Year 4 Science coverage

	Discover		Explore	Belong	
	Animals Inc Humans	Living things and Habitats	States of Matter	Electricity	Sound
Knowledge	• 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 **KEY AREAS:** ➢ **Identify and name the parts of the human digestive system.** ➢ **Know the functions of the organs in the human digestive system.** ➢ **Identify and know the different types of human teeth.** ➢ **Know the functions of different human teeth.** ➢ **Use and construct food chains to identify producers, predators and prey.**	• 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 **KEY AREAS:** ➢ **Use classification keys to group, identify and name living things.** ➢ **Know how changes to an environment could endanger living things.** ➢ **Group materials based on their state of matter (solid, liquid, gas.** **Prior knowledge: children should be able to compare the differences between things that are living, dead, and things that have never been alive.** **Identify that most living things live in habitats to which they are suited and describe how.**	• 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 **KEY AREAS:** ➢ **Know the temperature at which materials change state.** ➢ **Know about and explore how some materials can change state.** ➢ **Know the part played by evaporation and condensation in the water cycle.**	• 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 **KEY AREAS:** ➢ **Identify and name appliances that require electricity to function.** ➢ **Construct a series circuit.** ➢ **Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers).** ➢ **Predict and test whether a lamp will light within a circuit.**	• 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 **KEY AREAS:** ➢ **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 the correlation between the volume of a sound and the strength of the vibrations that produced it.** ➢ **Know what happens to a sound as it**

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	Prior knowledge: children should be able to 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.**	**Identify and name a variety of plants and animals in their habitats, including microhabitats.** **Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain.**		➢ **Know the function of a switch.** ➢ **Know the difference between a conductor and an insulator; giving examples of each.**	**travels away from its source.**
Key Vocabulary	***Mouth, tongue, teeth, oesophagus, abdomen, body, bowel, digestion, digestive system, eat, excrete, food, intestines, liquids, nutrients, organ, processes, saliva, solids, stomach, urinate, teeth, canine, incisor, molar, tooth decay, plaque, disease, carnivores, herbivores,***	*Habitats, sort, classify, organism, prefer, adapted, predator, prey, conditions, suited, food source, characteristics, moisture, shelter, temperature, shade, key Fish, amphibians, reptiles, birds, mammals (vertebrates) snails, slugs, worms, insects (invertebrates) Plants: Flowering/non-flowering. Positive impact of humans; nature reserves, man-made habitats, ecological environments. Negative impacts; deforestation, pollution, litter, population*	*Solid, holds shape, liquid (pool not pile/ flows), fills container/shape, gas, escapes, spreads, melt, freeze, solidify, heating, cooling, temperature, evaporation, change state*	Electricity, plug, circuit, loop, plug socket, bulb, danger, bulb holders, dangerous, buzzer, battery, switch, connection, mains, wire, break, bright, brighter, less bright, appliances, conductors, insulators, precautions, safety,	*Sound, noise, produced, quiet, soft, loud, harsh, volume, loudness, pitch, high, low, vibration, vibrating, muffle, tuning, length, thickness, tension, travel, material, medium, solid, liquid, gas, instrument, object, insulation*
Linked Scientist	**Joan Beauchamp Procter**	Patrick Campbell	Dorothy Hodgins Katia Krafft	Shirley Ann Jackson	Galileo Galilei **Alexander Graham Bell**

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Thinking Scientifically	• comparing the teeth of carnivores and herbivores and suggesting reasons for differences • finding out what damages teeth and how to look after them. • draw and discuss ideas about the digestive system and compare with models or images.	• using and making simple guides or keys to explore and identify local plants and animals. • making a guide to living things • raising and answering questions based on observations of animals • research other animals.	• grouping and classifying a variety of different materials. • exploring the effect of temperature on substances such as chocolate, butter and cream. • Research temperature at which materials change state. • Observe and record evaporation over a period of time e.g. puddle watching • investigate the effect of temperature on washing drying or snowmen melting.	• observing patterns e.g. bulbs get brighter if more cells are added, metals tend to be conductors of electricity and some materials can and some cannot be used to connect across a gap in a circuit.	• finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. • Make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. • make and play their own instruments by using what they have found out about pitch and volume.

Year Group 4	Suggested Assessment Activity(ies)
Living things and their habitats • 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	Classification key/carroll & venn diagram Observations over time/noticing patterns
Animals inc Humans • 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	Make model/create disgestive system/ learn songs Writing-NC/chron report/ Narrative e.g 'Innerspace' Investigation 'egg shells' into teeth Create food chain (from pictures/animation etc) Predator and prey story
States of matter • 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	Group Investigations Make own model and observe over time Create 'water-cycle' in a bag (sandwich bag) and record/discuss different stages of cycle
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	*Create model that lights up electric circuit e.g to create a secret message reader box(linked to use of UV light) or 'Buzzer game'-relates to need for complete circuit *Make predictions then test/observe when changing variables in circuit-test and observe *Wiring up traffic lights –Linked to computing foci *Create algorithims for creating circuit/test and amend (debug) *Create circuits from given materials-linked to problem solving *Compare objects related to conductivity *Spotting electrical hazards in the home (Pictures/posters) linked to conductivity and insulation
Sound • 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	Algorithm of what happens Presentation Observe and describe e.g plucking guitar string, tap drum, tuning fork place in water after struck to visualise 'Under-water'recorder. Listen to changes in pitch depending on Make glass xylophone

• 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	Make stethoscope/tube/tin can telephones and observe changes in sounds at different distances-use to explore other child led lines of enquiry e.g does it work if we tie a knot in the string etc?

Ipad ideas for science

- **Use of Hologo (AR app)**
- **Google Expeditions (science AR)**
- **Keynote animation of scientific concept (water cycle, forces, magnets, circuit)**
- **Use of numbers app to show data/results**
- **Using time-lapse to record plants growing**
- **'Bug Hunt Bingo' on keynote**
- **Create a quiz on keynote**
- **Screen shot and narrate over the top (using screen record)**
- **Record selfie facts about a scientific concept**
- **Use of slo-mo function on camera (e.g. to show forces)**
- **Narrate over AR (using screen record)**
- **Using pages app to keep a journal of learning**
- **Use of Green screen (scientific report)**
- **Using Chatterpix – to share facts learned**
- **Photo journal**