

Year 4

Plan Bee

Medium Term Planning and Progression

Circuits and conductors	Eating and digestion	States of matter	Living in environments	Changing sound	Working Scientifically
<u>NC statements</u> 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 a lamp will light in a simple series circuit, based on whether 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 a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.	<u>NC statements</u> 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.	<u>NC statements</u> 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.	<u>NC statements</u> 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.	<u>NC statements</u> 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.	<u>NC statements</u> I know how to ask relevant scientific questions. I know how to use observations and knowledge to answer scientific questions. I know how to set up a simple enquiry to explore a scientific question. I know how to set up a test to compare two things. I know how to set up a fair test and explain why it is fair. I make careful and accurate observations, including the use of standard units. I know how to use equipment, including thermometers and data loggers to make measurements.

					I gather, record, classify and present data in different ways to answer scientific questions.
<u>Key Vocabulary</u>					I know how to use diagrams, keys, bar charts and tables; using scientific language.
bulbs, cells, batteries, clips, crocodile clips, wires, lamp, closed switch, open switch, circuit, components, bulb holder, appliances, mains, current, neutrons, protons, motor, electrons, nucleus, atom, dimmer, brighter, battery holder, buzzer, conductor	producers, prey, predators, herbivore, carnivore, omnivore, energy, Oesophagus, stomach, mouth, tongue, large intestine, small intestine, teeth, food, digestive system, canines, incisors, pre-molars, liver, kidney, pancreas, salivary gland, swallow, chew, rectum, colon, anus	material, substance, state, solid, liquid, gas, melt, condensation, freeze, heat, fridge, temperature, hot, cold, ice, evaporation, water, steam, change, degree Celsius (°C), steam, flow, atoms, particle, volume, matter, properties	organism, variation, classification, vertebrates, reptiles, bird, mammal, amphibian, fish, global, environment, wildlife, local, characteristic, key, habitat, endangered, extinct, conservation	vibration, air, hear, medium, echo, sound, pitch, faint, noise, ear, volume, fainter, amplitude, loud, quiet, travel, wave, particles, high, low, energy, distance, vibrate, soundproof, absorb, music, instruments	I know how to use findings to report in different ways, including oral and written explanations, presentation. I know how to draw conclusions and suggest improvements. I know how to make a predictions with a reason. I know how to identify differences, similarities and changes related to an enquiry.

<u>Topic</u>	<u>Knowledge - Children will learn</u>	<u>Children will be able to...</u>	<u>Prior Knowledge</u>	<u>Key Questions</u>
Circuits and	To recognise items that are	Sort electrical products	<u>Reception</u>	What does a circuit need for a

conductors	powered by electricity. To construct a simple series electrical circuit. To name some materials that are electrical insulators or electrical conductors and explain the difference. To identify and name the components in a circuit, including cells, wires, bulbs, switches and buzzers. To be able to draw a circuit diagram. To predict and test whether a lamp will light up in a circuit. To know the function of a switch in a circuit. To identify and name appliances that require electricity to function.	according to their power source. - Identify and correct problems with circuits. - Know and can use circuit symbols. - Recognise some common conductors and insulators, and associate metals with being good conductors. - Make a simple circuit and then add components. - Draw and label a working circuit. - Make predictions whether the circuit will work and if it won't, explain why.	Through class discussions children can talk about where electricity comes from. <u>Year 3</u> Children can recognise that shadows are formed when the light from a light source is blocked by an opaque object. Children can identify different types of light sources.	lamp to light? Will a circuit work if the switch is open? What materials make good insulators? What materials make good conductors? Do appliances need to be plugged in to work?
Eating and digestion	To identify and name the parts of a human digestive system. To know the functions of the organs	Identify and classify carnivores, herbivores and omnivores.	<u>Reception</u> Children can talk about why we need a balanced diet and why exercise is important.	Which teeth are best for chewing meat? Which teeth are best for chewing

	in the digestive system. To identify and know the different types of teeth in humans. To know the functions of different human teeth. To use food chains to identify producers, predators and prey. To construct food chains to identify producers, predators and prey.	- Construct and interpret a variety of food chains. - Identify the different types of teeth in humans and identify their functions. - Explore different ways of keeping teeth healthy. - Identify and label the parts of a human digestive system. - Explain the functions of the organs in the digestive system.	<u>Year 1</u> Children can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>Year 2</u> Children can describe the importance for humans to exercise, eat the right amounts of different types of food, and look after their basic hygiene. Children can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). <u>Year 3</u> Children can identify that human's get the nutrition they need from what they eat. Children can identify that a balanced diet is needed in order to stay healthy.	plants? Where would I find the producer in the food chain? Which organs does my food travel through once it has gone into my mouth? How do I know if an animal is a carnivore, herbivore or an omnivore?
States of matter	To group materials based on their state of matter, solid, liquid and gas. To know how some materials can change state.	- Compare and group materials together according to whether they are solids or liquids. - Identify and explore the	<u>Reception</u> Children can name different objects which float and sink. <u>Year 1</u>	How do I change an object from a solid to a liquid? How do I get the steam back into the kettle?

	To explore how materials change state. To measure the temperature which materials change shape. To understand the water cycle. To understand how evaporation and condensation work in the water cycle.	properties of gases: - Observe that materials change state when they are heated or cooled. - Research the temperature in degrees Celsius (°C) at which materials change state. - Understand the process of evaporation. - Understand the process of condensation. - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Children can identify a variety of common materials. Children can distinguish between an object and the material. Children can describe materials according to their properties. Children can describe why some materials are more suited to certain objects. <u>Year 2</u> Children can describe how the shapes of solid objects made from some materials can be changed.	How does the rain get into the clouds? Why do the clouds turn grey? Why are solids so difficult to break?
Living in environments	To group living things in different ways. To use classification keys to group, identify and name living things.	- Identify a variety of habitats and explore why organisms live in different habitats. - Group organisms according to their characteristics.	<u>Reception</u> Children can talk about the different environments which animals live in. <u>Year 1</u> Children can identify and compare the	Why can't a Lion live in Antarctica? A hermit crab and a snail both carry their homes with them, are they related?

	To create classification keys to group, identify and name living things, for others to use. To know how change to an environment could endanger living things.	- Classify animals into specific groups according to their characteristics. - Use a classification key to identify animals. - Identify and classify a variety of British plants. - Explore the human impact on habitats and environments.	features of birds and reptiles. Children can identify and sort carnivores, herbivores and omnivores <u>Year 2</u> Children can explain 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.	True or False: all plants are the same because they have green leaves. All animals that live in the sea must be fish. True or False? How can a plastic straw in your happy meal endanger the life of a sea turtle?
Changing sound	To know how sound is made. To know how sound travels from a source to our ears. To know how sounds are made associating some of them with	- Find out that sounds are made when objects and materials vibrate. - Investigate whether sounds can travel through different	<u>Reception:</u> Children can name facial features and parts of the body. <u>Year 1</u> Children can describe materials according to their properties.	Why can't I make a sound in space? Why are some sounds quieter than others?

	vibrating. To know the correlation between pitch and the object producing a sound. To know the correlation between the volume of a sound and the strength of the vibrations that produced it. To know what happens to a sound as it travels away from its source.	materials. • Explore the relationship between distance and volume. • Find out that some materials are effective in preventing vibrations from sound sources reaching the ear. • Investigate how sounds can be different pitches and volumes. • Find out how the length, thickness and tightness of a string affects its pitch. • Find out how sounds can be made by air vibrating and how to change the pitch of notes produced by vibrating air.	Children can explore the five senses, in particular the sense of sound <u>Year 2</u> Children can compare the sound change of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. They understand materials have particular uses.	I can't travel through a wall so how can sound do it? Why does a tuba make a low pitched noise and why does a piccolo make a high pitched noise? How far do I have to travel away from Mr Smith to not hear his voice?
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