



## Windermere Primary School

### KS2 – Science Progression Map

<b>KS2 – Science Progression Map</b>				
	<p><b>Intent:</b> We aim for science teaching to be as practical and as investigative as possible. This helps children to make good learning links and to remember what they have found out. We will ensure that the children are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.</p>			
<b>Red = previous learning</b>	<p><u>Lower Key Stage 2 Vocabulary for working scientifically (to be taught and used consistently alongside the skills)</u>  ask relevant questions, observe, compare, record, explain, plan, fair test, predict, conclusion, results, patterns, identify, classify, keys, diagrams, measure accurately, information source, table, tally chart, bar chart/graph, Venn diagram, Carroll diagram</p>		<p><b>Working Scientifically Vocabulary:</b> evaluate, interpret, variable, control, improve, repeat measurements, calculation of mean, causal relationship, bar graph, line graph, scatter graph, refute, validity of results, fact, opinion, primary source, secondary source  <u>Review LKS2 Vocabulary:</u> Relevant question, plan, fair test, predict, record, observe, conclusion, explain, results, patterns, identify, classify, keys, diagrams, measure accurately, information source, table, tally chart, bar chart/graph, Venn diagram, Carroll diagram</p>	
<b>Biology</b>				
	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Working Scientifically Skills</b>	<ul style="list-style-type: none"> <li>• Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>• Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>• Set up simple practical enquiries, comparative and fair tests</li> <li>• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of simple equipment (e.g. measuring tape, force meter)</li> <li>• Gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>• Record findings using simple scientific language, drawings, labelled diagrams, simple keys, tables and begin to use bar charts</li> <li>• Report on findings from enquiries, including oral and written explanations, displays or presentations of results</li> <li>• Identify differences and similarities related to simple scientific ideas and processes</li> <li>• Use straightforward scientific evidence to answer questions</li> <li>• Use results to draw simple conclusions and suggest improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>• Set up simple practical enquiries, comparative and fair tests</li> <li>• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>• Gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>• Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>• Use straightforward scientific evidence to answer questions or to support his/her findings</li> <li>• Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>• Use results to draw simple conclusions, make predictions for new values, suggest</li> </ul>	<ul style="list-style-type: none"> <li>• Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>• Plan different types of scientific enquiries to answer questions, including recognising variables where necessary.</li> <li>• Report and present findings from enquiries, including conclusions, explanations of degree of trust in results, and begin to find causal relationships in oral and written forms such as displays and other presentations</li> <li>• Identify scientific evidence that can be used to support or refute ideas or arguments</li> </ul>	<ul style="list-style-type: none"> <li>• Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>• Identify scientific evidence that has been used to support or refute ideas or arguments</li> <li>• To research topics using a wide range of primary and secondary sources</li> <li>• Report and represent findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in result, in oral and written forms such as displays and other presentations.</li> <li>• Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary.</li> <li>• Take measurements using a range of scientific equipment with increasing accuracy and precision taking repeat readings where appropriate.</li> </ul>

		<p>improvements and raise further questions</p> <ul style="list-style-type: none"> <li>Use straightforward scientific evidence to answer questions or to support his/her findings</li> </ul>		
<b>Knowledge</b>	<p><b><u>Animals Including Humans</u></b>  <b>The knowledge below will be acquired through the skills above</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>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</li> <li>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul> <p><b>(Unit Snap Science: Amazing bodies)</b></p>	<p><b><u>Animals Including Humans</u></b>  <b>The knowledge below will be acquired through the skills above</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Identify the different types of teeth in humans and their simple functions</li> <li>Describe the simple functions of the basic parts of the digestive system in humans</li> <li>construct and interpret a variety of food chains, identifying producers, predators and prey</li> </ul> <p><b>(Unit Snap Science: Where does all the food go?)</b></p>	<p><b><u>Animals Including Humans</u></b>  <b>The knowledge below will be acquired through the skills above</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>describe the changes as humans develop to old age</li> </ul> <p><b>(Unit: RSE)</b></p>	<p><b><u>Animals Including Humans</u></b>  <b>The knowledge below will be acquired through the skills above</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>describe the ways in which nutrients and water are transported within animals, including humans</li> </ul> <p><b>(Unit Snap Science: Body pump/body health)</b></p>

<p><b>Key Vocabulary</b></p>	<p>Balanced diet, carbohydrates, protein, fats, fibres, fruit and vegetables, bones, muscles, femur, ribs, spine, skull, tibia, fibula, shoulder blade, hollow, relax and contract, protect, support, skeleton, endoskeleton, exoskeleton, hydrostatic skeleton</p>	<p>incisors, molars, canines, pre-molars, cut, slice, grind, chew, rip, tear, plaque, decay, cavity, toothbrush, toothpaste, calcium, enamel, mouth, oesophagus, stomach, liver, small and large intestine, rectum, anus</p> <p>reptile, mammal, bird, amphibian, insects, fish, energy, habitat, organism, prefer, adapted, predator, producer, prey, conditions, suited, food source, characteristics, key, classify, minibeast, herbivore, carnivore, omnivore</p>	<p>Puberty, baby, adolescence, adulthood, old age, menstruation, breasts, pubic hair, testicles, scrotum, hips, broaden, growth spurt, voice “breaking”, sweat, body odour, mood changes, facial hair, conception/conceive</p>	<p>aorta, artery, atrium, blood vessel, body temperature, capillaries, carbon dioxide, cells, chamber, chest cavity, circulation, circulatory system, deoxygenated blood, digestive system, digestive tract, health, heart, heart valves, humans, hydration, lungs, muscular system, nutrients, nutrition, oxygen, oxygenated blood, plasma, platelets, pump, red blood cell, skeletal, system, transport, valve, vein, vena cava, ventricle, vessel, waste, waste gases, white blood cells</p> <p>alcohol, asthma, athlete, balanced diet, beats per minute (bpm), breathing, caffeine, calories, cancer, carbohydrates (including sugars), cheating, cigarettes, , dairy, diet, drugs, eat well plate, energy, exercise, fat, fibre, heart, heart rate, intensity, illegal James Lind, legal, lifestyle, long-term effect, lungs, medicine, mental benefits, mineral, nutrition, oxygen, passive smoking, peer pressure, performance enhancing, persuade, physical benefits, protein, pulse rate, RDA (recommended daily allowance), recovery rate, resting rate, roughage, saturated fat, scurvy, short-term effect, smoking, sodium, solvents, steroids, tobacco, training, unsaturated fat, vitamin</p>
<p><b>Key Questions</b></p>	<p>What is a balanced diet?          What would a healthy meal look like?          How do muscles help us to move?</p>	<p>What happens to our teeth if we don't look after them?          What effect can different drinks have on teeth?          How can we look after our teeth?          Can you explain how food travels through the body?</p>	<p>How does our body change as we grow up?          Can you name the different stages of the human life cycle?          What are the main physical and emotional changes girls/boys go through during puberty?          Do humans all go through puberty in the same way?</p>	<p>Can you name the main parts of the human circulatory system?          How does the heart work?          Can you name the different types of blood vessel and explain how they work?</p> <p>How many different food groups can you name?          Can you explain what a healthy diet is?          Why is it important to exercise?          How does exercise affect the body?          How do drugs affect the body over time?</p>

	<p><b><u>Plants</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>• 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</li> <li>• investigate the way in which water is transported within plants</li> <li>• explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul> <p><b>(Unit Snap Science: How does your garden grow?)</b></p>	<p><b><u>Living Things And Their Habitats</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that living things can be grouped in a variety of ways</li> <li>• explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> </ul> <p><b>(Unit Snap Science: Who Am I?)</b></p> <ul style="list-style-type: none"> <li>• recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul> <p><b>(Unit: Human Impact)</b></p>	<p><b><u>Living Things And Their Habitats</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>• describe the life process of reproduction in some plants and animals</li> </ul> <p><b>(Unit Snap Science: Circle Of Life/reproduction in plants and animals)</b></p>	<p><b><u>Living Things And Their Habitats</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• give reasons for classifying plants and animals based on specific characteristics</li> </ul> <p><b>(Unit Snap Science: The Nature Library)</b></p>
	<p>plant, roots, stem, trunk, leaf/leaves, flower, leaflet, stalk, veins, surface, edge, lobes, tip, food, root hair, nutrients, anchor, support, seed, germination, seedling, growth, mature plant, flowering, pollination, seed formation, bud, petal, sepal, carpel, stamen, pollen, reproduce, nectar, seed, fruit, dispersal, animal, wind, water, sprinkling, competition, air, light, stigma, style, ovary, anther, filament,</p>	<p>reptile, mammal, bird, amphibian, insects, fish, energy, habitat, organism, prefer, adapted, predator, producer, prey, conditions, suited, food source, characteristics, key, classify, minibeast, herbivore, carnivore, omnivore</p> <p>environment, impact, positive, negative, litter, pollution, waste, biodiversity, habitat, derelict, graffiti, traffic, destroy, create, location, food chain, producer, consumer, human impact, global issue, destruction, deforestation, rainforest, climate, climate change, zoo, endangered, breed, wild, natural, predator, prey, conservation,</p>	<p>life cycle, birth, growth, reproduction, metamorphosis, aging, death, animal, mammal, amphibian, insect, bird, , hibernate, nocturnal, marsupial, metamorphosis, larva, egg, pupa, cocoon, adult, breeding cycle, clutch, brood, hatch, fledge, reproduce, habitat, environment, migrate, migration, navigate, genetic, endangered, threatened, extinct, extinction, evolution,</p>	<p>identify, identification, classify, classification, division, family, genus, species, reason, common characteristics, distinguishing characteristics, leaves, shape, size, colour, backbone, wings, jointed legs, cased, transparent, antennae, shell, segments, explain, group, small, mould, botany,</p> <p><b>Kingdoms of living things:</b> Animalia, Plantae, Fungi, Protista, and Monera</p> <p><b>Plant kingdom:</b> flowering plants, conifers, ferns, mosses and algae</p> <p><b>Animal kingdom:</b> vertebrates, fish, amphibians, mammals, birds, reptiles, invertebrates, molluscs, annelids, arachnids, insects, arthropods</p> <p><b>Micro-organisms:</b> (3 kingdoms: Fungi, Monera, Protista), micro-organisms (microbes) bacteria</p>
	<p>What does this part of a plant do? What do seeds need to germinate and grow well?</p>	<p>How are vertebrates grouped together? How are invertebrates grouped together? How is plastic affecting animals in the ocean?</p>	<p>What is a life cycle? What do we know about the life cycle of an insect/amphibian/mammal or bird?</p>	<p>How are vertebrates grouped together? How are invertebrates grouped together? How can micro-organisms be grouped?</p>

	How do flowering plants reproduce? (basic terms-children to look at this more in depth in Year 5)		How does the human life cycle compare with other mammals?	
<b>Knowledge</b>				<p><b>Evolution</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</li> <li>• recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>• identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</li> </ul> <p><b>(Unit Snap Science: Everything Changes)</b></p>
<b>Key Vocabulary</b>				population, variation, environment, inheritance, adaptation, selective breeding, generation, survival, natural selection, evolution, fossils, genes, genetics, DNA, extinct, extinction, speciation, question, investigation,
<b>Key Questions</b>				Why do living things vary? Why have some animals become extinct? Why have some animals/[plants] survived for so many years?
<b>Chemistry</b>				
	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Working Scientifically Skills</b>	<ul style="list-style-type: none"> <li>• Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>• Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>• Set up simple practical enquiries, comparative and fair tests</li> <li>• Gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>• Record findings using simple scientific language, drawings, labelled diagrams,</li> </ul>	<ul style="list-style-type: none"> <li>• Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>• Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>• Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers</li> <li>• Gather, record, classify and present data in a variety of ways to help in answering questions</li> </ul>	<ul style="list-style-type: none"> <li>• Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>• Plan different types of scientific enquiries to answer questions, including recognising variables where necessary</li> <li>• Begin to use test results to make predictions to set up further comparative and fair tests</li> <li>• Report and present findings from enquiries, including conclusions, explanations of degree of trust in</li> </ul>	

	<p>simple keys, tables and begin to use bar charts</p> <ul style="list-style-type: none"> <li>• Report on findings from enquiries, including oral and written explanations, displays or presentations of results</li> <li>• Identify differences and similarities related to simple scientific ideas and processes</li> <li>• Use straightforward scientific evidence to answer questions</li> <li>• Use results to draw simple conclusions and suggest improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Record findings using simple scientific language, bar charts, and tables</li> <li>• Use results to draw simple conclusions and make predictions for new values</li> <li>• Identify differences, similarities or changes related to simple scientific ideas and processes</li> <li>• Use straightforward scientific evidence to answer questions or to support his/her findings</li> </ul>	<p>results and begin to find causal relationships, in oral and written forms such as displays and other presentations</p> <ul style="list-style-type: none"> <li>• Record data and results using scientific diagrams and labels, tables, bar and line graphs</li> </ul>	
<b>Knowledge</b>	<p><b><u>Rocks</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>• describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>• recognise that soils are made from rocks and organic matter</li> </ul> <p><b>(Unit Snap Science: Rock Detectives)</b></p>	<p><b><u>States of matter</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• compare and group materials together, according to whether they are solids, liquids or gases</li> <li>• 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)</li> <li>• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> </ul> <p><b>(Unit Snap Science: In A State)</b></p>	<p><b><u>Changing state</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• 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</li> </ul>	

			<b>(Units Snap Science: Marvellous Mixtures/Get Sorted/All change)</b>	
<b>Key Vocabulary</b>	sandstone, granite, chalk, limestone, marble, pumice, rough, smooth, hard, soft, rock, stone, pebble, texture, particle, crystal, granule, properties, soil, clay, sandy, loam, peat, organic material, weather, weathering, frost, beach, cliff, starfish, sea urchin, fossil, fossilise, remains	Solid, liquid, hard, soft, pour, flow, pool, surface, horizontal, runny, viscous, , ice, water, temperature, cool, cooling, warm, warming, hot, degree Celsius, melt, melting, freeze, freezing, solidify, solidifying, heating, states of matter, change of state, melting point, freezing point, process, gas, air, carbon dioxide, helium, oxygen, particle, weight, compress, squash, shape, volume, evaporate, evaporation, water vapour, boil, boiling, boiling point, steam, thermometer, sensor, droplets, condense, condensation, water, droplets, cycle	material, compare, contrast, separate, mixture, sieve, filter, evaporate, solid, liquid, gas, powder, particle, dissolve, soluble, solution, suspension, reversible, non-reversible, liquid, solid, sterilise	
<b>Key Questions</b>	How is a fossil created? Do all rocks have the same properties? Can you sort these rocks according to their properties?	What is a solid/a liquid/a gas? How are they different? Do all solids/liquids/gases behave in the same way (e.g. do some solids behave like liquids?) How do we measure temperature?	What is the best way to separate this mixture of materials? What happens when you mix a solid and a liquid? Is this change reversible? How do we reverse the change e.g. sugar or salt solutions in water?	
<b>Physics</b>				
	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Working Scientifically Skills</b>	<ul style="list-style-type: none"> <li>Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>Set up simple practical enquiries, comparative and fair tests</li> <li>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of simple equipment (e.g. measuring tape, force meter)</li> <li>Gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>Record findings using simple scientific language, drawings, labelled diagrams,</li> </ul>	<ul style="list-style-type: none"> <li>Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>Ask relevant questions and use different types of scientific enquiries to answer them</li> <li>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers</li> <li>Gather, record, classify and present data in a variety of ways to help in answering questions</li> <li>Record findings using simple scientific language, bar charts, and tables</li> <li>Use results to draw simple conclusions and make predictions for new values</li> </ul>	<ul style="list-style-type: none"> <li>Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>Take measurements, using a wider range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>Plan different types of scientific enquiries to answer questions, including recognising variables where necessary</li> <li>Report and present findings from enquiries, including conclusions, explanations of degree of trust in results and begin to find causal relationships, in oral and written forms such as displays and other presentations</li> </ul>	<ul style="list-style-type: none"> <li>Use appropriate scientific language to explain, evaluate and communicate his/her methods and findings.</li> <li>Plan different types of scientific enquiries to answer their own or others' questions, including recognising and controlling variables where necessary.</li> <li>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in</li> </ul>

	<p>simple keys, tables and begin to use bar charts</p> <ul style="list-style-type: none"> <li>Report on findings from enquiries, including oral and written explanations, displays or presentations of results</li> <li>Identify differences and similarities related to simple scientific ideas and processes</li> <li>Use straightforward scientific evidence to answer questions</li> <li>Use results to draw simple conclusions and suggest improvements</li> </ul>	<ul style="list-style-type: none"> <li>Identify differences, similarities or changes related to simple scientific ideas and processes</li> <li>Use straightforward scientific evidence to answer questions or to support his/her findings</li> </ul>	<ul style="list-style-type: none"> <li>Identify scientific evidence that can be used to support or refute ideas or arguments</li> <li>Record data and results using scientific diagrams and labels, tables, bar and line graphs</li> </ul>	<p>oral and written forms such as display and other presentations</p> <ul style="list-style-type: none"> <li>Use test results to make predictions to set up further comparative tests</li> <li>Identify scientific evidence that has been used to refute or support ideas or arguments</li> </ul>
<b>Knowledge</b>	<p><b><u>Light</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>recognise that they need light in order to see things and that dark is the absence of light</li> <li>notice that light is reflected from surfaces</li> <li>recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>find patterns in the way that the size of shadows change</li> <li><i>to identify what happens when light hits a reflective surface.</i></li> </ul> <p><b>(Unit Snap Science: Can you see me?)</b></p>	<p><b><u>Sound</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>identify how sounds are made, associating some of them with something vibrating</li> <li>recognise that vibrations from sounds travel through a medium to the ear</li> <li>find patterns between the pitch of a sound and features of the object that produced it</li> <li>find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>recognise that sounds get fainter as the distance from the sound source increases</li> </ul> <p><b>(Unit Snap Science: Good Vibrations)</b></p>		<p><b><u>Light</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>recognise that light appears to travel in straight lines</li> <li>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</li> <li>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</li> <li>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul> <p><b>(Unit Snap Science: Light Up Your World)</b></p>
<b>Key Vocabulary</b>	light, dark, shadow, mirror, bright, dim, reflect, eye, opaque, transparent, translucent, ray, beam, absorb, luminous, non-luminous, question, investigation, fair test, change, measure, predict, prediction, explain, explanation, observations, draw conclusions	sound, loud, quiet, high, low, repeating, continuous, strike, blow, shake, pluck, vibration, vibrate, solid, gas, volume, strength of vibrations, sound source, fainter, pitch, particles,		light, dark, shadow, mirror, bright, dim, reflect, eye, opaque, transparent, translucent, ultra violet, ray, beam, refraction, periscope, spectrum, dispersion
<b>Key Questions</b>	Which materials cause shadows to be formed (opaque, translucent, transparent)? Which types of material are reflective? What happens to a shadow when you move the object closer to or further away from a light source? How do shadows change throughout the day?	How can we make a sound louder/quieter? Is there a relationship between the volume of the sound and our distance from it? How can we make a sound higher/lower? What happens to the vibrations when we change sounds? Does the size of an instrument affect the pitch of the sound it makes?		How does light travel? How can I see different objects?

<b>Knowledge</b>	<p><b><u>Forces</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>compare how things move on different surfaces</li> <li>notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</li> <li>observe how magnets attract or repel each other and attract some materials and not others</li> <li>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</li> <li>describe magnets as having 2 poles</li> <li>predict whether 2 magnets will attract or repel each other, depending on which poles are facing</li> </ul> <p><b>(Snap Science Unit: The power of forces)</b></p>	<p><b><u>Electricity</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>identify common appliances that run on electricity</li> <li>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>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</li> <li>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>recognise some common conductors and insulators, and associate metals with being good conductors</li> </ul> <p><b>(Snap Science Unit: Switched on)</b></p>	<p><b><u>Forces</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</li> </ul> <p><b>(Snap Science Unit: Feel The Force)</b></p>	<p><b><u>Electricity</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>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</li> <li>use recognised symbols when representing a simple circuit in a diagram</li> </ul> <p><b>(Snap Science Unit: Danger! Low Voltage)</b></p>
<b>Key Vocabulary</b>	<p>push, pull, twist, force, air, turns, fast, slow, slows down, material, surface, magnet, attracts, magnetic material, magnetism, acts at a distance, non-magnetic material, metal, non-metal, strength, north pole, south pole, repel,</p>	<p>electricity, electrical, mains, plugged in, battery, power, rechargeable, solar, sound, light, heat, cell, wire, bulb, bulb holder, buzzer, motor, component, circuit, complete circuit, short circuit, flow, break, metal, connect, disconnect, positive, negative, switch, electrical conductor, electrical insulator, electron, filament</p>	<p>air resistance, balanced forces, forces, friction, gravity, movement, Newton, Newton meter, pivot, pulley, pull, push, rack, resistance, speed, time, unbalanced force, upthrust, water resistance,</p>	<p>cell, battery, lamp, wire, buzzer, motor, circuit, current, filament, electrical insulator, electrical conductor, mains electricity, switch, series circuit, resistance, resistor, current, circuit diagram, recognised symbols,</p>
<b>Key Questions</b>	<p>What is a force? Which force is in action here? How can we test which surface will produce the most/least friction? How can we measure the force used?</p>	<p>What will happen if there is a break in my circuit? Can you make the bulb light up? Which materials conduct electricity? Which materials are the best electrical insulators? How can we use electricity safely?</p>	<p>What is gravity? What is the difference between weight and mass? Which parachute would be the most effective? Which shape of boat would allow the boat to travel through the water the fastest?</p>	<p>What would be a simple way to show the different components of a circuit in a drawing? Why do you think we need universal symbols for electrical components? How can I make the bulb brighter/dimmer? How can I make the buzzer louder/quieter? Why is the ___ not working? Why is the lamp brighter in this circuit than this circuit?</p>
			<p><b><u>Earth and Space</u></b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>describe the movement of the Earth and other planets relative to the sun in the solar system</li> </ul>	

			<ul style="list-style-type: none"> <li>• describe the movement of the moon relative to the Earth</li> <li>• describe the sun, Earth and moon as approximately spherical bodies</li> <li>• use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</li> <li>• <b><i>identify that the sun is a star that is at the centre of a solar system and that it has 8 planets.</i></b></li> </ul> <p><b>(Snap Science Unit: The Earth and beyond)</b></p>	
<b>Key Vocabulary</b>			Earth, Sun, Moon, sphere, spherical, revolve, orbit, spin, rotate, axis, sunrise, sunset, north, south, east, west	
<b>Key Questions</b>			How big are the Earth, Sun and Moon in comparison to each other? Which is largest/smallest? Why do we have day and night?	