St Margaret's CEVA Primary School Progression Map

Science

Intent: In Science we aim to give all children a strong understanding of the world around them. They are able to discover how the world works and our place, impact, roles and responsibilities within our environment. Our children are encouraged to ask questions and apply their growing scientific knowledge to investigate and learn more. The children are able to develop a systematic and logical way of working and are able to reflect on investigations and apply their growing knowledge. Science allows children to be inquisitive in a safe environment. It will help develop knowledge-rich, confident, articulate and investigative learners.

Autumn	**EYFS**	**Key Stage 1**		**Key Stage 2**			
	Year R	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Knowledge	**People, Culture and Communities** To identify similarities and differences between themselves and peers **The Natural World** To ask questions about the natural environment To respect and care for the natural environments. To know about and recognise the signs of Autumn.	**Everyday Materials** distinguish between an object and the material from which it is made 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	**Be a Scientist (continuous)** Know what skills scientists use. Name some scientists and find out what their jobs entail and how their discoveries have moved scientific knowledge forward. How scientists' impact on our everyday lives. **Uses of Everyday Materials** identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for	**Rocks** 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	**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	**Famous Scientists** Leading figures, past and present, in biology, chemistry and physics and their key ideas. **Earth & 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 describe the sun, Earth and moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and	**Electricity** associate the brightness of a lamp or the volume of a buzzer with the number and voltage 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 **Light** recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they

	To know about some features of the world. To learn about a contrasting environment. To know differences between some animals.	basis of their simple physical properties **Plants** identify and name a variety of deciduous and evergreen trees identify and describe the basic structure of trees **Seasonal Changes (ongoing)** observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies	particular uses find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		**Animals including Humans** describe the simple functions of the basic parts of the digestive system in humans identify the different types of teeth in humans and their simple functions construct and interpret a variety of food chains, identifying producers, predators and prey	night and the apparent movement of the sun across the sky	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

Skills	**The Natural World** Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some Important processes and changes in the natural world around them, including the seasons and	**Everyday Materials** performing 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?' **Plants** observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of	**Uses of Everyday Materials** comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Test materials for a particular purpose for example making tea bags. Asking simple questions and recognising that they	**Famous Scientists (continuous)** To understand how things were discovered. Children to be able to observe and understand how things were discovered. **Rocks** observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences	**States of matter** grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a puddle in the playground or washing on a line, and investigate the	**Famous Scientists** Create and follow a line of questioning; explore scientific curiosity Carry out research and present findings in different ways **Earth & Space** comparing 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 day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.	**Electricity** systematically identifying 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. **Light** They could 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. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters (they do not need to explain why these phenomena occur).

	changing states of matter.	different plants including trees. Pupils might keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants. **Seasonal Changes (ongoing)** making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change.	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	between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They can raise and answer questions about the way soils are formed. 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	effect of temperature on washing drying or snowmen melting. **Animals including Humans** comparing the teeth of carnivores and herbivores and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images. 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,	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	

				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.	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	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.	

					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.		

Spring	EYFS	Key Stage 1		Key Stage 2			
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	**The Natural World** To know about and recognise the signs of Winter To know some important processes and changes in the natural world including states of matter (freezing) To know about and recognise the signs of Spring To know about features of my own immediate environmen t and	**Animals including Humans** identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals 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) **Everyday Materials** distinguish between an	**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 types of food, and hygiene **Living Things & 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	**Animals including Humans** 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 **Forces & Magnets (begin at end of Autumn)** 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	**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 **Electricity** identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts,	**Properties & 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, including through filtering, sieving and evaporating give reasons,	**Animals Including Humans** identify and name the main parts of the human circulatory system, and describe the 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 **Evolution & Inheritance** recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce

	how they may vary from each other	object and the material from which it is made 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 **Seasonal Changes (ongoing)** observe changes across the 4 seasons observe and	plants, and how they depend on each other 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	and attract some materials and not others compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials describe magnets as having 2 poles predict whether 2 magnets will attract or repel each other, depending on which poles are facing	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 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	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 **<u>Forces</u>** explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth	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

		describe weather associated with the seasons and how day length varies				and the falling object identify the effects of air resistance, water resistance and friction, that act between moving surfaces recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect	

Skills	**The Natural World** Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world	**Animals including Humans** using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat **Everyday Materials** distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock	**Animals including Humans** observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions. Identifying and classifying- Living and non-living, creating their own criteria- using Venn and Carrol diagrams to show data in a variety of ways. To begin to use non-standard measuring skills. Record in simple tally charts. **Living Things & their Habitats** sorting and classifying things according to whether they are	**Animals including Humans** identifying and grouping animals with and without skeletons 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. **Forces & Magnets** comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces,	**Sound** finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume. **Electricity** observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials	**Properties & Changes of Materials** carrying out tests to answer questions, for example, '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?' They might compare materials in order to make a switch in a circuit. They could observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes. They might research and discuss how chemical changes have an	**Animals Including Humans** exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health. **Evolution & Inheritance** observing and raising questions 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. They might analyse the advantages and disadvantages of specific adaptations, such as being on 2 feet rather than 4, having a long or a short beak, having gills or lungs,

	around them, including the seasons and changing states of matter.	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 **Seasonal Changes (ongoing)** observe changes across the 4 seasons observe and describe weather associated with the seasons and how day length varies	living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions like: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. They could construct a simple food chain that includes humans (eg, grass, cow, human). They could describe the conditions in different habitats and microhabitats (under log, on stony path, under bushes); and find out how the conditions affect the number and type(s) of plants and animals that live there.	and gathering and recording data to find answers to 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.	can and some cannot be used to connect across a gap in a circuit.	impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials. **Forces** exploring falling paper cones or cupcake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They might 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.	tendrils on climbing plants, brightly coloured and scented flowers.

Summer	EYFS	Key Stage 1		Key Stage 2			
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	**The Natural World/ Growing** To plant seeds To observe growth of seeds and talk about changes To know how to care for growing plants To harvest fruit and vegetables. To recognise the signs of Summer.	**Plants** identify and name a variety of common wild and garden plants, identify and describe the basic structure of a variety of common flowering plants, **Animals including Humans** Name the different parts of a human body – linking to senses Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Seasonal Changes (ongoing)** Name the four seasons and discuss features of them Talk about how the seasons affect them (clothes,	**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 **The Environment** Investigate environmental issues and understand the simple changes we can make to live more sustainable lives.	**Plants** 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 **Light** recognise that they need light in order to see things and	**Living Things & 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 **Famous Scientists** Leading figures, past and present, in biology, chemistry and physics and their key ideas.	**Animals including Humans** describe the changes as humans develop to old age **Living Things & 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	**Living Things & their habitats** 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 give reasons for classifying plants and animals based on specific characteristics

		weather, etc)		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.			

Skills	**The Natural World** Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the	**Plants** observing closely, perhaps using magnifying glasses, and 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. Pupils might keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants. **Animals including Humans** use their senses to compare different textures, sounds and smells. Record their	**The Environment** Observing closely, using simple equipment. Gathering and recording data to help in answering questions. Set up a simple test, comparing measurements. Draw a simple conclusion from results. Deciding on how to present data to others. **Plants** observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light	**Plants** comparing the effect of different factors on plant growth, for example, 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. They might 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. **Light**	**Living Things & their Habitats** using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched. **Famous Scientists** Create and follow a line of questioning; explore scientific curiosity Carry out research and present findings in different ways (Science STEM Day)	**Living Things & their Habitats** observing and comparing 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), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by	**Living Things & the Habitats** using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.

	natural world around them, including the seasons and changing states of matter.	observations in a table. 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 **Seasonal Changes (ongoing)** Observe the changes in the seasons. Pattern seeking- temperatures, weather types.	and water to stay healthy.	looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.		hatching and rearing chicks), comparing how different animals reproduce and grow. **Animals including Humans** researching 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.	

Vocabulary

EYFS	Key Stage 1		Key Stage 2			
Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Same	**Working Scientifically**	**Working Scientifically**	**Working Scientifically**	**Working Scientifically**	**Working Scientifically**	**Working Scientifically**
Different	up/down	left	corresponding	increase/decrease	percentage	recurring
Changes	near	right	equivalent	factor	distribution	proportion
Spring	close to	beyond	group	negative numbers	causal	ratio
Summer	old(er)	represents	positive/negative	base	correlate	radius
Autumn	new(er)	stands for	area (i.e. maths	spherical, cylindrical	dependent	diameter
Winter	far	exact(ly)	meaning)	etc - i.e. 3D shape	variable	circumference
Rain	further	nearest	parallel	terminology for	control	concentric
Sun(ny)	high(er)	distance	degrees	description	cancel out	arc
Snow	above	contains	acute	concave	imperial (units)	intersecting
Wind	centre	property	obtuse	convex	maximum/minimum	plane
Fog	low(er)	appearance	quantity	translation	million	cross-section
Plants	underneath	similarity	round	rotation	diagonal	appropriate accuracy
Animals	below	difference	up/down	origin	reflex angle	degree of trust
Seeds	equal to	symmetrical	approximate(ly)	statistics	rotation	robust
Grow	more/less than	fractions	remainder	typical	sparse	authentic
Fruit	larger/smaller	amount	data logger	exception	abundant	plausible
Vegetable	most/least	scale	obstacle	unique	capacity	controversy
Harvest	half	fair test	outcome	intricate	phenomenon	stance
Land	whole	document	impact	trend	exceptional	bias
Water	area (i.e. non-maths	strategy	relationship	precise	crucial	tertiary source
Sea	meaning)	**Skills**	necessary	accurate	complex	**Skills**
Hot	same	gather	evidence	comparative	sustain	determine
cold	different	collect	fact/opinion	systematic	perspective	attribute
Melting	point	notice	data	convention	rigorous	analyse
Freezing	group	link	hypothesis	reliability	**Skills**	corroborate
	nearly	describe	theory	**Skills**	refute	discern
	roughly	predict	case study	classify	inform (as in: inform	epitomise
		result		classify	our thinking)	characterise

Adults to also use: Hibernate Nocturnal Habitat Life cycle Natural Man-made	position direction clockwise distant pattern research non-fiction event question/answer **Skills** guess explore test see/sight smell hear touch feel senses **Presentation** list tally table template notes sketch **Equipment** (egg) timer clock ruler tape measure metre stick/rule beaker scissors magnifying glass	conclude contrast order value rank sort **Presentation** record(ing) pictogram tally chart block diagram Venn diagram jottings plan **Equipment** equipment stop-watch pipette beaker syringe weight thermometer measuring scales tube tweezer net set square insect viewer pooter	primary/secondary source **Skills** estimate observe organise identify assume compare interpret disprove infer clarify introduce **Presentation** present findings abbreviations frequency table bar charts Carroll diagram flow chart grid database row column subdivisions **Equipment** apparatus hand lens hour-glass microscope measuring cylinder test-tube cork stopper petri dish gauze	categorise hypothesise critique summarise **Presentation** communicate time graphs 'and other graphs' quantitative/qualitative plot continuous/grouped and discrete data format **Equipment** aquarium Pasteur pipette forceps	generalise verify **Presentation** line graph scatter graph average mode range sieve **Equipment** funnel filter paper	extrapolate **Presentation** pie charts mean four quadrants

	mirror		protractor compass			
	Living Things and their Habitats living alive dead move grow feed breathe shelter meat eater plant feeder within **Plants** leaf/leaves flower/blossom trunk branch stem stalk petal root soil fruit berry seed bulb food **Animals including humans** common animals wild tame	**Living Things and their Habitats** (micro)habitat (and name some eg log, pond) microscopic environment surroundings conditions (and describe eg damp, dark) life cycle food chain food source predator prey variety produce reproduce suited adapted endangered extinct **Plants** growth seedling shoot mature healthy wither earth (i.e. soil) nutrients structure	**Living Things and their Habitats** climate zones vegetation belts (forest, grassland, tundra, desert) climate soil tropical temperate Arctic Circle Antarctic Circle population food web life process producer/consumer herbivore/carnivore/omnivore survive characteristics **Plants** absorb fertiliser transported pollination seed formation carpel stigma style ovary ovule stamen anther	**Living Things and their Habitats** classification key (in)vertebrates mould fungus organism population deforestation pollution positive/negative human impact variation biome vegetation region dominant environmental anemometer barometer **Plants** tissues pores plant groups (and names eg trees grasses flowering garden wild) deciduous evergreen **Animals including humans** digestive system	**Living Things and their Habitats** sexual and asexual reproduction interdependence topography erosion **Plants** seed formation plantlets clone runners transpiration **Animals including humans** fertilisation birth uterus embryo ovary placenta chromosomes ovum zygote fallopian tubes gestation infancy arachnid mollusc crustacean sponge **Health** puberty	**Living Things and their Habitats** (micro)organism species microbes evolution evolutionary change natural selection adaptation competition genes (dominant /recessive) DNA chromosomes inherit(ance) survival of the fittest fossil records **Plants** variegated **Animals including humans** circulatory system blood vessels capillaries red/white blood cells plasma haemoglobin clotting respiratory system respire carbon dioxide air sacs (de)oxygenated

	pets fish bird reptile baby cub pup nest family egg mouth neck eyes teeth wing claw tail beak fur feather fin scales **Health** exercise taste meat fish sugar sweet salt(y)	function germinate pollination seed dispersal **Animals including humans** amphibian mammal adult young toddler child teenager	filament sepal pollen (in)vertebrates offspring survival childhood/babyhood/ adulthood brain heart vein/artery skull ribs spine/backbone joints sockets bones muscles contraction tendons windpipe **Health** dietary nutrition food groups protein fibre carbohydrate starches minerals protection x-ray hygiene infection bacteria virus	digestion saliva oesophagus stomach small/large intestine rectum anus faeces excrete chemical breakdown gastric juices reabsorb reabsorption endoskeleton exoskeleton **Health** dentin plaque pulp-cavity fluoride tooth decay gums nerves enamel canines incisors pre-molars molars cavities decay	menstrual cycle penis testes vagina	aerobic ventricles aorta trachea diaphragm bronchi bronchioles alveoli pulmonary vein/artery gaseous exchange **Health** drugs carbon monoxide

	Materials	**Materials**	**Materials**	**Materials**	**Materials**	**Materials**
	object	man-made	artificial	manufactured	soluble	solubility
	material	natural	organic	oxygen	solution	conductivity
	wood	suitable	chemical	change of state	solute	oxidisation
	plastic	useful	mineral	solidify	solvent	sublimation
	glass	function	resources	gaseous	suspension	helium
	metal	purpose	boulder	water vapour	filter	hydrogen
	water	property	cobble	water cycle	mixture	
	rock	rust	pebble	precipitation	residue	
	rough	transparent	granule	evaporation	filtrate	
	smooth	reflection	sand	condensation	separation	
	bright/shiny	rigid	silt	degree	buoyancy	
	cloudy	flexible	clay	Celsius	(ir)reversible change	
	dull/dim	solid	slate	waste	conductor	
	strong/weak	liquid	dissolve	sewage	thermal	
	waterproof	molten	marble		insulator	
	bendy/stiff	gas	granite		insulation	
	soft/hard	boiling point	sandstone		combustion	
	see-through	heat	chalk		reaction	
	melt	pressure	limestone			
	freeze	renewable	quartz			
	boil	non-renewable	absorb(ent)			
	burn	environment	porous			
		climate	(im)permeable			
		greenhouse gas	characteristic			
			fossil			
			grains			
			particles			
			crystals			
			layers			
			texture			
			powder			
			magma			
			lava			
			igneous			
			metamorphic			

			sedimentary opaque translucent surface			
	Sound, light, Earth & space weather hot cold wind rain snow ice rain gauge wind sock wind vane seasons (autumn winter spring summer) day length month year light dark(ness) shadow bright/dim sun(light) moon movement rainbow	**Sound, light, Earth & space** vegetation seasonal daily (weekly monthly etc) fortnight January, February (etc) poles equator temperature transparent	**Sound, light, Earth & space** light source (and names e.g. torch) light wave reflect(ive) mirror block/absorb opaque light beam speed of light emit light spectrum prism lens kaleidoscope solar system phases of moon (new, crescent, quarter, gibbous, wax, wane) sundial	**Sound, light, Earth & space** sound source wave noise vibrate/vibration pollution pitch volume dynamic echo tuning fork tone muffle mute soundproof ***Below from Y2 and Y3 music;*** drum guitar instrument families percussion timpani string brass woodwind soprano alto tenor bass	**Sound, light, Earth & space** axis/axes Mercury Venus Mars Jupiter Saturn Uranus Neptune Pluto celestial body spin sphere/spherical rotation elliptical orbit revolve asteroid meteor(ite) comet galaxy light year latitude longitude equator hemisphere prime/Greenwich Meridian time zone	**Sound, light, Earth & space** transmission optics refraction geocentric + heliocentric model of the universe

	Forces	**Forces**	**Forces**	**Forces**	**Forces**	**Forces**
	push/pull float/sink squash(ing) stretch(ing) twist(ing)	elastic electricity mains	force gravity friction spring air resistance streamlined force-meter Newton meter magnet(ic) attract repel compress North/South pole bar/ring/button/horse-shoe magnet iron copper aluminium steel brass nickel	electrical device appliances circuit components conductor resister symbol cell battery wire bulb switch buzzer motor connection complete/close/open circuit positive/negative crocodile clip alligator clip	mechanisms air & water resistance levers pulleys gears cams drag forces transference	simple/series/parallel circuits terminal voltage power current resistance wire types (plain, nichrome, copper, fuse, florist's)

Impact (end points)

EYFS	Key Stage 1		Key Stage 2			
Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Children at the expected level of development will: Explore the natural world around them, making observations and drawing pictures of animals and plants; Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Pupils in years 1 and 2 should explore the world around them and raise their own questions. They should experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions.		to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.		to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should 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.	