Year 4 Progression in Science Grid					
Topic	**States of matter**	**Animals including Humans**	**Electricity**	**Sound**	**Living things and their habitats**
Prior knowledge	**From Y2** Describe different uses of materials according to their properties.	**From Y1** Name the main parts of the body, including those related to the 5 senses Identify which animals are fish, amphibians, reptiles, birds and mammals **From Y2** Describe the basic needs of humans and other animals (water, food, air). Describe the importance of exercise, eating the right amounts of different foods and hygiene for humans. **From Y3** Explain some functions of skeletons and muscles in animals Identify that animals need the right types and amount of nutrition	**From Y2** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses		From Y2 o Describe how some plants and animals are suited to different habitats. o Describe how animals obtain food by eating plants or other animals.
Prior knowledge for working scientifically	I know … • How to ask questions about the world around me • Questions can be answered in different ways • How to explain my predictions • What to observe during an investigation • How to perform a fair test • How to take measurements • How to record my findings using scientific language • How to present my findings • How to draw a simple conclusion				
Key vocabulary	Solid, solidify Iron, ice melt/melting freeze/freezing liquid, evaporate condense, gas, container changing state, heated, heat cool/cooled degrees Celsius, thermometer water cycle, evaporation condensation, temperature water, water vapour	Digestion, mouth, teeth Tongue, saliva, oesophagus Stomach, gastric juices, enzyme small intestine, bile, pancreatic juice large intestine, cut, slice, canines grip, pierce, premolars, molars crush, grind, dental, dentist disclosing tablets	appliances electricity electrical circuit cell wire bulb buzzer danger electrical safety sign insulators wood rubber plastic glass conductors metal water switch open closed	vibrate vibration vibrating air medium ear hear sound volume pitch faint fainter loud louder string percussion woodwind brass insulate	environment flowering/ non-flowering plants animals vertebrate environment dangers fish amphibians reptiles birds mammals invertebrate human impact nature reserves ecologically planned parks garden ponds population development litter deforestation snails slugs worms spiders
	Compare and group materials	Describe the simple functions of	Identify common appliances	Identify how sounds are made,	Recognise that living things can be

Statutory requirements	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.	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	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	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.	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.
Key Performance Indicators	Explain the main stages of the water cycle Be able to group materials together, according to whether they are solids, liquids or gases	Describe the simple functions of the basic parts of the digestive system in humans Describe the importance of and how to correctly brush their teeth	Construct a simple series electrical circuit, identifying and naming its basic parts Name some different ways to enable the children to be safe when using electricity	Recognise that vibrates from sounds travel through a medium to the ear	Use classification key to identify plants or animals
Essential knowledge	I know... • Solids have a fixed shape and fixed volume • Liquids have no fixed shape but a fixed volume. • Gases have no fixed shape or volume. • Some materials change state when they are heated or cooled. • When water is heated it evaporates. • The water cycle is the continuous journey of water from oceans and lakes to clouds, to rain and back into the ocean.	I know... • Incisors are used to bite food • Canines are used for tearing food • Molars are used for grinding food • How to test different drinks to see which causes most tooth decay • Digestion happens in the digestive system	I know... • Electricity can power things around us to make light, heat, sound or movement. • Electricity can be dangerous because it can cause fire, burns and electric shock. • What a wire, bulb, buzzer, switch and battery are and that they can form a simple circuit. • I need a battery, a bulb and two wires to light up a light bulb. • A switch must be closed for a circuit to work. • Electrical conductors allow electricity to pass through. • Electrical insulators don't allow electricity to pass through. • How to test which materials are electrical conductors and which are Electrical insulators.	I know... • Vibrations from sound travel through a medium to the ear • How to find patterns between the pitch of a sound and features of the object it produced • How to find patterns between the volume of a sound and the strength of the vibrations that produced it • A sound gets fainter as the distance from the sound source increases	I know... • A classification key is a set of questions about the characteristics of living things. • Animals can be classified as Invertebrates and vertebrates. • A food chain shows how plants and animals get their energy. • Earthquakes, storms, floods and wildfires are natural changes to the environment • Urbanisation, deforestation and pollution are human changes to the environment.
Investigations and Working Scientifically to be covered	Can we sort these substances into solids, liquids and gases? Which type of chocolate melts fastest?	What happens to teeth when they are exposed to different types of drink? Sorting and classifying animals in a food chain according to diet / teeth	Which materials conduct electricity best? What happens to the brightness of the bulb when we change the number of batteries in the circuit? Can you design a switch to turn a light on and off?	Pitch investigation adding water to investigate sound How do string telephones work?	How can we group these plants / animals? How do the trees in the playground change throughout the year?
KPIs for Working Scientifically	I know... • How to suggest relevant questions • How to give reasons for my predictions • How to set up and perform fair tests • How to make systematic and careful observations				

	• How to take measurements using standard units • How to create simple keys • How to choose appropriate ways to record and present information • How to identify similarities and differences How to draw a conclusion				
Assessment questions	Give examples of materials that are solids. Give examples of materials that are liquids. Give examples of materials that are gases. What happens to a solid that is heated? What happens to aliquid that is frozen? What happens to water that is heated? What is the water cycle?	What are the different types of teeth used for? How would you investigate which type of drink causes the most tooth decay? Where does digestion happen? Can you tell me one stage of the digestive system?	Can you give an example of what electricity can do? How can electricity be dangerous? Can you name basic components of a circuit? How would you make a light bulb light up in a circuit? What happens when a switch is closed in a circuit? What does an electrical conductor do? How would you test which materials are electrical conductors?	How do we hear? What is the pattern between the pitch of a sound and the features of the object that produced it? What is the pattern between the volume of a sound and the strength of the vibrations that produced it? What happens to a sound as the distance from the source increases?	What is a classification key? How can you classify different animals? What is a food chain? What are prey and predators? What are producers and consumers? Can you draw a food chain for a fox? What is a natural change to the environment? What changes are caused by humans?