

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Work National curriculum	Electricity	Animals, including humans	States of matter	Sound	Living things and their habitats	Living things and their habitats
Switched on Science	Topic 5 Power it up	Topic 4 Teeth and eating	Topic 3 Looking at states	Topic 1 What's that sound?	Topic 2 Living things	Topic 2 Living things
Key Vocabulary	electricity, mains, plug, switch, circuit, components, cell, battery, buzzer, connection, conductor, insulator, appliance	Recap on vocabulary from Year 3: nutrients, carnivore, herbivore, omnivore, Introduce: digestive, oesophagus, intestine, rectum, anus, waste, saliva, molar, incisor, canine, incisor, food chain, producer, predator, prey, consume.	states of matter, solid/solidify liquid, gas, oxygen, temperature, melting, boiling point, freezing, particle evaporation, condensation, water cycle,	sound, sound waves, vibration, pitch, tuned, volume, fainter muffle, insulation,	classification keys, environment, habitats vertebrates, invertebrates, mammals, reptiles, amphibians, human impact	classification keys, environment, habitats vertebrates, invertebrates, mammals, reptiles, amphibians, human impact
Substantive knowledge	Identify common appliances that run on electricity	Describe the simple functions of the basic parts of	Compare and group materials together,	Identify how sounds are made, associating some	Recognise that living things can	Recognise that living things can be

<p>Key knowledge</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 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</p>	<p>the digestive system in humans</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>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>	<p>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 vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>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 can sometimes pose dangers to living things.</p>	<p>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 can sometimes pose dangers to living things.</p>
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	with being good conductors.					
Disciplinary knowledge Working scientifically	Pupils might work scientifically by: observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.	Pupils might work scientifically by: comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.	Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of	Pupils might work scientifically by: finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume.	Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.	Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.

			time, for example, a puddle in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.			
Cultural Capital Scientists	<p>Michael Faraday- Discovered relationship between magnets and electricity</p> <p>Thomas Edison- Lightbulb</p> <p>Joseph Swan- Incandescent Light Bulb</p> <p>Garrett Morgan – invented traffic lights</p>	<p>William Beaumont – studied digestive system</p> <p>Joseph Lister- Antiseptic</p> <p>Ivan Pavlov- Digestive System Mechanisms</p> <p>Washington & Lucius Sheffield- Toothpaste in a tube</p>	<p>Joseph Priestly – Discovered oxygen</p> <p>Lord Kelvin - Absolute zero (temperature)</p> <p>Anders Celsius - Temperature Scale</p> <p>Daniel Fahrenheit- Temperature Scale / Invention of the Thermometer</p> <p>George Washington Carver- chemist</p>	<p>Alexander Graham Bell -Invented the telephone</p> <p>Aristotle - Sound Waves</p> <p>Gaillileo Galilei - Frequency and Pitch of Sound Waves</p>	<p>Jacques Cousteau -Marine Biology</p> <p>Cindy Looy- Environmental Change and Extinction</p> <p>Joean Beauchamp Procter Zoologist</p>	<p>Jacques Cousteau -Marine Biology</p> <p>Cindy Looy- Environmental Change and Extinction</p> <p>Joean Beauchamp Procter Zoologist</p>

Suggestions for school visits						
Teacher CPD links	Resources - Google Docs https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/425618/PRIMARY_national_curriculum_-_Science.pdf	https://www.reachoutcpd.com PLAN Progression - Staff Drive - Google Drive	https://classroom.thenationalacademy/subjects-by-key-stage	https://my.risingstars-uk.com/CourseHome.aspx?csid=9781510446151	Science - Staff Drive - Google Drive Science - Staff Drive - Google Drive	https://www.stem.org.uk/primary-science

Year 4- Electricity

		Pupils previously learnt: <ul style="list-style-type: none"> - Birth to three: Repeat actions that have an effect. - Nursery: Explore how things work. 	
Lesson number	Lesson question	Pupils will learn	Key Vocabulary https://drive.google.com/file/d/1SQhEWuTH

				WsFUjCX-19r_S0tvyz7U_l8v/view?usp=share_link
		Substantive knowledge	Disciplinary knowledge	
1	Rising stars assessment Front cover (KWL) Knowledge organiser What do you think you know? What you do not know? What would you like to know?	Teacher assessment		
2	What is a simple circuit?	<ul style="list-style-type: none"> Construct a simple series electrical circuit Identify and name its basic parts Identifying common appliances that run on electricity 	Ask relevant questions and use different types of scientific enquiries to answer them.	-cells, wires, bulbs, circuit/ simple series electrical circuit, crocodile clips, flow, electricity, component/ elements;
3	Is it a complete circuit or not?	<ul style="list-style-type: none"> Construct a simple series electrical circuit . Identify and name its basic parts, including cells, wires, bulbs and battery Identify whether or not a lamp (lightbulb) will light in a simple series circuit, based in whether or not the lamp (bulb) is part of a c complete loop with a battery 	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	-cells, battery , wires, crocodile clips, bulbs, closed /open circuit, flow, electricity, component/ elements, circuit/ simple series electrical circuit,;
4	Which materials allow electricity to pass through them?	<ul style="list-style-type: none"> Investigate which materials allow and which ones do not allow electricity to pass through them 	Gather, record, classify and present data to help in answering questions.	-cells, battery , wires, crocodile clips, bulbs, closed /open circuit,circuit/

			Use results to draw simple conclusions and make predictions. Identifying differences, similarities or changes related to different materials.	simple series electrical circuit, flow, electricity, component/ elements, conductor, insulator, material, metal, lead;
5	What will happen to the brightness of a bulb if I change the....?	<ul style="list-style-type: none"> Plan an investigation for a fair test to assess the brightness of a lightbulb depending on a chosen variable Use the question boards to generate questions based on variables that can be changed 	Ask relevant questions and use different types of scientific enquiries to answer them.	-cells, bulbs, component/ elements, closed /open circuit, flow, electricity, circuit/ simple series electrical circuit ; -variable, fair test, brightness, dimm, light, torch;
6	What will happen to the brightness of a bulb if I change the....?	<ul style="list-style-type: none"> To investigate how different variables affect the brightness of a bulb To make predictions before conducting their investigation To draw conclusions based on their investigation 	Set up simple practical enquiries, comparative and fair tests. Ask relevant questions and use different types of scientific enquiries to answer them. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Making systematic and careful observations. Use straightforward scientific evidence to answer questions or to support their findings.	-cells, battery , wires, crocodile clips, bulbs, component/ elements, closed /open circuit, flow, electricity, circuit/ simple series electrical circuit, ; -variable, fair test, brightness, brighter, dimm, dimmer, light, voltage, size, torch,
7	What is a switch?	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and 	Make systematic and careful observations.	-cells, battery , wires, crocodile clips, bulbs,

		<p>naming its basic parts, including cells, wires, bulbs and switches.</p> <ul style="list-style-type: none"> 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>Set up simple practical enquiries. Record findings using simple scientific language, drawings and labelled diagrams. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p>	<p>closed /open circuit, flow, electricity, circuit/ simple series electrical circuit, component/ elements, switch, open , close, on, off, on/off switch, push switch, toggle switch and slide switch ;</p>
8	How to make a switch?	<ul style="list-style-type: none"> Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs and switches. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. To use insulating materials to make a switch 	<p>Set up simple practical enquiries. Identify differences, similarities or changes related to simple scientific ideas.</p>	<p>-cells, battery , wires, crocodile clips, bulbs, closed /open circuit, flow, electricity, component/ elements,circuit/ simple series electrical circuit, switch, open , close, on, off, on/off switch, push switch, toggle switch and slide switch ;</p>
9	<p>What alternative energy sources are used around the world? Self assessment (see initial DA)</p>	<ul style="list-style-type: none"> What alternative sources of energy are used around the world? Why do we need alternative sources of energy? Do these sources ever end? Why? 	<p>Classify/ sort alternative sources of energy.</p>	<p>energy sources, sun, solar, water, tidal, wind, energy, produce</p>
10	Cultural Capital			

	Visitor, visit, scientist			
11	Rising Stars end of unit assessment	Teacher to identify any gaps and recap		

Year 4- Animals Including Humans

		<p>Pupils previously learnt:</p> <ul style="list-style-type: none"> - Yr 3: • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. - • Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 		
Lesson number	Lesson question	Pupils will learn		<p>Key Vocabulary https://drive.google.com/file/d/11w8wOkmPwcAHOp-tdM08lc4Th9nYxRG_/view?usp=share_link</p>
		Substantive knowledge	Disciplinary knowledge	

1	Rising stars assessment Front cover (KWL) Knowledge organiser What do you think you know? What you do not know? What would you like to know?	Teacher assessment		
2	What are the parts of the digestive system? What are their functions? Simulation of the digestive system lesson	<ul style="list-style-type: none"> • To describe the simple functions of the basic parts of the digestive system in humans. • To introduce the main body parts associated with the digestive system. • To discuss their ideas about the digestive system and compare them with models or images. 	<ul style="list-style-type: none"> • Asking relevant questions and using different types of scientific enquiries to answer them. • Setting up simple practical enquiries. • Making systematic and careful observations. 	-mouth,tongue,teeth, oesophagus, stomach,liver, small intestine and large intestine, rectum, digestion, digestive system, enzymes, faeces, colon, gastric juice;
3	What are the parts of the digestive system? What are their functions?	<ul style="list-style-type: none"> • To describe the simple functions of the basic parts of the digestive system in humans. • To introduce the main body parts associated with the digestive system. • To discuss their ideas about the digestive system and compare them with models or images. 	<ul style="list-style-type: none"> • Asking relevant questions and using different types of scientific enquiries to answer them. • Setting up simple practical enquiries. • Making systematic and careful observations. • Recording findings using simple scientific language, drawings and labelled diagrams. • Reporting on findings from enquiries, 	-mouth,tongue,teeth, oesophagus, stomach,liver, small intestine and large intestine, rectum, digestion, digestive system, enzymes, faeces, colon, gastric juice;

			including oral and written explanations.	
4	How many different types of teeth do humans have? What is their function?	<ul style="list-style-type: none"> To identify the different types of teeth in humans and their simple functions. To compare teeth of carnivores, herbivores and omnivores. 	<ul style="list-style-type: none"> Making systematic and careful observations. Recording findings using simple scientific language, drawings and labelled diagrams. 	-tooth, teeth, function,grind, tear, bite, crush, jaw, incisor, premolar, molar,canine, wisdom teeth, herbivore, carnivore, omnivore;
5	How many different types of teeth do humans have? What is their function? -modelling lesson-	<ul style="list-style-type: none"> To identify the different types of teeth in humans and their simple functions To create a model of human teeth paying attention to their shape. 	<ul style="list-style-type: none"> 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. 	-tooth, teeth, function,grind, tear, bite, crush, jaw, incisor, premolar, molar,canine, wisdom teeth;
6	What damages your teeth? How do you take care of your teeth?	<ul style="list-style-type: none"> To find out what damages teeth To draw conclusions on how to look after our teeth. 	Choose switched on science activities	-tooth, teeth, function,grind, tear, bite, crush, jaw, incisor, premolar, molar,canine, wisdom teeth;
7	What damages our teeth?	<ul style="list-style-type: none"> To find out what damages teeth To draw conclusions on how to look after our teeth. To find out the effects of different liquids on our teeth. 	<ul style="list-style-type: none"> Gathering,recording, classifying and presenting data in a variety of ways to help in answering questions. 	-cavity, filling, tooth paste,

			<ul style="list-style-type: none"> • Set up simple practical enquiries and fair tests. • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment. • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Using results to draw simple conclusions, suggest improvements and raise further questions. • Identifying differences, similarities or changes related to simple scientific ideas and processes. 	
8	<p>What is the structure of a tooth? What are the stages of decay?</p>	<ul style="list-style-type: none"> • To identify the different parts of a tooth. • To list the stages of tooth decay. 	<ul style="list-style-type: none"> • Recording findings using simple scientific language, drawings and labelled diagrams 	cavity, filling, tooth paste,
9	<p>What is a food chain?</p>	<ul style="list-style-type: none"> • To identify producers, predators 	<ul style="list-style-type: none"> • Gathering, recording, 	Food chain, product,

		<p>and prey.</p> <ul style="list-style-type: none"> To build a food chain. 	<p>classifying and presenting data in a variety of ways to help in answering questions.</p> <ul style="list-style-type: none"> Recording findings using simple scientific language, drawings and labelled diagrams. 	<p>primary consumer, secondary consumer, energy, survive, herbivores, omnivores</p>
10	What is a food web?	<ul style="list-style-type: none"> To explain what a food web is. To identify differences and similarities between food chains and food webs. 	<ul style="list-style-type: none"> To identify differences, similarities or changes related to simple scientific ideas. Asking relevant questions and using different types of scientific enquiries to answer them. 	<p>Food chain, product, primary consumer, secondary consumer, energy, survive, herbivores, omnivores, food web</p>
11	<p>Cultural Capital Visit, visitor, scientist</p>			
12	Rising Stars end of unit assessment	Teacher to identify any gaps and recap		

Year 4- Sound

		<p>Pupils previously learnt:</p> <ul style="list-style-type: none"> Nursery: Explore how things work. 	
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		- Reception: Describe what they see, hear and feel whilst outside.		
Lesson number	Lesson question	Pupils will learn		Key Vocabulary https://drive.google.com/file/d/140p8RtWeZHtrd0qA0g4kPDOqwFmGDRu2/view?usp=share_link
		Substantive knowledge	Disciplinary knowledge	
1	Rising stars assessment Front cover (KWL) Knowledge organiser What do you think you know? What you do not know? What would you like to know?	Teacher assessment		
2	How are sounds made?	<ul style="list-style-type: none"> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. 	<ul style="list-style-type: none"> Asking relevant questions and using different types of scientific enquiries to answer them. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment. Recording findings 	<ul style="list-style-type: none"> Sound; vibrates; vibration; pluck / strum; guitar; observe; vocal cords; beat; drum / drum skin; tuning fork; musical instruments; air; sound waves; travel; particles; ears; collide.

			using simple scientific language.	
3	How does sound travel through solids?	<ul style="list-style-type: none"> • 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 volume of a sound and the strength of the vibrations that produced it. 	<ul style="list-style-type: none"> - Setting up simple practical enquiries, comparative and fair tests. - Using straightforward scientific evidence to answer questions or to support their findings. - Making systematic and careful observations. - Reporting on findings from enquiries, including oral and written explanations. 	<ul style="list-style-type: none"> - Hangers; sound waves; sound; vibrates; vibration; loud(er); investigation; air; ears; travel; particles; molecules; substance; atoms; bond; collide; lost; solid;
4	How does sound travel through a cup phone? How does the medium affect the volume of the sound?	<ul style="list-style-type: none"> • Recognise that vibrations from sounds travel through a medium to the ear. • Find patterns between the volume of a sound and the strength of the vibrations that produced it. 	<ul style="list-style-type: none"> - Setting up simple practical inquiries. - Making systematic and careful observations. - Identifying differences, similarities or changes related to simple scientific ideas and processes. 	<ul style="list-style-type: none"> - Sound; louder; clearer; quieter; size of the vibration; gases; liquids; solids; sound waves; sound; vibrates; vibration; cup phones; investigation; air; ears; travel; particles; molecules; substance; atoms; bond; collide; lost; distance; quickly; softer; weaker.

5	How does the frequency of sound waves impact the sound that we hear?	<ul style="list-style-type: none"> Find patterns between the pitch of a sound and features of the object that produced it. 	<ul style="list-style-type: none"> Making systematic and careful observations. Gather, record and classify and present data in a variety of ways to help in answering questions. 	<ul style="list-style-type: none"> Sound waves; substances; travel; solids, liquids, gases; molecules; vibrate; atoms; bond; invisible; pitch; high; low; frequency; flute; tuba; squashed / squished; short; long; back / forth; slowly; quickly; spread out.
6	What is the pitch of a sound?	<ul style="list-style-type: none"> Find patterns between the pitch of a sound and features of the object that produced it. 	<ul style="list-style-type: none"> Setting up simple practical inquiries. Gather, record and classify and present data in a variety of ways to help in answering questions. 	<ul style="list-style-type: none"> Sound waves; substances; travel; volume; string; thickness; record; length; amount, thicker / thinner, more / less, fewer, solids, liquids, gases, molecules, vibrate, atoms, bond, invisible, pitch, high, low, frequency, flute, tuba, squashed / squished, short, long, back / forth, slowly, quickly, spread out.
7	How does the sound change as the distance from the sound source changes?	<ul style="list-style-type: none"> Recognise that sounds get fainter as the distance from the sound source increases. 	<ul style="list-style-type: none"> Recording findings using simple scientific language. Making systematic and careful 	<ul style="list-style-type: none"> Volume, high pitch, vibrate, instruments, sound waves, low pitch, quiet, pluck, ear drum, echo, loud, loudness,

			<p>observations.</p> <ul style="list-style-type: none"> - Reporting on findings from enquiries, including oral and written explanations. - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. - Using straightforward scientific evidence to answer questions or to support their findings. 	<p>sound source, distance, prediction, nearer / further, fainter, fair test, variable, measure, unclear; air; particles; energy; travel; pinna, blow, listen, sound.</p>
8	What material is most effective in muffling an alarm clock?	<ul style="list-style-type: none"> • Identify best insulation against sound. 	<ul style="list-style-type: none"> - Using straightforward scientific evidence to answer questions or to support their findings. - Setting up simple practical inquiries, comparative and fair tests. - Making systematic and careful observations. - Using results to draw simple conclusions, 	<ul style="list-style-type: none"> - muffle, sound, sound source, material, decibel, length, thickness, decibel metre, variable, loudness, foil, silk, baking paper, tissue paper; fabric, foam sheet, predict, less / more, quieter, volume, smaller / larger, compare, highest, measure, louder.

			make predictions for new values, suggest improvements and raise further questions.	
9	How fast is the speed of sound?	<ul style="list-style-type: none"> • Explain that sound moves as a wave; • Explain how the medium affects the speed of sound. 	<ul style="list-style-type: none"> - Recording findings using simple scientific language. - Using straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> - amplitude, echo, pitch, sonic boom, sound wave, speed of sound; vibrate; volume; wave length; decibel, frequency, ear drum, faster, sound, electromagnetic, thunder, lightning, timer, speed = distance / time, m/s.
10	How Does the shape of the ear affect hearing?			
11	Cultural Capital visit, visitor, scientist			
12	Rising Stars end of unit assessment	Teacher to identify any gaps and plan recap		

Year 4- States of Matter

		Pupils previously learnt:	
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		<ul style="list-style-type: none"> - Yr1: Distinguish between an object and the material from which it is made. • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. • Describe the simple physical properties of a variety of everyday materials. • Compare and group together a variety of everyday materials on the basis of their simple physical properties. 		
Lesson number	Lesson question	Pupils will learn		Key Vocabulary https://drive.google.com/file/d/1dv18OyOQz-aK3mqGQ2f7wDMeFOsqZKJF/view?usp=share_link
		Substantive knowledge	Disciplinary knowledge	
1	Rising stars assessment Front cover (KWL) Knowledge organiser What do you think you know? What you do not know? What would you like to know?	Teacher assessment		
2	What Properties Have Solids, Liquids and Gases Got?	To compare and group materials together, according to whether they are solids, liquids or gases.	<ul style="list-style-type: none"> - Identifying differences, similarities or changes related to simple scientific ideas and processes. 	States of matter; solids; liquids; gases; particles; compressed; molecules; oxygen; methane; properties
3	What Material Is the Best to Stop the Ice from Melting?	To observe that some materials change state when they are heated or cooled.	<ul style="list-style-type: none"> - Setting up simple practical enquiries, comparative and fair 	Arrangement of molecules, state of matter; solids; liquids; gases; carbon

	-ice cube investigation-		<ul style="list-style-type: none"> tests - Making systematic and careful observations. - Asking relevant questions and using different types of scientific enquiries to answer them. 	dioxide; compressed; melt/melting; variable; material; prediction; experiment; helium; change; particles; insulate; insulator; conduct; heat; cold; larges
4	Are All Solids the Same? -biscuit experiment-	Investigate and describe how particles move in solids and discuss the properties of solids and liquids.	<ul style="list-style-type: none"> - Setting up simple practical enquiries, comparative and fair tests - Identifying differences, similarities or changes related to simple scientific ideas and processes. 	Arrangement of molecules, state of matter; solids; liquids; gases; compressed; variable; material; prediction; change; particles; squeeze; experiment; properties; bond; densely; arranged in patterns; mould; granular materials; solid matter; fixed shape; vibration; flow; move/move freely; close; space; quickly.
5	What properties do gases have? -investigations- Choose your activities from switched on science resource	To explore a variety of everyday materials and develop simple descriptions of the states of matter	<ul style="list-style-type: none"> - Making systematic and careful observations. - Recording findings using simple scientific language - Using results to draw simple conclusions, make predictions for new values, suggest improvement and raise further questions 	Carbon dioxide , expand , float, gas, evaporate, inflate , raisins, nucleation ; properties; compressed; diffused; fizz; bubbles; released; dissolved; pressure; decreases; liquid phase; lemonade.

			<ul style="list-style-type: none"> - Using straightforward scientific evidence to answer questions or to support findings 	
6	Do States of Matter Change? -planning an investigation-	<ul style="list-style-type: none"> - To be able to carry out a fair test - To be able to make careful observations - To be able to draw a conclusion based on their findings 	<ul style="list-style-type: none"> - Asking relevant questions and using different types of scientific enquiries to answer them. - Using results to draw simple conclusions, make predictions for new values, suggest improvement and raise further questions; 	Solid; liquid; gas; chemical reaction; citric acid; sodium bicarbonate; fizz; variables (independent/dependent) test; measure; observe; amount; temperature; time taken; material; container; prediction; equipment; pop.
7	Do States of Matter Change? -investigation-	<ul style="list-style-type: none"> - To be able to carry out a fair test - To be able to make careful observations - To be able to draw a conclusion based on their findings 	<ul style="list-style-type: none"> - Asking relevant questions and using different types of scientific enquiries to answer them. - Using results to draw simple conclusions, make predictions for new values, suggest improvement and raise further questions; 	Solid; liquid; gas; chemical reaction; citric acid; sodium bicarbonate; fizz; variables (independent/dependent); change; keep the same; test; measure; observe; amount; temperature; time taken; material; container; prediction; equipment; pop;
8	What is the Water Cycle?	To be able to identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	<ul style="list-style-type: none"> - Using straightforward scientific evidence to answer questions or to support findings. 	Water cycle; evaporate; evaporation; change; solid; liquid; gas; condensation; mist; dry; droplet; precipitation; hydrological cycle; H ₂ O; water;

				accumulation; lakes; rivers; oceans; boiled; vapour; heat up; steam; clouds; temperature; release; snow; collect; rain; body of water; sun; fresh water; ground run off; underground water; temperature; cools, rise, process, warmed, infiltration; sea; air; wind.
9	Cultural Capital Visit, visitor, scientist			
10	Rising Stars end of unit assessment Revision of the whole unit	Teacher to identify any gaps and plan recap		

Year 4- Living things and their Habitats

		<p>Pupils previously learnt:</p> <ul style="list-style-type: none"> - Yr 2: 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. - • Identify and name a variety of plants and animals in their habitats, including microhabitats. 	
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		<ul style="list-style-type: none"> • 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. 		
Lesson number	Lesson question	Pupils will learn		Key Vocabulary
		Substantive knowledge	Disciplinary knowledge	
1	<p>Rising stars assessment</p> <p>Front cover (KWL)</p> <p>Knowledge organiser</p> <p>What do you think you know?</p> <p>What you do not know? What would you like to know?</p>	Teacher assessment		
2	How Can Living Things Be Grouped?	<p>Understand that living things can be grouped in a variety of ways.</p> <p>Compare and contrast living things.</p>	Asking relevant questions and using different types of scientific enquiries to answer them.	<p>-living things, animal, vertebrate, invertebrate, mammal, bird, fish, reptile, amphibian, insect, mollusc,</p> <p>-legs, wings, antennae, feathers, shell, tail;</p>
3	<p>Do Habitats Change?</p> <p>How Is This Affecting Living Things?</p>	<p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>Identify how the habitat changes throughout the year.</p>	Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data	<p>-habitat, Arctic, Antarctica, rainforest, desert, savannah, pond, climate change, greenhouse effect;</p> <p>-thermometer;</p>

		Explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.	loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language and tables	
4	How Can Vertebrates Be Grouped?	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Put vertebrate animals into groups, for example: fish, amphibians, reptiles, birds, and mammals.	Ask relevant questions and use different types of scientific enquiries to answer them. Use straightforward scientific evidence to answer questions.	-vertebrate, invertebrate, mammal, bird, fish, reptile, amphibian, insect, mollusc,
5	Can You Classify and Sort These Living Creatures?	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Use and make simple guides or keys to explore and identify local plants and animals. Identify living creatures based on various criteria and features. Sort living things based on given criteria.		-living things, animal, vertebrate, invertebrate, mammal, bird, fish, reptile, amphibian, insect, mollusc, -legs, wings, antennae, feathers, shell, tail;
6	Cultural Capital			

7	Rising Stars end of unit assessment Revision of the whole unit	Teacher to identify any gaps and plan recap		
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Notes for this unit to refer back to

Put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects.

Plants can be grouped into categories such as flowering plants (including grasses) and non-flowering plants, such as ferns and mosses.

Pupils should explore examples of human impact (both positive and negative) on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation.