

<p>THROUGHOUT THE YEAR</p>	<p>While learning to name and identify plants, the pupils should be drawing on a range of different clues. Many plants change in appearance over the year -losing leaves, buds developing into flowers, flowers developing into seeds or berries. At any particular time, only some of these parts will be present. To ensure correct identification, all parts should be considered. This should be referred to when teaching the relevant topic. Animals visible in a habitat will change depending on the weather on the day and the season. In order to build up a full picture of the animals in a habitat, this should be referred to when teaching the relevant topic.</p>				
<p>TOPIC</p>	<p>STATES OF MATTER</p>	<p>ELECTRICITY</p>	<p>SOUND</p>	<p>LIVING THINGS AND THEIR HABITATS (GROUPING & IDENTIFYING AND ENVIRONMENTAL CHANGES)</p>	<p>ANIMALS INCLUDING HUMANS (FOOD CHAINS, TEETH AND DIGESTION)</p>
<p>KEY SCIENTIST</p>	<p>Stephen Hawking (Physicist)</p>	<p>Saiful Islam (Electricity)</p>	<p>Alexander Graham Bell (Inventor & Engineer)</p>	<p>David Attenborough (Explorer & Conservationist)</p>	<p>Pierre Fauchard (Physician)</p>
<p>NATIONAL CURRICULUM OBJECTIVES (SUBSTANTIVE KNOWLEDGE)</p>	<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 	<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 	<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 	<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 	<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
<p>SCIENTIFIC ENQUIRY (DISCIPLINARY KNOWLEDGE)</p>	<ul style="list-style-type: none"> Suggest relevant questions and know that they could be answered in a variety of ways. Set up simple practical fair tests with some independence. With support, choose a variable to test and start to recognise what else must be kept the same. Make systematic and careful observations. Identify similarities/differences/ changes when talking about scientific processes. Record their findings using scientific language and present in note form, writing work, more independent diagrams, tables and charts. 	<ul style="list-style-type: none"> Suggest relevant questions and know that they could be answered in a variety of ways. Set up simple practical fair tests with some independence. With support, choose a variable to test and start to recognise what else must be kept the same. Make systematic and careful observations. Record their findings using scientific language and present in note form, writing work, more independent diagrams, tables and charts. 	<ul style="list-style-type: none"> Suggest relevant questions and know that they could be answered in a variety of ways. Set up simple practical fair tests with some independence. With support, choose a variable to test and start to recognise what else must be kept the same. Make systematic and careful observations. Identify similarities/differences/ changes when talking about scientific processes. Record their findings using scientific language and present in note form, writing work, more independent diagrams, tables and charts. 	<ul style="list-style-type: none"> Suggest relevant questions and know that they could be answered in a variety of ways. Make systematic and careful observations. Use and begin to create simple keys. Record their findings using scientific language and present in note form, writing work, more independent diagrams, tables and charts. 	<ul style="list-style-type: none"> Suggest relevant questions and know that they could be answered in a variety of ways. Make systematic and careful observations. Record their findings using scientific language and present in note form, writing work, more independent diagrams, tables and charts.
<p>SUGGESTED TASKS</p>	<ul style="list-style-type: none"> Be a solid, liquid and a gas. Draw the particles and label. Investigate a range of items and group them into categories based on criteria for each state of matter. Investigate: What is Jelly? Investigate how to change the state of Jelly. Model evaporation, creating evaporation experiments. Making salt crystals. Rain in a jar. 	<ul style="list-style-type: none"> Create simple circuits and label the components, exploring the effect of power and bulb. Explore the effect of too many batteries on a bulb. Label the battery as a cell and explain that it is the power source. Design and make circuits with switches and bulbs for a torch, including reflecting and adapting to best suit the purpose. DT: design and make torches to hold 	<ul style="list-style-type: none"> Investigate the way that sound travels practically. Draw how sound travels. Explore the change in pitch and volume between variations in objects- smallest to largest. Drum, violin, base, elastic bands. (link to music) Measure and log sound in decibels to get results and record in Venn diagrams and line graphs. Predict the decibel level before testing 	<ul style="list-style-type: none"> Compare various habitats: temperature, humidity, ground formation, shelter, food sources. Gather and classify animals from set habitats (beyond local already studied)- use a virtual journey. Follow keys to identify and name animals, link this to real life new discoveries ... answer is it a...? Identify and label keys with key characteristics, creating own classification 	<ul style="list-style-type: none"> Investigate the function and process of the digestive system using clips and practical investigation (tights!) Draw and label parts of the digestive system and sketch the parts. Sort animals by digestive systems: ie cow, chicken and human knowing that they are different based on type of feed and teeth Identify producers, predators and prey in food chains and compose own. Name teeth and identify jobs (use actions)

	<ul style="list-style-type: none"> Can you speed up evaporation? Measure the size of a puddle on a plate over time, record the findings in a line graph. Different groups can change the environment, outside, radiator, in the light, in the dark. Use 5ml dropper. 	<p>circuits.</p> <ul style="list-style-type: none"> Take torches apart and find the components- noting their role, note that some batteries hold more power or that batteries can be combined 	<p>based on previous findings.</p> <ul style="list-style-type: none"> Make earmuffs from a brief to block a certain level of noise. These can be made on simple headbands. Tests of insulation should be recorded on a table, a select made and a product designed. (look at ear defenders in school and why they are used in real life) 	<p>flow charts etc</p> <ul style="list-style-type: none"> Study one animal and how it has adapted over time. Look at environments that have changed over time, letting new species thrive (David Attenborough) Answer: could a frog survive in Antarctica, why? Etc How would Antarctica's environment need to change for frogs to survive? 	<p>for each job)</p> <ul style="list-style-type: none"> Make teeth out of clay. Sort animals by teeth type (top trumps or ranking by most deadly)
<p>STICKY KNOWLEDGE</p>	<ul style="list-style-type: none"> Materials can be divided into solids, liquids and gases. Some materials can change from one state to another and back again. Heating causes solids to melt into liquids and liquids evaporate into gases. Cooling causes gases to condense into liquids and liquids to freeze into solids. The temperature at which given substances change state are always the same. Condensation and evaporation occur within the water cycle. 	<ul style="list-style-type: none"> A source of electricity (mains of battery) is needed for electrical devices to work Electricity sources push electricity round a circuit. More batteries will push the electricity round the circuit faster. A complete circuit is needed for electricity to flow and devices to work. Some materials allow electricity to flow easily and these are called conductors. Materials that don't allow electricity to flow easily are called insulators. 	<ul style="list-style-type: none"> Sound is a type of energy created by vibrations; the louder the sound, the bigger the vibration. Sound travels from its source in all directions and we hear it when it travels to our ears. Sound travel can be blocked. Changing the shape, size and material of an object will change the sound it produces. Sound moves through all materials by making them vibrate; changing the way an object vibrates changes it's sound. Bigger vibrations produce louder sounds and smaller vibrations produce quieter sounds. Faster vibrations (higher frequencies) produce higher pitched sounds. 	<ul style="list-style-type: none"> Living things can be divided into groups based upon their characteristics. Environmental change can positively or negatively affect a habitat; change can be natural or caused by humans. Organisms are affected in different ways by environmental change. Conservationists work to help promote the protection of the environment. 	<ul style="list-style-type: none"> The teeth of animals (including humans) are designed to eat different foods depending on the diet of the animal. Food is broken down by the teeth and further in the stomach and intestines where nutrients go into the blood; the blood takes nutrients around the body. Nutrients produced by plants move to primary consumers then to secondary consumers through food chains; this flow of energy is shown on a food chain.
<p>PRIOR LEARNING</p> <p>←</p>	<p>Year 1 - Everyday materials (identifying and simple properties of materials)</p> <p>Year 2 - Use of materials. (Suitability of materials and changes of solids)</p> <p>Year 3 - Rocks</p>		<p>Year 3 - Light</p>	<p>Year 1 - Plants (Identify and describe basic structure)</p> <p>Year 2 - Living things and their habitats (Identifying habitats and needs) & Plants (How seeds and bulbs grow and mature and plants needs)</p> <p>Year 3 - Plants</p>	<p>Year 1 - Animals including humans (Identifying and classifying animals and body parts)</p> <p>Year 2 - Animals including humans (Offspring growing into adults and animals basic needs) Healthy Me (Exercise, diet and hygiene)</p> <p>Year 3 - Animals including humans (Skeletons and nutrition)</p>
<p>FUTURE LEARNING</p> <p>→</p>	<p>Year 5 - Properties and changes of materials</p>	<p>Year 6 - Electricity</p>	<p>Year 6 - Light</p>	<p>Year 5 - Living things and their habitats (Life Cycles and reproduction)</p> <p>Year 6 - Living things and their habitats (Classification)</p>	<p>Year 5 - Animals including humans (Changes in human development)</p> <p>Year 6 - Animals including humans (Circulatory system and how bodies function)</p>
<p>VOCABULARY</p>	<p>change state, condensation, condense, cooled, degrees Celsius, escape, evaporation, everyday materials, gases, heated, liquids, melt, pool, shape, solids, substance, temperature, water cycle</p>	<p>appliances, battery, brighter, bulb, buzzer, cell, components, conductor, device, electricity, insulator, lamp, loop, metals, motor, parts, series circuit, switch, wire</p>	<p>distance, ear, fainter, features, high, instruments, insulation, loud, low, pitch, quiet, sound, sound source, strength, travel, vibrating, volume</p>	<p>amphibians, birds, change, classification key, danger, deforestation, development, environment, fish, flowering, habitat, human impact, invertebrates, litter, living things, mammals, nature reserve, negative, non-flowering, population, positive, reptiles, vertebrate</p>	<p>canine, carnivore, consumers, damages, digestive system, food chain, functions, herbivore, humans, incisor, large intestine, molar, mouth, oesophagus, predators, premolar, prey, producers, small intestine, stomach, teeth, tongue</p>
<p>SCIENCE CAPITAL</p>	<ul style="list-style-type: none"> States of Matter applied to the world (real world uses) Who needs knowledge of materials in their jobs? How States of Matter impact on our lives. 	<ul style="list-style-type: none"> Electricity used in the home. Use of electricity in the wider world. Jobs that rely on the use of electricity. 	<ul style="list-style-type: none"> How is sound used in our world? Real world applications. Who relies on sound for their occupation? Effects of sound on our lives. 	<ul style="list-style-type: none"> Who might need knowledge of identifying and classifying animals in their jobs? Environmental changes - what can we do? 	<ul style="list-style-type: none"> Who uses knowledge of teeth and digestive system in their occupation? Who might need knowledge of food chains in their jobs. Impact of disrupted food chains in the local community.