Science Long Term Plan – St Mary's CE Primary School

St Mary's CE Primary School Science Long Term Plan

Year Group	Autumn Term		Spring Term		Summer Term	
Reception	**Understanding the World -ELG** **Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter)** **Understanding the World -ELG** **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been learnt in class.** Floating and sinking	**Understanding the World -ELG** **Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter)** Signs of Autumn - Seasons	**Understanding the World -ELG** **Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter)** **Understanding the World -ELG** **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been learnt in class.** Find out about Archimedes. Signs of Winter - Seasons Explore:	**Understanding the World -ELG** **Explore the natural world around them, making observations and drawing pictures of (animals) and plants** **Understanding the World -ELG** **Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter)** **Understanding the World -ELG** **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been learnt in class.**	**Understanding the World -ELG** **Explore the natural world around them, making observations and drawing pictures of animals and plants** **Understanding the World -ELG** **Understanding the World -ELG** **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been learnt in class.**	**Understanding the World -ELG** **Explore the natural world around them, making observations and drawing pictures of animals and plants** **Understanding the World -ELG** **Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter)** **Understanding the World -ELG** **Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been learnt in class.**

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			Ice - melting and freezing Shadows, Day/Night, what can you see through Sound - what makes a noise ? Magnetic and non magnetic	Plant seeds name and describe common plants : daffodil, tulip, rose, buttercup, daisy, dandelion. Measure and describe changes of growing plants (including decay) Know lifecycle of a plant Observations of different plants similarities and differences - compare different plants grow from a bulb and some from a seed. Know that we eat some leaves and vegetables Understanding seasons - signs of Spring	Bug hunt Identify, name and talk about mini beasts in the local environment Lifecycle of butterfly, frog who and how do we care for animals ? (farms, pets) How do we look after animals in their own natural habitats (under the sea, wildlife) Find out about David Attenborough.	Signs of Summer - Seasons Compare hot and cold places Animals found in the North Pole Animals found in India
	Autumn Term		**Spring Term**		**Summer Term**	
Year 1	**Everyday Materials** **distinguish between an object and the material from which it is made**		**Seasonal changes** **Day and night** **Seasons** **Weather**	**Plants** **Identify and name a variety of common wild**	**Animals, including humans**	

	identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock **describe the simple physical properties of a variety of everyday materials** **compare and group together a variety of everyday materials on the basis of their simple physical properties** *explore, name, discuss, questions about everyday materials so that they become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent.* *Perform simple tests to explore questions, for example: 'What is the best material for an umbrella? … for lining a dog basket? … for curtains? … for a bookshelf? … for a gymnast's leotard?*	**observe changes across the 4 seasons** **observe and describe weather associated with the seasons and how day length varies** Find out about Anders Celsius and John Dalton	**and garden plants, including deciduous and evergreen trees** **identify and describe the basic structure of a variety of common flowering plants, including trees** *(including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem).* *comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening;*	**identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals** *including those that are kept as pets.* **identify and name a variety of common animals that are carnivores, herbivores and omnivores** **describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)** **identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense** *including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth through games, actions, songs and rhymes.*
	Working scientifically			

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	Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1. During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions					
	Autumn Term		**Spring Term**		**Summer Term**	
Year 2		**Everyday Materials** **identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses** *some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood*	**Everyday Materials** **find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching**	**Animals including Humans** **notice that animals, including humans, have offspring which grow into adults** **find out about and describe the basic needs of animals, including humans, for survival (water, food and air)** **describe the importance for humans of exercise, eating the right amounts of different**	**Plants** **observe and describe how seeds and bulbs grow into mature plants** **find out and describe how plants need water, light and a suitable temperature to grow and stay healthy** *introduce the requirements of plants for germination, growth and survival, as well as to the processes of*	**Living Things and Their Habitats** **explore and compare the differences between things that are living, dead, and things that have never been alive** **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**

		can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). *properties of materials that make them suitable or unsuitable for particular purposes* Find out John McAdam and Charles Mactintosh		**types of food, and hygiene** *introduced to the processes of reproduction and growth in animals.* *egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.*	*reproduction and growth in plants.* *observe similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.*	**identify and name a variety of plants and animals in their habitats, including microhabitats** **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** *introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'microhabitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter).* *how living things depend on each other, for example, plants serving as a source of*

						food and shelter for animals. *compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest.* *sorting and classifying things according to whether they are living, dead or were never alive* *construct a simple food chain that includes humans (eg, grass, cow, human).*
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	Autumn Term		Spring Term		Summer Term
Year 3	Rocks	Forces and Magnets	Animals Including Humans	Light	Plants
	compare and group together different kinds of rocks on the basis of their appearance and simple physical properties **describe in simple terms how fossils are formed when things that have lived are trapped within rock** **recognise that soils are made from rocks and organic matter** *Linked with work in geography, pupils should explore different kinds of rocks and soils, identifying the similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water* *observing rocks, including those used in buildings and*	**compare how things move on different surfaces** **notice that some forces need contact between 2 objects, but magnetic forces can act at a distance** **observe how magnets attract or repel each other and attract some materials and not others** **compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and**	**identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat** **identify that humans and some other animals have skeletons and muscles for support, protection** **and movement** **Identify the different types of teeth in humans and their simple function** *learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.* *identify and group animals with and without skeletons*	**recognise that they need light in order to see things and that dark is the absence of light** **notice that light is reflected from surfaces** **recognise that light from the sun can be dangerous and that there are ways to protect their eyes** **recognise that shadows are formed when the light from a light source is blocked by an opaque object** **find patterns in the way that the size of shadows change** *explore what happens when light reflects off a mirror or other reflective surfaces*	**identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers** **explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant** **investigate the way in which water is transported within plants** **explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal** *understand the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction (label parts of a flower)* *be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens* *compare the effect of different factors on plant growth, eg the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time;*

	gravestones, and exploring how and why they might have changed over time *classify rocks according to whether they have grains or crystals, and whether they have fossils in them.* Find out about Mary Anning	**identify some magnetic materials** **describe magnets as having 2 poles** **predict whether 2 magnets will attract or repel each other, depending on which poles are facing** *observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary* *explore the behaviour and everyday uses of different magnets* *compare how different things*	*and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.* *Identify the different types of **teeth** in humans and their simple functions. Compare the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them.*	*learn why it is important to protect their eyes from bright lights.* *look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.* *know that it is not safe to look directly at the Sun, even when wearing dark glasses.* *look for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.*	*looking for patterns in the structure of fruits that relate to how the seeds are dispersed.* *observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.*

		move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what			

		might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.			

Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge

Working scientifically

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

	• identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings.						
	Autumn Term		**Spring Term**			**Summer Term**	
Year 4	**States Of Matter** **compare and group materials together, according to whether they are solids, liquids or gases** **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)** **identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature** *explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases*	**Electricity** **identify common appliances that run on electricity** **construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers** **identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery** **recognise that a switch opens**	**Living Things and their habitats** **recognise that living things can be grouped in a variety of ways** **explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment** **recognise that environments can change and that this can sometimes pose dangers to living things** *use the local environment throughout the year to identify and study plants and animals in their habitat.*			**Animals including Humans** **Construct and interpret a variety of foodchains, identifying producers, predators and prey.**	**Sound** **identify how sounds are made, associating some of them with something vibrating** **recognise that vibrations from sounds travel through a medium to the ear** **find patterns between the pitch of a sound and features of the object that produced it** **find patterns between the volume of a sound and the strength of the vibrations that produced it** **recognise that sounds get fainter as the distance from the sound source increases** *explore and*

	escape from an unsealed container). *observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled.* *Note: Teachers should avoid using materials where heating is associated with chemical change, for example, through baking or burning.* *group and classify a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter* *observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting***.**	**and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit** **recognise some common conductors and insulators, and associate metals with being good conductors** *Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily*	*identify how the habitat changes throughout the year.* *explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants.* *begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects* *group plants into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses.* *explore examples of human impact (both positive and negative) on environments, eg.,*				*identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways.* *find patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses.*

		using conventional circuit symbols at this stage; these will be introduced in year 6. *Pupils should be taught about precautions for working safely with electricity.* *observe patterns, eg.that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.*	*the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.* *use and make simple guides or keys to explore and identify local plants and animals*				

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		Find out about Thomas Edison					

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

	Autumn Term	Spring Term		Summer Term	
Year 5	**Properties and changes of materials** **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** **Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution** **Use knowledge of solids, liquids and gases to decide how mixtures might be separated,**	**Forces** **Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object** **Identify the effects of air resistance, water resistance and friction, that act between moving surfaces**	**Earth and Space** **Describe the movement of the Earth and other planets relative to the sun in the solar system** **Describe the movement of the moon relative to the Earth**	**Living Things and Their Habitats** **Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird** **Describe the life process of reproduction in some plants and animals.**	**Animals including Humans** **describe the changes as humans develop to old age** **describe the simple functions of the basic parts of the digestive system in humans**

	including through filtering, sieving and evaporating **Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic** **Demonstrate that dissolving, mixing and changes of state are reversible changes** **Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda** *Explore and compare the properties of a broad range of materials, including relating these to what they learnt about magnetism in year 3 and about electricity in year 4. They should explore reversible changes, including, evaporating, filtering, sieving, melting and dissolving, recognising that melting and dissolving are different processes.* *Explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example, vinegar with bicarbonate of soda.* *Find out about how chemists create new materials, for example, Spencer Silver, who*	**Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect** *Explore falling objects and raise questions about the effects of air resistance* *Explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall.* *Experience forces that make things begin to move, get faster or slow down.* *Explore the effects of friction on movement and find out how it slows or stops moving objects, eg. by observing the effects of a brake on a bicycle wheel. explore the effects of levers, pulleys and simple machines on movement.* *Find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.*	**Describe the sun, Earth and moon as approximately spherical bodies** **Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky** *Use a model of the Sun and Earth that enables them to explain day and night.* *Learn that the Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and*	(*Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals.)* *Observe life-cycle changes in a variety of living things, for example, plants in the vegetable garden or flower border, and animals in the local environment.* *Find out about the work of naturalists and animal behaviourists,eg. David Attenborough and Jane Goodall.* *Find out about different types of reproduction, including sexual and asexual*	*draw a timeline to indicate stages in the growth and development of humans.* *learn about the changes experienced in puberty.* *research the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.* *Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function.*

	invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton. *Observe that some conductors will produce a brighter bulb in a circuit than others and that some materials will feel hotter than others when a heat source is placed against them.* *Carry out tests to answer questions,eg. 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?'* *Compare materials in order to make a switch in a circuit.* *Observe and compare the changes that take place, eg, when burning different materials or baking bread or cakes.* *Research and discuss how chemical changes have an impact on our lives, eg, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.*	*Explore falling paper cones or cup-cake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective.* *Explore resistance in water by making and testing boats of different shapes. They might design and make products that use levers, pulleys, gears and/or springs and explore their effects.*	*numerous smaller ones).* *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.* Find out about Brian Cox and Mae Jemison. *Compare the time of day at different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school*	*reproduction in plants (including recap flower parts), and sexual reproduction in animals.* *Observe and compare the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times)* *Try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs.* *Observe changes in an animal over a period of time* *Compare how different animals*	

			day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.	*reproduce and grow.*	
	Pupils should read, spell and pronounce scientific vocabulary correctly **Working scientifically** During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ● planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ● taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● using test results to make predictions to set up further comparative and fair tests ● reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations ● identifying scientific evidence that has been used to support or refute ideas or arguments				
Year 6	**Living things and their habitats- Biology** **Living things and their habitats** **<u>What do they have in common?</u>** **Describe how living things are classified into broad groups**	**Animals including Humans - Biology** **<u>What keeps us running?</u>** **Identify and name the main parts of the human circulatory system, and describe the**	**Light -Physics** **<u>How do submarines see above the water's surface?</u>** **Recognise that light appears to travel in straight lines** **Use the idea that light travels in straight lines to explain that objects are**	**Electricity - Physics** **<u>What happens when you flick a switch?</u>** **Associate the brightness of a lamp or the volume of a buzzer with the number and voltage**	**Evolution and inheritance - Biology** **<u>Where do we all come from?</u>** **Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago**

	according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals **Give reasons for classifying plants and animals based on specific characteristics** *Build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided* *classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish,*	**functions of the heart, blood vessels and blood** **Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function** **Describe the ways in which nutrients and water are transported within animals, including humans** *Build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function.* *Learn how to keep their bodies healthy*	**seen because they give out or reflect light into the eye** **Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes** **Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them** *Build on the work on light in year 3, exploring the way that light behaves, including light sources, reflection and shadows.* *Talk about what happens and make predictions.* *Decide where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to*	**of cells used in the circuit** **Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches** **Use recognised symbols when representing a simple circuit in a diagram** *Build on their work in year 4, pupils should 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.*	**Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents** **Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution** *Building on what they learned about fossils in the topic on rocks in year 3, pupils should find out more about how living things on earth have changed over time.* *Introduce the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. They should also 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, or the development of insulating fur on the arctic fox.* *Find out about the work of palaeontologists such as Mary Anning (studied already in Y3) and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.*

	amphibians, reptiles, birds and mammals). discuss reasons why living things are placed in one group and not another. *Find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification.* *Use classification systems and keys to identify some animals and plants in the immediate environment.* *Research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system*	*and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body.* *Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.*	*travel in straight lines to explain how it works.* *Investigate the relationship between light sources, objects and shadows by using shadow puppets.*	*Learn how to represent a simple series circuit (not parallel) in a diagram using recognised symbols.* *Identify the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.*	*Learn about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels.* *Analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.*

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	Pupils should read, spell and pronounce scientific vocabulary correctly **Working scientifically** During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ● planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary ● taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate ● recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs ● using test results to make predictions to set up further comparative and fair tests ● reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations ● identifying scientific evidence that has been used to support or refute ideas or arguments				