Science Vocabulary & Key Knowledge

Understanding of the World

KEY	
All	Refers to adaptation made for SEND pupils (where appropriate)
Most	Refers to all other pupils
Some	Refers to stretch and challenge for more able pupils

<table>
<tr><td>EYFS</td><td colspan="4">The Natural World - Science
• 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.</td></tr>
<tr><td>Projects</td><td>AUTUMN
Community Champions
Christmas</td><td colspan="2">SPRING
Around the World in 80 Days</td><td colspan="2">SUMMER
Down on the Farm
Save Our Seas</td></tr>
<tr><td>Key Vocab</td><td>Animals
Plants
Winter
Summer
Spring
Autumn</td><td>Winter
Summer
Spring
Autumn
Hot
Cold</td><td>Asia
Africa
North America
South America
Artic
Australia
Europe</td><td>Farm
Animals
Cow
Horse
Sheep
Pig
Farmer
Tractor</td><td>Seas
Fish</td></tr>
<tr><td>Knowledge</td><td colspan="4">The Natural World – Science
All
• Explore the natural world around them, making observations and drawing pictures of animals and plants.
Most
• Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.
Some
• 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.</td></tr>
</table>

Year one	Animals including humans Autumn 1 – Gruffalo Autumn 2 + Spring 1 – Discrete Summer 2 – Oh we do like to be beside the seaside.	Materials Spring 2 – Three bears in a fix	Plants Summer 1 – The extraordinary Gardener	Seasons All year – observe and record
All	fish pet bird wild reptile mouth neck eyes teeth	object soft smooth rough hard	plant Leaf/leaves flower stem root	hot cold day light dark
Most	Names of common animals baby nest den family egg mouth neck eyes teeth wing claw tail beak smell taste touch -feel see hear	material wood plastic glass metal water rock bright/shiny dull/dim strong/weak bendy/stiff see-through	Plants (daisy, rose, marigold, dandelions, holly, yew tree, oak tree, beech tree) Names of common vegetables e.g. carrot, cucumber etc. blossom (flower) trunk branch petal soil berry seed deciduous evergreen	weather wind rain snow ice seasons (autumn winter spring summer) length month year shadow bright/dim sun(light) rainbow cooler hotter
Some	Habitats exercise wild fin cub pup fur scales feather hair	cloudy waterproof transparent	Stalk fruit bulb food weeds garden plants	rain gauge thermometer weather station temperature rainfall wind direction (north, east, south, west)
Key knowledge ALL children should at least know Please refer to the progression of skills and knowledge map for more detail.	**All** • To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense **Most** • To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) **Some** • To identify and name a variety of common animals that are carnivores, herbivores and omnivores	**All** • To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock **Most** • To distinguish between an object and the material from which it is made • To describe the simple physical properties of a variety of everyday materials **Some** • To compare and group together a variety of everyday materials on the basis of their simple physical properties	**All** • To identify and describe the basic structure of a variety of common flowering plants, including trees **Most** • To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	**All** • To observe changes across the 4 seasons **Most** • To observe and describe weather associated with the seasons and how day length varies

Year Two	Animals, including humans (The Hero's) Autumn 1	Uses of everyday materials (The Troll) Autumn 2	Plants Young Gardeners Spring 1	Living things and their habitats (Walk on the Wild Side) Summer 2
ALL	Health balanced diet medicine	opaque transparent materials man-made natural	**Plants** growth seedling shoot earth (i.e. soil)	**Habitats** (micro)habitat (and name some e.g. log, pond) microscopic environment life cycle food chain **Animals including humans** mammal adult young insect brain heart lungs bones
Most	fat sugars starch vegetable seafood grains beans dairy nuts lifestyle activity Carbohydrates Protein	property flexible solid liquid gas heat	Plants (locally-found and/or school- relevant plants, trees, vegetables) nutrients seed dispersal mature healthy wither	**Habitats** food source predator prey produce reproduce **Animals including humans** amphibian toddler child teenager skeleton
Some	heart rate pulse	suitable useful function purpose pressure Forces elastic boiling point molten rust reflection rigid	structure function germinate pollination	**Habitats** surroundings conditions (and describe e.g. damp, dark) variety suited adapted **Animals including humans** develop live young eyebrows wrist ear lobe (etc)
Key knowledge ALL children should at least know Please refer to the progression of skills and knowledge map for more detail.	**All** • To notice that animals, including humans, have offspring which grow into adults. **Most** • To find out about and describe the basic needs of animals, including humans, for survival (water, food and air). • To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	**All** • To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • **Most** • To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	**All** • To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. **Most** • To observe and describe how seeds and bulbs grow into mature plants.	**All** • To explore and compare the differences between things that are living, dead, and things that have never been alive. **Most** • To identify and name a variety of plants and animals in their habitats, including microhabitats. • To 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 **Some** • To identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.

Year 3	Forces and Magnets (The Iron Giant) Autumn 2	Animals including Humans (Fit and Fab) Summer 2	Plants (Trust Me I'm a Botanist) Summer 1	Rocks (discreet Teaching – Lost in Time) Spring 1	Light (Discreet Teaching Keys to the Castle) Autumn 1
All	force magnet(ic) attract/repel North/South pole iron	brain heart skull bones muscles	Plants (add names of locally-found and/or school- relevant plants, trees, vegetables) transported pollination pollen survival	boulder pebble sand clay fossil	reflect(ive) light source (and names e.g. torch) dark shadow transparent
Most	Forces 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	childhood/babyhood/adulthood brain heart vein/artery skull ribs spine/backbone joints sockets bones muscles contraction tendons windpipe	Living things Plants (add names of locally-found and/or school- relevant plants, trees, vegetables) absorb fertiliser transported pollination seed formation carpel stigma style ovary ovule stamen anther filament sepal pollen (in)vertebrates offspring survival	artificial organic chemical mineral resources boulder cobble pebble granule sand silt clay slate dissolve marble granite sandstone chalk limestone quartz absorb(ent) porous (im)permeable characteristic fossil grains particles crystals layers texture powder magma lava igneous metamorphic sedimentary opaque translucent surface	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
Some	Forces friction force-meter bar/ring/button/horse-shoe magnet	vein/artery ribs spine/backbone joints	absorb fertiliser carpel stigma ovary ovule stamen (in)vertebrates	chemical mineral resources lava igneous metamorphic sedimentary opaque translucent surface porous	light wave mirror block/absorb opaque translucent
Key knowledge ALL children should at least know Please refer to the progression of skills and knowledge map for more detail.	**All** • To notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. **Most** • To compare how things move on different surfaces. • To describe magnets as having 2 poles, predict whether 2 magnets will attract or repel each other, depending on which poles are facing. • To observe how magnets attract or repel each other and attract some materials and not others. • To 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.	**All** • To identify that humans and some other animals have skeletons and muscles for support, protection and movement **Most** • To 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.	**All** • To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers **Most** • To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. • To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. • To investigate the way in which water is transported within plants.	**All** • To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. **Most** • To describe in simple terms how fossils are formed when things that have lived are trapped within rock. • To recognise that soils are made from rocks and organic matter.	**All** • To recognise that they need light in order to see things and that dark is the absence of light. • To recognise that light from the sun can be dangerous and that there are ways to protect their eyes. **Most** • To notice that light is reflected from surfaces. • To recognise that shadows are formed when the light from a light source is blocked by an opaque object. **Some** • To find patterns in the way that the size of shadows change.

Year four	Living Things and their Habitats (discreet teaching Toot and Come in)	States of Matter (Land of fire and Ice) Autumn 2	Teeth and digestion in Humans	Electricity (Fun at the Fair) Spring 2	Sound (What's That Sound) Summer 2

	Autumn 1		(discreet teaching – Romans Rule) Spring 1		
ALL	Plants (add names of locally-found and/or school- relevant plants, trees, vegetables) plant groups (and names eg trees grasses flowering garden wild) deciduous evergreen amphibian bird classify fish reptile vertebrate invertebrate	precipitation evaporation condensation Celsius/centigrade Solid Liquid Gas Melt freeze	digestive system saliva teeth digestion stomach anus teeth molars mouth health	battery appliances symbol wire bulb switch buzzer circuit	pollution echo tone sound wave noise vibrate/vibration pitch volume decibels
Most	classification key mould fungus organism population deforestation pollution positive/negative human impact evergreen flowering plant mammal reptile organism population deforestation pollution region	oxygen change of state gaseous water vapour water cycle degree waste sewage boil boiling point condense freezing point materials melting temperature thermometer	excrete breakdown dentin plaque fluoride tooth decay gums nerves enamel canines incisors cavities decay nutrient oesophagus small/large intestine gastric juices endoskeleton exoskeleton pre-molars	Forces conductor motor connection crocodile clip components cell	light, sound source wave noise vibrate/vibration pitch volume dynamic echo tuning fork tone Below from Y2 and Y3 music progression; drum guitar instrument families percussion timpani string brass woodwind soprano alto tenor bass
Some	biome vegetation dominant environmental barometer	solidify gaseous transpiration	reabsorption endoskeleton exoskeleton	complete/close/open circuit positive/negative electrical device	Noise pollution Muffle Mute soundproof
Key knowledge ALL children should at least know Please refer to the progression of skills and knowledge map for more detail.	**All** • To recognise that environments can change and that this can sometimes pose dangers to living things **Most** • To recognise that living things can be grouped in a variety of ways • To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	**All** • To compare and group materials together, according to whether they are solids, liquids or gases **Most** • To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	**All** • To describe the simple functions of the basic parts of the digestive system in humans **Most** • To identify the different types of teeth in humans and their simple functions • To construct and interpret a variety of food chains, identifying producers, predators and prey	**All** • To identify common appliances that run on electricity **Most** • To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • To 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 • To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit **Some** • To recognise some common conductors and insulators, and associate metals with being good conductors	**All** • To identify how sounds are made, associating some of them with something vibrating • To recognise that vibrations from sounds travel through a medium to the ear **Most** • To find patterns between the pitch of a sound and features of the object that produced it • To find patterns between the volume of a sound and the strength of the vibrations that produced it • To recognise that sounds get fainter as the distance from the sound source increases

Year five	Properties and Changes of materials (Chemical Chaos) Autumn 1	Forces (The Dark Ages-Discrete Teaching) Autumn 2	Living things and their Habitats (Tour Guides) Spring 1	Animals, including humans (My Many Coloured Days-Discrete Teaching) Spring 2	Earth and Space (Persuade the Dragons) Spring 2
ALL	Soluble Insoluble filtrate (ir)reversible change solution	Forces air & water resistance friction gravity variable	Habitats life cycle mammals amphibians insects Bird Living things	reproduction fertilisation gestation menstrual cycle Living things	axis/axes sphere/spherical rotation elliptical orbit planet solar system stars
Most	Materials solute solvent filter mixture separation conductor thermal insulator insulation reaction	mechanisms levers pulleys gears cams	Interdependence sexual and asexual reproduction	birth uterus embryo ovary gestation infancy arachnid mollusc crustacean sponge Health puberty menstrual cycle penis vagina	Sound, light, Earth & space Mercury Venus Mars Jupiter Saturn Uranus Neptune Pluto spin revolve
Some	suspension buoyancy residue combustion	drag forces transference	topography erosion	ovum zygote testes placenta chromosomes fallopian tubes	celestial body asteroid
Key knowledge ALL children should at least know Please refer to the progression of skills and knowledge map for more detail.	**All** • To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. **Most** • To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. • To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. • To demonstrate that dissolving, mixing and changes of state are reversible changes.	**All** • To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. **Most** • To identify the effects of air resistance, water resistance and friction, that act between moving surfaces. • To recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	**All** • To describe the life process of reproduction in some plants and animals. **Most** • To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.	**All** • To describe the changes as humans develop to old age.	**All** • To describe the sun, Earth and moon as approximately spherical bodies. **Most** • To describe the movement of the Earth and other planets relative to the sun in the solar system. • To describe the movement of the moon relative to the Earth. • To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Year six	Evolution and Inheritance (Mr Nobody) Autumn 1	Light (The curse of the Maya discrete Teaching) Autumn 2	Animals, including humans (Have a Heart) Spring 1	(discrete teaching in How civilised) Electricity Spring 2	Living things and their habitats. (Where in the world) Summer 1	Working scientifically (We'll Meet Again Discrete Teaching) Summer 2
All	Living things Habitats species evolution adaptation inherit(ance)	light, Earth & space Shadow Reflection Straight lines	Living things blood vessels red/white blood cells respiratory system carbon dioxide vein/artery	Simple circuits voltage power current battery cell complete	**Bird** **Fish** **Insect** **Mammal** **Mushroom** **Organisms** **reptile** **Amphibian**	Floating Sink Iceberg Plan Record Measure
Most	(micro)organism microbes evolutionary change natural selection competition genes (dominant /recessive) DNA survival of the fittest fossil records Plants (add names of locally-found and/or school- relevant plants, trees, vegetables)	optics transmission refraction	circulatory system capillaries plasma clotting respire air sacs (de)oxygenated aerobic ventricles aorta trachea diaphragm bronchi bronchioles alveoli pulmonary	terminal resistance wire types (plain, nichrome, copper, fuse, florist's) series/parallel circuits **component** **fuse**	**Bacteria** **fungi** **Fauna** **flora** **invertebrate** **microbe** **species** **toadstool** **vertebrate**	**Buoyancy** **Density** **Hypothermia** **upthrust** conclusions enquiries
Some	Chromosomes variegated	geocentric + heliocentric model of the universe	gaseous exchange haemoglobin bronchioles	**electrons** **filament:**	**fermentation** **genus**	**thermal insulation** variables causal relationships
Key knowledge ALL children should at least know Please refer to the progression of skills and knowledge map for more detail.	**All** • To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago **Most** • To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents • To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	**All** • To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes **Most** • To recognise that light appears to travel in straight lines • To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	**All** • To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood **Most** • To describe the ways in which nutrients and water are transported within animals, including humans • To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • To describe the ways in which nutrients and water are transported within animals, including humans	**All** • To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit **Most** • To 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 • To use recognised symbols when representing a simple circuit in a diagram	**All** • To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals **Most** • To give reasons for classifying plants and animals based on specific characteristics	**This is a Working Scientifically unit from Rising Stars which is being taught discreetly.**