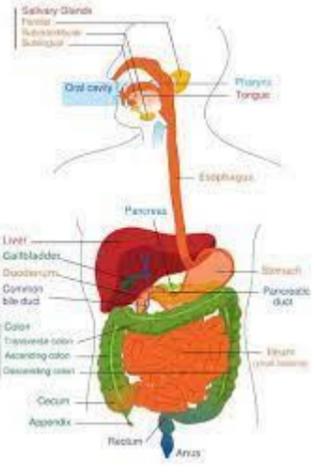
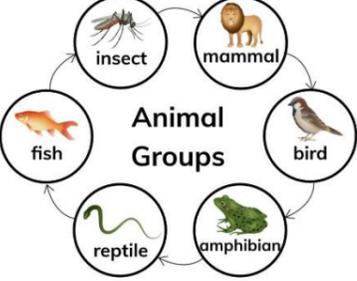


**Science Unit of Work
Year 4**

Unit	Prior learning (Retrieval)	Future learning	Common Misconceptions
<p>Animals including Humans</p> 	<ul style="list-style-type: none"> • Know that animals, including humans, need the right types and amount of nutrition. • Know that animals, including humans cannot make their own food. • Know that animals, including humans get their nutrition from what they eat. • Know that humans and some other animals (cats, dogs, fish and birds) have skeletons. • Know that humans and some other animals (cats, dogs, fish and birds) have muscles. • Know the functions of the skeleton and muscles (support, protection and movement) 	<ul style="list-style-type: none"> • Know the key stages of foetal development in humans. • Know the stages in growth and development of humans (baby, toddler, childhood, adolescence, adulthood, and old age) • Know the changes in each stage of development in humans. 	<ul style="list-style-type: none"> • Children often think that digestion is a simple process, and don't appreciate the stages involved. • They might think the digestive system only includes the mouth and stomach. • Food melts or dissolves inside us when we eat.
National Curriculum Subject Content:	<ul style="list-style-type: none"> • Describe the simple functions of the basic parts of the digestive system in humans. • Identify the different types of teeth in humans and their simple functions. • Construct and interpret a variety of food chains, identifying producers, predators and prey. 		
Knowledge:		Key Vocabulary	
Intended Knowledge Substantive	<ol style="list-style-type: none"> 1) Know the names of the different parts of the digestive system in humans. (mouth, tongue, teeth, oesophagus, stomach, and small and large intestine) 2) Know the functions of the different parts of the digestive system in humans. (mouth, tongue, teeth, oesophagus, stomach, and small and large intestine) 3) Know the names of the different teeth in humans. (Incisors, molars and canines) 4) Know the functions of the different teeth in humans. (Incisors, molars and canines) 5) Know the importance of good teeth hygiene 6) Know how to use a food chain and identify the producers, predators and prey 		molar, incisor, canines, food chain, prey, predator, producer, large intestine, digestive system, small intestine, oesophagus
Working Scientifically:	Enquiry	Working Scientifically Objectives	Working Scientifically Vocabulary
Disciplinary Knowledge:	<p>Construct food chains identifying the producers, predators and prey.</p> <p>Comparative Testing – Investigate what happens to teeth if they are not cared for properly. (Use eggs and leave in various liquids – cola, fruit juice, vinegar.</p>	<ul style="list-style-type: none"> • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Set up simple practical enquiries, comparative and fair tests. • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. 	Construct, food chain, variable, fair test,
Assessment Outcomes	<p align="center">Substantive</p> <ul style="list-style-type: none"> • I know the simple functions of the basic parts of the digestive system in humans • I know the different types of teeth in humans and their simple functions 		<p align="center">Disciplinary</p> <ul style="list-style-type: none"> • I can construct and interpret a variety of food chains, identifying producers, predators and prey. • I can report on findings from enquiries including oral and written explanations, displays or presentations of results and conclusions. • I can set up simple practical enquiries, comparative and fair tests. • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

Significant people/places	<ul style="list-style-type: none"><li data-bbox="512 89 2072 192">• Charles Elton (Developed the concept of food chains)
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**Science Unit of Work
Year 4**

Unit	Prior learning (Retrieval)	Future learning	Common Misconceptions
<p>Living things and their habitats</p> 	<ul style="list-style-type: none"> Know the differences between things that are living (plants & animals), dead, and things that have never been alive (rocks, paper, plastic). Know the name of a variety of plants and their habitats (cacti, seaweed, palm oil tree, bamboo, maple, oak) Know the name of a variety of animals and their habitats (arctic fox, walrus, scorpion, meerkat, jaguar, poison dart frog, turtle, octopus) including microhabitats (woodlice, worms) Know that most living things live in habitats (desert, rainforest, Ocean, microhabitats, Arctic) to which they are suited. Know how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. (desert, rainforest, Ocean, microhabitats, Arctic). Know 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. Woodland and Ocean. 	<ul style="list-style-type: none"> Know the names of groups of animals and the characteristics of each group. (reptile, mammal, fish, bird, amphibian) Know that living things can be grouped and know the characteristics related to each group. (plants, animals, fungi and micro-organisms) Know about groups of invertebrates (arachnids, molluscs, crustacean, insects) Know why living things belong to different classification groups. 	<ul style="list-style-type: none"> the death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain there is always plenty of food for wild animals. animals are only land-living creatures. animals and plants can adapt to their habitats, however they change. all changes to habitats are negative.
National Curriculum Subject Content:	<ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things. 		
Knowledge:	Intended Knowledge Substantive		Key Vocabulary
	<ol style="list-style-type: none"> Know groups of animals and the basic characteristics of these groups. (fish, amphibians, reptiles, birds, and mammals and invertebrates) Know how to use classification keys to help group, identify and name living things. Know some ways that humans impact positively on environments. (nature reserves, ecologically planned parks, or garden ponds) Know some ways that humans impact negatively on environments. (population and development, litter or deforestation) 		Amphibians, birds, classification keys, environment, human impact, mammals, vertebrate/invertebrate, reptiles
Working Scientifically:	Enquiry	Working Scientifically Objectives	Working Scientifically Vocabulary
Disciplinary Knowledge:	Use classification keys/guides to group, identify and name living things (plants and animals) in the local environment. (Using keys in the school grounds)	<ul style="list-style-type: none"> Make systematic and careful observations. Gather, record, classify and present data in a variety of ways to help in answering questions. Identify differences, similarities or changes related to simple scientific ideas and processes. 	Classify, group, classification key, difference, similarity,
Assessment Outcomes	<p style="text-align: center;">Substantive</p> <ul style="list-style-type: none"> I know that living things can be grouped in a variety of ways I know that environments can change and this can sometimes pose dangers to living things. 		<p style="text-align: center;">Disciplinary</p> <p>I can explore and use classification keys to help, group, identify and name a variety of living things in their local and wider environment.</p>
Significant people/places			

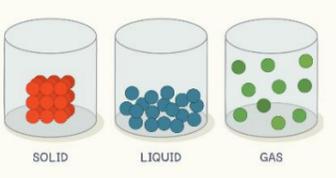
Science Unit of Work
Year 4

Unit	Prior learning (Retrieval)	Future learning	Common Misconceptions
Electricity 	<ul style="list-style-type: none"> • Knowledge of electricity in their daily life • Understand what electricity is • Identify devices that run of electricity 	<ul style="list-style-type: none"> • Use symbols for wire, bulb, cell, battery, motor, switch and buzzer in a simple circuit diagram. • Associate the brightness of a lamp/volume of a buzzer with the number and voltage of cells used. • Give reasons why a bulb may be brighter or dimmer. • Give reasons why a buzzer may be louder or quieter. • Compare how components function differently when switches are on or off. 	<ul style="list-style-type: none"> • Different coloured wires affect how the circuit works • Wire is made of plastic • Electricity can be seen • in an open/incomplete circuit, the current flows to the part where there is a gap then 'turns back' to the battery when it finds that it cannot flow through the gap. • If a circuit is broken, energy goes into the air.
National Curriculum Subject Content:	<ul style="list-style-type: none"> • identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery • recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • recognise some common conductors and insulators, and associate metals with being good conductors 		
Knowledge:		Key Vocabulary	
Intended Knowledge Substantive	<ol style="list-style-type: none"> 1) Know some common appliances that run off electricity 2) Know the symbols for cells, wires, bulbs, switches and buzzers in a circuit. 3) Know how to simple series circuit. 4) Know whether a lamp will light in a simple series circuit. 5) Know the purpose of a switch. 6) Recognise some common conductors and insulators. 		Battery, bulb, buzzer, cell, circuit diagram, complete circuit, components, conductor, insulator, mains, motor, symbol, switch, wire
Working Scientifically:	Enquiry	Working Scientifically Objectives	Working Scientifically Vocabulary
Disciplinary Knowledge:	Comparative test: Compare and investigate the purpose of a switch in a circuit. Set up a comparative experiment to explore whether a bulb will light in a simple circuit.	<ol style="list-style-type: none"> 1) Form accurate predictions. 2) Use my results to draw simple conclusions. 3) Set up a comparative test. 4) Ask relevant questions. 5) Present my findings 	Predict, conclude, compare, findings
Assessment Outcomes	<p align="center">Substantive</p> <ul style="list-style-type: none"> • I know the names of appliances that require electricity to function. • I know the names of the components in a series circuit (wires, bulbs, switches and buzzers) <ul style="list-style-type: none"> • I know how to draw a circuit diagram. • I know the function of a switch in a circuit. • I know the difference between a conductor and an insulator; giving examples of each. 		<p align="center">Disciplinary</p> I can plan a comparative test I can construct a series circuit. I can predict and test whether a lamp will light within a circuit. I can form accurate predictions I can use my results to draw simple conclusions I can ask relevant questions I can present my findings.
Significant people/places	Nikola Tesla - invented the Tesla coil, which was widely used for many years in radios, television sets, and other electronic equipment and discovered a type of current, or flow of electricity which could change direction – alternating current (AC).		

**Science Unit of Work
Year 4**

Unit	Prior learning (Retrieval)	Future learning	Common Misconceptions
Sound 	<ul style="list-style-type: none"> • Different sounds in music lessons • Senses (EYFS/Y1) 	<ul style="list-style-type: none"> • Read patterns of soundwaves • Identify different pitches and amplitudes from the soundwaves 	<ul style="list-style-type: none"> • Sound is only heard by the listener • Sound cannot travel through solids/liquids • High sounds are loud and low sounds are quiet • Sound only travels in one direction from the source.
National Curriculum Subject Content:	<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 pitch of a sound and features of the object that produced it • Find patterns between the volume of a sound and the strength of the vibrations that produced it • Recognise that sounds get fainter as the distance from the sound source increases. 		
Knowledge:			Key Vocabulary
Intended Knowledge Substantive	<ul style="list-style-type: none"> • Know how sound is made, associating some of them with vibrating • Know how sound travels from a source to our ears. • Know the correlation between pitch and the object producing a sound • Know what happens to a sound as it travels away from its source. 		Brass, pitch, tuned instrument, tune, volume, loud/quiet, muffle, insulation, travel, instrument, sound source, fainter, high/low,
Working Scientifically:	Enquiry	Working Scientifically Objectives	Working Scientifically Vocabulary
Disciplinary Knowledge:	<p>Pattern seeking Finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses</p> <p>Fair test Plan and conduct an investigation into which material best reduces the sounds we hear.</p>	<ul style="list-style-type: none"> • Ask relevant questions and using different types of scientific enquiries to answer them. • Set up simple practical enquiries- fair test • Make systematic and careful observations • Record findings using simple scientific language. • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Use straightforward scientific evidence to support findings. 	Findings, vibration,
Assessment Outcomes	Substantive		<p>Disciplinary</p> <ul style="list-style-type: none"> • I can use scientific enquiry to answer questions • I can record findings using simple scientific language • I can make careful observations. • I can use results to draw simple conclusions. • I can use straightforward scientific evidence to support findings.
Significant people/places	Alexander Graham Bell- Inventor of the telephone		

**Science Unit of Work
Year 4**

Unit	Prior learning (Retrieval)	Future learning	Common Misconceptions
States of matter 	<ul style="list-style-type: none"> Observed steam coming from a kettle Water turns to ice when placed in the freezer 	<ul style="list-style-type: none"> Compare and group materials based on their properties eg hardness, solubility, transparency, conductivity and response to magnets. Know and demonstrate how some materials can be separated eg filtering, sieving and evaporating. 	<ul style="list-style-type: none"> If a solid or liquid is heated the particles get bigger Solid is another word for hard Sugar or sand can't be solid because they are so small Liquid changes its volume when poured into different size containers.
National Curriculum Subject Content:	<ul style="list-style-type: none"> Compare and group materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature 		
Knowledge:	Key Vocabulary		
Intended Knowledge Substantive	<ol style="list-style-type: none"> Know and name materials that are solid, liquid or gas. Know how the particles look in solids, liquids and gasses Know how materials change state when they are heated. Know how materials change state when they are cooled Know the part played by evaporation and condensation in the water cycle 		Solid, liquid, gas, evaporate, condense, melt, freeze, water cycle
Working Scientifically:	Enquiry	Working Scientifically Objectives	Working Scientifically Vocabulary
Disciplinary Knowledge:	Classify and group: Different materials based on solid liquid gas Research: Use secondary sources to research the temperature at which materials change state. Observation over time: Evaporation of a puddle.	<ul style="list-style-type: none"> I can gather, record and present data in a table I can use results to draw simple conclusions I can report on findings from enquiries I can present my findings I can classify materials I can set up a comparative test I can ask relevant questions 	<ul style="list-style-type: none"> pattern seeking, fair test, predict, conclude, compare.
Assessment Outcomes	Substantive		Disciplinary
	<ul style="list-style-type: none"> I know and can name materials that are solid, liquid or gas. I know how the particles look in solids, liquids and gases. I know how materials change state when they are heated. I know how materials change when they are cooled. I know the part played by evaporation and condensation in the water cycle. 		<ul style="list-style-type: none"> I can make predictions and draw conclusions based on scientific ideas that I have learned. I can ask further questions based on my results.
Significant people/places			