St Mary's CE (VA) Primary School Progression of Science Skills				
Year Group	**Reception**	**Year 1 and Year 2**	**Year 3 and Year 4**	**Year 5 and Year 6**
Sc1 Working Scientifically	Explore the natural world around them.	Asking simple questions and recognising that they can be answered in different ways	Asking relevant questions and using different types of scientific enquiries to answer them	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
	Describe what they see, hear and feel	Performing simple tests	Setting up simple practical enquiries, comparative and fair tests	
	Ask simple questions	Observing closely, using simple equipment	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
	Make observations and record using simple drawings	Gathering and recording data to help in answering questions	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	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
	Suggest why things might happen	Identifying and classifying	Identifying differences, similarities or changes related to simple scientific ideas and processes	Identifying scientific evidence that has been used to support or refute ideas or arguments
	Use simple equipment e.g. magnifying glass		Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
			Using straightforward scientific evidence to answer questions or to support their findings.	
		Using their observations and ideas to suggest answers to questions	Using results to draw simple conclusions, make predictions for new values and suggest	Using test results to make predictions to set up further comparative and fair tests

			improvements and raise further questions	
			Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	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

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
SC2 Biology : Plants	**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**	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Observe and describe how seeds and bulbs grow into mature plants *introduce the requirements of plants for germination, growth and survival, as well as to the processes of reproduction and growth in plants.*	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers *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*		See living things and their habitats section for plant reproduction	

	differences between the natural world around them and contrasting environments, drawing on their experiences and what has been learnt in class. 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						
		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).* *Compare and contrast 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;*	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. *observe similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.*	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 *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; looking for patterns in the structure of fruits that relate to how the seeds are dispersed.*			
	Understanding the World -ELG Know some similarities and differences between the natural world around them and			Investigate the way in which water is transported within plants *observe how water is transported in plants, for example, by putting cut, white*			

	contrasting environments, drawing on their experiences and what has been learnt in class.			*carnations into coloured water and observing how water travels up the stem to the flowers.*			
	Understanding the World -ELG Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter)			Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.			

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc2: Biology Living Things and their Habitats	**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**		Explore and compare the differences between things that are living, dead, and things that have never been alive. *Sorting and classifying things according to whether they are living, dead or were never alive*		Recognise that living things can be grouped in a variety of ways *Explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants. Group plants into categories such as flowering plants (including grasses) and non-flowering*	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. *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.*	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. *Build on their learning about grouping living*

	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. 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)				*plants, such as ferns and mosses.*		*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, 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.*

			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 *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).* *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.*		Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. *Use the local environment throughout the year to identify and study plants and animals in their habitat.* ***B**egin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects* *Use and make simple guides or keys to explore and identify local plants and animals*	Describe the life process of reproduction in some **plants** (and animals) *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, plant**s** in the vegetable garden or flower border, and animals in the local environment.* *Find out about different types of reproduction, including sexual and asexual 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*	Give reasons for classifying plants and animals based on special characteristics

						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.*	
			Identify and name a variety of plants and animals in their habitats, including micro-habitats. *how living things depend on each other, for example, plants serving as a source of food and shelter for animals.*		Recognise that environments can change and that this can sometimes pose dangers to living things. *Identify how the habitat changes throughout the year.* *explore examples of human impact (both positive and negative) on environments, eg., the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.*		
			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. *construct a simple food chain that includes humans (eg, grass, cow, human).*				

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc2: Biology Animals, including Humans	***Understanding the World -ELG Explore the natural world around them, making observations and drawing pictures of animals (and plants)***	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Notice that animals, including humans, including humans, have offspring which grow into adults. *Introduce 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.*	Identify that humans and some other animals have **skeletons and muscles** for support, protection and movement. *Identify and group animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. Introduce the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.*	Construct and interpret a variety of **food chains,** identifying producers, predators and prey.	Describe the simple functions of the basic parts of the digestive system in humans. *Introduce the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help them to understand their special functions.*	Identify and name the main parts of the **circulatory system**, and explain the **functions of the heart, blood vessels and blood** *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.*
	Understanding the World -ELG Know some similarities and differences	Identify and name a variety of common animals that are **carnivores,**	Find out about and describe the basic needs of Animals, including humans, including humans,	Identify that Animals, including humans, including humans, need the right types and		Describe the changes as humans develop from birth to old age.	Recognise the impact of diet, exercise, drugs and lifestyle on the way

	between the natural world around them and contrasting environments, drawing on their experiences and what has been learnt in class.	**herbivores and omnivores**	for survival (water, food and air)	amount of **nutrition**, and that they cannot make their own food; they get nutrition from what they eat. *Learn about the importance of nutrition .* *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.*		*Draw a timeline to indicate stages in the growth and development of humans.* *Learn about the changes experienced in puberty.*	their bodies function. *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.* *Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.*
	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,**	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	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.*			Describe the ways in which nutrients and water are transported within Animals, including humans, including humans

	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.** Compare hot and cold places Animals found in the North Pole Animals found in India						
		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,*					See living things and their habitats section for animal reproduction

		teeth through games, actions, songs and rhymes.					

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc2: Biology Evolution & Genetics							Recognise that living things have changed over time and that **fossils** provide information about living things that inhabited the Earth millions of years ago. *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.*
							Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. *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.
							Identify how Animals, including humans and plants are adapted to suit their environment in different ways and that adaptation may lead to **evolution**. *Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.*

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Sc3: Chemistry Materials	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.	Distinguish between an object and the material from which it is made	Identify and compare the **suitability** of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses *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?* *Some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood 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*		Compare and group materials together, according to whether they are solids, liquids or gases. *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 escape from an unsealed container).*	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 *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.*	

	Understanding the World -ELG Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter Explore: Ice - melting and freezing	**Identify and name** a variety of everyday materials, including wood, plastic, glass, metal, water, and rock	Find out how the shapes of solid objects made from some materials can be **changed** by squashing, bending, twisting and stretching.		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). *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.*	Know that some materials will **dissolve** in liquid to form a solution, and describe how to recover a substance from a solution.	
		Describe the simple physical properties of a variety of everyday materials *Explore, name, discuss, questions about everyday materials so that they become familiar with the names of materials and*			Identify the part played by **evaporation and condensation** in the **water cycle** and associate the rate of evaporation with temperature. *Observe and record evaporation over a*	Use knowledge of solids, liquids and gases to decide how **mixtures** might be **separated**, including through filtering, sieving and evaporating	

		properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent.			*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***.**		
		Compare and group together a variety of everyday materials on the basis of their simple physical properties				**Give reasons,** based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. *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?'*	
						Demonstrate that **dissolving**, mixing and changes of state are **reversible changes.** *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.	
						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.** *Observe and compare the changes that take place, eg, when burning different materials or baking bread or cakes.* *Find out about how chemists create new materials, for example, Spencer Silver, who invented the glue for sticky notes or Ruth Benerito, who invented wrinkle-free cotton.*	

						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.	

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc3: Chemistry: Rocks				Compare and group **together different kinds of rocks** on the basis of their simple physical properties. *Observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time.*			
				Describe in simple terms how **fossils** are formed when things that have lived are trapped within rock. *Classify rocks according to whether they have grains or crystals, and whether they have fossils in them.*			
				Recognise that 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.*			

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc4: Physics Forces and Magnets	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 Magnetic and non magnetic			Compare how things move on different surfaces		Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. *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.* *Find out how scientists, for*	

						example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.	
				Notice that some forces need contact between two objects and some forces act at a distance. *Observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary*		Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. *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 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.*	
				Observe how magnets attract or repel each other and attract some materials and not others. *Explore the strengths of different magnets and finding a fair way*		Recognise that some mechanisms, including gears, pulleys, levers and springs, allow a smaller force to have a greater effect.	

				to compare them; sorting materials into those that are magnetic and those that are not;		*Explore the effects of levers, pulleys and simple machines on movement.* *Design and make products that use levers, pulleys, gears and/or springs and explore their effects.*	
				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. *Explore the behaviour and everyday uses of different magnets* *Compare how different things 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;*			
				Describe magnets as having two poles *Look 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.			
				Predict whether two magnets will attract or repel each other, depending on which poles are facing			

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc4: Physics: Light	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. Shadows, Day/Night, what can you see through			Recognise that they need light in order to see things and that dark is the absence of light			Recognise that light appears to travel in straight lines. *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.*
				Notice that light is reflected from surfaces			Use the idea that light travels in straight lines to explain that objects

				Explore what happens when light reflects off a mirror or other reflective surfaces			are seen because they give out or reflect light into the eye. *Decide where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works.*
				Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. *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.*			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.
				Recognise that shadows are formed when the light from a light source is blocked by a solid object. *Look for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.*			Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. *Investigate the relationship between light sources, objects*

							and shadows by using shadow puppets.
				Find patterns that determine the size of shadows. *Look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.*			

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc4: Physics: Sound	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. Sound - what makes a noise ?				Identify how sounds are made, associating some of them with something vibrating. *Explore and identify the way sound is made through vibration in a range of different musical instruments from around the world;*		
					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 in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses.*		
					Find patterns between the volume of a sound and the strength of the vibrations that produced it. *Find out how the pitch and volume of sounds can be changed in a variety of ways.*		
					Recognise that sounds get fainter as the distance from the sound source increases		

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc4: Physics Electricity					Identify common appliances that run on electricity *Pupils should be taught about precautions for working safely with electricity.*		Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit *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.
					Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. *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 using conventional circuit symbols at this stage; these will be introduced in year 6.*		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. *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.*
					Identify whether or not a lamp will light		Use recognised symbols when

					in a simple series circuit based on whether or not the lamp is part of a complete loop with a battery *Observe patterns, eg.that bulbs get brighter if more cells are added,*		representing a simple circuit in a diagram. *Learn how to represent a simple series circuit (not parallel) in a diagram using recognised symbols.*
					Recognise that a switch opens 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. O*bserve patterns, 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.* *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.		

Year Group	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sc4: Physics **Seasonal Changes KS1** **Earth & Space KS2**	Understanding the World -ELG Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter) Seasons Signs of Autumn, Winter ,Spring Summer	Observe changes across the four seasons				Describe the movement of the Earth and other planets relative to the Sun in the solar system. *Create simple models of the solar system;* *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.* *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.	
		Observe and describe weather associated with the seasons and how day length varies				Describe the movement of the Moon relative to the Earth *They should understand that a moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones)*	
						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.* *Compare the time of day at different places on the Earth through internet links and direct communication;* *Construct simple shadow clocks and*	

						sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.	

Key: **No relevant coverage for Year Group**

Italics represent non-statutory guidance

VOCABULARY PROGRESSION (on topic knowledge mats…some links across topics)							
Year Group	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Working scientifically	describe draw equipment feel group hear observe question record see sort suggest	biology chart chemistry classify compare (similarities) contrast (differences) diagram equipment group identify measure notice observe physics question record sort	biology chart chemistry classify compare (similarities) contrast (differences) diagram equipment group identify measure notice observe predict physics question record results sort table	bar chart biology chemistry classify comparative compare (similarities) conclusion contrast (differences) (present) data (labelled) diagram enquiry evidence explanation fair test gather (accurate) measurements (careful) observation physics plan prediction (relevant) question	bar chart biology chemistry classify comparative compare (similarities) conclusion contrast (differences) (present) data (labelled) diagram enquiry evidence explanation fair test gather key (accurate) measurements (careful) observation physics plan prediction	accurate biology chemistry comparative construct degree of trust enquiry evidence to support evidence to refute explanation factor line graph pattern precision physics repeat relationship variables	accurate biology chemistry comparative construct degree of trust enquiry evidence to support evidence to refute explanation factor line graph pattern precision physics repeat relationship variables

			test	record research results	(relevant) question record research results systematic		
Plants	bud bulb flower leaf life cycle plant root seed shoot stem vegetable	blossom branch deciduous environment evergreen fruit plant trunk wild plant	germination life cycle nutrition reproduce seed dispersal sunlight temperature water	anther carpel fertilisation filament flower germination leaf nutrients ovary ovule pollination roots seed dispersal stamen stem stigma style			
Living things and their habitats	butterfly caterpillar environment frog spawn habitat insect life cycle minibeast nocturnal tadpole		dead depend food chain habitat living living processes microhabitat never living survive		biomes classification key criteria habitat invertebrates organism species vertebrates	asexual reproduction embryo fertilisation gestation metamorphosis pollination reproduction sexual reproduction	algae bacteria fungi invertebrates micro organism monera species vertebrates

Animals including Humans	adult baby child cocoon elderly grandparent parent toddler	amphibians birds carnivore fish herbivore mammals omnivore reptiles senses	adult diet exercise hygiene life cycle offspring reproduce survival	canine incisor joint pelvis molar muscles nutrition rib cage skeleton skull spine teeth tendon	carnivore consumer food chain herbivore omnivore predator producer prey	adolescence adult baby child digestion excretion foetus infant large intestine nutrition oesophagus organ process puberty salivary gland small intestine stomach teenager	artery blood vessel carbon dioxide circulatory system drugs heart lungs oxygen pulse red blood cell vein
Evolution and genetics							adaptation characteristics chromosomes evolution genes inheritance offspring palaeontologist variations
Materials	cold freeze heavy hot material melt transparent	hard absorbent bendy dull glass hard object material metal opaque plastic	bending material properties purpose squashing stretching suitable twisting		condensation evaporation gas liquid matter precipitation solid substance temperature water vapour	conductivity dissolve evaporation filtering gases hardness insoluble insulators irreversible change liquids melting	

		rough shiny smooth soft stretchy transparent water waterproof wood				reversible change separate sieving solids solubility thermal transparency	
Rocks				fossil igneous impermeable metamorphic organic matter permeable sedimentary soil			
Forces and magnets	attract float magnet magnetic repel sink			attract force friction magnet magnetic magnetic field poles repel		accelerate air resistance friction gear gravity lever mechanism pulley water resistance	
Light	dark day light night shadow			dark light light source opaque reflection shadow translucent transparent			incident ray light source light wave reflected ray reflection refraction shadow
Sound	loud quiet				amplitude ear		

	sound vibrate volume				frequency pitch sound wave vibration volume		
Electricity					appliance battery buzzers cell circuit conductor insulator series circuit socket switch wire		battery cell circuit conductor current electricity insulator resistance series circuit voltage
Seasonal Changes KS1 **Earth & Space KS2**	Autumn Season Spring Summer Winter	Autumn day length coniferous deciduous Season Spring Summer temperature thermometer weather weather symbol Winter				axis moon orbit planet rotation solar system spherical star sun	