



Riverview CofE Primary and Nursery School

Science Knowledge and Skills Progression



Year:		1	2	3	4	5	6
Working scientifically	Asking questions	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ask simple questions and recognise that they can be answered in different ways 		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests 		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary 	
	Measuring and recording data.	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> observe closely, using simple equipment perform simple tests gather and record data to help in answering questions 		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables gather, record, classify and present data in a variety of ways to help in answering questions 		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 	
	Concluding	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify and classify 		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify differences, similarities or changes related to simple scientific ideas and processes 		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> identify scientific evidence that has been used to support or refute ideas or arguments report and present findings from enquiries, including conclusions, causal relationships and explanations of 	

	<ul style="list-style-type: none"> • use their observations and ideas to suggest answers to questions 	<ul style="list-style-type: none"> • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use straightforward scientific evidence to answer questions or to support their findings 	and degree of trust in results, in oral and written forms such as displays and other presentations
Evaluating		Pupils should be taught to: <ul style="list-style-type: none"> • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions 	Pupils should be taught to: <ul style="list-style-type: none"> • use test results to make predictions to set up further comparative and fair tests

Plants:						
Possible trips: Wisley, Court farm garden centre						
Year:						
R:	1	2	3	4	5	6
ELG 14: Understanding of the world: The world. Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees.	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.	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.			

how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.			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.			
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Key vocabulary:						
Leaf, flower, petal, seed, tree, plant	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud	As for Year 1 plus light, shade, sun, warm, cool, water, grow, healthy	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)			

Animals, including humans:

Possible trips: Brocketts farm, Chessington Zoo, Birdworld, Barnes wetland centre, Alice Holt, Pond dipping: Rottendeau, Littlehampton
Possible visitor: Zoolab

Year:						
R:	1	2	3	4	5	6
ELG 14: Understanding of the world: The world.	Identify and name a variety of common animals including fish, amphibians,	Notice that animals, including humans, have offspring which grow into adults.	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make	Describe the simple functions of the basic parts of the digestive system in humans.	Describe the changes as humans develop to old age.	Identify and name the main parts of the human circulatory system, and describe the functions of the

<p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</p>	<p>reptiles, birds and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>their own food; they get nutrition from what they eat.</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>		<p>heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>(see also Evolution and inheritance)</p>
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Key Vocabulary:

<p>Humans: Head, body, face eyes, ears, mouth, nose, leg, arm, hand, foot</p>	<p>Humans: As EYFS plus: chest, elbow, knee, neck, shoulders, waist, fingers, tongue</p> <p>Senses – touch, see, smell, taste,</p>	<p>Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly),</p>	<p>Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull,</p>	<p>Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth,</p>	<p>Puberty – the vocabulary to describe sexual characteristics</p>	<p>Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system,</p>
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Animals: tail, wing, feathers, fur, beak	hear, fingers (skin), eyes, nose, ear and tongue Animals: tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves	exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)	ribs, spine, muscles, joints	incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain		diet, exercise, drugs, lifestyle
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Living Things and their Habitats:

Possible trips: The Hogsmill river – a globally rare chalk river with unique habitats. The pond. Barnes wetland centre, Alice Holt, Pond dipping: Rottendeau, Littlehampton

	Year					
R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate</p>		<p>Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>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</p>		<p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Recognise that environments can change and that this</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and difference, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based</p>

<p>environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</p>		<p>kinds of animals and plants, and how they depend on each other.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro- habitats.</p> <p>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.</p>		<p>can sometimes pose dangers to living things.</p>		<p>on specific characteristics.</p>
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Key Vocabulary:						
		<p>Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed</p>		<p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p>	<p>Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings</p>	<p>Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering</p>

Seasonal Changes:

Year						
R:	1	2	3	4	5	6
<p>ELG 14: Understanding of the world: The world. Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</p>	<p>Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p>					
Key Vocabulary:						
Day, night, sunny, windy, rainy, snowy.	Weather (sunny, rainy, windy, snowy etc. from EYFS)					

Seasons (winter, summer, spring, autumn)						
Sun, sunrise, sunset, day length						

Everyday materials (Y1):
Uses of everyday materials (Y2) :
Properties and changes of materials (Y5) :

Year						
R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of</p>	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>			<p>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.</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to</p>	

<p>one another. They make observations of animals and plants and explain why some things occur and talk about changes</p>	<p>everyday materials on the basis of their simple physical properties.</p>				<p>recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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</p>	
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					action of acid on bicarbonate of soda.	
Key Vocabulary:						
Names of materials : wood, metal, plastic, glass, rock, paper, water, Properties of materials: hard, soft, bendy,	Object, material, Names of materials: As per EYFS Plus: brick, cardboard, fabric. Properties of materials: As per EYFS plus: stretchy, stiff, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through	Names of materials: As per year 1 plus: elastic, foil, rubber, wool, clay Properties of materials: as for Year 1 plus: opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/puling, twist/twisting, squash/squashing, bend/bending, stretch/stretching			Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	

Rocks:						
Possible trips: The Hogsmill river – one of only 200 worldwide chalk rivers – globally rare.						
Year						
R:	1	2	3	4	5	6
ELG 14:			Compare and group together different kinds of rocks on the			

<p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes</p>			<p>basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>			
Key Vocabulary:						
			<p>Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone,</p>			

			slate, soil, peat, sandy/chalk/clay soil			
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Light :

Year

R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things</p>			<p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows change.</p>			<p>Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>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.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the</p>

occur and talk about changes						objects that cast them.
Key Vocabulary:						
			Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous			As for Year 3 - Light, plus straight lines, light rays

Forces and magnets: (Y3) Forces (Y5):						
	Year					
R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how</p>			<p>Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some</p>			<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>Recognise that some mechanisms,</p>

<p>environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes</p>		<p>materials and not others.</p> <p>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.</p> <p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>		<p>including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	
Key Vocabulary:					
		<p>Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole</p>		<p>Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears</p>	

States of matter:

Possible trips: Bough Beech

Year

R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes</p>				<p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>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).</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>		

Key Vocabulary:

				Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle		
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Sound:						
	Year					
R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of</p>				<p>Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the</p>		

animals and plants and explain why some things occur and talk about changes				vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.		
Key Vocabulary:						
				Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation		

Electricity :						
	Year					
R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate</p>				<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>Identify whether or not a lamp will light in a simple series</p>		<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the</p>

<p>environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes</p>				<p>circuit, based on whether or not the lamp is part of a complete loop with a battery.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p>		<p>on/off position of switches.</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>
Key Vocabulary:						
				<p>Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor,</p>		<p>Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage</p> <p>N.B.</p> <p>Children do not need to understand what voltage is but will use volts and voltage to describe</p>

				insulator, metal, non-metal, symbol N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.		different batteries. The words “cells” and “batteries” are now used interchangeably.
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Earth and space:						
Possible trips: The Planetarium, The Observatory						
Year						
R:	1	2	3	4	5	6
ELG 14: Understanding of the world: The world. Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how					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.	

environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes					Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	
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Key Vocabulary:

					Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets	
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Evolution and inheritance:

	Year					
R:	1	2	3	4	5	6
<p>ELG 14:</p> <p>Understanding of the world: The world.</p> <p>Children know about similarities and differences in relation to places,</p>						Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

<p>objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes</p>						<p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
Key Vocabulary:						
						<p>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p>

1	Plants	Animals including humans	Everyday Materials	Seasonal changes.	
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2	Plants	Animals including humans	Use of everyday materials	Living things and their habitats.	
3	Plants	Animals including humans	Rocks	Forces and magnets	Light
4	States of matter	Animals including humans	Electricity	Living things and their habitats.	sound
5	Earth and space	Animals including humans	Properties and changes of materials.	Living things and their habitats.	Forces
6	Evolution and Inheritance.	Animals including humans	Electricity	Living things and their habitats.	Light