

Curriculum Intent
Key Stages 1 & 2
Subject long-term planning
Subject: Science



PENK VALLEY
ACADEMY TRUST

*Learning
Together*



Key stage: EYFS

Subject: Science

Year: Rec

School: Marshbrook First School

	Half term 1	2	3	4	5	6
Title	Marvelous me!	Let's Celebrate!	Terrific Tales!	Amazing Animals!	Come Outside!	Ticket to Ride!
Overall Intent/Rationale	This topic helps the children learn all about themselves, their bodies, senses and how they have changed. We learn the concept 'same' and 'different' and begin to compare our appearance to that of others	This topic helps the children learn about a variety of different seasonal celebrations. We find out about Autumn, seasonal changes, hibernation and migration	In this topic the children read a variety of traditional stories including 'The Three Little Pigs' They learn about materials around us (especially in relation to buildings)	In this topic we explore different animals. We learn to describe animals more scientifically, sort by different criteria and learn about life cycles. We learn about Dinosaurs and the role of a Paleontologist	In this topic we learn about plants and growing. We have a class garden centre and grow our own plants from seeds. We learn what we need to do to help our seeds/plants grow	In this topic we find out about the world and particularly look at Africa. We use maps to find out about places. We learn about Summer and seasonal changes and weather. We find out about a 'Seaside' habitat
Why this?	Children at our Nursery have previously learned about themselves, this builds upon prior learning	Children at our Nursery have basic awareness of seasons and changes in weather. This builds upon prior learning	Children enjoy building and testing models and materials. This topic helps them to begin to think scientifically	Children have prior knowledge of animals, this builds upon it and aims to develop vocabulary	Children have interest in the outdoors and show fascination in the changes they observe when we plant seeds	Children have previously found out about cold places (Arctic/Antarctic) We now compare to a hot continent (Africa). We learn about Summer and seasonal changes in UK, this follows on from learning about Autumn and Winter. We also learn about travel and different vehicles. We predict and test using a ramp
Why now?						
Key concepts, knowledge and skills (must be all three)	Students understand: <ul style="list-style-type: none"> Similarity and difference Growth Changes 	Students understand: <ul style="list-style-type: none"> Changes Adaption Cause and effect 	Students understand: <ul style="list-style-type: none"> Function Structure Cause and effect 	Students understand: <ul style="list-style-type: none"> Variation Changes Process Growth 	Students understand: <ul style="list-style-type: none"> Changes Growth Cause and effect <p>Students know:</p>	Students understand: <ul style="list-style-type: none"> Changes Similarity and difference Function

	<p>Students know:</p> <ul style="list-style-type: none"> We have bones and organs in our bodies We have 5 senses We have grown and changed since we were born We can have features that are the same or different to others <p>Students can:</p> <ul style="list-style-type: none"> Use their sense to explore different objects Name some bones and organs in our bodies- skull, spine, heart, lungs Talk about how we have changed from when we were babies Talk about similarities and 	<p>Students know:</p> <ul style="list-style-type: none"> In the UK we have 4 seasons In Autumn the weather gets colder In Autumn leaves change colour and fall to the ground Some animals hibernate and migrate in Autumn <p>Students can:</p> <ul style="list-style-type: none"> Name Autumn and Winter Talk about some of the changes that happen in Autumn/Winter Explain the meaning of hibernation and migration 	<ul style="list-style-type: none"> Working scientifically <p>Students know:</p> <ul style="list-style-type: none"> That a variety of different materials are used for building- glass, brick, metal, wood Materials are chosen for a particular functions eg. glass is transparent <p>Students can:</p> <ul style="list-style-type: none"> Name different materials used in school buildings Talk about why a particular material has been used for a specific purpose eg. glass Begin to understand that when we test materials scientifically we should make the test fair 	<p>Students know:</p> <ul style="list-style-type: none"> We can sort animals by different criteria The lifecycle of a tadpole and caterpillar <p>Students can:</p> <ul style="list-style-type: none"> Sort animals by a given criteria Sequence the life cycle of a tadpole and caterpillar Name and describe a range of different animals 	<ul style="list-style-type: none"> Plants can grow from seeds or bulbs Seeds/plants need water and sunlight to grow Plants have different parts with scientific names <p>Students can:</p> <ul style="list-style-type: none"> Talk about how to look after their seed/plant and what it needs grow Draw and pictures of their seed/plant Name the roots, stem, leaves, flower 	<ul style="list-style-type: none"> Working scientifically <p>Students know:</p> <ul style="list-style-type: none"> In the UK have 4 seasons called- Spring, Summer, Autumn and Winter Certain animals live in the sea/sand Vehicles are made for different purposes <p>Students can:</p> <ul style="list-style-type: none"> Talk about and name the 4 seasons Talk about a seaside habitat and the animals we might find there Make and describe different vehicles Make a simple prediction, talk about what we observed and found out Talk about how we made our test fair
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	differences in our appearance					
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Key stage: 1

Subject: Science

Year: 1

School: Marshbrook First School

	1	2	3	4	5	6
Title	Senses	Materials	Materials linked to water	Seasons	Plants	Animals
Overall Intent/Rationale	Pupils will learn that humans and animals have five senses and will study each one of them in detail	Pupils will learn about a range of materials and names them as well as identify and describe their physical properties. Pupils will test the suitability of the materials for various purposes such as if they keep you dry and whether they are strong enough to build a house	Pupils will learn about how materials can be used in relation to water and will learn about waterproof materials, materials that float, materials which are good for a boat, which is the best place to keep ice frozen and which material is a good insulator	Pupils will learn that there are different seasons in different countries and that in the UK we have four. The children will learn how in each of these there are changes in weather, trees, the clothes we wear and about changes in plants and animals.	Pupils will learn about the purpose of plants and how plants grow from seeds. They will learn the changes that happen and be able to identify the different parts of a plant. They will learn that plants need sun and water to survive and grow and there are different kinds of plants such as garden, flowering and wild and trees are also plants.	
Why this? Why now?	In Reception the children learnt they had five senses and their names. This unit will build on that by studying each sense in more detail and then learn about each sense at a more complex level as they move into Key Stage 2.	In Reception children learnt the names of the materials and will now expand their knowledge and skills by investigating these materials in more detail and testing their suitability for different purposes.	In Autumn 2 in Year 1 children were introduced to materials and their properties. This has laid the foundations for now investigating these materials in more detail in relation to water.	Children learnt about weather and names of seasons in Reception and studied each one through play and art and craft activities. Children will now learn about each season at a more complex level.	Children learnt about plants in Reception at a basic level and now learn about them at a deeper level in Year 1. In Key Stage 2 they will learn about in more detail.	
Key concepts, knowledge and skills (must be all three)	<p>Students understand:</p> <ul style="list-style-type: none"> • Structure • Function • Variation • Adaptation • Cause and effect • Changes <p>Students know: That there are five senses</p>	<p>Students understand:</p> <ul style="list-style-type: none"> • Structure • Function • Cause and effect • Changes • Evolution • Growth • Similarity and difference 	<p>Students understand:</p> <ul style="list-style-type: none"> • Function • Cause and effect • Changes • Evolution • Growth • Process • Similarity and difference 	<p>Students understand:</p> <ul style="list-style-type: none"> • Function • Adaptation • Cause and effect • Changes • Growth • Process • Similarity and 	<p>Students understand:</p> <ul style="list-style-type: none"> • Structure • Function • Variation • Adaptation • Cause and effect • Changes • Evolution • Growth • Energy 	<p>Students understand:</p> <ul style="list-style-type: none"> • Structure • Function • Variation • Adaptation • Cause and effect • Changes • Evolution • Growth • Energy • Process

<p>The five senses are sight, hearing, smell, touch and taste</p> <p>Students can: Use their senses to make close observations, to group, classify and match, Label the parts of the eye Use their sight to group objects by similar features Identify sounds using pitch, volume and dynamics Identify products by their smell Use key vocabulary to describe properties using touch Identify and name food by taste</p>	<ul style="list-style-type: none"> Working scientifically <p>Students know: That there are a variety of materials That all materials have different properties That materials are suitable for different purposes</p> <p>Students can: Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials. Describe, compare and group a variety of everyday materials based on their simple, physical properties. Test and name which materials are strong and suitable for building a house.</p>	<ul style="list-style-type: none"> Working scientifically <p>Students know: That some materials float and some sink That That the density of a material affects whether it sinks That some materials are waterproof and others are not That waterproof means stopping the water from soaking through and keeping something dry That ice melts at different times depending on the place we put it Different materials keep liquids warmer for longer That materials which keep things warm are called insulators</p> <p>Students can: Make predictions about materials Decide how to make a test fair Test materials and identify which ones are waterproof Test materials and identify which ones float and sink Investigate which is the best</p>	<ul style="list-style-type: none"> Working scientifically <p>Children know: That there are four seasons in the UK The four seasons are Spring, Summer, Autumn and Winter. In each season there are changes in clothes, weather, trees, plants and animals.</p> <p>Students can: Name the four seasons Identify different kinds of weather for each season Describe what clothes we wear in each season Identify and describe changes in the trees Recognise and identify different plants for each season Explain what happens to plants in each season Identify which animals hibernate, migrate or adapt in the Winter</p>	<p>difference</p> <ul style="list-style-type: none"> Process Similarity and difference Working scientifically <p>Children know: That plants give us a variety of fruit and vegetables That plants start off as seeds and grow different parts That plants need sunlight and water to grow That there are different kinds of plants including wild, garden and flowering plants That a tree is also a plant That trees can be deciduous or evergreen</p> <p>Children can: Name a variety of fruits and vegetables and sort into groups Predict, draw and label what a seed will look like when it grows Name six different garden plants Use a classification key to identify wild flowers Match pictures of plants to their descriptions Label a plant with roots, stem,</p>	<ul style="list-style-type: none"> Similarity and difference Working scientifically <p>Children know: That there are six groups of animals (mammals, birds, fish, reptiles, amphibians and insects) What a carnivore, herbivore and omnivore is That humans and animals have different external parts That there are different habitats including sea, woodland, desert, polar etc That minibeasts are small animals that can be identified by their different features</p> <p>Children can: Identify if an animal is a mammal, bird, fish, reptile, amphibian or insects Explain what each of the above groups has to make it similar or different from each other Explain that a carnivore only eats meat Explain that a herbivore only eats plant, fruit or vegetables Explain that an omnivore eats both meat and plants Name the external parts of a human Name the external parts of a bird</p>
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			<p>material for a boat Identify which is the best and worst place to keep ice frozen Identify which materials are insulators Present their results in different ways including words, pictures, tables and Venn diagrams</p>	<p>Explain what hibernate, migrate and adapt mean</p>	<p>leaves, bud and petals Describe the function of each part of the plant Explain that a deciduous tree loses its leaves in the Autumn and Winter and grows them back in the Spring Explain that an evergreen tree keeps its leaves all year round</p>	<p>Sort animals into an ocean or woodland habitat Use a classification key to identify a mini-beast</p>
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Key stage: 1

Subject: Science

Year: 2

School: Marshbrook First School

	1	2	3	4	5	6
Title	<i>Suitability of Materials</i>	<i>Manipulation of Materials</i>	<i>Animals including Humans</i>	<i>Living Things and Food Chains</i>	<i>Plants</i>	<i>Habitats</i>
Overall intent – rationale	Develops awareness of which materials are safe or unsafe to use in different contexts. They learn to recognize potential hazards and understand the importance of using appropriate materials to ensure personal safety and the safety of others.	To observe and discover the properties of those materials. They learn how different materials can be flexible, rigid, soft, hard, sticky, or malleable. This first-hand experience enables them to make connections between their actions and the behaviour of materials.	Students are introduced to the diversity of animal life, learning about different species, their habitats, and their basic needs for survival.	To develop students' understanding of the natural world, the characteristics of living organisms, and the interdependence of species within ecosystems.	To introduce students to the basic knowledge and understanding of plants, their characteristics, and their importance in the natural world.	Provides students with an understanding of ecosystems, the interactions between living organisms and their physical surroundings. They explore how organisms depend on their habitats for food, shelter, water, and other resources necessary for survival.
Why this?	To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses, by identifying the uses of different materials. To identify and classify the uses of everyday materials, in the context of the local area. To gather and record data to help in answering questions, by exploring the purposes of different objects. To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching, by changing the shape of objects. To find out about people who have	To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses, by identifying the uses of different materials. To identify and classify the uses of everyday materials, in the context of the local area. To gather and record data to help in answering questions, by exploring the purposes of different objects. To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching, by changing the shape of objects.	To 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.	To explore and compare the differences between things that are living, dead, and things that have never been alive. 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.	To observe and describe how seeds and bulbs grow into mature plants. To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats.

<p>Why now?</p>	<p>developed new materials, by learning about John McAdam. In Y1, children feel and look at a range of material using their senses. Sort them based on whether they could make a picture or not. Label materials around the classroom. Name materials and objects. Sort objects and then classify them. Use word mats to help describe objects, draw objects and label them with properties. Sort materials based on their uses. Investigate absorbency of materials and whether they're waterproof or not. Explore the properties of water, use a Venn diagram.</p>	<p>In Y1, children feel and look at a range of material using their senses. Sort them based on whether they could make a picture or not. Label materials around the classroom. Name materials and objects. Sort objects and then classify them. Use word mats to help describe objects, draw objects and label them with properties. Sort materials based on their uses. Investigate absorbency of materials and whether they're waterproof or not. Explore the properties of water, use a Venn diagram.</p>	<p>In Y1, they name and identify animals, their habitat and describe features. Learn about herbivores, omnivores and carnivores and sort animals into these categories, recording what they may eat. Learn that humans, unlike animals, have the same external parts. Identify external body parts of a human, Discuss the five senses. Learn about different animal groups and sort using a classification key. Identify animal group external body parts. Observe mini beasts to compare their structures.</p>	<p>In Y1, they name and identify animals, their habitat and describe features. Learn about herbivores, omnivores and carnivores and sort animals into these categories, recording what they may eat.</p>	<p>In Y1 they learn about what a plant is, then either go plant hunting, or plant seeds. Learn about a variety of common garden plants, identify some of their features, and consider why they are appealing to people, e.g., easy to grow, or attracts insects. Identify some wild plants and begin to consider how their seeds — which they grew from — came to be there. Sort, match or describe some wild plants. Identify and name trees, then learn some differences between deciduous and evergreen trees. Sort trees into groups or go tree hunting. Identify the main parts of a variety of plants and describe their functions. Examine plants (and identify features) or draw and label plant diagrams. Identify ways in which plants change over time. Study and describe plants they have grown themselves or identify ways in which plants around school have changed over time.</p>	<p>In Y1 they have learnt about different types of animals including minibeasts.</p>
<p>Key concepts knowledge & skills (Must be all three)</p>	<p>Students understand:</p> <ul style="list-style-type: none"> Changes Similarity and difference Working scientifically <p>Students know:</p> <ul style="list-style-type: none"> What a Venn diagram is What suitability means What prediction means A material can have different uses 	<p>Students understand:</p> <ul style="list-style-type: none"> Changes Similarity and difference Working scientifically <p>Students know:</p> <ul style="list-style-type: none"> What prediction means Why balls bounce That some materials need to 'give' a little and not break <p>Students can:</p>	<p>Students understand:</p> <ul style="list-style-type: none"> Evolution Growth Process Similarity and difference Changes <p>Students know:</p> <ul style="list-style-type: none"> The main changes as young offspring, including humans, grow to adulthood. 	<p>Students understand:</p> <ul style="list-style-type: none"> Process Energy Working scientifically Structure <p>Students know:</p> <ul style="list-style-type: none"> How to group animals based on observable features (recapped from Year 1) 	<p>Students understand:</p> <ul style="list-style-type: none"> Process Adaptation Changes Growth Process Working scientifically Similarity and difference <p>Students know:</p> <ul style="list-style-type: none"> That different seeds grow into different plants 	<p>Students understand:</p> <ul style="list-style-type: none"> Adaptation Working scientifically Similarity and difference <p>Students know:</p> <ul style="list-style-type: none"> That most living things live in habitats What a habitat is What dependency is That different habitats provide the basic needs

	<ul style="list-style-type: none"> • What properties of materials are • That the same object can be made from different materials • People that use science to help us <p>Students can:</p> <ul style="list-style-type: none"> • Identify materials using their senses and their uses • Group materials • Find objects made from more than one material • Compare the suitability of different materials • Make predictions • Identify hazards • Suggest how to work safely • Present their results in words • Compare materials for different uses • Explain why properties make a material suitable/unsuitable • Decide on and explain the most suitable material 	<ul style="list-style-type: none"> • Make and give reasons for a simple prediction • Describe how the shape of some solid materials can be changed by applying a force • Sort fabrics for stretchiness • Accurately measure • Analyse evidence • Describe how properties of materials make them suitable for different uses • Test for rigidity • Plan and carry out an experiment 	<ul style="list-style-type: none"> • A human lifecycle • A lifecycle of another animal • That air, water and food are the basic needs for animals • The importance for humans eating the right amount of different types of food • Healthy and unhealthy foods • How to improve their diet • The importance for humans of exercise • The importance for humans of hygiene • Things to keep them clean <p>Students can:</p> <ul style="list-style-type: none"> • Match familiar animals to their babies • Describe changes • Teach themselves and others about lifecycles • Suggest what to observe, when and how. • Match basic needs to different animal types • Describe extra needs of animals in care • Design a menu with the right amount of each food type • Record data about exercise • Use data to answer questions 	<ul style="list-style-type: none"> • Whether things are alive, dead or have never lived. • That food comes from either an animal or a plant source. • That animals obtain their food from plants and other animals and that a food chain can describe this relationship • Terminology for food chains <p>Students can:</p> <ul style="list-style-type: none"> • Work collaboratively to make a simple key • Give reasons for identifications • Sort foods into groups according to their source • Record examples of food chains • Predict parts of food chains • Order things in food chains • Work collaboratively to investigate bones from a food chain 	<ul style="list-style-type: none"> • That plant can grow from bulbs • Why and how seeds are dispersed • The basic needs of plants for survival and describe how changing these conditions can affect the plant • The main changes as seeds and bulbs grow into adult plants using scientific words <p>Students can:</p> <ul style="list-style-type: none"> • Name some plants that grow from seeds • Suggest how to record data • Name plants that grow from bulbs • Explain why some plants need to grow from a bulb • Name seed dispersal methods • Suggest how to make a comparative test fair • Make a prediction, plan and set up a fair test • Ask a question that can be investigated scientifically • Analyse evidence 	<p>of different kinds of plants and animals</p> <ul style="list-style-type: none"> • A variety of plants and animals in their habitat • Different habitats • What a microhabitat is <p>Students can:</p> <ul style="list-style-type: none"> • Use a word bank to explain dependency for different habitats • Draw an animal in its habitat • Describe and draw a detailed a microhabitat • Find microhabitats • Collect results using tallies • Write a comparison of 2 microhabitats • Carry out an investigation • Make a prediction • Write a conclusion linked to habitats
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- Use a magnifying glass to observe

Key stage: 2 Subject: Science Year: 3 School: Marshbrook First School

	Half term 1	2	3	4	5	6
Unit Title	<i>Rocks and Soils</i>	<i>Forces and Magnets</i>	<i>Animals Including humans</i>		<i>Light</i>	<i>Plants</i>
Overall intent – rationale Why this? Why now?	<p>Pupils will learn about the properties of rocks and the 3 ways which rocks are made. They also complete investigations about the properties of rocks. Children also learn about the formation of soil.</p> <p>Children have previously studied everyday materials and their properties in KS1.</p>	<p>Pupils will learn about different forces and investigate friction on a deeper level. They will also learn about Magnets and Magnetism.</p> <p>Children have previously studied everyday materials and their properties in KS1. In Year 5, they learn that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p>	<p>Pupils will learn about the different types of skeletons that animals can have. They look in depth at the human skeleton and also study diet and nutrition.</p> <p>Children have previously studied plants and animals in all prior year groups. In Year 2, they identified plants and animals in local area habitats. In Year 4, pupils will learn about animals and plant in their local area.</p>		<p>Pupils will learn about light and how it is reflected from different surfaces. We investigate shadows and light against different surfaces. They also learn about being safe in the sun light.</p> <p>KS1 children learn about the 4 seasons and observe weather linked to the seasons. In USK2 the children learn the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</p>	<p>Pupils will learn about the structure and function of plants. They will what plants need to grow and investigate this in class. We learn about how water is transported around a plant and link this to the life cycle of a plant.</p> <p>In Year 2 children find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. In UKS2, children describe the life process of reproduction in some plants and animals. They will also describe how living things are classified into broad groups.</p>
Key concepts knowledge & skills (Must be all three)	<p>Students understand:</p> <ul style="list-style-type: none"> • Energy • Process • Function • Working Scientifically <p>Students know:</p> <ul style="list-style-type: none"> • Know who Mary Anning is and why she is a significant. 	<p>Students understand:</p> <ul style="list-style-type: none"> • Energy • Process • Function • Working Scientifically <p>Students know:</p> <ul style="list-style-type: none"> • The names of the magnetic poles. • The names of some forces and what they do. 	<p>Students understand:</p> <ul style="list-style-type: none"> • Growth • Adaption • Variation • Working Scientifically <p>Students know:</p> <ul style="list-style-type: none"> • The three types of skeleton. • The names of the bones in the human skeleton. • The different types of nutrients. 		<p>Students understand:</p> <ul style="list-style-type: none"> • Energy • Function • Process • Working Scientifically <p>Students know:</p> <ul style="list-style-type: none"> • What light and darkness are. • What transparent, 	<p>Students understand:</p> <ul style="list-style-type: none"> • Growth • Adaption • Function • Working Scientifically <p>Students know:</p> <ul style="list-style-type: none"> • Name and describe the functions of a flowering plant's parts.

	<ul style="list-style-type: none"> • Know the difference between natural and human-made rocks. • The names of different rocks. • How different rocks are made. • How fossils are formed. • The layers of soil. <p>Students can:</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. 	<ul style="list-style-type: none"> • Know that some forces need contact between two objects. • What a prediction is. • What a fair test is. <p>Students can:</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. 	<ul style="list-style-type: none"> • The different food groups. • The functions of the skeleton. • What nutrients humans need to live. <p>Students can:</p> <ul style="list-style-type: none"> • Identify that humans and some other animals have skeletons for support, protection and movement by focusing on skeleton types. • Identify that humans and some other animals have muscles for movement by examining how muscles work. • Identify that humans and some other animals have skeletons by identifying the parts of the skeleton. • Identify that animals, including humans, need the right amount of nutrition in the context of identifying differences and similarities related to simple scientific processes by grouping animals according to their diets. • Identify that they cannot make their own food; they get nutrition from what they eat by comparing how plants and humans obtain food. 	<p>translucent and opaque means.</p> <ul style="list-style-type: none"> • How light travels. • What reflection is. • Why the sun can be dangerous. • What a shadow is. • How to protect ourselves from the sun. <p>Students can:</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 shadows are formed when an opaque object blocks the light from a light source. • Find patterns in the way that the size of shadows changes. • Recognise that light from the sun can be dangerous and that there are 	<ul style="list-style-type: none"> • Understand the different parts of a flower and how water is transported. • To know what pollination and fertilisation are. • Know the lifecycle of a plant. • Choose how and what to present to communicate to different audiences. <p>Students can:</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.
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Key stage: 2

Subject: Science

Year: 4

School: Marshbrook First School

	1	2	3	4	5	6
Title	<i>Living Things and their Habitats (local area plants and animals)</i>	<i>Electricity</i>	<i>Living Things and their Habitats (India's plants and animals)</i>	<i>Sound</i>	<i>The Digestive System</i>	<i>Solids, liquids and Gases</i>
Overall intent – rationale Why this? Why now?	In this unit, pupils will study local area plants and animals, they will use classification keys to group, identify and name species and create classification keys of their own. They will compare similarities and differences between observable features. They will also recognise how the environment can pose a danger to living things. <i>Children have previously studied plants and animals</i>	This is the first time that children will have learnt about electricity. They will learn about appliances that run on electricity, how to construct a simple circuit and name components, recognise whether a circuit is complete or incomplete, know about switches and how they work, and recognise the significance of electrical conductors and insulators.	In this unit, pupils will explore the habitats of animals of India, they will learn about classification of vertebrates and invertebrates. They will classify animals of India. They will create their own classification keys. They will construct food chains for animals of India and recognise environmental dangers to animals of India.	In this unit, children will associate sounds with vibrations, they will explore how vibrations travel. They will find patterns between pitch of an instrument and the features of the instrument. They will find patterns between volume and the strength of the vibrations. They will recognise that sounds get fainter as distance from the sound source increases.	In this unit, children will describe the simple functions and basic parts of the digestive system in humans. They will identify the different types of teeth in humans and their functions. <i>Children have in Year 2 identified the basic needs of humans (including food) as well as eating the right amounts of different types of food. In Year 3, they</i>	In this unit, children will be able to recognise materials as solids, liquids or gases. They will observe materials changing states when they are heated or cooled. They will research the temperature at which materials change state and they will identify the part played by evaporation and condensation in the water cycle, along with associating the rate of evaporation with temperature.

	<p>in all prior year groups. In year 2, they identified plants and animals in local area habitats. In year 5, pupils will go on to study life cycles and reproductive processes.</p>	<p>Children have previously explored how things work in the EYFS. In Year 6, they will use recognised symbols when representing a circuit diagram, they will associate the brightness of a bulb or volume of a buzzer with the number of cells or voltage of cells in a circuit, give reasons for variations in how components function in a circuit.</p>	<p>Children have previously studied local area plants and animals in Year 4. They will now learn about plants and animals in a wider environment (India). In year 5, pupils will go on to study life cycles and reproductive processes.</p>	<p>In the early years, children have explored how things work and have describe sounds when outside. In Year 1, children have named and labelled parts of the human body and associated parts with each of the senses. They will not revisit sound waves until KS3.</p>	<p>have further studied diet and nutrition. Pupils in Year 6 will be taught about the circulatory system.</p>	<p>Children have in Year 1 and 2 studied and named materials, recognising their suitability to different purposes. In Year 2, children investigated how solids can be changed by squashing, bending, twisting and stretching. In Year 5, children will go on to test materials for further purposes e.g. solubility. They will dissolve materials in a liquid to form and solution and recover a substance from a solution. They will also use their knowledge of solids, liquids and gases to separate materials by sieving, filtering and evaporating.</p>
<p>Key concepts knowledge & skills</p> <p>(Must be all three)</p>	<p><u>Students understand:</u></p> <ul style="list-style-type: none"> • Variation • Adaptation • Cause and effect • Similarity and difference • Working scientifically <p><u>Students know:</u></p> <ul style="list-style-type: none"> • The names of local area plants and animals and their features. • The dangers to local area plants and animals. <p><u>Students can:</u></p> <ul style="list-style-type: none"> • Use classification keys to identify plants and animals. • Create classification keys for local area plants and animals. • To survey local environments for dangers 	<p><u>Students understand:</u></p> <ul style="list-style-type: none"> • Function • Energy • Similarity and difference • Working scientifically <p><u>Students know:</u></p> <ul style="list-style-type: none"> • Know the names of different forms of electricity. • What an electrical appliance is. • About the hazards of working with electricity. • What an incomplete and complete electrical circuit is. • About electrical conductors and insulators. • The role of a switch in a circuit. <p><u>Students can:</u></p>	<p><u>Students understand:</u></p> <ul style="list-style-type: none"> • Structure • Variation • Adaptation • Evolution • Working scientifically <p><u>Students know:</u></p> <ul style="list-style-type: none"> • About different habitats found in India. • The classification features of vertebrates and some invertebrates. • Food chains are used to show the flow of energy. <p><u>Students can:</u></p> <ul style="list-style-type: none"> • Explain why India has different plants and animals in different habitats. • Classify India's animals. • Use classification keys to identify animals of India. 	<p><u>Students understand:</u></p> <ul style="list-style-type: none"> • Structure • Function • Cause and effect • Changes • Energy • Similarity and difference • Working scientifically <p><u>Students know:</u></p> <ul style="list-style-type: none"> • That sound is caused by a vibration. • how the ear hears sounds. • That sounds get fainter as they move away from the sound source. • That features of instruments can affect the pitch of the sound they produce e.g. smaller, tighter, thinner is associated with a higher pitch. 	<p><u>Students understand:</u></p> <ul style="list-style-type: none"> • Structure • Function • Cause and effect • Process • Working scientifically <p><u>Students know:</u></p> <ul style="list-style-type: none"> • About the names and functions of the different types of human teeth. • about the basic parts and simple functions of the digestive system. <p><u>Students can:</u></p> <ul style="list-style-type: none"> • Make a model of human teeth and compare and contrast their features. • Compare and contrast human and animal teeth. 	<p><u>Students understand:</u></p> <ul style="list-style-type: none"> • Structure • Cause and effect • Changes • Energy • Process • Working scientifically <p><u>Students know:</u></p> <ul style="list-style-type: none"> • About the properties of solids, liquids and gases. • About the particle arrangement and behaviour in solids, liquids and gases. • The temperature at which some common materials change state. • That melting is associated with heating up a material. • That freezing is associated with cooling a material.

	<p>and suggest improvements.</p>	<ul style="list-style-type: none"> • Classify types of electricity. • Classify appliances. • Describe ways to be safe when working with electricity. • Investigate circuits and identify as complete or incomplete. • Name components in an electrical circuit. • Investigate materials and recognise as electrical conductors or insulators. • Describe how a circuit with a switch is different to an incomplete circuit. • Design and make a switch. • Research scientists associated with electricity. 	<ul style="list-style-type: none"> • Create classification keys for animals of India. • Construct and interpret food chains. • To survey local environments for dangers and suggest improvements. 	<ul style="list-style-type: none"> • That sounds can be absorbed through soundproofing. <p><u>Students can:</u></p> <ul style="list-style-type: none"> • Explore how sounds travel through solids, liquids and gases. • Explore how sounds change over distance. • Explore how different instruments can produce different pitches of sound and look for patterns. • Investigate materials that absorb sounds. 	<ul style="list-style-type: none"> • Investigate the causes and effects of tooth decay. • Create a diagram of the digestive system with the key parts named and positioned correctly. • Construct a model of the digestive system, sequencing the basic parts in the correct order and using apparatus to model the simple functions of each part. 	<ul style="list-style-type: none"> • What evaporation is. • What condensation is. • What water vapour is. • That the rate of evaporation occurs more quickly with warmer temperatures. <p><u>Students can:</u></p> <ul style="list-style-type: none"> • Sort materials into solids, liquids and gases. • research the temperature at which some materials change state. • Investigate the best temperature for melting a material (chocolate). • Investigate water changing state and identify where evaporation, condensation and water vapour occur. • Explain the stages of the water cycle. • Investigate and find patterns between the rate of evaporation and temperature.
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