Buckstones Primary School	Progression of Science Skills						
Area of Study	**Reception**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Scientific Skills	Explore the natural world around them. Describe what they see, hear and feel Ask simple questions Make observations and record using simple drawings Suggest why things might happen Use simple equipment e.g. magnifying glass	Asking simple questions and recognising that they can be answered in different ways Performing simple tests Observing closely, using simple equipment Gathering and recording data to help in answering questions Identifying and classifying Using their observations and ideas to suggest answers to questions		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 Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Identifying differences, similarities or changes related to simple scientific ideas and processes Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Using straightforward scientific evidence to answer questions or to support their findings. Using results to draw simple conclusions, make predictions for new values and suggest improvements and raise further		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 Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter , 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	

				questions Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions		degree of trust in results, in oral and written forms such as displays and other presentations	
Animals including humans thread	Bug hunt Identify, name and talk about minibeasts in the local environment Life cycles of butterflies and frogs Who and how do we care for animals? (farms, pets, zoos) How do we look after animals in their own natural habitats? Compare hot and cold places Animals found in the Polar regions. Animals that live in jungles and deserts	Identify/ name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify/ name a variety of common animals that are carnivores, herbivores and omnivores. Describe/compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals that can be 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.	Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals link to pets, including humans, for survival (water, food and air). Describe the importance for humans of exercise (importance of exercise and how it changes the body), eating the right amounts of different types of food (what you should eat a lot of/sometimes/hardly ever), and hygiene (glitter on the hand experiment).	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 Design a healthy balanced meal. Look at different food groups. Identify that humans and some other animals have skeletons and muscles for support, protection and movement	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 (compare to animals). Explore tooth decay and its causes. Construct and interpret a variety of food chains, identifying producers, predators and prey.	Describe the changes as humans develop to old age Includes: puberty, development of babies, differences between male/female, gestation periods of animals and 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 Recap on healthy eating and exercise but focus upon impact of smoking, alcohol and drugs. Describe the ways in which nutrients and water are transported within animals, particularly humans

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 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		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

					being good conductors		
Everyday materials	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. 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	Distinguish between an object and the material from which it is made Identify/ 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 / group together a variety of everyday materials on the basis of their simple physical properties	Identify /compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching The work of scientist e.g. Charles McIntosh, John Boyd Dunlop and John McAdam	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	Properties and changes to 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, 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 (Spencer Silver/Ruth Benerito)	
Forces thread	Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and			Magnets Compare how things move on different surfaces Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance		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	

	what has been learnt in class: Floating and sinking Magnetic and non magnetic.			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 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		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 (Isaac Newton/Ptolemy/Alhazam)	
Seasonal Changes K S 1 Earth & Space KS2	Understand some important processes and changes in the natural world around them, including the seasons (and changing states of matter) Seasons Signs of Autumn,	Observe changes across the four seasons				Describe the movement of the Earth and other planets relative to the Sun in the solar system	

	Winter, Spring Summer						
Light	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			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.			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 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

Living things and their habitats including plants	Plant seeds. Name and describe common plants : daffodil, tulip, rose, buttercup, daisy, dandelion. Measure and describe changes of growing plants (including decay). Know the basic lifecycle of a plant. Observations of different plants similarities and differences. Know that we eat some fruits, leaves and vegetables	Identify/ name variety of common wild and garden plants, including deciduous and evergreen trees Identify / describe the basic structure of a variety of common flowering plants, including trees	Explore/compare differences between things that are living, dead, and things that have never been alive. Look at 7 life processes. 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 e.g. life on an oak tree Identify/name a variety of plants and animals in their habitats, including microhabitats e.g. log, pond, brick, bush Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name	Identify /describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Dissect a plant 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. Use different types plants and observe the effect of heat light/water/ nutrients/room to grow.	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 Simple classification of broad vertebrates and invertebrates using a key e,g. polar bears etc. Recognise that environments can change and that this can sometimes pose dangers to living things	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 (Jane Goodall) Take cuttings of plants to use for observation. Focus on advantages of asexual/sexual reproduction.	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 More detailed revision of broad groupings Give reasons for classifying plants and animals based on specific characteristics (Carl Linnaeus) Construct keys for classification of plants.

			different sources of food. Observe/describe how seeds and bulbs grow into mature plants Find out/describe how plants need water, light and a suitable temperature to grow and stay healthy Plant 1 type of seed and 1 type of bulb. Observe effect of water/light/temperature.				
Sound	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 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		
Evolution and 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 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 (Charles Darwin and Mary Anning)

Vocabulary	describe draw equipment feel group hear observe question record see sort suggest bud bulb flower leaf life cycle plant root seed shoot stem vegetable butterfly caterpillar environment frog spawn habitat insect minibeast nocturnal	Fur hair feathers scales camouflage Mammals Fish Reptiles Amphibians Birds Insects Carnivores Herbivores Omnivores- eat plants and animals Sight Smell Touch Taste Hearing Man-made Natural Waterproof Stiff Rough Shiny buds bulbs seeds deciduous evergreen	Materials Suitability Properties adult life cycle offspring reproduce dehydrate diet energy exercise germs heart rate hygiene nutrition pulse habitat microhabitat depend survive life processes food chain food sources sunlight water temperature nutrition germination sprout shoot seed dispersal	vertebrate muscles tendons joints healthy nutrients energy saturated fats unsaturated fats magnet magnetic magnetic field poles repel attract forces friction surface light source reflection reflective shadow opaque translucent transparent pupil retina fertilisation petal stamen carpel	herbivore carnivore omnivore producer predator prey digest oesophagus stomach small intestine large intestine rectum wire bulb battery electron conductor insulator switch circuit volts organism classification vertebrate invertebrate mammal bird fish amphibian reptile habitat	fertilisation prenatal gestation reproduce asexual reproduction sexual reproduction life cycle adolescence puberty menstruation adulthood life expectancy orbit solar system astronomical planet rotation spherical gibbous moon eclipse lunar friction gravity buoyancy streamlined air resistance water resistance mechanism levers pulleys gears	villi nutrients kidneys liver drug alcohol circulatory system heart alveoli gas exchange circuit symbol cell/battery current amps voltage resistance electrons evolution fossil adaptive traits inherited traits offspring inheritance variations characteristics adaptation habitat environment light

	tadpole adult baby child cocoon elderly grandparent parent toddler cold freeze heavy hot material melt attract float magnet magnetic repel sink dark daylight night shadow loud quiet Autumn Season Spring Summer Winter	trunk vegetable wild plants environment blossom petals Seasons Weather Sleet Hail Cloud Wind Bloom Temperature Thermometer Deciduous Coniferous Hibernate Summer solstice Winter solstice		(pistil) sepal pollination pollinator seed dispersal roots stem leaves flowers nutrients sedimentary rock igneous rock magma sediment fossil soil impermeable	micro-habitat organisms respiration sensitivity reproduction excretion nutrition habitat environment endangered species extinct classification vertebrates invertebrates specimen vibration sound wave volume amplitude ear particles distance soundproof absorb sound vacuum states of matter solids liquids gases water vapour melt freeze evaporate condense precipitation	parachute asexual reproduction fertilise gestation life cycle metamorphosis pollination reproduction sexual reproduction materials solids liquids gases melting freezing evaporating condensing insulator thermal transparency filtering	light source reflection incident ray reflected ray the law of reflection refraction visible spectrum prism shadow transparent translucent opaque vertebrates invertebrates micro-organism Charles Linnaeus binomial nomenclature taxonomy