mechanism</p>



Spring Term		Social Justice	
<p>How do living things grow, reproduce, and differ from one another?</p> <p>Know the life cycle of different living things, e.g. mammal, amphibian, insect bird. - Know the differences between different life cycles. - Know the process of reproduction in plants - Classify living things into broad groups according to observable characteristics and based on similarities and differences. - Give reasons for classifying plants and animals based on specific characteristics</p>			
Substantive Knowledge		Procedural Knowledge	Key Vocabulary
<p>What Are the Life Cycles of Different Living Things?</p> <ul style="list-style-type: none">- Know that the life cycle of a mammal includes birth, growth, reproduction, and death.- Know that the life cycle of an amphibian, such as a frog, includes stages such as egg, tadpole, and adult.- Know that the life cycle of an insect, such as a butterfly, includes stages such as egg, larva (caterpillar), pupa (chrysalis), and adult (butterfly).- Know that the life cycle of a bird includes stages such as egg, chick, and adult bird. <p>What is the process of reproduction in plants?</p> <ul style="list-style-type: none">- Know that plants reproduce through a process that includes pollination, fertilisation, seed formation, and germination.- Know that pollination can occur by wind, water, or animals (such as bees). <p>How Can We Classify Living Things into Broad Groups based on specific characteristics?</p> <ul style="list-style-type: none">- Know that living things can be classified into groups such as plants, animals, fungi, bacteria, and protists.- Know that within the animal group, we can further classify into mammals, birds, reptiles, amphibians, and insects based on specific characteristics.- Know that plants can be classified based on characteristics such as flowering and non-flowering plants.- Know that animals can be classified based on characteristics such as vertebrates (animals with backbones) and invertebrates (animals without backbones). <p>Why Do We Classify Living Things Based on Specific Characteristics?</p> <ul style="list-style-type: none">- Know that classifying living things helps scientists understand the relationships and evolutionary history between different organisms.- Know that classification aids in organising and studying biodiversity, making it easier to identify and conserve species.		<p>Notice patterns, groupings and classify. Find information using a wide range of secondary sources. Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, pie charts and line graphs and models.</p> <p>Draw conclusions from their work.</p> <p>Report findings from investigations through written explanations and conclusions using appropriate scientific language.</p>	<p>Life Cycle, Mammal, Amphibian, Insect, Bird, Reproduction, Growth, Stages</p> <p>Pollination, Fertilisation, Seed Formation, Germination, Reproduction</p> <p>Classification, Characteristics, Plants, Animals, Fungi, Bacteria, Protists</p> <p>Flowering Plants, Non-flowering Plants, Vertebrates, Invertebrates, Characteristics</p> <p>Classification, Biodiversity, Conservation, Evolutionary History, Relationships</p>



Spring Term		
Social Justice		
<p>How have living things changed and adapted over time?</p> <p>Know about evolution and can explain what it is. - Know how fossils can be used to find out about the past. - 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- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p>		
Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>What is evolution and how does it work?</p> <ul style="list-style-type: none"> - Know that evolution is the process by which living organisms change over time through changes in their genetic material. - Know that natural selection is a key mechanism of evolution, where organisms better adapted to their environment tend to survive and produce more offspring. <p>How Can Fossils Tell Us About the Past?</p> <ul style="list-style-type: none"> - Know that fossils are the remains or imprints of ancient organisms preserved in rock. - Know that scientists study fossils to learn about organisms that lived millions of years ago and how they have changed over time. <p>How Do Offspring Differ from Their Parents?</p> <ul style="list-style-type: none"> - Know that living things produce offspring of the same kind, but the offspring inherit a mix of traits from both parents, leading to variation. <p>How are animals and plants adapted to suit their environment?</p> <ul style="list-style-type: none"> - Know that adaptation is the process by which an organism becomes better suited to its environment through beneficial traits. - Know that these adaptations can be structural (physical traits) or behavioural (ways of acting). <p>How Does Adaptation Lead to Evolution?</p> <ul style="list-style-type: none"> - Know that over long periods, adaptations can accumulate in a population, leading to significant changes and the evolution of new species. - Know that the process of accumulating adaptations is driven by natural selection. <p>How do fossils provide evidence that living things have changed over time?</p> <ul style="list-style-type: none"> - Know that fossils show a record of different life forms that existed in different geological periods. - Know that comparing fossils from different time periods helps scientists track changes and see how organisms have evolved. 	<p>Continue to make systematic and careful observations of changes over different periods of time.</p> <p>Find information using a wide range of secondary sources.</p> <p>Find a pattern from data and explain what it shows.</p> <p>Link what they have found to other science.</p>	<p>Evolution, Natural Selection, Genetic Material, Change Over Time</p> <p>Fossils, Remains, Imprints, Rock, Ancient Organisms, Evidence</p> <p>Offspring, Inheritance, Traits</p> <p>Adaptation, Environment, Structural Traits, Behavioural Traits, Beneficial Traits</p> <p>Evolution, Adaptation, Accumulation, New Species, Natural Selection</p> <p>Fossil Record, Geological Periods, Comparison, Change Over Time,</p>



Summer Term

Our Heritage and Our World and Beyond

What is the structure of our solar system?

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
- Describe the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Substantive Knowledge

What are the movements of the Earth and other planets relative to the Sun in the solar system?

- Know that the solar system consists of the Sun and the objects that orbit around it, including the eight planets.
- Know that the Earth and other planets orbit the Sun in a predictable path called an orbit.
- Know that each planet has a unique orbit distance and time it takes to complete one orbit around the Sun.
- Know that this spherical shape is due to the force of gravity pulling matter into a rounded form.

What is the movement of the Moon relative to the Earth?

- Know that the Moon orbits the Earth and takes approximately 27.3 days to complete one orbit.
- Know that the phases of the Moon are a result of its position relative to the Earth and Sun.

How does the Earth's rotation explain day and night and the Sun's apparent movement across the sky?

- Know that the Earth rotates on its axis once approximately every 24 hours.
- Know that this rotation causes the cycle of day and night.
- Know that the Sun appears to move across the sky due to the Earth's rotation.

How do the movements of the Earth, Moon, and other planets compare and contrast?

- Know that while the Earth orbits the Sun and rotates on its axis, the Moon orbits the Earth and does not have its own light but reflects sunlight.
- Know that different planets have different lengths of days, years, and lunar cycles based on their distance from the Sun and their own axial tilt and rotation.

How do the movements of the Earth influence life on Earth?

- Know that the Earth's rotation and tilt cause seasons, day/night cycles, and various climates.

Procedural Knowledge

Find a pattern from data and explain what it shows.

Use a graph to answer scientific questions.

Link what they have found to other science.

Key Vocabulary

Solar System, Sun, Planet, Orbit, Distance, Revolution
Moon, Orbit, Lunar Cycle, Phases, Relative Position
Rotation, Axis, 24 Hours, Day, Night, Apparent Movement
Earth, Moon, Orbit, Rotation, Comparison, Contrast
Seasons, Climate, Tides, Gravity, Influence, Life on Earth



Autumn Term			Identity and Diversity		
<p>How does my body keep me alive?</p> <p>-Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. - Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>Human life cycles covered as part of PSHE.</p>					
Substantive Knowledge		Procedural Knowledge		Key Vocabulary	
<p>What is the circulatory system?</p> <ul style="list-style-type: none">- Know the names of the main parts of the circulatory system (heart, blood vessels and blood).- Know that oxygen is taken into the blood in the lungs: the heart pumps the blood through blood vessels to the muscles: the muscles take oxygen and nutrients from the blood. <p>How does my heart work?</p> <ul style="list-style-type: none">- Know that our heart pumps blood around the body. <p>What does exercise do to my body?</p> <ul style="list-style-type: none">- Know how to take their pulse.- Know that exercise increases heart rate. <p>How can I live a healthy lifestyle?</p> <ul style="list-style-type: none">- Know that a healthy lifestyle can have a positive impact on our body.- Know that drugs can have both a positive and negative impact on our body.		<p>Take repeat readings when appropriate.</p> <p>Carry out accurate and fair tests</p> <p>Plan and carry out scientific enquiry to answer their own questions, including recognising and controlling variables.</p> <p>Make a prediction and explain why.</p> <p>Identify the key factors when planning a fair test.</p>		<p>oxygen</p> <p>oxygenated blood</p> <p>deoxygenated blood</p> <p>circulate</p> <p>vein</p> <p>artery</p> <p>diet</p> <p>exercise</p> <p>heart</p> <p>heartbeat</p> <p>pulse</p> <p>muscle</p> <p>blood vessel</p> <p>lungs</p> <p>unhealthy</p> <p>harmful</p> <p>healthy</p> <p>nutrients</p> <p>water</p>	





Autumn Term

Peace and Conflict

What makes up a material?

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.
- 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.
- Comparative and fair tests, for the particular uses of everyday materials, including wood, metals 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 this kind of change is usually not reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>What is the difference between solids, liquids and gases?</p> <ul style="list-style-type: none"> - Know the properties of solids, liquids and gases. - Know that materials can be grouped based on their properties as well as their state. <p>Can I separate a mixture?</p> <ul style="list-style-type: none"> - Know and understand the different process of separation such as filtering, sieving and evaporating. <p>Can I reverse the process of dissolving?</p> <ul style="list-style-type: none"> - Know that some materials are soluble and some are not. - Know that the process of dissolving is reversible. <p>How are reversible and irreversible changes important in different jobs?</p> <ul style="list-style-type: none"> - Know that changes of state including dissolving and mixing are reversible changes. - Know that the formation of a new material is irreversible. <p>Are different materials better suited to certain jobs than others?</p> <ul style="list-style-type: none"> - Know and investigate the properties of a range of materials and be able to discuss their suitability for different uses. 	<p>Select appropriate equipment and carry out comparative and fair tests.</p> <p>Present a report of their findings through writing, display and presentation.</p> <p>Draw conclusions from their work.</p> <p>Pupils should read, spell and pronounce scientific vocabulary correctly.</p> <p>Refer to and use specific scientific vocabulary for their year group.</p>	<p>soluble</p> <p>insoluble</p> <p>saturation</p> <p>solution</p> <p>filtration</p> <p>boiling</p> <p>condensing</p> <p>evaporation</p> <p>freezing</p> <p>melting point</p> <p>chemical change</p> <p>physical change</p> <p>reversible change</p> <p>irreversible change</p> <p>State</p>



Spring Term		Social Justice	
<p>How can electricity make things brighter and louder?</p> <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.- use recognised symbols when representing a simple circuit in a diagram			
Substantive Knowledge		Procedural Knowledge	
<p>What do these symbols mean?</p> <ul style="list-style-type: none">- Recognise and understand a variety of symbols in a simple circuit. <p>Why does the lightbulb get brighter and the buzzer get louder?</p> <ul style="list-style-type: none">- Know that batteries are a store of energy. This energy pushes electricity round the circuit. When the battery’s energy is gone, it stops pushing.- Know that voltage measures the ‘push.’- Know that the greater the current flowing through a device the harder it works.- Know that current is how much electricity is flowing round a circuit. <p>This unit should include an investigation with a conclusion that includes comparisons of different components in an electrical circuit (see vocabulary for components).</p>		<p>Plan, justify (giving reasons) and carry out scientific enquiry to answer their own questions, including recognising and controlling variables.</p> <p>Use information and test results to make predictions and further comparative tests.</p> <p>Vary one factor whilst keeping the others the same and explain why.</p>	
		Key Vocabulary	
		<p>Voltage</p> <p>Current</p> <p>components</p> <p>electrical conductor</p> <p>negative</p> <p>cell</p> <p>mains electricity</p> <p>battery</p> <p>motor</p> <p>connection</p> <p>safety</p> <p>dimmer</p> <p>Wire switch</p> <p>flow</p> <p>battery powered</p> <p>bulb</p> <p>circuit device</p> <p>positive</p> <p>crocodile clips</p> <p>buzzer</p> <p>electrical insulator</p>	



Summer Term

Our Heritage and Our World and Beyond

How does light help me see?

Recognise that light appears to travel in straight lines. - Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. - Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. - Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Substantive Knowledge	Procedural Knowledge	Key Vocabulary
<p>Does light move?</p> <ul style="list-style-type: none">-Know that light travels out of light sources in straight waves known as rays of light.-Know that light travels from light sources to our eyes or from light sources to objects and then to our eyes. <p>Why can't I see in the dark?</p> <ul style="list-style-type: none">- Know that objects are seen because they give out or reflect light into the eye and without the light source the reflection won't happen. <p>Why is my shadow just like me?</p> <ul style="list-style-type: none">- Know that shadows are the same shape as an object because light travels in straight lines so it cannot bend around an opaque object.	<p>Take measurements using range of equipment with increasing accuracy and precision</p> <p>Use a graph to answer scientific questions.</p>	<p>Light source</p> <p>Rays of light</p> <p>Straight lines</p> <p>Objects</p> <p>Reflect</p> <p>Shadow</p> <p>Opaque</p>