


<div>  <div>Science Curriculum – Year 3 and 4 – Cycle B</div> </div>						
	Non- Negotiables					
	<p>W1: Ask relevant questions. W2: Set up simple, practical enquiries and comparative and fair tests. W3: Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers. W4: Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>W5: Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. W6: Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. W7: Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. W8: Identify differences, similarities or changes related to simple, scientific ideas and processes. W9: Use straightforward, scientific evidence to answer questions or to support their findings.</p>					
	Investigation, enquiry, what to change, what we used, what we did, what we found out Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion					
	Autumn		Spring		Summer	
	Why did the Saxons and the Scots invade?	Were the Vikings always vicious and victorious?	Why are Rainforests so important to us all?	What did people do before computers?	How do we keep healthy? Science is the key curricular aspect – links to PSHE cycle A Spr 1	Ou Habites Tu? Geography
	Materials and their properties C5: Compare and group materials together, according to whether they are solids, liquids or gases.	<u>Investigate Light and Seeing</u> P7: Recognise that they need light in order to see things and that dark is the absence of light. P8: Notice that light is reflected from surfaces. P9: Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. P10: Recognise that shadows are formed when the light from a light source is blocked by a solid object. P11: Find patterns in the way that the size of shadows change.	<u>Understand Animals and Humans - Understand Evolution and Inheritance Habitats and adaptation</u> B13: Identify how plants and animals, including humans, resemble their parents in many features. B15: Identify how animals and plants are suited to and adapt to their environment in different ways. B6: Construct and interpret a variety of food chains, identifying producers, predators and prey.	<u>Understand Electrical Circuits</u> P14: Identify common appliances that run on electricity. P15: Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. P16: 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. P17: Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. P18: Recognise some common conductors and insulators, and associate metals with being good conductors.	<u>Understand Animals and Humans</u> B5: Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat. B7: Identify that humans and some animals have skeletons and muscles for support, protection and movement. B8: Describe the simple functions of the basic parts of the digestive system in humans. B9: Identify the different types of teeth in humans and their simple functions.	<u>Investigate Living Things classification</u> B10: Recognise that living things can be grouped in a variety of ways. B11: Explore and use classification keys. B12: Recognise that environments can change and that this can sometimes pose dangers to specific habitats.
Resources	objects made of different materials in a bag. A good range of materials with different properties. Clipboards. Poems about Feelings, Blue paper towel and sellotape, water, a bowl, plastic beaker, 10 or more objects made of different materials, tray, and access to internet. Construction toys. Pictures of objects from catalogues and magazines, glue sticks. Range of plastic objects, Playdough (1 small ball for each child), 3 different floor surfaces (e.g. wood, carpet, vinyl or tile), metre stick. Information books about materials, access to internet. This will depend what the children choose to test but could include - various types of paper, timers, rulers, force-meter, weights, water, measuring cylinder or beaker. Information books about materials, access to internet. A3 or A4 paper to make mini books. Information books about materials, access to internet.	Feely bags, 5 objects to place inside them- for example, an orange, a shell, a pine cone, bubble wrap, pumice stone, a dice, an avocado or cotton wool, torches, reflective and non-reflective materials to test, mirrors, coloured card/paper for UV investigation, range of materials to test making shadows - cotton, cling film, net curtains, voile, upholstery fabric, blackout curtain lining, muslin, tracing paper.	Minibeasts (chose from woodlice/mealworms/snails or worms), a plastic tray that has been split into 4 equal-sized areas i.e. dry & light/dry & dark/damp & light/damp & dark (choice chamber) and a range of junk modelling equipment for the chn to use to construct their own choice chambers, investigation templates, animal/producer cards to construct food chains/webs, fossil samples	Batteries, bulbs/buzzers, wires, motors, examples of circuit diagrams, Variety of materials to test (e.g. a rubber, paperclips, pencil, teaspoon, coin, paper, teabag, pen, etc, Variety of materials to construct switches (e.g. pins, paper clips, butterfly clips, card, sticky tape, etc.)	Model of teeth, skeleton model, body, Eat Well Plate, model/fabric internal organs, Xrays (teeth, bones etc) bone samples (animals), Small pieces of card, red and white plasticine, I Know Why I Brush my Teeth by Kate Rowan. Cola, milk, water, orange juice, blackcurrant juice, vinegar. 6 hard-boiled eggs, 6 screw top jars. Materials to make posters. Access to internet.	Images of animals and their habitats, trowel, magnifying glasses, classification keys (UK animals), digital cameras, access to internet,
Vocabulary	Card, metal, bendy, sharp, clay, paper, flexible, shiny, concrete, plastic, hard, slimy, fabric, rock, liquid, smooth, fur, rubber, opaque, solid, feathers, wood, rigid, stretchy, glass, wool, rough, transparent, leather, water, runny, waterproof, sand, cork, soft, dull, recycle, purpose, material/fabric difference of meaning, Independent variable, dependent variable, fair,	light, source, dark, reflect, see, illuminate, mirror, light, smooth, shiny, rays, rough visible smooth, shiny, rays, rough, scatter, reverse, beam, sun, beneficial, dangerous, glare, bright, damage, UV light, UV rating, visible spectrum, pupil, retina, protect, direct, sunglasses, hat, brim, travel, straight, opaque, translucent, transparent, block, shadow.	MRS GREN, M ovement, R espiration, G rowth, R eproduction, E xcretion, N utrition, S ensitivity Habitat, organism, living, non-living, Food chain, energy chain, sun, producer, primary consumer, secondary consumer, predator, prey, carnivores, herbivores or omnivores.	Cells (batteries) wires, switches, circuit, series (parallel, buzzers, bulbs, Mains electricity insulators, conductors	Bones, muscles, skull, ribs, skeleton, support, protection Mouth, tongue, teeth, canine, incisor, molar, milk teeth, gums, oesophagus, stomach, small intestine, large intestine, herbivore, carnivore, omnivore, data, table, tally, carbohydrates, proteins, dairy, fats, sugars, vitamins, minerals, fibre, growth, repair, health, energy, decay, plaque, fair test, dependent variable, independent variable	Habitat, characteristic, group, sort, organism, criteria, vertebrates, invertebrates, mammals, amphibians, insects, reptiles, fish and birds, snails, slugs, worms, spiders, insects, environment, exo skeleton, adaptation

Lesson 1	<p>Year 3: to be able to compare and group materials according to their properties</p> <p>Year 4: to be able to compare and group materials according to their properties</p> <p>Activities: What do we already know? Feely bag. Build vocabulary bank of scientific words used to describe properties of materials. Teacher model use of sorting formats and children sort a range of materials – Venn (2/3 criteria) Carroll diagrams.</p> <p>Outcomes:</p> <p>Year 3: Children can identify and name a range of common materials. Children begin to talk about the properties of materials and why they were used</p> <p>Year 4: Children can identify and name a range of common materials. Children can talk about the properties of materials and why they were used, using appropriate vocabulary</p> <p>Children can give reasons why different materials are used for different purposes due to their properties</p>	<p>Year 3: To recognise that dark is the absence of light</p> <p>Year 4: To recognise that we need light in order to see things and that dark is the absence of light</p> <p>Activities: What is light? – sorting light sources and non-light sources. Explain light sources and some examples. Sorting pictures – light sources or not. Then discuss trickier ones i.e. the moon, foil, mirror. What is dark? Feely bag activity – it’s dark inside the bag – what could they contain? How can we get light into the bag?</p> <p>Outcomes:</p> <p>Year 3: Children can identify a range of light sources.</p> <p>Children can explain that dark is caused by the absence of light.</p> <p>Children can explain that I need light to see things.</p> <p>Year 4: Children can identify a range of light sources. Children can explain why objects are not light sources (moon, mirror etc). Children can explain that we need light to see things, and that dark is the absence of light.</p>	<p>Year 3: To understand the term habitat.</p> <p>Year 4: To know why organisms live in particular habitats.</p> <p>Activities:</p> <p>Sort living, once living and non-living artefacts.</p> <p>Children identify habitats in the school environment. Children consider why certain animals live in their habitats. Habitats must provide, e.g. food, water, shade, light, air, shelter and a breeding area. Emphasise it’s the needs of the organism to survive and not their wants. Use a real local example of a habitat that is going to be changed, that could affect the organisms living there. (draining a pond to build houses in the local area; cutting down trees to make way for a road; draining a marshy area to grow crops or graze animals) what are the potential implications for the organisms living there?</p> <p>Outcomes: Year 3: Children understand the term habitat.</p> <p>Children know the characteristics of a living organism. Children are able to sort living or once living organisms from those objects which have never lived.</p> <p>Year 4: Children can outline the characteristics of living things.</p> <p>Children can define the term habitat and list some examples.</p> <p>Children know that habitats can change, and that affects the organisms that live there.</p>	<p>Year 3: To investigate</p> <p>Year 4: To investigate circuits and their different components.</p> <p>Activities: Children will recap prior knowledge regarding circuits, then learn about their main components and explore ways in which simple circuits are constructed.</p> <p>Outcomes:</p> <p>Year 3: Children identify the purpose of different components in a circuit • Children know that a complete circuit is needed for a device to work</p> <p>Year 4: Children identify the purpose of different components in a circuit • Children know that a complete circuit is needed for a device to work • Children explain why some circuits will work and others will not depending on how the components have been put together</p>	<p>Year 3: To use survey data to answer questions</p> <p>Year 4: To use survey data to answer questions and look for trends and patterns in the data</p> <p>Activities: What is diet? What is nutrition? What do animals eat? Recap carnivores, herbivores or omnivores. Use data to <i>answer - How much sugar is in your client’s daily diet at the moment?</i> They should complete a table and draw a bar graph. <i>How many portions of fruit and vegetables a day is your client eating at the moment?</i> They should complete a table and draw a bar graph using support resources to help.</p> <p>Outcomes:</p> <p>Year 3: Children understand some of the vocabulary introduced and use in their talk. Children can review data from a food survey to answer a question</p> <p>Children can display data in tables and/or bar charts</p> <p>Year 4:</p> <p>Children understand the vocabulary introduced and use in their talk.</p> <p>Children can review data from a food survey to answer a question on the consumption of either sugar or 5 a day portions.</p> <p>Children can display data in tables and bar charts and use these to look for patterns and trends.</p>	<p>Year 3: To be able to identify a variety of habitats</p> <p>Year 4: To be able to identify a variety of habitats and explore why organisms live in different habitats.</p> <p>Activities: Children will identify habitats, and consider why their conditions are important for the animals living in them. They will then either describe habitats in their own words, or explore a local habitat.</p> <p>Outcomes:</p> <p>Year 3: Children know what a habitat is • Children identify a variety of habitats</p> <p>Year 4: Children know what a habitat is • Children identify a variety of habitats • Children know that animals live in habitats that are suited to their needs</p>
Lesson 2	<p>Year 3: to relate uses of everyday objects to the properties of the materials</p> <p>Year 4: to give examples of uses of everyday objects and why their properties make them suited for the purpose</p> <p>Activities: Why knowing about the properties of materials is important. Demonstrate making a bag out of a paper towel – is it fit for holding water? How is the beaker fit for purpose – discuss the properties of each material. Finding out about the meanings of vocabulary used to describe properties. Some items are made of different materials – why?</p> <p>Outcomes:</p> <p>Year 3: Children can explain the meanings of words describing material properties. Children begin to talk about why the properties of a material make it suitable for a job.</p> <p>Year 4: Children can explain the meanings of words describing material properties. Children can talk about why the properties of a material make it suitable for a job. Children can explain why properties make a material suitable for its job</p>	<p>Year 3: to notice that light is reflected from surfaces</p> <p>Year 4: to investigate which surfaces reflect light most effectively</p> <p>Activities: Discuss the characteristics of reflective surfaces. Explain how mirrors are made and the image reflected is reversed. Discussing and testing reflective materials to use the best materials to produce a reflective book bag/T-Shirt</p> <p>Outcomes:</p> <p>Year 3: Children can explain reflection.</p> <p>Children can identify reflective materials. Children can select the most reflective material for a purpose.</p> <p>Year 4: Children can explain reflection.</p> <p>Children can identify reflective materials. Children can select the most reflective material for a purpose.</p>	<p>Year 3: To explore the best habitat for a minibeast.</p> <p>Year 4: To conduct an investigation into minibeast habitats and draw conclusions about them.</p> <p>Activities: Children will be conducting an investigation into the appropriate habitat for a minibeast (woodlice, mealworms, snails or worms).</p> <p>Outcomes:</p> <p>Year 3: Children can begin design an investigation with support.</p> <p>Children can collect some evidence to answer a question.</p> <p>Children can draw conclusions to answer a question.</p> <p>Year 4:</p> <p>Children can design an investigation.</p> <p>Children can collect evidence to answer a question.</p> <p>Children can draw conclusions about the evidence to answer a question.</p>	<p>Year 3/4: To investigate the differences between mains and battery powered circuits.</p> <p>Activities: Children will learn about electrical safety, and why some appliances are mains powered rather than battery powered. They will then either identify a variety of electrical appliances, or create electrical safety posters.</p> <p>Outcomes:</p> <p>Year 3: • Children identify devices that are powered by mains electricity and devices that are powered by batteries • Children know that it is safe to carry out experiments with batteries but not with mains electricity</p> <p>Year 4: Children understand that working with electricity can be dangerous • Children identify devices that are powered by mains electricity and devices that are powered by batteries • Children know that it is safe to carry out experiments with batteries but not with mains electricity</p>	<p>Year 3: To understand the 5 food groups</p> <p>Year 4: To understand the 5 food groups and the proportions of each needed to create a healthy, balanced diet</p> <p>Activities: What do we need to eat to stay healthy? What are the food groups? Model Eat Well Plate. Investigate the amounts of each type pf food needed to be eaten to stay healthy.</p> <p>Outcomes:</p> <p>Year 3: Children know the nutritional properties of carbohydrates, fruit and vegetables, proteins and dairy foods as well as importance of limiting fat and sugar intake.</p> <p>Children can create a model of a balanced meal for a paper plate</p> <p>Year 4:</p> <p>Children can create a collage of an Eatwell Plate in groups by sorting foods into categories.</p> <p>Children can use knowledge of nutrition to answer client’s dietary questions and design and model a balanced meal.</p> <p>Children know water is also an important part of a balanced diet.</p>	<p>Year 3: To be able to group organisms</p> <p>Year 4: To be able to group organisms according to their characteristics.</p> <p>Activities: Children will organise animals into groups according to some of their characteristics. They may then either continue to sort animals according some of their own criteria, or examine some animals and group them based on observations.</p> <p>Outcomes:</p> <p>Year 3:• Children identify similarities and differences between organisms • Children group animals and explain the criteria that has been used to sort them • Children make observations to identify the characteristics of different organisms</p> <p>Year 4: • Children identify similarities and differences between similar organisms • Children group animals and explain the criteria that has been used to sort them • Children make careful observations to identify the characteristics of different organisms</p>

Lesson 3	<p>Year 3: to understand that different objects can be made with the same material</p> <p>Year 4: to understand that different objects can be made with the same material and some materials have many uses</p> <p>Activities: Plastic – discuss properties. What are the environmental issues regarding plastic? Explore a range of items – consider why a particular material has been used to make the item? Could use images from magazines and sort. Encourage use of vocabulary.</p> <p>Outcomes:</p> <p>Year 3: Children can explain why a material is suitable for a job. Children understand that some materials (like plastic) have many properties.</p> <p>Year 4: Children explain why a material is suitable for a job. Children understand that some materials (like plastic) have many properties. Children are able to explain why some materials have many uses.</p>	<p>Year 3: I can explain why mirrors are good reflectors. I can use mirrors to reflect light onto different objects. I can explain how mirrors work in different tasks.</p> <p>Year 4: use a mirror to reflect light and explain how mirrors works</p> <p>Activities: Recap features of reflective materials and the characteristics of reflective surfaces. Explain how mirrors are made and the image reflected is reversed. Mirror games - 1) children should use a mirror to write a short reversed message to their partner. They should then swap messages and try to decipher them with their mirrors, 2) children will attempt to walk along a wavy line while looking only in a mirror held overhead. They will find it tricky because of the apparent reversal of left and right when looking in the mirror</p> <p>Outcomes:</p> <p>Year 3: Children can explain why mirrors are good reflectors. Children can use mirrors to reflect light onto different objects. Children can explain how mirrors work in different tasks.</p> <p>Year 4: Children can explain why mirrors are good reflectors. Children can use a mirror to reflect light and explain how mirrors works</p>	<p>Year 3: To know what a rainforest habitat is like</p> <p>Year 4: To describe a rainforest habitat</p> <p>Activities: In this lesson, children will recap on what a habitat is, and discuss a variety of different habitats. They will then focus on the rainforest habitat in particular, finding out about its features and its ability to support life. Children will then record what they have learnt about this habitat, and draw their own sketch of a rainforest based on this. Alternatively, children will research different types of rainforest habitats around the world.</p> <p>Outcomes:</p> <p>Year 3: Children know what a habitat is • Children describe the main features of a rainforest habitat • Children compare the rainforest habitat to a different habitat</p> <p>Year 4: Children know what a habitat is • Children describe the main features of a rainforest habitat • Children compare and contrast the rainforest habitat to a different habitat</p>	<p>Year 3: To recognise some common conductors and insulators</p> <p>Year 4: To recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>Activities: Children will learn about insulators and conductors, then either investigate the conductivity of a range of materials, or create models to show how circuits work (or not, if they have insulators in them).</p> <p>Outcomes:</p> <p>Year 3: Children construct a circuit to test which materials allow electricity to pass through • Children explain that with some materials the bulb did not light because the circuit was not complete</p> <p>Year 4: Children construct a circuit to test which materials allow electricity to pass through • Children explain that with some materials the bulb did not light because the circuit was not complete • Children make generalisations about which materials are conductors and which are insulators</p>	<p>Year 3: To understand that humans have different types of teeth</p> <p>Year 4: To know that humans have different types of teeth and explain their functions</p> <p>Activities: Look at models of teeth or sets of teeth. – Give chn mirrors and allow time for looking at and feeling their own teeth. Ask How many teeth have they got? How many new ones (permanent teeth)? How many baby teeth (milk teeth)? Why do they lose their milk teeth? Can they count their teeth? Discuss milk teeth. Make models of their teeth using plasticine.</p> <p>Outcomes:</p> <p>Year 3: Children can name the different types of teeth.</p> <p>Year 4: Children can name the 3 different types of teeth. Children can explain what each type of tooth does</p>	<p>Year 3: To be able to classify animals into specific groups</p> <p>Year 4: To be able to classify animals into specific groups according to their characteristics.</p> <p>Activities:</p> <p>Outcomes: Children will use classification keys to identify and sort animals into groups. They may also study a range of sources to find out about a particular group of animals.</p> <p>Year 3:</p> <p>Year 4: Children know that animals can be categorised into broad groups according to their characteristics • Children use a classification key to help them identify which group an animal belongs to • Children identify a variety of animals that are vertebrates, invertebrates, mammals, amphibians, insects, reptiles, fish and birds</p>
Lesson 4	<p>Year 3: to understand how to carry out an investigation</p> <p>Year 4: to be able to draw conclusions from results of an investigation</p> <p>Activities: Children will plan a test with the enquiry question – What is the safest surface for a baby? In this session the children will drop a ball of soft playdough on 3 different surfaces (e.g. choose from wood, carpet, vinyl or tile) to find out which changes the shape of the dough most (plasticine does not work as it is too hard). Talk about what you will need and how to make it a fair test.</p> <p>Outcomes:</p> <p>Year 3: Children can work as a group to carry out an investigation Children will begin to make scientific conclusions relating to their observations.</p> <p>Year 4: Children can work as a group to carry out an investigation Children will be able to make scientific conclusions relating to their observations. Children can draw conclusions from my results.</p>	<p>Year 3: To recognise that light from the sun can be dangerous</p> <p>Year 4: To recognise that light from the sun can be dangerous and that there are ways to protect our eyes</p> <p>Activities: Children carry out an investigation on the effects of UV light on coloured card to highlight the dangers of UV light. Learn about the dangers of looking directly at the sun and use of sunglasses.</p> <p>Outcomes:</p> <p>Year 3: Children know that light from the sun can be dangerous and that there are ways we can protect our eyes</p> <p>Children can explain the benefits and dangers of the sun.</p> <p>Year 4: Children can explain about UV light and its dangers. Children can describe ways to protect our eyes from the sun.</p>	<p>Year 3/4: To know how animals are adapted to survive in the rainforest</p> <p>Activities: In this lesson, children will first recap on what all animals need in order to survive. They will learn that many animals have had to adapt to their environment in order to give them the best chance of survival. Children will then look at and discuss a range of different adaptations of specific rainforest animals. In their independent work, they will explain how specific adaptations help different animals. Alternatively, they can create their own creature with adaptations that would help it to survive in the rainforest</p> <p>Outcomes:</p> <p>Year 3: Children know what all animals need in order to survive • Children understand the term ‘adaptation’ • Children describe a feature of a specific animal that has helped it to survive</p> <p>Year 4: Children know what all animals need in order to survive • Children understand the term ‘adaptation’ • Children describe a feature of a specific animal that has helped it to survive in the rainforest habitat</p>	<p>Year 3: To investigate conducting and insulating materials.</p> <p>Year 4: To investigate the purposes of conducting and insulating materials.</p> <p>Activities: Children will consider reasons why conductors and insulators are used in different ways inside and outside electrical appliances.</p> <p>Outcomes:</p> <p>Year ¾: Children name some conductors and insulators • Children explain how appliances and devices use plastic as an insulator • Children know that insulators are used as a safety measure</p>	<p>Year 3/4: to understand why it is very important to keep our teeth healthy.</p> <p>Activities: In this session we are going to look at the importance of keeping our teeth healthy. Look at structure of a tooth. - Explain we are going to investigate – <u>Which liquid does the least damage to eggshells?</u> Model setting up the class experiment. Model aspect of report write up to focus on. Poster to illustrate dental health tips (homework?)</p> <p>Outcomes:–</p> <p>Year 3: Children can begin to explain how a test was fair. Children can say how to keep teeth healthy</p> <p>Year 4: Children can understand and explain how to make an investigation fair. Children can explain what to do to look after teeth.</p>	<p>Year 3: To be able to use a classification key</p> <p>Year 4: To be able to use a classification key to identify animals.</p> <p>Activities: Children will identify a range of animals from different environments using classification keys. Optionally, they may create and test their own classification keys.</p> <p>Outcomes:</p> <p>Year 3: Children use a classification key to identify unfamiliar animals • Children use observations to identify an animal’s characteristics</p> <p>Year 4: Children use a classification key to identify unfamiliar animals • Children use close observations to identify an animal’s characteristics • Children create their own classification keys to help identify an animal</p>
Lesson 5	<p>Year 3: to begin to be able to investigate my own questions</p> <p>Year 4: to be able to investigate my own questions</p>	<p>Year 3: To recognise that shadows are formed when the light from a light source is blocked by a solid object</p>	<p>Year 3/4: To know how plants are adapted to survive in the rainforest</p> <p>Year 4: To know how plants are adapted to survive in the rainforest and/or desert</p>	<p>Year 3: To be able to use knowledge of conductors and insulators to create switches</p>	<p>Year 3: to begin to understand that we can use the results of investigations to draw conclusions.</p>	<p>Year 3: To be able to identify variety of British plants.</p> <p>Year 4: To be able to identify and classify a variety of British plants.</p>

	<p>Activities: Children will plan and carry out an investigation about paper and its properties in small groups. Which is the strongest paper? (Test with force-meter or weights in bucket); Which paper makes the best cards? (Test which folds and stands up best); Which paper rips first when wet? Which paper makes a good hat/bag? (Difficult to test!); Which paper is best for drawing on? (Also difficult to test fairly); Which paper absorbs most water?; Which paper is most waterproof?; Which paper will make the best paper plane/parachute? Etc</p> <p>Outcomes:</p> <p>Year 3: Children can ask a question to investigate. Children can carry out an investigation with support. Children can begin to draw conclusions from results.</p> <p>Year 4: Children can ask a question to investigate. Children can carry out an investigation independently. Children can draw conclusions from results.</p>	<p>Year 4: To investigate which materials block the light to form shadows block the sun</p> <p>Activities: Investigate materials which would make good black out curtains to block out light from a baby’s bedroom</p> <p>Outcomes:</p> <p>Year 3: Children can explain how light travels.</p> <p>Children can sort different materials according to whether they are opaque, transparent or translucent.</p> <p>Year 4: Children can explain how light travels.</p> <p>Children can sort different materials according to whether they are opaque, transparent or translucent. Children can use these materials in an investigation into different shadows.</p>	<p>Activities: Children will first compare and contrast a selection of plants from both a woodland and a rainforest habitat. They will discuss what a plant needs in order to survive, and how a rainforest environment can impact on these needs. Children will focus on a particular plant and explore how it has successfully adapted to life in the rainforest. In their independent activities, children will use this information to explain how plants survive in environment. (Y4s could also investigate how cacti have adapted to survive in desert environments)</p> <p>Outcomes:</p> <p>Year 3: Children understand what plants need in order to grow • Children correctly label and explain what the different parts of a plant are for • Children explain how a rainforest plant, survives</p> <p>Year 4:: Children understand what plants need in order to grow • Children correctly label and explain what the different parts of a plant are for • Children explain how a rainforest plant and a desert plant, survives</p>	<p>Year 4: To be able to use knowledge of conductors and insulators to create switches to complete a circuit.</p> <p>Activities: Children will learn about, design and test a variety of switch designs.</p> <p>Outcomes:</p> <p>Year 3:• Children know that a switch can be used to make or break a circuit to turn a device on or off • Children use their knowledge of conductors to create a working switch</p> <p>Year 4: • Children know that a switch can be used to make or break a circuit to turn a device on or off • Children use their knowledge of conductors to create a working switch • Children explain how their switches work</p>	<p>Year 4: to understand that we can use the results of investigations to draw conclusions.</p> <p>Activities:– Chn will have been looking at the jars throughout the week (without removing the tops). Tap the eggshells with a metal spoon, encourage chn to describe: smells like... looks like... feels like... (for those brave enough, let them touch the eggs). Working in pairs and drawing on what they have learned, discuss why they think the effects of the liquids on the eggshells are different. Are there any surprises in the results? Can we make any links about the effect these liquids might have on tooth enamel?</p> <p>Outcomes:</p> <p>Year 3: Children can begin to explain the results of my investigation (draw conclusions). Children can review what I have learnt about teeth and how to look after them</p> <p>Year 4: Children can explain what they saw in the investigation Children can explain how the results of the investigation relates to teeth Children can explain how to look after their teeth to prevent tooth decay</p>	<p>Activities: Children will use Venn Diagrams and Carroll diagrams to sort plants according to some of their characteristics. Some children may choose their own ways of sorting and classifying plants, too.</p> <p>Outcomes:</p> <p>Year 3/4: Children group a variety of plants according to their characteristics • Children use a classification key to identify plants • Children use other sources to help them identify a variety of local plants</p>
Lesson 6	<p>Year 3: to begin to apply research skills to find out about a material</p> <p>Year 4: to apply research skills to find out about a material</p> <p>Activities: Children research a material – use mini-books to present findings and facts. New material: Ask chn to think about a new material that has been recommended for a particular purpose, e.g. to make a swimming costume, a chopping board or a drying up cloth. Ask chn to suggest the tests they would carry out on the new materials to compare it with a familiar material already used for the purpose, and how they would make the comparison fair Compare what they know now to what they knew at the beginning of the topic.</p> <p>Outcomes:</p> <p>Year 3: Children can find facts about materials using books and the internet. Children can review their learning</p> <p>Year 4: Children can find facts using the features of the text (index, contents, key words) about materials using books and the internet. Children can review their learning English link - to use features of a non-fiction text to locate information (index, contents) *to use features of an information page to locate information *to use skills of skimming and scanning to locate information</p>	<p>Year 3: To find patterns in the way that the size of shadows change</p> <p>Year 4: to investigate how shadows change size when you change the distance between the object and light source</p> <p>Activities: Children will be investigating what happens when you change the distance between the object and the light source</p> <p>Outcomes:</p> <p>Year 3: Children can explain how a shadow is formed. Children can plan and set up an investigation about the way shadows change size. Children can observe patterns in the way shadows change size.</p> <p>Year 4: Children can explain how a shadow is formed. Children can plan and set up an investigation about the way shadows change size. Children can observe patterns in the way shadows change size. Children can explain the patterns they find.</p>	<p>Year 3: To know that a food chain shows the process from producer to consumer</p> <p>Year 4: To read and construct food chains for organisms in a local habitat.</p> <p>Activities: Explore the feeding relationships between organisms found in different habitats. Children will be making a food chain,</p> <p>Outcomes:</p> <p>Year 3: Children can read and construct a food chain. Children can explain the terms: food chain, producer, consumer, predator and prey.</p> <p>Year 4: Children can read and construct a food chain. Children can explain the terms: food chain, producer, consumer, predator and prey. Children understand how organisms from different habitats are inter-related.</p>	<p>Year 3:</p> <p>Year 4: To be able to plan and carry out an experiment to see how to change the brightness of a bulb</p> <p>Activities: Children will suggest ways in which a bulb in a circuit could be made to glow brighter or dimmer, then plan experiments where they may explore their ideas.</p> <p>Outcomes:</p> <p>Year 3: • Can children make predictions about how to alter the brightness of a bulb? • Can children plan and carry out an experiment, changing one factor at a time? • Can children draw conclusions from their investigations?</p> <p>Year 4:</p>	<p>Year 3/4: To explore human and animal skeletons.</p> <p>Activities: Children will learn about bones in humans and other animals. They will then either label skeleton diagrams, or identify similarities between the skeletons of a variety of animals.</p> <p>Outcomes:</p> <p>Year 3: • Children know that animals with a skeleton are called vertebrates • Children identify different bones in the human skeleton</p> <p>Year 4: • Children know that animals with a skeleton are called vertebrates • Children identify different bones in the human skeleton • Children compare bones in animal and human skeletons</p>	<p>Year 3: To explore the human impact on habitats and environments.</p> <p>Year 4:</p> <p>Activities: Children will consider ways in which animals living in environments are affected by human behaviour, then suggest ways in which we can help protect and sustain habitats.</p> <p>Outcomes:</p> <p>Year 3: • Children know how one change in a habitat can affect an organism within that environment • Children list positive ways in which humans can impact the environment • Children list negative ways in which humans can impact the environment</p> <p>Year 4: • Children know how one change in a habitat can affect all the organisms within that environment • Children list positive ways in which humans can impact the environment • Children list negative ways in which humans can impact the environment</p>

					<p>Year 3: To find out about how the skeleton supports and protects</p> <p>Year 4: To find out about how the skeleton supports and protects the body and to investigate how invertebrates are supported.</p> <p>Activities: Children will learn about the functions of the skeleton in vertebrates, and how some invertebrates move and are protected in different ways. They will then research and describe various invertebrates</p> <p>Outcomes:</p> <p>Year 3:</p> <p>Year 4: Children know the difference between vertebrates and invertebrates</p> <ul style="list-style-type: none">• Children know that internal skeletons support and protect the body• Children know how the bodies of invertebrates support and protect them	
					<p>Year 3: To find out what muscles</p> <p>Year 4: To find out what muscles are and how skeletal muscles help us to move.</p> <p>Activities: Children will continue to learn about how the body moves, focussing on the ways muscles work. They will then study a variety of sources to find out more about muscles, noting their findings.</p> <p>Outcomes:</p> <p>Year 3: • Children know that muscles help us move • Children know that some animals have strong muscles for particular purposes</p> <p>Year 4: • Children know that muscles help us move • Children know that muscles work in pairs to move different parts of the body • Children know that some animals have strong muscles for particular purposes</p>	

Assessment Criteria

	Working Scientifically	Materials and their properties	Investigate Light and Seeing	Understand Animals and Humans - <u>Understand Evolution and Inheritance</u> <u>Habitats and adaptation</u>	Understand Electrical Circuits	Understand Animals and Humans	Investigate Living Things classification
Year 3	ask simple questions and using different types of scientific enquiries to answer them. • set up simple practical enquiries, comparative and fair tests • make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment including thermometers and data loggers • gather, record, classify and present data in a variety of ways to help in answering questions • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identify differences, similarities or changes related to simple scientific ideas and processes • use straight forward scientific evidence to answer questions or to support their findings	I can: • Compare and group materials together, according to whether they are solids, liquids or gases.	I can; • 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 a solid object. • find patterns in the way that the size of shadows change.	I can: • Identify how plants and animals, including humans, resemble their parents in many features. • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • Identify how animals and plants are suited to and adapt to their environment in different ways. • Construct and interpret a variety of food chains, identifying producers, predators and prey.	I can: • 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.	I can: • identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat. • identify that humans and some animals have skeletons and muscles for support, protection and movement. • 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.	I can; • recognise that living things can be grouped in a variety of ways. • Explore and use classification keys. • Recognise that environments can change and that this can sometimes pose dangers to specific habitats.
Year 4							