Science Long Term Plan LKS2

	Autumn	Spring	Summer
Year A			
Topic	**Animals Including Humans**	Plants & Living Things	Electricity & Investigations
Working Scientifically Programme of study	During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: **The 5 Types of Enquiry**: sorting and classifying, comparative and fair tests, patterns seeking, researching using secondary sources, observing over time, Are all being used throughout the year? ● asking relevant questions and using different types of scientific enquiries to answer them ● setting up simple practical enquiries, comparative and fair tests ● making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ● gathering, recording, classifying and presenting data in a variety of ways to help in answering questions ● recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● identifying differences, similarities or changes related to simple scientific ideas and processes ● using straightforward scientific evidence to answer questions or to support their findings.		

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Vocabulary	**Animals including Humans** **1.** Nutrition Nutrients Diet Balanced diet Carbohydrate Protein Fruit and Vegetables Vitamins Fat/Sugar **2.** Skeleton Support Protection Movement Brain Heart Skull Ribs Spine Backbone Bones **More challenging vocab:** **Clavicle Femur Pelvis Humerus Cranium** Endoskeleton Exoskeleton Internal skeleton External skeleton **Challenge:** **Hydrostatic skeleton** Muscles Contract relax Tendons Bones Pull **Challenge:** **Cardiac/skeletal/smooth** **3.** Digestive system digestion Saliva Oesophagus Stomach Small intestine Large intestine Swallowing Chewing Anus Faeces **Challenge:** **absorb into blood stream rectum** **4.** Milk/baby teeth Incisors -cut/bite Canines - tear Premolars, Molars - grind/chew dental hygiene regular brushing plaque decay disclosing tablet diet cavities dentine pulp fluoride tooth decay gums nerves enamel crown root	**Plants** ***Yr 1/2 vocab also:*** Root Bulb Seed Trunk Branch Stem stalk Water Hot/cold Nutrients Vegetable Leaf / leaves Flower Blossom Petal Fruit Berry SeedlingShoot Fully grown Growth Healthy Wither Soil Earth Function Temperature Absorb Well-drained soil Fertiliser Nutrients Plant life cycle Transported Pollination Seed formation Seed dispersal **Living Things** Food chains Consumer Predator Prey Producers Classification keys Environment Fish Reptiles Amphibians Mammals Birds Vertebrates Invertebrates Human impact Plant groups (trees, grasses, flowering and non-flowering plants) branching keys	**Electricity** Electricity Electrical device / appliances Mains Plug Components Conductor Insulator Circuit symbol Cell Battery Wire Bulb Switch Buzzer Motor Connection Electrical / simple circuit Complete circuit Closed circuit Open circuit Positive Negative Crocodile clip

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Key Knowledge	Animals Incl Humans **Year 3:** 1. 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 2. identify that humans and some other animals have skeletons and muscles for support, protection and movement **Year 4:** 3. describe the simple functions of the basic parts of the digestive system in humans 4. identify the different types of teeth in humans and their simple functions 5. construct and interpret a variety of food chains, identifying producers,	**Plants** **Year 3:** 1. identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers 2. 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 (Use time lapse video to set up 30 min of recording a plant moving to an angle pose light (radish/cress seeds - STEM suggestion) 3. investigate the way in which water is transported within plants 4. explore the part that flowers play in the life cycle of flowering	**Electricity** **Year 4** 1. identify common appliances that run on electricity 2. construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 3. 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 4. recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit 5. recognise some common conductors and insulators, and associate metals with being good conductors

	predators and prey -- Cover in Spring term in Living Things topic	plants, including pollination, seed formation and seed dispersal **Living Things and their Habitats** **Year 4:** 1. recognise that living things can be grouped in a variety of ways 2. explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment 3. construct and interpret a variety of food chains, identifying producers, predators and prey -- From Autumn Animals incl Humans 4. recognise that environments can change and that this can sometimes pose dangers to living things	**(Last 3 weeks of term) Investigations** 1. The Science of shapes - topology, step through a card. Understand that shapes are not always the size they appear to be. 2. Build a 3D design to withstand the weight of a primary dictionary. Use midget gems and cocktail sticks.
Year B			
Topic	States of Matter / Rocks	Forces and Magnets	Light and Sound

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Working Scientifically Programme of study	During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ● asking relevant questions and using different types of scientific enquiries to answer them ● setting up simple practical enquiries, comparative and fair tests ● making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers ● gathering, recording, classifying and presenting data in a variety of ways to help in answering questions ● recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables ● reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions ● using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions ● identifying differences, similarities or changes related to simple scientific ideas and processes ● using straightforward scientific evidence to answer questions or to support their findings.		
Vocabulary	**States of Matter** Solids liquids gases Air Oxygen Powder Grain / granular Changes state Gaseous Particles Water vapour Water cycle	**Forces and Magnets** Force gravity Push / pull Direction of force Air resistance streamlined Float / sink Friction Force-meter Magnet Magnetic force Strength Attract Repel Poles North pole South pole Bar magnet Ring magnet Button magnet Horse-shoe magnet	**Light** Light Light source natural manmade Names of light sources, torch etc Dark / darkness Reflect Reflective Mirror sun safety UV light rays protection pupil retina sunglasses

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	Heating /cooling temperature Degrees Celsius Melt Freeze Boil Evaporation Condensation Energy transfer (precipitation, collection) **Rocks** Rock Stone Pebble Boulder Absorb water (permeable) Let water through Soil Fossil Grains Crystals Layers Texture Molten magma Name properties of ..such as hard, soft Name common rocks/soil types, marble, chalk, clay, sandy (sedimentary, igneous and metamorphic)	Name common magnetic and non-magnetic materials	sun hats Shadow Block / absorb Direction of light Transparent Opaque Translucent Bright Dim Light beam sunlight **Sound** Sound Sound source Noise Vibrate / vibration Travel Sound wave Pitch Volume Loud / quiet Tune High / low Echo Tuning fork Insulation Instrument Percussion String Brass Woodwind

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Key Knowledge	States of Matter	Forces and Magnets	Light
	• 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 **Rocks** • compare and group together different kinds of rocks on the	• compare how things move on different surfaces • notice that some forces need contact between 2 objects, but magnetic forces can act at a distance • https://www.goodhousekeeping.com/life/parenting/g32176446/science-experiments-for-kids/?slide=6 • • observe how magnets attract or repel each other and attract some materials and not others • 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 • describe magnets as having 2 poles	• recognise that they need light in order to see things and that dark is the absence of light • notice that light is reflected from surfaces • recognise that light from the sun can be dangerous and that there are ways to protect their eyes • recognise that shadows are formed when the light from a light source is blocked by an opaque object • find patterns in the way that the size of shadows change **Sound**

	basis of their appearance and simple physical properties ● describe in simple terms how fossils are formed when things that have lived are trapped within rock ● recognise that soils are made from rocks and organic matter	● predict whether 2 magnets will attract or repel each other, depending on which poles are facing	● 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

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