Coley Primary School's Curriculum

Science (Yr1-6)

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 1	**Animals including humans**	**Seasonal Changes**	**Everyday materials**	**Scientists and Inventors**	**Plants**	**Seasonal Change**
Year 2	**Living things and their Habitats**	**The Environment**	**Uses of everyday materials**	**Scientists and Inventors**	**Plants**	**Animals including humans**
Year 3	**Animals including humans**	**Light**	**Forces and Magnets**	**Scientists and Inventors**	**Plants**	**Rock**
Year 4	**States of Matter**	**Animals including humans**	**Scientists and Inventors**	**Sound**	**Electricity**	**Living things and their habitats**
Year 5	**Properties and changes of materials**	**Living things and their habitats**	**Scientist and Inventors**	**Earth and space**	**Forces**	**Animals including humans**
Year 6	**Animals including humans**	**Electricity**	**Light**	**Evolution and Inheritance**	**Living things and their habitats**	**Scientist and Inventors**

YEAR 1

Week	Animals including humans	Seasonal Changes Autumn/Winter	Everyday materials	Scientists and Inventors	Plants	Seasonal Change Spring/Summer
1	**Observing Animals** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identifying and classifying. • To identify and name some common animals.	**Seasons** To observe changes across the 4 seasons in the context of the weather. • I can describe how the weather changes across the seasons. To observe and describe how day length varies by exploring the average number of hours of day light in autumn.	**Naming Materials** To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock by matching a material to its name. • I can identify and name different materials.	**Lego** To describe the simple physical properties of a variety of everyday materials, by identifying the properties of plastic in the context of Lego. • I can describe the properties of Lego. To use observations to suggest answers to questions, by thinking about why Lego is made out of plastic.	**Making Observations** Identify and describe the basic structure of a variety of common flowering plants, including trees. Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. To describe and compare plants, seeds and bulbs.	**Winter to Spring** To observe and describe how day length varies in the context of winter to spring. • I can describe how day length varies from winter to spring. To observe changes across the four seasons by looking at how trees and the clothes that we wear change from winter to spring.

		• I can describe day length in autumn.		• I can think about why Lego is made out of plastic.		• I can identify changes in the trees and in clothes that we wear from winter to spring.
2	**Animal Diets** Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Identifying and classifying. • To identify, name and sort animals that are herbivores, carnivores and omnivores.	**Seasonal Weather (Autumn)** To observe and describe weather associated with the seasons by observing the weather in autumn. • I can observe and describe the weather in autumn. To gather and record data to help in answering questions by recording the weather, temperature, rainfall and wind direction in autumn. • I can collect and record data about the weather in autumn.	**Objects and Materials** To distinguish between an object and the material from which it is made by naming objects and identifying the material which they are made from. • I can tell the difference between an object and the materials it is made from.	**Mae Jamison** To ask simple questions and use simple secondary sources to find answers, by role playing an interview with Mae Jemison. • I can ask questions about Mae Jemison and find out the answers.	**The Parts of a Plant** Identify and describe the basic structure of a variety of common flowering plants, including trees. Observing closely, using simple equipment. To name and compare the parts of plants.	**Seasonal Weather (Spring)** To observe and describe weather associated with the seasons by observing the weather in spring. • I can observe and describe the weather in spring. To gather and record data to help in answering questions by recording the weather, temperature, rainfall and wind direction in spring. • I can collect and record data about the weather in spring
3	**The Human Body** Identify, name, draw and label the basic parts of the human body. • To name and label the parts of the human body.	**Autumn Walk** To observe changes across the 4 seasons by going on an autumn walk. • I can identify signs of autumn.	**Properties** To distinguish between an object and the material from which it is made by looking and touching different materials. • I can describe the properties of everyday materials.	**Zoos** To describe and compare the structure of a variety of common animals, by sorting animals according to their features. • I can compare the bodies of different animals. To identify and classify animals, by sorting animals according to their features.	**Garden and Wild Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Observing closely, using simple equipment. To identify and name some common garden and wild plants.	**Spring Walk** To observe changes across the four seasons by going on a spring walk. • I can identify signs of spring.

				• I can sort animals into different groups.		
4	**Senses Say which part of the body is associated with each sense.** To perform simple tests. • To name the five senses and to perform simple tests to find out more about them.	**Autumn to Winter** To observe and describe how day length varies in the context of autumn to winter. • I can describe how day length varies from autumn to winter. To observe changes across the 4 seasons by looking at how trees and the clothes that we wear change from autumn to winter. • I can identify changes in the trees and in clothes that we wear from autumn to winter.	**Testing Properties** To describe the simple physical properties of a variety of everyday materials by testing different objects. • I can identify which materials have certain properties.	**Sensory Garden** To identify and name a variety of common wild and garden plants, by exploring a range of sensory plants. • I can name different plants. To gather and record data to help in answering questions, by creating a chart showing the class' most popular sensory plants. • I can make a chart to show our favourite plants	**Terrific Trees** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Observing closely, using simple equipment Identifying and classifying To identify and name some common trees.	**Spring Summer** To observe and describe how day length varies in the context of spring to summer. • I can describe how day length varies from spring to summer. To observe changes across the four seasons by looking at how trees and the clothes that we wear change from spring to summer. • I can identify changes in the trees and in clothes that we wear from spring to summer
5	**Sorting Animals** Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). Identifying and classifying. • To sort animals according to a criteria.	**Seasonal Weather (Winter)** To observe and describe weather associated with the seasons by observing and recording the weather in winter. • I can observe and describe the weather in winter. To gather and record data to help in answering questions by recording the weather, temperature, rainfall and wind direction in winter.	**Umbrella Investigation** To observe closely by watching what happens to teddy. • I can watch closely. To perform simple tests to find out which material would be suitable to make an umbrella from. • I can test different materials. To use their observations and ideas to suggest answers to questions by deciding which materials would be suitable to make an umbrella from.	**Measuring the Weather** To observe and describe weather associated with the seasons, by measuring rainfall with a rain gauge they have made. • I can observe and describe the weather. To gather and record data to help in answering questions, by measuring rainfall with a rain gauge they have made. • I can measure and record information about rain.	**Fruit and Vegetable** Plants Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identifying and classifying. To name, sort and compare some common fruit and vegetable plants.	**Seasonal Weather (Summer)** To observe and describe weather associated with the seasons by observing and recording the weather in summer. • I can observe and describe the weather in summer. To gather and record data to help in answering questions by recording the weather, temperature, rainfall and wind direction in summer.

		• I can collect and record data about the weather in winter	• I can use what I have learnt to make a decision.			• I can collect and record data about the weather in summer.
6		**Animals in Winter** To observe changes across the 4 seasons by exploring how some animals adapt to survive in winter. • I can explain how some animals adapt in winter	**Sorting** To compare and group together a variety of everyday materials on the basis of their simple physical properties by sorting objects. • I can sort objects by their properties.	**Super Senses** To say which part of the body is associated with each sense, by finding out about the scientist who discovered how we smell things. • I can describe what Linda Buck found out about how we smell things. To use their senses to identify and compare different smells, by matching smells to items. • I can identify smells	**Comparing Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Using their observations and ideas to suggest answers to questions. To name and compare some common plants and trees.	**Staying Safe in Summer** Observe and describe weather associated with the seasons in the context of the summer sun. • I can explain how to stay safe in the sun.

Coley Primary School Overview for Science

Year 1	
KS1 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 asking simple questions and recognising that they can be answered in different ways • WS2 observing closely, using simple equipment and measurement • WS3 performing simple tests • WS4 identifying and classifying • WS5 using their observations and ideas to suggest answers to questions • WS6 gathering, recording and communicating data and findings to help in answering questions. • WS7 use scientific language and read and spell age-appropriate scientific vocabulary	**Plants** • P1 identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • P2 identify and describe the basic structure of a variety of common flowering plants, including trees. **Animals, including Humans** • AH1 identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • AH2 identify and name a variety of common animals that are carnivores, herbivores and omnivores • AH3 describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)

• WS8 begin to notice patterns and relationships.	• AH4 identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Everyday Materials** • EM1 distinguish between an object and the material from which it is made • EM2 identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • EM3 describe the simple physical properties of a variety of everyday materials • EM4 compare and group together a variety of everyday materials on the basis of their simple physical properties. **Seasonal Changes** • SC1 observe changes across the four seasons • SC2 observe and describe weather associated with the seasons and how day length varies.

YEAR 2

Week	Living things and their Habitats	The Environment	Uses of everyday materials	Scientists and Inventors	Plants	Animals including humans
1	**Living, Dead and Never Alive** To explore and compare the differences between things that are living, dead, and things that have never been alive by thinking about life processes. • I can compare the differences between things that are living, dead and have never been alive. To use their observations and ideas to suggest answers to questions by explaining how they know something is living,	**Climate Change** To observe closely, using simple equipment by measuring the time taken for ice to melt in a comparative test. • I can measure the melting of ice in a comparative test. To perform simple tests, by comparing the rate of ice melting in a comparative test. • I can perform a test and draw a conclusion.	**Identifying Uses** 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. • I can identify uses of different everyday materials.	**Greenhouse Growing** To find out how plants need water, light and a suitable temperature to grow and stay healthy in the context of exploring how plants grow in greenhouses, including in the biomes at the Eden Project. • I can describe how greenhouses help plants grow healthily. To find out how plants need water, light and a suitable temperature to grow and stay healthy in the context of comparing plant growth	**What Do Plants Need to Grow?** Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Performing simple tests. Using their observations and ideas to suggest answers to questions. To design and set up a test to find out what plants need to stay healthy.	**Animal Offspring** Notice that animals, including humans, have offspring which grow into adults. Identifying and classifying. To match, sort and group young animals and their adults.

	dead or has never been alive. • I can answer questions about things that are living, dead or have never been alive.			in and out of a greenhouse. • I can observe whether plants grow best inside or outside of a greenhouse.		
2	**Local Habitats** To identify and name a variety of plants and animals in their habitats, by mapping a habitat and identifying its inhabitants. • I can map a habitat and identify what is in it. To identify and classify, and sort objects into categories by sorting objects that are living, dead and have never been alive. • I can classify objects as those that are living, dead and those that have never been alive.	**Reduce, Reuse, Recycle** To identify and classify by sorting litter into recycling groups based on their materials. • I can sort items for recycling based on their materials. To use their observations and ideas to suggest answers to questions by suggesting ways that waste can be reduced, reused and recycled. • I can suggest ways we can reduce, reuse and recycle.	**Out and About** To identify and classify the uses of everyday materials, in the context of the local area. • I can identify and group the uses of everyday materials. To gather and record data to help in answering questions, by exploring the purposes of different objects. • I can record my observations.	**Brilliant Botany** To identify and describe the basic structure of common flowering plants by observing and sketching a range of common plants. • I can identify different parts of plants. To observe closely using simple equipment by using a magnifying glass to sketch details of different plants. • I can use a magnifying glass to help me draw different parts of plants.	**What's Inside a Seed?** Observe and describe how seeds and bulbs grow into mature plants. Observing closely, using simple equipment. To look closely at the parts of a seed that will grow into a plant and explain how it will germinate.	**Life Cycles Notice that animals, including humans, have offspring which grow into adults**. Gathering and recording data to help in answering questions. To find out how animals change as they grow into adults
3	**Microhabitats** To identify and name a variety of plants and animals in their habitats, including microhabitats by identifying minibeasts in microhabitats. • I can identify animals in their habitats. To gather and record data to help in answering questions by	**Energy Experts** Using their observations and ideas to answer questions by thinking of ways to persuade people to use less energy. • I can work in a group to investigate the answer to a question. Gathering and recording data to help in	**Comparing Suitability** 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 exploring the purposes of different objects.	**Doctor's Surgery** To use their observations and ideas to suggest answers to questions in the context of considering whether doctors are scientists. • I can use my own ideas to explain how doctors use science. To describe the importance for humans of exercise, of eating the right	**Life Cycle of a Plant** Observe and describe how seeds and bulbs grow into mature plants. To describe the life cycle of a plant	**Growing Up Notice that animals, including humans, have offspring which grow into adults.** Asking simple questions. Using their observations and ideas to suggest answers to questions. To compare the stages of the human life cycle.

	investigating the preferred habitat of minibeasts. • I can use information I have gathered to answer a question.	answering questions by taking surveys. • I can take surveys and use the information to help answer a question.	• I can compare the suitability of different everyday materials.	amounts of different types of food, and hygiene in the context of creating a poster for a doctor's surgery to explain how to stay healthy. • I can describe what is important in order to stay healthy		
4	**World Habitats** To 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, by researching habitats and the animals that live in them. • I can describe a habitat and identify animals live in it. To ask simple questions and recognise that they can be answered in different ways by asking and answering questions about a range of different habitats. • I can ask and answer questions about habitats.	**Forest Friends** To ask simple questions and recognise that they can be answered in different ways by researching the rainforest. • I can ask and answer questions about the rainforest. To identify and classify by sorting rainforest animals into animal classification groups. • I can identify and classify rainforest animals.	**Changing Shape** 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. • I can explain how the shapes of objects made from some materials can be changed.	**Discovering Germs** To describe the importance of hygiene to humans in the context of investigating Louis Pasteur's work on how germs spread. • I can describe Louis Pasteur's life and work. To use their observations and ideas to answer simple question in the context of investigating how germs spread and the effect of hand washing. • I can find out why we wash our hands.	**What Do Plants Need to Stay Healthy?** Part 1 Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Using their observations and ideas to suggest answers to questions. To explain what plants need to grow and stay healthy.	**Survival Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).** Use their observations and ideas to suggest answers to questions. To research and describe what animals, including humans, need to survive
5	**Living, Dead and Never Alive**	**Water Wise** Performing simple tests, by investigating how much	**Recycling** To find out how the shapes of solid objects	**Charles Macintosh** To find out about people who have	**What Do Plants Need to Stay Healthy?** Part 2	**Exercise** Describe the importance for humans

	To 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 by considering the adaptations of animals, and how living things in a habitat depend on each other. • I can identify how an animal is suited to its habitat. • I can explain how living things in a habitat depend on each other	water can be saved by turning off the tap while washing hands. • I can set up a test and record the results. Observe closely, using simple equipment by measuring the different amounts of water used. • I can accurately measure water and record my measurements.	made from some materials can be changed by squashing, bending, twisting and stretching, in the context of recycling. • I can explain the process of recycling	developed new materials in the context of learning about Charles Macintosh. • I can describe Charles Macintosh and his famous invention. To identify and compare the suitability of a variety of everyday materials for particular uses in the context of testing materials to find the most suitable material for a waterproof coat. • I can investigate the most suitable fabric for a particular use.	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Using their observations and ideas to suggest answers to questions. To describe what happens if plants don't get all the things they need.	of exercise, eating the right amounts of different types of food, and hygiene. Perform simple tests. To test the effects of exercise on the human body.
6	**Food Chains** 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 by making a variety of food chains. • I can describe how animals get their food.	**Endangered Animals** To ask simple questions and recognise that they can be answered in different ways by asking and answering questions about endangered animals. • I can ask and answer questions about endangered animals.	**Discovering New Materials** To find out about people who have developed new materials, by learning about John McAdam. • I can tell you about the inventor John McAdam.	**Rachel Carson** To describe how animals, obtain their food from plants and other animals, using the idea of a simple food chain in the context of exploring Rachel Carson's study of the ocean. • I can describe what Rachel Carson learnt about ocean habitats. To observe closely, using simple equipment in the context of investigating the effects	**How Do Plants Grow in Hot, Dry or Cold Places?** Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Using their observations and ideas to suggest answers to questions. To explain how plants are suited to their habitats.	**Healthy Living** Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Perform simple tests. Observe closely, using simple equipment. To investigate the importance of healthy eating and hygiene.

				of pesticides in water, as researched by Rachel Carson • I can investigate Rachel Carson's findings on water pollution.		

Year 2	
KS1 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 asking simple questions and recognising that they can be answered in different ways • WS2 observing closely, using simple equipment and measurement • WS3 performing simple tests • WS4 identifying and classifying • WS5 using their observations and ideas to suggest answers to questions. • WS6 gathering, recording and communicating data and findings to help in answering questions. • WS7 use scientific language and read and spell age-appropriate scientific vocabulary • WS8 begin to notice patterns and relationships.	**Living Things and their Habitats** • LH1 explore and compare the differences between things that are living, dead, and things that have never been alive • LH2 identify that most living things live in habitats to which they are suited • LH3 describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • LH4 identify and name a variety of plants and animals in their habitats, including micro-habitats • LH5 describe how animals obtain their food from plants and other animals • LH6 understand a simple food chain, and identify and name different sources of food. **Plants** • P1 observe and describe how seeds and bulbs grow into mature plants • P2 find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Animals including Humans** • AH1 notice that animals, including humans, have offspring which grow into adults • AH2 find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • AH3 describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Uses of Everyday Materials** • EM1 identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • EM2 find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

YEAR 3

Week	Animals including humans	Light	Forces and Magnets	Scientists and Inventors	Plants	Rock
1	**Nutrition** Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. To sort foods into food groups and find out about the nutrients that different foods provide.	**Light and Dark** To recognise that we need light in order to see things and that dark is the absence of light by taking part in a 'feely bag' investigation. • I can recognise that I need light to see things, and that dark is the absence of light.	**Pushes and Pulls** To notice that some forces need contact between two objects by identifying the different types of forces acting on objects. • I can identify the forces acting on objects.	**The Plant Hunters** To identify differences, similarities or changes related to simple scientific ideas and processes by finding out about the men and women who introduced new plants to our gardens. To 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 by exploring the way that non-native plants have been discovered, transported and introduced. • To find out about the way new plants arrived in our country.	Parts of Plants To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers by labelling the parts of a plant. • I can name the different parts of flowering plants and explain their jobs	**Types of Rocks** Compare different kinds of rocks based on their appearance in the context of understanding the difference between natural and human-made rocks. • I can compare different types of rocks.
2	**Food Labels** Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identify that animals, including humans, need the right types and amount of nutrition,	**Reflective Surfaces** To notice that light is reflected from surfaces by choosing the most reflective material for a new book bag. • I can investigate which surfaces reflect light.	**Faster and Slower** To compare how things, move on different surfaces by investigating the speed of a toy car over different surfaces. • I can investigate how a toy car moves over different surfaces	**Marie Curie** To identify changes related to scientific ideas by describing Marie Curie's research into x-rays. To identify that humans, have skeletons for support, protection and movement by	**What Do Plants Need to Grow Well?** To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) by investigating what plants need to grow well.	**Grouping Rocks** Making systematic and careful observations by examining different types of rocks. • I can make systematic and careful observations. Group together different kinds of rocks on the basis of

	and that they cannot make their own food; they get nutrition from what they eat. To explore the nutritional values of different foods by gathering information from food labels.			identifying and explaining the bones shown in x-rays. • To explain how Marie Curie's work on x-rays helps us identify bones.	• I can set up an investigation to find out what plants need to grow well.	their simple physical properties in the context of natural rocks. • I can group rocks based on their properties.
3	**Skeletons** Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. To sort animal skeletons into groups, discussing patterns and similarities and differences.	**Marvellous Mirrors** To notice that light is reflected from surfaces by playing mirror games. • I can use a mirror to reflect light and explain how mirrors work.	**Scrapyard Challenge** To notice that magnetic forces can act at a distance and attract some materials and not others by sorting materials. To compare and group materials according to whether they are magnetic by sorting materials. • I can sort magnetic and non-magnetic materials.	**George Washington** Carver 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. To identify changes related to scientific ideas by describing the achievements of George Washington Carver. • To explain how George Washington Carver helped farmers to grow crops.	What Have You Found Out? To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables by observing and recording plant growth. • I can record my observations. To report on findings from enquiries, including oral and written explanations and presentations of results and conclusions by presenting findings to the class • I can present the results of my investigation using scientific language.	**Fantastic Fossils** Describe in simple terms how fossils are formed when things that have lived are trapped within rock by explaining the fossilisation process and by comparing fossils to the animals they belong to. • I can explain how fossils are formed.
4	**Human Skeletons** Identify that humans and some other animals have skeletons and muscles for support, protection and	**Sun Safety** To recognise that light from the sun can be dangerous and that there are ways to protect our eyes by	**Magnet Strength** To observe how magnets, attract or repel each other and attract some materials and not others by	**Fossil Finders** Compare and group together different kinds of rocks on the basis of their appearance and simple physical	**Moving Water** To investigate the way in which water is transported within plants by observing the transport of food	**Mary Anning** Identifying changes related to simple scientific ideas in the context of theories about fossils.

	movement. 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. To investigate an idea about how the human skeleton supports movement.	designing and advertising a pair of sunglasses or a sun hat. • I know that light from the sun can be dangerous and that there are ways we can protect our eyes.	investigating the strength of different magnets. • I can investigate the strength of magnets.	properties; describe in simple terms how fossils are formed when things that have lived are trapped within rock by exploring William Smith's principle of fossil succession. • To explain how fossils can be used to find the age of rocks.	colouring through a flower stem. • I can investigate how water is transported in plants	• I can explain Mary Anning's contribution to palaeontology.
5	**Muscles** Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To explain how bones and muscles work together to create movement.	**Making Shadows** To recognise that shadows are formed when the light from a light source is blocked by a solid object by investigating the best material for curtains for a baby's bedroom. • I can investigate which materials block light to form shadows.	**Magnetic Poles** To describe magnets as having two poles and to predict whether two magnets will attract or repel each other, depending on which poles are facing by making a compass to hunt for treasure. • I can explore magnetic poles.	**Journey to the Centre of the Earth** To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties by finding out about Inge Lehmann's discovery of the Earth's solid core and how this creates igneous rocks. • To describe what Inge Lehmann discovered about the Earth's core.	**Fantastic Flowers** To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal by understanding pollination and fertilisation. • I can name the different parts of a flower and explain their role in pollination and fertilisation.	**Soil Formation** Recognise that soils are made from rocks and organic matter by explaining how soil is formed. • I can explain how soil is formed.
6	**Investigating** Identify that humans and some other animals have skeletons and muscles for support,	**Changing Shadows** To find patterns in the way that the size of shadows change by investigating what	**Marvellous Magnets** To observe how magnets, attract or repel each other and attract some materials	**Concave and Convex** To notice that light is reflected from surfaces by investigating concave and convex mirrors. To	**Life Cycle** To explore the part that flowers play in the life cycle of flowering plants, including	**Soil Profiles** Making systematic and careful observations in the context of investigating the

	protection and movement. 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. To design and carry out my own investigation.	happens when you change the distance between the object and the light source. • I can find patterns when investigating how shadows change size.	and not others by making, playing and evaluating a magnetic game. • I can observe how magnets attract some materials	ask relevant questions and use evidence from scientific enquiries to answer them and support findings by investigating concave and convex mirrors. To gather, record, classify and present data in a variety of ways to help in answering questions by investigating concave and convex mirrors. • To investigate how images change in concave and convex mirrors.	pollination, seed formation and seed dispersal by ordering and describing the stages of the life cycle of a flowering plant. • I can understand and order the stages of the life cycle of a flowering plant.	permeability of different soils. • I can observe carefully and systematically. Recording findings using simple scientific language. Reporting on findings from enquiries, including presentations of results and conclusions. Children will present their findings using the key science vocabulary for this lesson. • I can present my findings using scientific vocabulary.

Year 3	
Lower KS2 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 making decisions, asking relevant questions and using different types of scientific enquiries to answer them • WS2 setting up simple practical enquiries, comparative and fair tests • WS3 making systematic and careful observations using notes and simple tables	**Plants** • P1 identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • P2 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 • P3 investigate the way in which water is transported within plants • P4 explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. • P5 know that plants make their own food

• WS4 taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • WS5 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • WS6 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • WS7 reporting on findings from enquiries, using relevant scientific language, including oral and written explanations, displays or presentations of results and conclusions • WS8 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • WS9 identifying differences, patterns, similarities or changes related to simple scientific ideas and processes • WS10 using straightforward scientific evidence to answer questions or to support their findings. • WS11 begin to look for naturally occurring patterns and relationships • WS12 recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	**Animals including Humans** • AH1 identify that animals, including humans, need the right types and amount of nutrition, and that they AH2 cannot make their own food; they get nutrition from what they eat • AH3 identify that humans and some animals have skeletons and muscles for support, protection and movement. **Rocks** • R1 compare and group together different kinds of rocks (including those in the locality) on the basis of appearance and simple physical properties • R2 describe in simple terms how fossils are formed when things that have lived are trapped within rock • R3 recognise that soils are made from rocks and organic matter. **Light** • L1 recognise that they need light in order to see things and that dark is the absence of light • L2 notice that light is reflected from surfaces • L3 recognise that light from the sun can be dangerous and that there are ways to protect their eyes • L4 recognise that shadows are formed when the light from a light source is blocked by a solid object • L5 find patterns in the way that the size of shadows change. **Forces and Magnets** • FM1 compare how things move on different surfaces • FM2 notice that some forces need contact between two objects, but magnetic forces can act at a distance • FM3 observe how magnets attract or repel each other and attract some materials and not others • FM4 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 • FM5 describe magnets as having two poles • FM6 predict whether two magnets will attract or repel each other, depending on which poles are facing

YEAR 4

Week	States of Matter	Animals including humans	Scientists and Inventors	Sound	Electricity	Living things and their habitats
1	**Solid, Liquid or Gas?** To compare and group materials together, according to whether they are solids, liquids or gases by sorting and describing materials	**Digestive System Parts** To describe the simple functions of the basic parts of the digestive system in humans in the context of identifying	**Madagascar in Danger** To recognise that environments can change and that this can sometimes pose dangers to living things by exploring Gerald	**Good Vibrations** To identify how sounds are made, associating some of them with something vibrating, by identifying and explaining sound	**Exciting Electricity** To report on findings, including oral and written explanations in the context of preparing a presentation on how electricity is generated.	**Grouping Living Things** To recognise that living things can be grouped in a variety of ways by sorting living things into a range of groups. • I can group living things

	into solids, liquids and gases. • I can sort and describe materials.	the parts of the digestive system. • I can identify and name parts of the human digestive system.	Durrell's conservation work in Madagascar. To explore deforestation and conservation in Madagascar. To set up simple practical enquiries and report on findings from enquiries in the context of soil erosion and nutrient loss. To set up an enquiry to find out about soil erosion.	sources around school. • I can describe and explain sound sources	• I can explain ways that electricity is generated.	in a range of ways. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions by using a range of methods to sort and group living things. • I can use a range of methods to sort living things.
2	**Investigating Gases** To compare and group materials together, according to whether they are solids, liquids or gases by investigating gases and their uses. • I can investigate gases and explain their properties	**Digestive System Functions** To describe the simple functions of the basic parts of the digestive system in humans by explaining the functions of the different parts of the digestive system. • I can explain the functions of the digestive system. To use straightforward scientific evidence to answer questions by reading an explanation text and answering questions. • I can use scientific evidence to answer questions.	**Alexander Graham Bell** To recognise that vibrations from sounds travel through a medium to the ear in the context of Alexander Graham Bell's invention of the telephone. To describe Alexander Graham Bell and his inventions. To report on findings, including oral and written presentations and displays in the context of Alexander Graham Bell's invention of the telephone. To present my findings about Alexander Graham Bell.	**Hearing Sounds** To identify how sounds are made, associating some of them with something vibrating, by performing a dramatisation of how sounds travel. To find patterns between the volume of a sound and the strength of the vibrations that produced it, by performing a dramatisation of how sounds travel. To recognise that vibrations from sounds, travel through a medium to the ear, by performing a	**Electrical Appliances** Identify common appliances that run on electricity by learning to distinguish between appliances that use and do not use electricity, the different types of electricity and identify how to stay safe when using electricity. • I can identify electrical appliances and the types of electricity they use.	Classifying Vertebrates To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment by generating questions to sort vertebrates in a classification key. • I can generate questions to use in a classification key. Identifying differences, similarities or changes related to simple scientific ideas and processes by identifying vertebrates by their similarities and differences. • I can identify vertebrates by

				dramatisation of how sounds travel. • I can explain how different sounds travel.		observing their similarities and differences.
3	**Heating and Cooling** To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) by investigating how heating and cooling can change a material's state. • I can investigate materials as they change state.	**Types and Functions of Teeth** To identify the different types of teeth in humans and their simple functions by learning about different types of teeth. • I can identify the types and functions of teeth. To identify differences, similarities or changes related to simple scientific ideas and processes by comparing human and animal teeth. • I can identify similarities and differences related to scientific ideas.	**Maria Telkes** Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers in the context of building a solar oven. To build a solar oven and explain how the temperature changes inside it.	**Higher and Lower** To recognise that vibrations from sounds, travel through a medium to the ear, by exploring how high and low sounds are created. To find patterns between the pitch of a sound and features of the object that produced it, by exploring and creating musical instruments, and explaining how they change pitch. • I can explore ways to change the pitch of a sound.	**Electrical Circuits** Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery by visualising and testing circuits to see if the circuit is complete. • I can identify complete and incomplete circuits.	**Invertebrate Hunt** To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment by using keys to identify invertebrates found in the local environment. • I can use a key to identify invertebrates. Using straightforward scientific evidence to answer questions by explaining how they have identified an invertebrate. • I can use evidence to identify an invertebrate.
4	**Wonderful Water** To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees	**Tooth Decay Enquiry Part 1** To ask relevant questions and use different types of scientific enquiries to answer them by distinguishing between	**Garrett Morgan** Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Recognise that a switch	**String Telephone** To recognise that sounds, get fainter as the distance from the sound source increases, by exploring how sounds change over distance. To recognise	**Conductors and Insulators** Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.	**Classification Keys** To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment by creating classification

	Celsius (°C) by exploring how water can change its state to a solid, liquid or a gas. • I can explore how water changes state.	scientific and non-scientific questions and choosing between types of scientific enquiry. • I can ask scientific questions and choose a scientific enquiry to answer them. To set up simple practical enquiries, comparative and fair tests by setting up an enquiry or test to understand what causes tooth decay. • I can create an enquiry or test.	opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit in the context of creating a traffic light. To build a traffic light using series circuits.	that vibrations from sounds, travel through a medium to the ear, by making string telephones. • I can investigate ways to absorb sound.	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Recognise some common conductors and insulators, and associate metals with being good conductors by testing different materials as part of a circuit to see whether or not they conduct electricity. • I can identify and sort materials into electrical conductors or insulators.	keys. • I can create a classification key. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions by creating tables and keys showing the characteristics of living things. • I can show the characteristics of living things in a table and a key.
5	**Evaporation** Investigation To associate the rate of evaporation with temperature by investigating the effect of temperature on drying washing. To make systematic, careful and accurate observations and measurements and report on findings from enquiries by displaying results and conclusions	**Tooth Decay Enquiry Part 2** To make systematic and careful observations by observing the changes that occur in their enquiry or test. To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions By presenting findings, making predictions and	**Discovering Oxygen** To compare and group materials together according to whether they are solids, liquids or gases by exploring the discovery of oxygen. To describe the properties of oxygen gas. To identify changes relating to simple scientific ideas and processes by exploring the discovery of oxygen	**Soundproofing** To recognise that vibrations from sounds, travel through a medium to the ear, by investigating the best material for absorbing sound. • I can investigate ways to absorb sound.	**Splendid Switches** Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit by creating circuits which contain a switch.	**Local Habitat Survey** To recognise that environments can change and that this can sometimes pose dangers to living things by identifying changes and dangers in the local habitat. • I can recognise positive and negative changes to the local environment. Recording findings using simple scientific language,

	by investigating the effect of temperature on drying washing. • I can investigate how water evaporates.	raising questions about results. • I can make careful observations, appropriately record my results and use them to develop further investigations.	and the theory of phlogiston. To explain how oxygen was discovered.		• I can explain how a switch works and why they are needed.	drawings, labelled diagrams, keys, bar charts, and table by recording observations on a map and in a table. • I can record my observations in different ways.
6	**The Water Cycle** To identify the part played by evaporation and condensation in the water cycle by creating a model of the water cycle. • I can identify and describe the different stages of the water cycle.	**Digestive System Parts** to construct and interpret a variety of food chains, identifying producers, predators and prey by understanding food chains and the role of different plants and animals within them. • I can construct and interpret food chains.	**Toothpaste** To identify the different types of teeth in humans and their functions by finding out about the invention of toothpaste. To identify ways to look after our teeth. To use scientific evidence from comparative tests to support their findings by comparing different toothpastes. To investigate the invention of toothpaste.	**Making Music** To recognise that vibrations from sounds, travel through a medium to the ear, by making a musical instrument and explaining how it works. To find patterns between the pitch of a sound and features of the object that produced it, by making a musical instrument and explaining how it works. • I can make a musical instrument to play different sounds.	**Investigating Switches** Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 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 in the context of making and investigating different switches. • I can record and report on an investigation.	**Environmental Changes** To recognise that environments can change and that this can sometimes pose dangers to living things by learning about environmental dangers and endangered species. • I can describe environmental dangers to endangered species. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions by writing about and orally presenting findings from research. • I can present my findings orally and in writing.

Year 4	
Lower KS2 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 making decisions, asking relevant questions and using different types of scientific enquiries to answer them • WS2 setting up simple practical enquiries, comparative and fair tests • WS3 making systematic and careful observations using notes and simple tables • WS4 taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • WS5 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • WS6 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • WS7 reporting on findings from enquiries, using relevant scientific language, including oral and written explanations, displays or presentations of results and conclusions • WS8 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • WS9 identifying differences, patterns, similarities or changes related to simple scientific ideas and processes • WS10 using straightforward scientific evidence to answer questions or to support their findings. • WS11 begin to look for naturally occurring patterns and relationships • WS12 recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.	**Living things and their Habitats** • LH1 recognise that living things (including those in the locality) can be grouped in a variety of ways • LH2 explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • LH3 recognise that environments can change and that this can sometimes pose dangers to living things. **Animals including Humans** • AH1 describe the simple functions of the basic parts of the digestive system in humans • AH2 identify the different types of teeth in humans and their simple functions • AH3 construct and interpret a variety of food chains, identifying producers, predators and prey. **States of Matter** • SM1 explore a variety of everyday materials and develop simple descriptions of the states of matter • SM2 compare and group materials together, according to whether they are solids, liquids or gases • SM3 observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • SM4 identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Sound** • S1 identify how sounds are made, associating some of them with something vibrating • S2 recognise that vibrations from sounds travel through a medium to the ear • S3 find patterns between the pitch of a sound and features of the object that produced it • S4 find patterns between the volume of a sound and the strength of the vibrations that produced it • S5 recognise that sounds get fainter as the distance from the sound source increases. **Electricity** • E1 identify common appliances that run on electricity • E2 construct a simple series circuit, identifying/naming its basic parts, including cell, wire, bulb, switch and buzzer • E3 use their circuits to create simple devices • E4 draw the circuit as a pictorial representation (not necessarily using conventional circuit symbols) • E5 about precautions for working safely with electricity. • E6 identify whether or not a lamp will light in a simple series circuit • E7 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • E8 recognise some common conductors and insulators, and associate metals with being good conductors

Year 5	
Year 5 and 6 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • WS2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • WS3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • WS4 using test results to make predictions to set up further comparative and fair tests • WS5 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 • WS6 identifying scientific evidence that has been used to support or refute ideas or arguments. • WS7 explore and talk about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. • WS8 recognise that scientific ideas change and develop over time. • WS9 draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. • WS10 Pupils should read, spell and pronounce scientific vocabulary correctly.	**Living things and their Habitats** • LT1 describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • LT2 describe the life process of reproduction in some plants and animals. • LT3 raise questions about their local environment throughout the year. • LT4 find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. • LT5 find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. **Animals, including Humans** • AIH1describe the changes as humans develop to old age. • AIH2 draw a timeline to indicate stages in the growth and development of humans. • AIH3 learn about the changes experienced in puberty. **Properties and changes of materials** • PM1 compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • PM2 know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • PM3 use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • PM4 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • PM5 demonstrate that dissolving, mixing and changes of state are reversible changes • PM6 explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. • PM7 explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes. • PM8 explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda. **Earth and space** • ES1 describe the movement of the Earth and other planets relative to the sun in the solar system • ES2 describe the movement of the moon relative to the Earth • ES3 describe the sun, Earth and moon as approximately spherical bodies • ES4 use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

	• ES5 Know the sun is a star at the centre of our solar system and that it has 8 planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006). • ES6understand that a moon is a celestial body that orbits a planet (Earth has 1 moon; Jupiter has 4 large moons and numerous smaller ones). • ES7 Be warned that it is not safe to look directly at the sun, even when wearing dark glasses. • ES8 Find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy, Alhazen and Copernicus. **Forces** • F1 explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • F2 identify the effects of air resistance, water resistance and friction, that act between moving surfaces • F3 recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect • F4 explore falling objects and raise questions about the effects of air resistance. • F5 explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. • F6 experience forces that make things begin to move, get faster or slow down. • F7 explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel. • F8 explore the effects of levers, pulleys and simple machines on movement. • F9 find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.

YEAR 5

Week	Properties and changes of materials	Living things and their habitats	Scientist and Inventors	Earth and space	Forces	Animals including humans
1	**Properties of Materials** To compare and group together everyday materials on the basis of their properties, including their hardness, transparency and response to magnets by sorting and classifying materials according to their properties. • I can compare materials according to their properties	**Making New Plants 1** To describe the life process of reproduction in some plants and animals by exploring sexual reproduction in plants. • I can describe how some plants reproduce.	**David Attenborough** To find out about the work of naturalists and animal behaviourists in the context of the life and work of David Attenborough. To describe the life and work of David Attenborough.	**Spherical Bodies** Describing the Sun, Earth and Moon as approximately spherical bodies by understanding how this knowledge has been attained. • I can explain why we know the Sun, Earth and Moon are spherical. Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of how ideas changed from a flat earth view. • I can identify scientific evidence which does or does not provide evidence for an idea or argument.	**Fabulous Forces** To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object by identifying forces acting on objects. To identify the effects of air resistance, water resistance and friction by identifying forces acting on objects. • To identify forces acting on objects.	**Humans Timeline** Describe the changes as humans develop to old age by drawing a timeline to indicate stages in the growth and development of humans. • I can describe the stages of human development.
2	**Keeping Cool** To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and	**Making New Plants 2** To describe the life process of reproduction in some plants and animals by exploring sexual reproduction in plants.	**CSI** To identify scientific evidence that has been used to support or refute ideas or arguments in the context of how CSI technicians use	**The Planets** Describing the movement of the Earth, and other planets, relative to the Sun in the solar system by learning the order of the plants and how they	**Gravity** To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object by measuring the	**Growth of Babies** Describe the changes as humans develop to old age in the context of the development of babies in their first year. • I can explain how babies grow and

	plastic by investigating thermal conductors and insulators. To compare and group together everyday materials on the basis of their thermal conductivity by investigating thermal conductors and insulators. • I can investigate thermal conductors and insulators.	• I can describe how some plants reproduce.	evidence to solve crimes. To describe how evidence is used to solve crimes. To use knowledge of solids, liquids and gases to decide how mixtures might be separated in the context of using chromatography to solve a 'crime'. To use chromatography to separate mixtures.	move in the solar system. • I can name and describe features of the planets in our solar system. • I can order the planets in our solar system.	force of gravity pulling on objects. • To explore the effect gravity has on objects and how gravity was discovered.	develop. Record data and results of increasing complexity using bar and line graphs in the context of the growth of babies in height and/or weight during their first year after birth. • I can present data.
3	**Brighter Bulbs** To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic by investigating the best electrical conductors. To compare and group together everyday materials on the basis of their electrical conductivity by investigating the best electrical conductors. • I can investigate which electrical conductors make a bulb shine brightest.	**Mammals** To describe the life cycle of a mammal by exploring the life cycles of mammals in different habitats. To describe the life process of reproduction in some plants and animals by describing sexual reproduction in mammals. • I can describe the life cycles of different mammals.	**Mission to the moon** To describe how scientific ideas have changed over time in the context of Margaret Hamilton's development of the software for the Apollo Moon missions. To describe Margaret Hamilton's life and work.	**Geocentric Versus** Heliocentric Describing the movement of the Earth, and other planets, relative to the Sun in the solar system by examining the geocentric and heliocentric theories. • I can explain how planets move in our solar system. Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of the shift from heliocentric models of the solar system to geocentric models. • I can identify scientific evidence which does or does not provide	**Air Resistance** To identify the effects of air resistance by investigating the best parachute to slow a person down. • To investigate the effects of air resistance.	**Puberty** Describe the changes as humans develop to old age by comparing the changes that take place to boys and girls during puberty. • I can describe and explain the main changes that occur during puberty.

				evidence for an idea or argument.		
4	**Disappearing or Dissolving?** To know that some materials will dissolve in liquid to form a solution by investigating dissolving. To compare and group together everyday materials on the basis of their solubility by investigating dissolving. • I can investigate materials which will dissolve.	**Jane Goodall** To describe the life process of reproduction in some plants and animals by exploring Jane Goodall's work with chimpanzees. • I can explain what Jane Goodall discovered about chimpanzees.	**The Solar System** To describe the movement of the Earth, and other planets, relative to the Sun in the solar system in the context of classifying and ordering planets based on their sizes, surface and orbits. To explore the sizes, surfaces and orbits of planets in our solar system.	**Night and Day** Using the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky by examining why the sun appears to move and the arguments for the Earth's rotation. • I can explain day and night and the apparent movement of the sun across the sky. Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of the evidence for the Earth's rotation. • I can identify scientific evidence which does or does not provide evidence for an idea or argument.	**Water Resistance** To identify the effects of water resistance by creating and racing streamlined boats. • To explore the effects of water resistance.	**Changes in Old Age** Describe the changes as humans develop to old age by understanding the changes that take place in old age. • I can identify the changes that take place in old age.
5	**Separating Mixtures** To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating by	**Metamorphosis** To describe the differences in the life cycles of an amphibian and an insect by exploring complete and incomplete metamorphosis.	**Eva Crane** To describe the life process of reproduction in some plants and animals in the context of Eva Crane's research into the life cycle of bees.	**Night and Day** International Using the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky by predicting night and	**Friction** To identify the effects of friction by investigating brakes. • To investigate the effects of friction.	**Gestation Periods** Report findings from enquiries, including oral and written explanations of results in the context of the gestation period for animals.

	separating different mixtures. To demonstrate that dissolving, mixing and changes of state are reversible changes by separating different mixtures. To describe how to recover a substance from a solution by separating different mixtures. • I can use different processes to separate mixtures of materials.	• I can compare the life cycles of amphibians and insects.	To describe Eva Crane and her work with bees.	day in different places on Earth. • I can investigate night and day in different parts of the Earth. Reporting and presenting findings from enquiries, including conclusions, in oral and written forms such as displays and other presentations in the context of investigating night and day. • I can report and present findings from enquiries.		• I can report findings from enquiries.
6	**Irreversible Changes** To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda by identifying and observing irreversible chemical changes. • I can identify and explain irreversible chemical changes.	**Comparing Life Cycles** To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird by describing and comparing different life cycles, including birds. • I can compare the life cycles of plants, mammals, amphibians, insects and birds.	**Stephanie Kwolek** To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets in the context of finding materials appropriate for a particular use To describe Stephanie Kwolek and her work with materials. To choose materials for jobs based on their properties	**Movement of the Moon** Describing the movement of the Moon relative to the Earth by explaining how the Moon orbits the Earth. • I can explain the movement of the Moon.	**Marvellous Mechanisms** To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect by exploring and designing a simple mechanism. • To explore and design mechanisms.	**Life Expectancy** Record data and results of increasing complexity using bar and line graphs, and models in the context of comparing gestation periods and life expectancies of animals. • I can record complex data using graphs and models. Reporting and presenting findings from enquiries, including causal relationships by analysing data on gestation periods and life expectancies of animals.

						• I can identify the relationship between variables

Year 6	
Year 5 and 6 Working Scientifically Pupils will be taught to use the following practical scientific methods, processes and skills: • WS1 planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • WS2 taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • WS3 recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • WS4 using test results to make predictions to set up further comparative and fair tests • WS5 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 • WS6 identifying scientific evidence that has been used to support or refute ideas or arguments. • WS7 explore and talk about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. • WS8 recognise that scientific ideas change and develop over time.	**Living things and their Habitats** • LTH1 describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • LTH2 give reasons for classifying plants and animals based on specific characteristics. • LTH3 know that broad groupings, such as micro-organisms, plants and animals can be subdivided. • LTH4 should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). • LTH5 find out about significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. **Animals, including Humans** • AIH1 identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • AIH2 recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • AIH3 describe the ways in which nutrients and water are transported within animals, including humans. • AIH4 explore questions to understand how the circulatory system enables the body to function. • AIH5 learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. • AIH6 explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health. **Evolution and Inheritance** • EI1 recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • EI2 recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • EI3 identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

• WS9 draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings. • WS10 Pupils should read, spell and pronounce scientific vocabulary correctly.	• EI4 be introduced to the idea that characteristics are passed from parents to their offspring, i.e. different breeds of dogs, and what happens when, for example, Labradors are crossed with poodles. • EI5 appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer. • EI6 find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution. **Electricity** • E1 associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • E2 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 • E3 use recognised symbols when representing a simple circuit in a diagram. • E4 construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. • E5 learn how to represent a simple circuit in a diagram using recognised symbols. **Light** • L1 recognise that light appears to travel in straight lines • L2 use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • L3 explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • L4 use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them • L5 exploring the way that light behaves, including light sources, reflection and shadows. Talk about what happens and make predictions.

YEAR 6

Week	Animals including humans	Electricity	Light	Evolution and Inheritance	Living things and their habitats	Scientist and Inventors
1	**The Circulatory System: Parts** To identify and name the main parts of the human circulatory system by recalling prior knowledge of systems in the human body and labelling a diagram. • I can identify and name the parts of the human circulatory system.	**It's Electrifying!** Identifying scientific evidence that has been used to support or refute ideas or arguments in the context of the major discoveries made by scientists in the field of electricity. • I can explain the importance of the major discoveries in electricity.	**How We See** To recognise that light appears to travel in straight lines by creating a model of light travelling. To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye by creating a model of light travelling. To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes by creating a light documentary. • I can explain that light travels in straight lines from light sources to our eyes, and from light sources to objects and then to our eyes.	**Inheritance** Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents in the context of inheritance. • I can explain the scientific concept of inheritance	**Classifying Conundrums** To give reasons for classifying plants and animals based on specific characteristics in the context of sorting and grouping animals for a zoo. • I can give reasons for classifying animals based on their similarities and differences.	**Stephen Hawking** To report and present findings from enquiries, including causal relationships, in oral and written forms such as displays and other presentations in the context of Stephen Hawking and his findings on black holes. • To understand Stephen Hawking's theories about black holes and report my findings.
2	**The Circulatory System: Functions** To describe the functions of the heart, blood vessels and blood by investigating how the different parts of	**Circuit Symbols** Use recognised symbols when representing a simple circuit in a diagram by observing and explaining the	**Reflecting Light** To recognise that light appears to travel in straight lines by investigating the angles of incidence and reflection. To use the	**Adaptation** Identify how animals and plants are adapted to suit their environment in different ways in the context of	**Linnaean System** To describe how living things are classified into broad groups according to common observable characteristics and based on similarities	**Libbie Hyman** To give reasons for classifying plants and animals based on specific characteristics in the context of Libbie Hyman's work on

	the circulatory system work. • I can describe the functions of the main parts of the circulatory system.	effect of different volts in a circuit. • I can observe and explain the effects of differing volts in a circuit.	idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye by creating a periscope and explaining how it works. To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes by creating a periscope and explaining how it works. • I can understand how mirrors reflect light, and how they can help us see objects.	environmental variation. • I can demonstrate understanding of the scientific meaning of adaptation.	and differences, including micro-organisms, plants and animals by finding out about the Linnaean System of classification. • I can describe how living things are classified into groups	classifying vertebrates and invertebrates. • To understand Libbie Hyman's work about classification.
3	**Transporting Water and Nutrients** To describe the ways in which nutrients and water are transported within animals, including humans in the context of the human body. • I can explain how water and nutrients are transported within the body.	**Volts** Associate the brightness of a bulb or the volume of a buzzer with the number and voltage of cells used in the circuit by observing and explaining the effect of different volts in a circuit. • I can observe and explain the effects of differing volts in a circuit.	**Refraction** To recognise that light appears to travel in straight lines by investigating refraction. • I can investigate how refraction changes the direction in which light travels.	**Theory of Evolution** Identifying scientific evidence that has been used to support or refute ideas or arguments; Identify how adaptation may lead to evolution by examining the theories of evolution constructed by Darwin and Wallace. • I can identify the key ideas of the theory of evolution.	**Curious Creatures** To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals by identifying the characteristics of mammals, birds, insects, reptiles, amphibians, fish, arachnids, annelids, crustaceans,	**Marie Maynard Daly** To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function in the context of exploring Marie Maynard Daly's findings on diet and heart-health. • To explain how diet affects the way the body functions.

					echinoderms and molluscs. • I can identify the characteristics of different types of animals. To give reasons for classifying plants and animals based on specific characteristics by exploring unusual creatures and designing their own curious creature. • I can classify a creature based on its characteristics.	
4	**Healthy Lifestyle** To recognise the impact of diet and exercise on the way their bodies function by describing the effects of a healthy lifestyle. • I can describe how diet and exercise impact on human bodies.	**Electricity Investigation (Part 1)** 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 Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary by investigating the relationship between wire length and the brightness of bulbs or the loudness of buzzers.	**Spectacular Spectrum** To recognise that light appears to travel in straight lines by exploring prisms and creating colour wheels. • I can investigate how a prism changes a ray of light.	**Evidence for Evolution** Identifying scientific evidence that has been used to support or refute ideas or arguments; Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of the evolution of plants and animals. • I can identify evidence for evolution from fossil records	**Microorganisms** To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals by exploring helpful and harmful microorganisms. • I can describe and investigate helpful and harmful microorganisms.	**Alexander Fleming** To record data using scatter graphs in the context of Fleming's discovery of penicillin. • To record and interpret data on the effects of penicillin using a scatter graph.

		• I can plan an investigation. • I can understand variations in how components function.				
5	E**xercise Investigation** To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary taking measurement with increasing accuracy and precision, taking repeat readings when appropriate by creating an enquiry that compares and categorises different forms of exercise and by taking accurate pulse measurements to gather data. • I can plan a scientific enquiry. To record data and results of increasing complexity using classification keys, tables, scatter graphs, bar and line graphs. To report findings from enquiries, including conclusions and degree of trust in results, in written forms by reporting and	**Electricity Investigation (Part 2)** 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 Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 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 by conducting an investigation, presenting and report findings on the effect of wire length on the brightness of bulbs or	**Seeing Colours** To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye by investigating how we see colours. To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes by investigating how we see colours. • I can investigate how light enables us to see colours	Evidence for Evolution: Humans Identifying scientific evidence that has been used to support or refute ideas or arguments; Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of the evolution of human beings. • I can understand how human beings have evolved.	**More About Microorganisms** To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals I can identify the characteristics of different types of microorganisms. • I can identify the characteristics of different types of microorganisms.	**Mary Leakey** To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago in the context of Mary Leakey's fossil findings in the Olduvai Gorge. • To understand the life of Mary Leakey and her work about fossils

	presenting the findings of their enquiry. • I can record, report and present results appropriately.	the loudness of buzzers. • I can conduct an investigation. • I can record my data and report my findings				
6	**Impact of Drugs and Alcohol** To recognise the impact of drugs on the way their bodies function in the context of drugs and alcohol. • I can explain the impact of drugs and alcohol on the body. To identify scientific evidence that has been used to support or refute ideas or arguments in the context of changing attitudes to smoking. • I can describe how scientific evidence highlighted the dangers of smoking.	**Electricity Investigation (Part 3)** 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 Using test results to make predictions to set up further comparative and fair tests by planning and conducting a further investigation. • I can investigate my results further.	**Shadow Theatre** To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them by performing a shadow puppet show about Isaac Newton. To identify scientific evidence that has been used to support or refute ideas or arguments by performing a shadow puppet show about Isaac Newton. • I can explain why shadows have the same shape as the object that casts them.	**Adaptation, Evolution and Human** Intervention Identify how adaptation may lead to evolution by examining the advantages and disadvantages of specific adaptations and the role of human intervention in the process of evolution. • I can explain how adaptations can result in both advantages and disadvantages. • I can explain how human intervention affects evolution.	**Field Guide** To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals by grouping organisms found in the local habitat. • I can classify organisms found in my local habitat. To give reasons for classifying plants and animals based on specific characteristics by creating a field guide to the organisms found in the local habitat. • I can explain the classification of organisms found in my local habitat.	**Dr Daniel Hale Williams** To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood in the context of finding out about Dr Daniel Hale Williams, then labelling the parts and functions of the circulatory system. • To label the parts and functions of the heart • To explain Dr Daniel Hale Williams' accomplishments.