The Beeches Primary School – Science Curriculum Progression Map

Redeveloped – September 2022

Reception	Autumn 1 Why do you love me so much? Move it – mini project	Autumn 2 Celebrations – is it shiny?	Spring 1 Are we there yet?	Spring 2 Will you read me a story?	Summer 1 Do cows drink milk?	Summer 2 Why do ladybirds have spots?
Area of Learning/Science Strand	All about me	Celebrations	Transport	Trad Tales	Farm	Minibeasts
Key Question(s)	Can you identify the different body parts? Do all people have the same body parts?	What materials could you use to make the best celebration ornament? Why?	How do cars move? How do boats float?	What does a beanstalk need to grow tall and healthy?	Where do chickens come from?	How do caterpillars change? How does the tree change over the year (seasons)?
Knowledge	Describe their immediate environment from observations, discussion, stories and maps Name body parts including facial features Noticing differences and similarities including disabilities.	Explore properties of materials – exploration of textures, sounds, smells – everyday language to describe. - shiny, hard, soft etc	Exploring different natural phenomena – such as weather, seasons, Exploring forces that they can see or feel. Exploring floating and sinking - boats	Exploring the properties of materials. Plant seeds, growing and caring for plants. Understand the key features of the lifecycle of a plant	Explore the natural world around them, making observations and drawing picture of animals and plants Life cycle of a chicken	Understand some important processes and changes in the natural world around them, including seasons and changing states of matter Life cycle of a butterfly

Prior Knowledge	Nursery -					
Future Knowledge	Animals including humans Year 1 I know how to name the parts of the human body that I can see I know how to link the correct part of the human body to each sense. <u>Evolution and inheritance</u> <u>Year 6</u> Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents)	<u>Materials</u> <u>Year 1</u> Know and name a variety of everyday materials. Know that materials have different properties. Know that a variety of everyday materials can be grouped based upon their simple physical properties. Know that Materials may also be magnetic or non-magnetic (stick together or not). Electricity <u>Conductors and insulators</u> <u>Year 4</u> Know that a conductor is a material or device	<u>Forces</u> <u>Year 5</u> Know what gravity is and its impact on our lives. Know and identify and know the effect of air resistance, water resistance and of friction.	<u>Plants</u> <u>Year 1</u> **Know that there are various types of plants.** **Know the parts of plants and trees.** <u>Year 2</u> **Plants grow from seeds and bulbs.** **Plants need water, sunlight and the right temperature to grow.** **Year 3** <u>Water transportation</u> **Know water transportation is the way water moves through a plant.** <u>Plants</u> **Know every part of a plant has a job to do.**	<u>Living things and their habitats</u> <u>Year 1</u> **Know that there are different varieties of animals.** **Know the names of common animals including fish, amphibians, reptiles, birds and mammals.** <u>Year 2</u> **Know and compare the differences between things that are living, dead and never lived.** <u>Living things and their habitats</u> <u>Year 6</u> **Know how to classify living things into broad groups according to observable**	<u>Seasonal changes</u> <u>Year 1</u> Know and observe that our environment changes across the four seasons. Know and describe weather associated with the seasons. Know that the length of the day varies depending on the season. <u>Plants</u> <u>Year 1</u> **Know that there are various types of plants.** **Know the parts of plants and trees.** <u>Year 2</u> **Plants grow from seeds and bulbs.**

		that allows electricity to pass through it. Know that an insulator is a material or device that does not allow electricity to pass through it. Materials Year 5 **Materials can be grouped based on whether they are soluble or insoluble.** To be able to compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Year 6 **Materials can be grouped based on**			**characteristics and based on similarities and differences, including micro-organisms, plants and animals.**	**Plants need water, sunlight and the right temperature to grow.** **Year 3** <u>Water transportation</u> **Know water transportation is the way water moves through a plant.** <u>Plants</u> **Know every part of a plant has a job to do.**

		whether they are transparent or opaque				
Vocabulary	germs, washing, hands, soap, water, drying, important, dirty, healthy food, food decay, hygiene				Habitats, insects, chick hatching, growing, planting, watering, seeds, instructions, environment	Habitats, insects, caterpillar Butterfly, growing, planting, watering, seeds, instructions, environment
Investigations		Explore ice melting Exploring materials		How do beans grow- observation of plants growing Explore sound causing vibrations (linked to giant)	Explore shadows	
Trips and/or experiences	Daily calendars			Growing plants in the garden including beans, cress, peas etc.	Incubators Eggs and chicks Farm visit	Live caterpillars – insect lore

Year 1	Autumn 1 Superheroes	Autumn 2 School Days	Spring 1 Paws, Claws and Whiskers.	Spring 2 Dinosaur Planet	Summer 1 Bright Lights, Big City	Summer 2 Enchanted Woodland
Area of Learning/Science Strand	Everyday materials		Living things and their habitats	Animals, including humans	Seasonal changes	Plants
Key Question(s)	How could you group different materials? Can you identify and name different everyday materials? Can you describe the simple physical properties of a		Can you identify and name fish, amphibians, reptiles, birds and mammals? What animals are carnivores,	What is a carnivore, herbivore or omnivore and what food would they eat?	How has the weather changed across each season? How has the length of the day changed?	What is a deciduous and evergreen tree? What is the basic structure of a plant and a tree?

	variety of everyday materials?		herbivores or omnivores?		How would you describe the weather today?	
Knowledge	<u>Materials</u> Know and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Know the simple physical properties of a variety of everyday materials. Know that a variety of everyday materials can be grouped based upon their simple physical properties. Know that materials have properties which can be hard, soft, stiff, shiny, dull, rough, smooth, bendy, warm, strong and waterproof.		<u>Living things and their habitats</u> Know that there are different varieties of animals and identify and name common animals including fish, amphibians, reptiles, birds and mammals. Know and name a variety of common animals that are carnivores, herbivores and omnivores. Know that some things are living, and some are non-living.	<u>Animals including humans</u> Animals are grouped into the following five groups: fish, amphibians, reptiles, birds and mammals Animals can be grouped and named by what they eat (carnivore, herbivore, omnivore) Some things are living, and some are non-living. I know how to name the parts of the human body that I can see I know how to link the correct part of the human body to each sense.	<u>Seasonal changes</u> Know and observe that our environment changes across the four seasons. Know and describe weather associated with the seasons. Know that the length of the day varies depending on the season.	<u>Plants</u> **Know that there are various types of plants.** **Know the parts of plants and trees.** Know the parts of a plant are petals, stem, leaves and roots. Know the parts of a tree are: roots, trunk, branches and leaves. Know and name a variety of common wild and garden plants, including deciduous and evergreen trees. Know and describe daisy, buttercup, dandelion, bluebell, nettle, rose, sunflower, daffodil, thistle, tulip, ivy, clover. To know a trunk is woody and often

	Know that Materials may also be magnetic or non-magnetic (stick together or not). Know that plastic is strong and waterproof. It's suitable for lego, garden furniture and other things when you need them to be strong and waterproof. Know that wood is strong and hard. It's suitable for a table or fence as it is strong and hard. Know that metal is strong and waterproof. It's suitable for cutlery and keys/locks as it is hard, strong and waterproof. Know that Fabric is soft and warm. It's suitable for					has a layer of bark around it.

	clothes as it's soft and warm.					
Prior Knowledge	Materials Reception - Explore properties of materials – exploration of textures, sounds, smells – everyday language to describe. - shiny, hard, soft etc		Living things and their habitats Reception Life cycle of a chicken Life cycle of a butterfly	Animals including humans Reception Name body parts including facial features Noticing differences and similarities including disabilities.	Seasonal changes Reception- Understand some important processes and changes in the natural world around them, including seasons and changing states of matter Exploring different natural phenomena – such as weather, seasons,	Reception- Explore the natural world around them, making observations and drawing picture of animals and plants. Plants Reception Plant seeds, growing and caring for plants. Understand the key features of the lifecycle of a plant
Future Knowledge	Electricity <u>Conductors and insulators</u> <u>Year 4</u> Know that a conductor is a material or device that allows electricity to pass through it.		<u>Living things and their habitats</u> **Year 2** **Know and compare the differences between things that are living, dead and never lived.**	<u>Year 2</u> <u>Animals including humans</u> Know that we need a variety of foods to help us stay healthy, give us energy and make us feel good.		<u>Plants</u> <u>Year 2</u> **Plants grow from seeds and bulbs. Plants need water, sunlight and the right temperature to grow.**

	Know that an insulator is a material or device that does not allow electricity to pass through it. <u>Materials</u> <u>Year 2</u> **Know the material used to make an object is chosen to fit a particular purpose and the properties of the material.** Waterproof materials resist water by pushing it away. Absorbent materials soak up water. Mouldable materials can be shaped in any way chosen. Know that some objects float in water and some objects sink in water.		<u>Living things and their habitats</u> <u>Year 6</u> **Know how to classify living things into broad groups according to observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.**	It is best to try and eat lots of fruit and vegetables. Sugary treats are okay sometimes. Know It is important to drink lots of water. Know that exercise keeps our muscles strong and helps our heart stay healthy. Exercise also makes us feel happy. Know that we keep our bodies clean so that we kill any germs which may make us ill. Year 3 <u>Animals, including humans</u> To know inside the human body, there are bones, muscles, and organs.		**Year 3** <u>Water transportation</u> **Know water transportation is the way water moves through a plant.** <u>Plants</u> **Know every part of a plant has a job to do.**

	<u>Year 5</u> **Materials can be grouped based on whether they are soluble or insoluble.** To be able to compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Year 6 **Materials can be grouped based on whether they are transparent or opaque.**			To know bones, support our body and help us move. To know muscles, help bones to move. To know each organ has a particular job to do. To know that various parts of the body work together to do different jobs. This is called a system.		
Vocabulary	material, wood, metal, plastic, glass, fabric, wood, hard, soft, rigid, flexible, transparent, opaque,		animal, mammal, fish, bird, reptile, amphibian, carnivore, herbivore, omnivore, warm blooded, cold	animal, mammal, fish, bird, reptile, amphibian, carnivore, herbivore, omnivore, warm blooded, cold	season, autumn, winter, spring, summer, weather, cold, rain, cloudy, snow, cool, windy, warm, hot, sunny,	plant, seed, bulb, root, stem, leaf, petal, flower, soil, earth, sunlight, rain, water, tree, shrub,

	waterproof, absorbent, elastic		blooded, feathers, fur, gills, fins, tail	blooded, feathers, fur, gills, fins, tail	affect, hibernate, migrate, adapt, change, daylight, day time, night time, sunrise, sunset, information, data, tally chart, pictogram	flower, deciduous, evergreen
Investigations	Let's Investigate - Can you be a superhero?		Let's Investigate – What is camouflage for? Let's Investigate – Can you leap like a frog? Let's Investigate - What can our hands do? Let's Investigate - What can worms sense?	Let's Investigate - Whose poo? Let's Investigate - Why do we have teeth?	Let's Investigate - How do you make bread? Let's Investigate - How does it move?	Let's Investigate - What's in a bud? Let's Investigate - How do leaves change? . Let's Investigate - Do pine cones know its raining?
Trips and/or experiences			Visit to Hamerton Zoo Park and look at a variety of different animals.		Daily calendar updates.	Visit to forest area to identify deciduous and evergreen trees.
Progression Standards for working scientifically	§ asking simple questions and recognising that they can be answered in different ways § observing closely, using simple equipment § performing simple tests § identifying and classifying § using their observations and ideas to suggest answers to questions § gathering and recording data to help in answering questions					

Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2

	Beachcombers	Land Ahoy	Street Detectives	Towers, Tunnels and Turrets	Scented Garden	Stone Age
Area of Learning/Science Strand	Living things and their habitats	Animals, including humans Uses of everyday materials		Animals, including humans	Plants	
Key Question(s)	How do different habitats provide for the needs of animals? How do animals obtain their food from plants and other animals?	What do animals need to survive and why? Can you name a variety of everyday materials?		What is a healthy lifestyle? Why is exercise important?	How do plants survive?	
Knowledge	<u>Living things and their habitats</u> **Know and compare the differences between things that are living, dead and never lived.** <u>Habitats</u> Know how a specific habitat provides for the basic needs of things living there (plants and animals). Know and name plants and animals	<u>Animals, including humans</u> Know that all animals change as they grow from young to old. egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep Know a human life cycle: baby, toddler, child, teenager, adult Know that animals need water, food and air to survive.		<u>Animals including humans</u> Know that we need a variety of foods to help us stay healthy, give us energy and make us feel good. It is best to try and eat lots of fruit and vegetables. Sugary treats are okay sometimes. Know It is important to drink lots of water.	<u>Plants</u> **Plants grow from seeds and bulbs. Plants need water, sunlight and the right temperature to grow.** Know that seeds come in all shapes and sizes. Know that all seeds have a hard outer coat, a baby plant inside and food for the baby plant. Know that when the plant begins to	

	in a range of habitats, including micro-habitats. Know and match living things to their habitat. Know how animals find their food Know and name some different sources of food for animals. Know how to describe how different habitats provide for the basic needs of various kinds of animals and plants. Know how different habitats depend on each other. <u>Food chains</u> I know and can explain a simple food chain. Know how to describe how animals obtain	Know that some offspring do not look like their adult when they are born. Know about and describe the basic needs of animals, including humans, for survival (water, food and air) <u>Uses of everyday materials</u> **Know the material used to make an object is chosen to fit a particular purpose and the properties of the material.** Know that flexible materials can move and bend. Rigid materials are stiff, straight and hard and cannot bend. Waterproof materials resist water by pushing it away. Absorbent		Know that exercise keeps our muscles strong and helps our heart stay healthy. Exercise also makes us feel happy. Know that we keep our bodies clean so that we kill any germs which may make us ill.	grow, we call this germination. The seed is planted and watered. The hard outer coat splits. A root grows downwards A shoot grows upwards. The shoot grows into the leaves, flower and fruit. Some plants, like daffodils, tulips and bluebells grow from bulbs. Bulbs are bigger than seeds. Know that to grow, plants need water, sunlight, and the right temperature. If they do not have one or more of these, they will not grow.	

	their food from plants and other animals. Know and name different sources of food.	materials soak up water. Mouldable materials can be shaped in any way chosen. Plastic, metal and glass can be moulded to make objects of different shapes. They are heated to be soft when being moulded and they are hard once they have been cooled. Ladders need to be made from a strong, rigid material. Play doh, straws, string, paper/cardboard and thin tubing are materials, which bend, squash, twist and can be stretched. Know that some objects float in water and some objects sink in water. This				

		depends on their shape and the material. A boat made of stone would sink. A boat made of plastic would float. The best material for a boat is metal or plastic as they are both strong, waterproof, hard, mouldable and can float.				
Prior Knowledge	<u>Living things and their habitats</u> <u>Year 1</u> **Know that there are different varieties of animals.** **Know the names of common animals including fish, amphibians, reptiles, birds and mammals.**	<u>Materials</u> <u>Year 1</u> Know and name a variety of everyday materials. Know that materials have different properties. Know that a variety of everyday materials can be grouped		<u>Animals including humans</u> <u>Year 1</u> Animals are grouped into the following five groups: fish, amphibians, reptiles, birds and mammals Animals can be grouped and named by what they eat (carnivore,	Plants Reception- Explore the natural world around them, making observations and drawing picture of animals and plants. Plant seeds, growing and caring for plants. Understand the key features of the lifecycle of a plant. <u>Year 1</u>	

		based upon their simple physical properties. Know that Materials may also be magnetic or non-magnetic (stick together or not). States of matter Year 1 *Objects/materials can be grouped through simple properties.*		herbivore, omnivore) Some things are living, and some are non-living.	**Know that there are various types of plants.** **Know the parts of plants and trees.**	
Future Knowledge	<u>Living things and their habitats</u> <u>Year 6</u> **Know how to classify living things into broad groups according to observable characteristics and based on similarities and differences, including micro-**	Electricity <u>Conductors and insulators</u> <u>Year 4</u> Know that a conductor is a material or device that allows electricity to pass through it. Know that an insulator is a material or device that does not allow		Animals including humans Year 4 <u>Digestive system</u> Know the digestive system is a group of organs which work together to turn food and liquids into the building blocks and fuel that the body needs.	<u>Plants</u> <u>Year 3</u> **Know every part of a plant has a job to do.** <u>Seed dispersal</u> **Know seed dispersal is how seeds are carried away from the plant that made them, so that plants grow in lots of various places.**	

	organisms, plants and animals.	electricity to pass through it. <u>Materials</u> Year 5 **Materials can be grouped based on whether they are soluble or insoluble.** Know and can demonstrate that some changes are reversible, and some are irreversible. To be able to compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Rocks Year 3		Year 6 I know the impact of diet, exercise, drugs and lifestyle on health.	<u>Plants</u> <u>Water transportation</u> **Know water transportation is the way water moves through a plant.**	

		To know there are different types of rocks. Rocks can be grouped together based on their appearance and simple physical properties.				
Vocabulary		material, wood, metal, plastic, glass, fabric, wood, suitability, properties, squash, bend, stretch, twist, waterproof, strong, opaque, absorbent, transparent		human, nutrition, energy, growth, sugars, fruit, vegetable, meats, fats, fish, starch, herbivore, carnivore, omnivore, skeleton, animal, calcium	roots, stem, leaves, flower, petal, air, light, nutrients, seed, germination, pollination, fruits, dispersal, explosion	
Investigations	Let's Investigate – Where do worms live?	Let's Investigate – Why do boats float? Let's Investigate – Can you find the treasure?	Let's Investigate – How do plants grow in the winter?	Let's Investigate – Why should I exercise?	Let's Investigate – How does grass grow? Let's Investigate – What's on your wellies? Let's Investigate – Can seeds grow anywhere?	
Trips and/or experiences	Now Press Play- Habitats	Children group and classify different objects.	Now Press Play- Plants	Life bus- Healthy diet (Spring) Now Press Play- Humans	Children planting seeds.	

Progression Standards for working scientifically	§ asking simple questions and recognising that they can be answered in different ways § observing closely, using simple equipment § performing simple tests § identifying and classifying § using their observations and ideas to suggest answers to questions § gathering and recording data to help in answering questions

Year 3	Autumn 1 **Flow** **Ancient Egypt** **Rivers** **A Hindu story: Rama and Sita**	Autumn 2 **Flow** **Cradles of civilisation** **Mountains** **Hinduism origins: places and stories from the Indus Valley.**	Spring 1 **Urban Pioneers** **Settlements & cities** **Indus Valley Civilisation** **Living as a Hindu today, incl. Hinduism in London**	Spring 2 **God and Mortals** **Persia and Greece** **Agriculture** **Judaism 1 - Abraham to Jacob**	Summer 1 **God and Mortals** **Ancient Greece** **Volcanoes** **Judaism 2 - Joseph to Moses**	Summer 2 **Scrumdiddlyumptious** **Alexander the Great** **Climate and Biomes** **Judaism 3 - The kings, the temple and living as a Jew**
Area of Learning/Science Strand	Rocks	Forces and magnets	Animals, including humans	Plants	Light	
Key Question(s)	Can you compare and group different rocks based on physical properties? How are fossils formed? How is soil formed?	Which materials do magnets attract and repel? Can you identify everyday materials that are attracted to a magnet and explain why? Can magnetic forces act at a distance? Which magnetic poles attract/ repel each other? How do objects move on different surfaces?	What is the function of a skeleton in animals and humans? How do humans and animals get their nutrition?	Can you name and describe the functions of flowering plants? How do plants survive? How does water move around a plant? How do flowers play a part in the life cycle of plants?	How do humans and animals see? How can eyes be protected? How are shadows made? How can shadows be altered?	

Knowledge	<u>Rocks</u> **To know rocks are naturally occurring objects.** To know there are different types of rocks. Rocks can be grouped together based on their appearance and simple physical properties. To know soils are made from rocks and organic matter. To know rocks can be hard (granite), soft (clay), permeable (pumice), impermeable, durable	<u>Forces and Magnets</u> Know how magnets work. Know that magnets have two poles. I know about and can explain how objects attract and repel in relation to objects and other magnets. I predict whether objects will be magnetic and carry out an enquiry to test this out. <u>Forces and Magnets</u> Know that opposite poles attract and the same poles repel. To know and describe how objects move on different surfaces. To know how some forces require contact and some do not, giving example. Know magnetic forces can act at a distance. To compare how objects more on different surfaces. I predict whether magnets will attract or repel and give a reason	<u>Animals, including humans</u> To know inside the human body, there are bones, muscles, and organs. To know bones, support our body and help us move. To know muscles, help bones to move. To know each organ has a particular job to do. The brain, heart and lungs are examples of organs. To know that various parts of the body	<u>Plants</u> <u>Water transportation</u> **Know water transportation is the way water moves through a plant.** Know the roots absorb water and nutrients from the soil. Know water transportation is the way water moves through a plant. The roots absorb water from the soil. The stem transports water to the leaves. Water evaporates from the leaves. This evaporation causes more water to be sucked up the stem. The water is sucked up the stem like water being sucked up through a straw. <u>Seed dispersal</u> **Know seed dispersal is how seeds are carried away from the plant that made them, so that plants grow in lots of various places.** Know flowers attract bees and insects. This is	<u>Light</u> To know that dark is (the absence of light). Know that light is needed to see. I know that light is reflected from a surface. I know and can demonstrate how a shadow is formed (when a light source is blocked by an opaque object). I explore shadow size and explain the changes. I know the danger of direct	

	(marble), dense (how tightly packed the rock is) <u>Types of rocks and uses</u> To know granite is used for work surfaces because it is hard and rigid. Clay is used to make models and sculptures because it is soft, mouldable and can be twisted and squashed. Pumice is used to polish because it is light and permeable - water can run		work together to do different jobs. This is called a system. To know the skeletal system is made up of our bones. The job of the skeletal system is to support and protect our body and to help us move. To know the main bones in the skeletal system are skull, vertebral column (spine). To know about the muscular	important because bees and insects carry pollen from one flower to another. When the pollen reaches another flower a new seed is formed. The seed is then moved to somewhere new and grows. Know seed dispersal is when the seed is moved. Know seed dispersal can happen in the following ways: the plant shaking in the wind, pollen getting stuck to insects, bees and animals, animals or birds eating the flowers and then pooing it out somewhere else, pollen travelling in water.	sunlight and describe how to keep protected.	

	through it. It is not dense like other rocks. Marble is used to make sculptures because it is long lasting and soft enough to carve. It is also very beautiful. Chalk is used for writing. It is soft and light and leaves behind a residue. Limestone is permeable. Soil is made from fine rock, mixed with air and water and with dead plants and animals.		system of a human. <u>Nutrition</u> To know that it is important that we eat the right foods to keep our body healthy. To know that nutrients come from the foods we eat, our bodies cannot create food. To know how nutrients, water and oxygen are transported with animals and humans.			

	Fossils can be found in rocks. <u>Fossils</u> To know fossils are the remains or traces of plants and animals that lived long ago. To know fossils form when layers of the earth build up on top of each other and turn into hard rock.					
Prior Knowledge	<u>Materials</u> <u>Year 2</u> **Know the material used to make an object is chosen to fit a particular purpose and the**	<u>Forces and magnets</u> <u>Reception</u> Exploring forces that they can see or feel. Year 1 Some objects are magnetic, and some objects are non-magnetic.	<u>Animals including humans</u> <u>Year 2</u> Know that we need a variety of foods to help us stay healthy, give	<u>Reception-</u> Explore the natural world around them, making observations and drawing picture of animals and plants. Plant seeds, growing and caring for plants. Understand the key features of the lifecycle of a plant <u>Year 1</u>		

	properties of the material. Waterproof materials resist water by pushing it away. Absorbent materials soak up water. Mouldable materials can be shaped in any way chosen. Know that some objects float in water and some objects sink in water.		us energy and make us feel good. It is best to try and eat lots of fruit and vegetables. Sugary treats are okay sometimes. Know It is important to drink lots of water. Know that exercise keeps our muscles strong and helps our heart stay healthy. Exercise also makes us feel happy. Know that we keep our bodies clean	<u>Plants</u> **Know that there are various types of plants.** **Know the parts of plants and trees.** Year 2 <u>Plants</u> **Plants grow from seeds and bulbs.** **Plants need water, sunlight and the right temperature to grow.**		

			so that we kill any germs which may make us ill.			
Future Knowledge	<u>Evolution and inheritance</u> <u>Year 6</u> Know how the Earth and living things have changed over time. Know how fossils can be used to find out about the past.	<u>Forces</u> Know what gravity is and its impact on our lives. Know and identify and know the effect of air resistance. Know and identify and know the effect of water resistance Know and identify and know the effect of water resistance Know and identify and know the effect of friction Know and explain how levers, pulleys and gears allow a smaller force to have a greater effect.	Animals including humans Year 4 <u>Digestive system</u> Know the digestive system is a group of organs which work together to turn food and liquids into the building blocks and fuel that the body needs. **Animals including humans** Year 6 I know the impact of diet,		Year 6 <u>Light</u> Know that light travels in straight lines. Know that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Know that we see things because light travels from light sources to our eyes or from light sources to objects and	

			exercise, drugs and lifestyle on health.		then to our eyes. Know how to explain that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Know how simple optical instruments work e.g. periscopes Material Year 6 **Know materials can be grouped based on whether they are transparent or opaque.**	
Vocabulary	soil, sock, earth, air, water, organic matter,	force, magnet, contact force, attract, repel, propel, pole, friction, weight, mass, gravity, air resistance, water	human, nutrition, energy,	roots, stem, leaves, flower, petal, air, light, nutrients, seed,	light, dark, light source, reflection,	

	minerals, erosion, topsoil, subsoil, bedrock, parent matter, inner core, outer core, mantle, crust, igneous, metamorphic, sedimentary, lava, magma, molten rock, fossil, skeleton, permeable	resistance, acceleration, balanced force, unbalanced force, pulleys, gears, levers	growth, sugars, fruit, vegetable, meats, fats, fish, starch, herbivore, carnivore, omnivore, skeleton, animal, calcium	germination, pollination, fruits, dispersal, explosion	refraction, opaque, translucent, transparent, spectrum, rainbow, prism, shadow, ultraviolet, radiation	
Investigations	Let's Investigate- What is soil? Let's Investigate – How fast does water flow?	Let's Investigate – Why do magnets attract and repel? Let's Investigate – Can you block magnetism? Let's Investigate – What does friction do?	Let's Investigate – Is it safe to eat? Let's Investigate – Which is the juiciest fruit?	Let's Investigate – What do plants need to survive?	Let's Investigate – Why do cat's eyes glow at night? Let's Investigate – Why do shadows change?	
Trips and/or experiences	River Nene Trip Now Press Play- Rocks	Now Press Play- Materials and changing state		Now Press Play- Plants		
Progression Standards for working scientifically	§ asking relevant questions and using different types of scientific enquiries to answer them § setting up simple practical enquiries, comparative and fair tests § making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers § gathering, recording, classifying and presenting data in a variety of ways to help in answering questions § recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables § reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions					

	§ using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions § identifying differences, similarities or changes related to simple scientific ideas and processes § using straightforward scientific evidence to answer questions or to support their findings.

Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Area of Learning/Science Strand	Sound	Electricity	Living things and their habitats & Animals including humans (one objective)	Living things and their habitats	Animals including humans	States of matter
Key Question(s)	How are sounds made through vibration? How do vibrations from sound reach the ear? Is there a relationship between pitch and sound? Does the strength of vibration increase volume? Do sounds become fainter as distance increases?	What appliances are powered by electricity? What are the basic components of an electrical circuit? How does a light bulb become illuminated? How does a swich operate? What materials make a good conductor?	What are producers, predators and prey and how do they affect a food chain? How can living things be grouped?	How can environmental conditions affect living things?	What are the basic parts of the human digestive system? What are the different types of human teeth and their functions?	Which materials are solids, liquids or gasses? Which materials change state through heating or cooling? How does evaporation and condensation affect the water cycle? How does heat affect the water cycle?
Knowledge	<u>Sound</u> Know that sound is made when objects and materials vibrate.	<u>Electricity</u> Know that electricity is a form of energy and know some of its common uses.	<u>Living things and their habitats</u> <u>Classification</u>	<u>Living things and their habitats</u> Know that a habitat is a natural home or environment that gives the organisms	<u>Animals including humans</u> <u>Digestive system</u> Know the digestive system is a group	<u>States of matter</u> **Materials can be grouped based on their state of matter (solid, liquid, gas).**

	Know that vibration causes movement in air particles. Know that sound travels through the air in air waves. Know that some materials can prevent sounds reaching the ear. Know that we can vary the pitch and tone of sounds. Know that distance from the sound source means the sound gets fainter. Know the correlation between pitch and the object producing a sound Know the correlation between the volume of a sound and the strength of the vibrations that produced it.	Many everyday appliances rely on electricity for them to work, for example kettles, irons, mobile phones and torches. Know that we get electricity from different sources, including power stations and batteries. Some appliances (kettles, irons) use mains electricity (are plugged into a socket) and others (mobile phones, torches) have a battery to make them work. Mains electricity: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.	**Know living things can be grouped in a variety of ways.** Know that different animals are a part of different food chains. Know that living things can be a producer, predator or prey. Know animals can be grouped into vertebrates and invertebrates. Vertebrates have a spine. Invertebrates do not have a spine. Vertebrates can be grouped into fish, amphibians, birds, reptiles and mammals. Invertebrates can be grouped into snails and slugs, spiders, worms and insects. Know plants can be grouped into	that live there what they need to survive. Know what impacts humans have had on some living environments. Know that one change in habitat can affect all the organisms. Know changes to an environment can endanger living things. Know human beings can change an environment. This can be a positive or negative change. Positive changes are, for example, building nature reserves, cleaning seas and lakes, picking up litter, or protecting endangered species. Negative changes can be polluting environments with litter or chemicals,	of organs which work together to turn food and liquids into the building blocks and fuel that the body needs. Know there are some important liquids involved in the digestive system: saliva softens food to make it easier to digest stomach acid helps to break food down, making it easier to digest Know the parts of the digestive system are: mouth - food enters the body here teeth - cut up and grind food tongue - mixes food and saliva salivary glands - produces saliva to	Know if a material is a solid, liquid or gas and know some of the differences between them. Know that material can change state when they are heated or cooled and know the temperatures when this change happens in °C. Know that solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container. Know that liquids can evaporate and change into gases when heated. Know that gases can condense into liquids when cooled. Know that the water cycle is a continuous cycle of evaporation and condensation, and that temperature is the main variant.

		Battery electricity: batteries store chemicals which produce an electric current. Some batteries are single use and when they run out are thrown away. Some batteries are rechargeable by plugging them into mains electricity. Batteries have a positive and a negative end <u>Circuits</u> Know that electricity travels through wires. There must be wires connected to both the positive and negative end of the battery for the circuit to be complete. There must be a battery in the circuit. Know that electricity travels through a circuit and the elements of a circuit: component, switch,	flowering and non-flowering plants. Know that classification keys use yes/no questions to group or identify living things. Know how to use a classification key, you start with the living thing and answer the yes/no questions. To create a classification key, you ask yes/no questions to group the living things.	or cutting down trees. New housing developments can have a negative effect on the environment, but developers can help by designing green spaces.	soften food in the mouth oesophagus - the path from the mouth to the stomach stomach - here, acid breaks food down and mix it up small intestine - absorbs nutrients from food and passes waste on to large intestine large intestine - absorbs water from waste food rectum - stores stool and tells brain that you need to go to the toilet anus - stools are released from here at the end of the digestive system <u>Teeth</u> Know humans have teeth to help cut	

		current, volt, cell, bulb and buzzer. Know electricity can only flow around a complete circuit that has no gaps. When the circuit is complete, the bulb will light up or the buzzer will buzz. Switches can be used to open or close a circuit. When off, a switch 'breaks' the circuit to stop the flow of electricity. When on, a switch completes the circuit and allows the electricity to flow. Know that a lamp will light or not if in a complete loop or not with a cell in a simple series. Know designers have to draw circuit diagrams when designing a product so that when it is built, it works. Know that circuit symbols are used so			up and grind their food, to make it easier to digest. Know different types of teeth which do different jobs. Incisors are used for biting and cutting food. They are at the front of your mouth. You have eight in total: four at the top and four at the bottom. Canines are used for rubbing and tearing food. They are either side of your incisors and yuo have four of them. Canine teeth are often pointy, like the teeth of a dog or a wolf. Premolars and Molars are towards the back of your mouth. They are bigger	

		that the diagram is simple and easy to understand and can be used in any country in the world. Know and draw the symbols for: bulb, wire, battery, switch (open and closed) and buzzer. <u>Conductors and insulators</u> Know that a conductor is a material or device that allows electricity to pass through it. Wire is made from metal, which is a conductor. This allows electricity to flow through it. Know that an insulator is a material or device that does not allow electricity to pass through it. Wood, plastic and glass are good insulators. Wire has plastic on the outside because it is an			and wider that incisors and canines and this is because they are used to hold and crush food.	

		insulator. This makes it safe for people to touch. If there was no plastic, people would suffer electric shocks when touching wires.				
Prior Knowledge	Reception – Explore properties of materials – exploration of textures, sounds,	<u>Electricity</br>Reception and Year 1</br>Knowledge of materials learnt in these two years will support later learning about insulators and conductors.	<u>Reception</u></br>Life cycle of a butterfly</br>Life cycle of a chicken</br>Understand the key features of the lifecycle of a plant</br></br>Year 1</br><u>Living things and their habitats</u></br>**Know that there are different varieties of animals.**</br>**Know the names of common animals including fish, amphibians, reptiles, birds and mammals.**</br></br><u>Living things and their habitats</u></br>**Year 2**		Reception-</br>Name body parts including facial features</br></br><u>Animals including humans</u></br><u>Year 1</u></br>Animals are grouped into the following five groups: fish, amphibians, reptiles, birds and mammals</br>Animals can be grouped and named by what they eat (carnivore, herbivore, omnivore)</br>Some things are living, and some are non-living.	Reception</br>Understand some important processes and changes in the natural world around them, including seasons and changing states of matter.</br></br>States of matter</br>Year 1</br>*Objects/materials can be grouped through simple properties.*</br></br>Year 2</br>Mouldable materials can be shaped in any way chosen. Plastic, metal and glass can be moulded to make objects of different shapes. They are heated to be soft when being

			Know and compare the differences between things that are living, dead and never lived.		<u>Year 2</u> <u>Animals including humans</u> Know that we need a variety of foods to help us stay healthy, give us energy and make us feel good. It is best to try and eat lots of fruit and vegetables. Sugary treats are okay sometimes. Know It is important to drink lots of water. Know that exercise keeps our muscles strong and helps our heart stay healthy. Exercise also makes us feel happy. Know that we keep our bodies clean so that we kill any germs which may make us ill.	moulded and they are hard once they have been cooled.

					Year 3 <u>Animals, including humans</u> To know inside the human body, there are bones, muscles, and organs. To know bones, support our body and help us move. To know muscles, help bones to move. To know each organ has a particular job to do. To know that various parts of the body work together to do different jobs. This is called a system.	
Future Knowledge	Y5 - Y6 - ADD	<u>Year 6</u> <u>Electricity</u> <u>Circuits</u>	<u>Living things and their habitats</u> <u>Year 6</u>		Year 6 Animals including humans	States of matter Year 5 **Materials can be grouped based on**

		Electricity can be generated in different ways. 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. Know how to draw circuit diagrams using correct symbols when representing a simple circuit in a diagram.	**Know how to classify living things into broad groups according to observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.**		I know the impact of diet, exercise, drugs and lifestyle on health.	**whether they are soluble or insoluble.** Know how a material dissolves to form a solution. Know and can demonstrate that some changes are reversible, and some are irreversible. Know and show that dissolving, mixing and changes of state are reversible changes. I know how some changes result in the formation of a new material and that this is usually irreversible. To be able to compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and

						thermal), and response to magnets. Know reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

Vocabulary	sound, object, material, vibrate, vibrations, sound waves, air particles, energy, soundproof, muffle, pitch, volume	circuit, component, electricity, current, static, current, atoms, protons, electrons, generator, appliances, power, power source, battery, mains electricity, socket, plug, pylons, conductor, insulator, electrocuted, switch, brightness, fair test, voltage	habitats, adaptation, survival, threat, biome, predator, prey, rainforest, biome, habitat, ecosystem, biome, rainforest, carnivore, herbivore, food chain, food web, producer, consumer, biodiversity, plants, trees, roots, stem, leaves, flower, fruit, nuts, uses, medicine, botanists, adaptation, adapt, investigation, nutrients, shallow, buttress, stability, habitats, characteristics, classify, classification, flowering, non-flowering, spiky leaves, rounded leaves, vertebrate, invertebrate, mammal, reptile, bird, fish, amphibian, zoologist		carnivore, herbivore, omnivore, food, energy, nutrients, nutrition, healthy diet, food chain, ecosystem, organism, producer, photosynthesis, consumer	solid, liquid, gas, substance, particles, freeze, heat, boil, melt, temperature, Celsius, Fahrenheit, thermometer, mercury, expand, sensor, evaporation, perfume, water vapour, condensation, water cycle, precipitation, surface water, ground water, run off,
Investigations	Let's Investigate – Can we block sound? How can we change a sound? How far can sound travel?	Let's Investigate - What conducts electricity? Can you make a circuit from playdough?	Let's Investigate- Are all sea creatures the same?	Let's Investigate- What do squirrels eat?	Let's Investigate- How does toothpaste protect teeth? Let's Investigate – How do smells get up your nose?	Let's Investigate – Where does water go? Let's Investigate – Why does it flood? Let's Investigate – Are all liquids runny?

		How do plugs work?			Let's Investigate – What is spit for?	Let's Investigate – Is custard a liquid?
Trips and/or experiences						Hunstanton (sea life centre)
Progression Standards for working scientifically	§ asking relevant questions and using different types of scientific enquiries to answer them § setting up simple practical enquiries, comparative and fair tests § making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers § gathering, recording, classifying and presenting data in a variety of ways to help in answering questions § recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables § reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions § using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions § identifying differences, similarities or changes related to simple scientific ideas and processes § using straightforward scientific evidence to answer questions or to support their findings.					

Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Area of Learning/Science Strand	Earth and Space		Materials	Living things and their habitats	Animals, including humans	Forces and Magnets
Key Question(s)	What shape are the Earth, the sun and the moon? How do we know? Why is night and day different in places in the world? Why do we get night and day?		What is the best way to get clean water on your journey through Alchemy Island? Which changes are reversible? How can they be reversed? Which changes are irreversible? What	In what ways are the life cycles of mammals, insects, amphibians and birds similar? In what ways are they different? How does the life processes of reproduction take	How do humans change as they get older – what are the main stages of development? -What happens at each stage?	*Will water stay in a bucket which is upside down?* What did you predict and why? What actually happened? *What effect will the weight of the pendulum have on the number of swings it completes*

	How does the moon rotate in relation to the Earth? How do the planets orbit the sun? How does gravity give objects weight? Does the weight of an object affect the speed at which it drops? Why do objects fall towards earth? What is gravity?		happens when an irreversible change occurs? Why are certain materials chosen for specific jobs? Why would some materials be chosen to make a space suit from? What would they need to do?	place in plants / animals?		*in 1 minute?* How did you plan to answer this question? Which variables did you control? What did you find out? How can we use levers and pulleys to enhance the effect of force? What are friction, air resistance and water resistance? Where would we see these in action? What effect does each of these forces have? What surface would be best to make the break run stop the quickest?
Knowledge	<u>Earth and Space</u> Know about and explain the movement of the Earth and other planets relative to the Sun. I know about and explain the movement of the Moon relative to the Earth.		<u>Material</u> **Materials can be grouped based on whether they are soluble or insoluble.** Know how a material dissolves to form a solution. Know how to explain the	<u>Living things and their habitats</u> <u>Life cycles</u> **Life cycles between different living things are quite different.** Know mammals grow inside their mother's womb and are born. They	<u>Animals including humans</u> Know that as humans age, their bodies change. This is the human life cycle. Know human young are dependent on their mother for longer time than	<u>Forces</u> Know what gravity is and its impact on our lives. Know and identify the effect of air resistance. Know and identify the effect of water resistance.

	Know and demonstrate how night and day are created by Earth's rotation. To be able to describe the Sun, Earth and Moon (using the term spherical) <u>Forces</u> Know what gravity **is and its impact on our lives.** **Know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.** -		process of dissolving. Know and show how to recover a substance from a solution. Know how some materials can be separated. Know and demonstrate how materials can be separated (e.g. through filtering, sieving and evaporation) Know and can demonstrate that some changes are reversible, and some are irreversible. Know and show that dissolving, mixing and changes of state are reversible changes. I know how some changes result in the formation of a new material and	grow as they age. (Rabbit) Know female amphibians lay eggs in water. These eggs are outside of the mother's body. The eggs are soft because they are encased in jelly. The eggs develop over time. There is a complete transformation. (Frog) Know female insects lay eggs outside of their body. The eggs hatch into larva. A hard case then forms around the larva. This is called the pupa. During this time the insect metamorphoses into an adult. This is a complete	any other living things. Know humans can start to reproduce when puberty starts during adolescence. Know humans can reproduce until late adulthood. Know that in old age, the body becomes more fragile and there is less growth.	Know and identify the effect of friction. Know and explain how levers, pulleys and gears allow a smaller force to have a greater effect.

			that this is usually irreversible. To be able to compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	transformation (butterfly) Know female birds lay eggs outside of their bodies. The eggs have a hard shell. The eggs hatch. The chick grows as it ages. Know the lifecycles are all different for example: Insects and amphibians transform completely as they age. The young does not look like the adult. Amphibian and insect eggs are soft. Bird eggs are hard shelled. Amphibian, insect and bird eggs are outside the body. Mammals grow their young inside their body. Mammals change as they grow.		

				<u>Reproduction</u> Know reproduction is living things making more of themselves. This is important to living things to maintain their species. Know sexual reproduction happens when there is a male and a female. Know asexual reproduction happens when one living thing has everything it needs to make more of itself.		
Prior Knowledge	<u>Seasonal changes</u> <u>Year 1</u> Know and observe that our environment changes across the four seasons.		<u>Materials</u> <u>Year 1</u> Know and name a variety of everyday materials.	Reception Life cycle of a chicken Life cycle of a butterfly Year 1	Reception Name body parts including facial features Noticing differences and similarities including disabilities.	<u>Forces and magnets</u> <u>Reception</u> Exploring forces that they can see or feel. Year 1

	Know and describe weather associated with the seasons. Know that the length of the day varies depending on the season.		Know that materials have different properties. Know that a variety of everyday materials can be grouped based upon their simple physical properties. Know that Materials may also be magnetic or non-magnetic (stick together or not). Electricity <u>Conductors and insulators</u> <u>Year 4</u> Know that a conductor is a material or device that allows electricity to pass through it. Know that an insulator is a	<u>Living things and their habitats</u> **Know that there are different varieties of animals.** **Know the names of common animals including fish, amphibians, reptiles, birds and mammals.** <u>Living things and their habitats</u> **Year 2** **Know and compare the differences between things that are living, dead and never lived.** <u>Classification</u> <u>Year 4</u> **Know living things can be grouped in a variety of ways.** Know that different animals are a part of different food chains.	<u>Year 2</u> <u>Animals including humans</u> Know that we need a variety of foods to help us stay healthy, give us energy and make us feel good. Know It is important to drink lots of water. Know that exercise keeps our muscles strong and helps our heart stay healthy. Know that we keep our bodies clean so that we kill any germs which may make us ill. Year 2 <u>Animals, including humans</u> Know that all animals change as they grow from young to old. Know a human life cycle: baby,	Some objects are magnetic, and some objects are non-magnetic. Year 3 Know how magnets work. Know that magnets have two poles. I know about and can explain how objects attract and repel in relation to objects and other magnets. I predict whether objects will be magnetic and carry out an enquiry to test this out. Know that opposite poles attract and the same poles repel. To know and describe how objects move on different surfaces. To know how some forces require

			material or device that does not allow electricity to pass through it. States of matter Year 1 *Objects/materials can be grouped through simple properties.* Year 2 Mouldable materials can be shaped in any way chosen. Plastic, metal and glass can be moulded to make objects of different shapes. They are heated to be soft when being moulded and they are hard once they have been cooled.	Know that living things can be a producer, predator or prey. Know how to use a classification key, you start with the living thing and answer the yes/no questions.	toddler, child, teenager, adult Know that animals need water, food and air to survive. Know that some offspring do not look like their adult when they are born. Know about and describe the basic needs of animals, including humans, for survival (water, food and air)	contact and some do not, giving example. Know magnetic forces can act at a distance. To compare how objects more on different surfaces. I predict whether magnets will attract or repel and give a reason.
Future Knowledge				<u>Living things and their habitats</u> <u>Year 6</u> **Know how to classify living**	<u>Animals including humans</u> <u>Year 6</u> I know the impact of diet, exercise,	

				things into broad groups according to observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.	drugs and lifestyle on health.	
Vocabulary	space, planet, sphere, spherical, diameter, distance, rotate, rotation, shadow, sunrise, sunset, axis, relativity, relative distance, satellite, craters, meteors, emits, illuminated, lunar, lunar cycle, lunar phase		material, substance, solution, properties, dissolve, particles, react, soluble, insoluble, reversible, evaporation, filter, sieve, liquid, gas, irreversible, heating, temperature, cooling, water vapour, charcoal, ash, harmful gases, flammable, hazard, flexible, malleable, transparent,	life cycle, reproduction, sexual reproduction, sepal, petal, filament, anther, stigma, style, ovary, carpel, stamen, pollination, genetic, genes, fertilisation, asexual, bulb, tuber, runner, plantlet, clones, genetically identical, parent plant, cutting, sex cell, internal fertilisation, external fertilisation, live offspring, egg,	reproduction, growth, development, life cycle, stage, gestation, infancy, childhood, adolescence, adulthood, old age, fertilisation, embryo, pregnant, puberty, gestation period, foetus, egg cell, reproductive organs, bladder, uterus, womb, ovary, newborn, breastfeed, dependence, independence,	weight, gravitational force, pull, Earth's centre, gravity, air resistance, gravity, gravitational force, parachute, sky dive, investigate, water resistance, streamlined, speed, friction, surface, time, high friction, low friction, pulley, belt pulley, lever, fulcrum

			translucent, soluble, conductive	embryo, colonies, nectar, forage, vegetation, breeding season, spawn, gestation period, life expectancy, incubate, metamorphosis, pupa, naturalist, oceanographer,	toddler, hormones, glands, pituitary gland, testicles, breasts, menstruation, hygiene, balanced diet, healthy lifestyle, emotions, feelings, ageing, deterioration, retirement	
Investigations	Let's Investigate – Can we track the sun? Let's Investigate – How clean are your hands? Let's Investigate – How do levers help us? Let's Investigate – How do rockets lift off? Let's Investigate – How do we know the Earth is round? Let's Investigate – How does the moon move?	Let's Investigate - Why do planets have craters?	Let's Investigate – Can you clean dirty water? Let's Investigate – Will it erupt? Let's Investigate – Which materials conduct heat? Let's Investigate – Do all solids dissolve?	Let's Investigate – How do worms reproduce? Let's Investigate – Why do birds lay eggs?	Do reaction times slow as we age?	Let's Investigate - What do pulleys do?

	Let's Investigate – Why are zip-wires so fast? Let's Investigate – Why do planets have craters?					
Trips and/or experiences						
Progression Standards for working scientifically	§ planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary § taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate § recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs § using test results to make predictions to set up further comparative and fair tests § reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations § identifying scientific evidence that has been used to support or refute ideas or arguments.					

Year 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Area of Learning/Science Strand	ID Working Scientifically / Living things and their Habitats	Blood Heart Working Scientifically/ Animals including Humans	Frozen Kingdom Working Scientifically / Evolution and Inheritance / Living Things and their Habitats	Darwin's Delights Evolution and Inheritance	Hola Mexico Light	Gallery Rebels Electricity
Key Question(s)	-What types of question are used in a classification key? Can you give an example?	- What are the parts of the heart and their functions?	-What questions/ observations did you make about the 'iceberg'? - What is adaptation?	-What type of question would you ask to create a classification key? Examples?	-How does light travel? - How and why are objects seen? -How can mirrors be used to change the	-Can you draw a circuit using symbols? -How do different voltages affect a circuit?

	-Which method did you use to present the results about height and foot length? What did you conclude in this work? - What are the 3 types of fingerprint? How did you collect the fingerprints? - What does inheritance mean? What are inherited characteristics? - How did you work out the mean average height for boys and girls? What did you find out?	- What are the parts of the circulatory system? -What are the names and functions of the blood vessels? -What are the parts of the blood and what is the function of each part? - How are nutrients and water transported around the body? - Can we explain the effects that positive and negative lifestyle choices have on the body – e.g. food, drugs, alcohol? - What did you find out from the investigation? Was there a correlation? How did you know?	-In what ways are polar animals adapted to suit their habitat? - What is Carl Linnaeus known for? - How is a Polar bear classified? -Can you say how and why you would classify a chosen living thing? - Can we slow the rate of cooling? - How? Which materials were most effective? How did we make the investigation a fair test?	- What can we learn from fossils? - How has the horse evolved and how do we know? - What was the theory of Charles Darwin? -What does inheritance mean? - What is natural selection and what is artificial selection? -How have the beaks of the Galapagos Finches adapted to suit their habitat? - Which variables will you control in the beak investigation? What conclusions can you draw?	direction that light is travelling in? -How do periscopes work? -How and why are shadows formed? Which materials make the darkest shadows and why? -What shape are shadows and why is this?	-How could you make a bulb brighter or a buzzer louder? -How do the components of a circuit function?
Knowledge	<u>Living things and their habitats</u> Know how to classify living things into broad groups according to observable	<u>Animals including humans</u> To know and name the main parts of the human circulatory system	<u>Evolution and inheritance</u> Know how the Earth and living things have changed over time.	<u>Evolution and inheritance</u> Know how the Earth and living things have changed over time.	<u>Light</u> Know that light travels in straight lines. Know that light travels in straight	<u>Electricity Circuits</u> Know how to associate the brightness of a lamp or the volume

	characteristics and based on similarities and differences, including micro-organisms, plants and animals. Know and identify how living things have been classified Know how to explain the reasons for classifying plants and animals in a specific way. <u>Evolution and inheritance</u> Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) -	I know the function of the heart, blood, vessels and blood, I know the impact of diet, exercise, drugs and lifestyle on health I know the ways in which nutrients and water are transported in animals, including humans	Know how animals and plants are adapted to suit their environment. Know how to explain that adaptation over time leads to evolution. Know about evolution and can explain what it is. Know reasons for classifying plants and animals based on specific characteristics.	Know how fossils can be used to find out about the past. Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents). Know how animals and plants are adapted to suit their environment. Know how to explain adaptation over time leads to evolution. Know about evolution and can explain what it is. <u>Living things and their habitats</u> Know how to classify living things into broad	lines to explain that objects are seen because they give out or reflect light into the eye. Know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Eyes?? Know how to explain that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Know how simple optical instruments work e.g. periscope Know materials can be grouped based on whether they are transparent or opaque.	of a buzzer with the number and voltage of cells used in the circuit. Know 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. Know that f you add more buzzers to a circuit, the buzzers will be quieter. Know that if you add more bulbs to a circuit, the bulbs will become dimmer. Know that problems in a circuit can be identified and fixed. Know how to draw circuit diagrams

				groups according to observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. -		using correct symbols when representing a simple circuit in a diagram.
Prior Knowledge	Reception Name body parts including facial features Noticing differences and similarities including disabilities. <u>Living things and their habitats</u> <u>Year 1</u> **Know that there are different varieties of animals.** **Know the names of common animals including fish, amphibians,**	<u>Animals including humans</u> <u>Year 2</u> Know that we need a variety of foods to help us stay healthy, give us energy and make us feel good. It is best to try and eat lots of fruit and vegetables. Sugary treats are okay sometimes. Know It is important to drink lots of water. Know that exercise	Rocks Year 3 <u>Fossils</u> To know fossils are the remains or traces of plants and animals that lived long ago. To know fossils form when layers of the earth build up on top of each other and turn into hard rock.	<u>Living things and their habitats</u> <u>Year 1</u> **Know that there are different varieties of animals.** **Know the names of common animals including fish, amphibians, reptiles, birds and mammals.** <u>Living things and their habitats</u> **Year 2** **Know and compare the differences between things**	Light Year 3 Know that dark is the absence of light. Know that light is needed to see. I know that light is reflected from a surface. I know and demonstrate how a shadow is formed (when a light source is blocked by an opaque object).	<u>Materials</u> <u>Reception and Year 1</u> Knowledge of materials learnt in these two years will support later learning about insulators and conductors. <u>Electricity</u> <u>Year 4</u> Know that electricity is a form of energy and know some of its common uses. Know that we get electricity from different sources, including power

	reptiles, birds and mammals. <u>Living things and their habitats</u> **Year 2** **Know and compare the differences between things that are living, dead and never lived.** <u>Classification</u> <u>Year 4</u> **Know living things can be grouped in a variety of ways.** Know that different animals are a part of different food chains. Know that living things can be a producer, predator or prey. Know how to use a classification key, you start with the living thing and	keeps our muscles strong and helps our heart stay healthy. Exercise also makes us feel happy. Know that we keep our bodies clean so that we kill any germs which may make us ill.		**that are living, dead and never lived.** <u>Classification</u> <u>Year 4</u> **Know living things can be grouped in a variety of ways.** Know that different animals are a part of different food chains. Know that living things can be a producer, predator or prey. Know how to use a classification key, you start with the living thing and answer the yes/no questions.	I explore shadow size and explain the changes. I know the danger of direct sunlight and describe how to keep protected.	stations and batteries. <u>Circuits</u> Know that electricity travels through a circuit and the elements of a circuit: component, switch, current, volt, cell, bulb and buzzer. Know and draw the symbols for: bulb, wire, battery, switch (open and closed) and buzzer. <u>Conductors and insulators</u> Know that a conductor is a material or device that allows electricity to pass through it. An insulator is a material or device that does not allow electricity to pass through it.

	answer the yes/no questions.					
Future Knowledge	KS3 -					
Vocabulary		nutrition, carbohydrates, protein, lipids (fats & oils), minerals, vitamins, dietary fibre, water, heart, lungs, circulatory system, blood vessels, arteries, veins, pulse/pulse rate, carbon dioxide, oxygen, waste products, inflate, deflate, muscle, contracts, blood, blood vessels, pumps, oxygen, lungs, nutrients, exercise, diet, cardiac muscle, smooth muscle, skeletal muscle, tendons, addiction, overdose, abuse	offspring, identical, inheritance, characteristics, trait, variation, generation, adapt, environment, inherited, advantageous, disadvantageous, survive, evolution, natural selection, classification, order, suborder, family, species, genetic trait, dominant, mutation, external factors, palaeontology, behaviour, consequence,	natural selection, selective breeding, genes, offspring, identical, inheritance, characteristics, trait, variation, generation, adapt, environment, inherited, advantageous, disadvantageous, survive, evolution,	light, light source, shadow, reflection, iris, pupil, cornea, lens, retina, optic nerves	electricity, circuit, component, volt, current, insulator, conductor, motor, battery, wires, bulb, switch, series circuit, parallel circuit, brightness, voltage, symbols

Investigations	Let's Investigate – How does inheritance work?	Let's Investigate – What can your heart rate tell you? Let's Investigate - How does blood flow? Let's Investigate - What's In Blood?	Let's Investigate – Can we slow cooling down? Let's Investigate - How do animals stay warm?	Let's Investigate – Why do birds have different beaks? Let's Investigate - How have eyes evolved? Let's Investigate - How many worms are underground? Let's Investigate - Where do wild plants grow? Let's Investigate - Why is holly prickly?	Let's Investigate – Can you see through it? Let's Investigate - What colour is a shadow? Let's Investigate - Can you turn a light down? Let's Investigate - What are reflections? Let's Investigate - How does light travel?	Let's Investigate - Can you send a coded message?

Trips and/or experiences					Visit from real-life explorer (Simon)	London?
Progression Standards for working scientifically	§ planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary § taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate § recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs § using test results to make predictions to set up further comparative and fair tests § reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations § identifying scientific evidence that has been used to support or refute ideas or arguments. - Plan and carry out a range of enquiries, including writing methods, identifying and controlling variables, deciding on equipment and data to collect and making predictions based on prior knowledge and understanding. -					