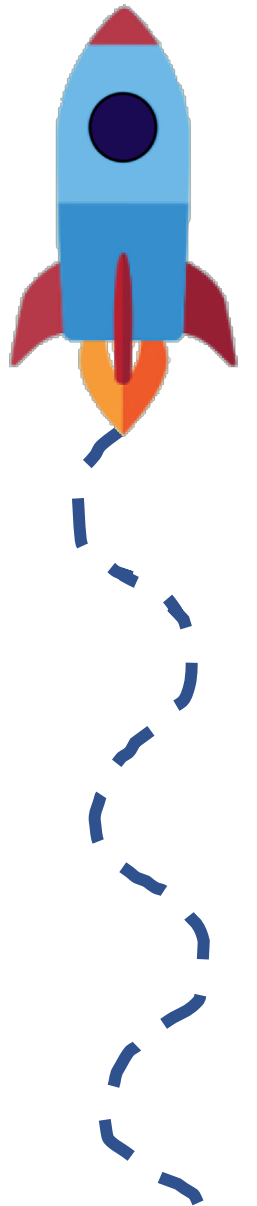


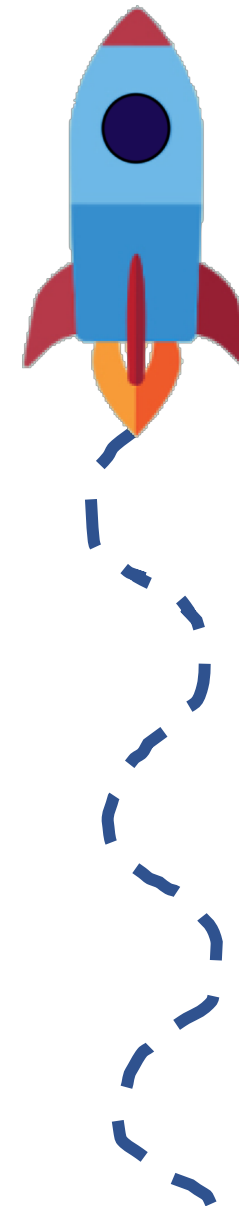
Year 4						
Block 1	Recommended Lesson Sequence	Scientific Enquiry Covered	Rocket Words Covered	Name of Task / Tasks	Resources Needed	Summative Quiz Questions
Electricity	1. Identify common electrical appliances, construct a simple electrical circuit, identify and name basic parts of a circuit	1. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	1. electric service, closed circuit, electrical appliance, bulb, battery	1. Create an experiment to find out what other fruits can be used instead of lemons.	Fruit Power Battery Adult supervision needed at all times during this experiment. Lemons (the bigger and juicier the better). Pennies. Zinc-galvanised nails - these should be blunt and not too long (they must not be able to touch the penny in the other side of the lemon). Sets of alligator clips. LED lights. Kitchen knife (responsible adult use). Bradawl (responsible adult use). Safety goggles. Aprons. Handouts	What is the name of the route that electricity flows through? Complete the statement: Electricity flows from the power source, through the {{switch}} when it is turned on, and through the wires, which {{conduct}} the electricity. Once the electricity reaches the bulb, it travels through the filament, which makes the bulb {{light}} up. True or false: Protons flow around an electrical circuit. When electrical energy reaches the filament in the bulb what is converted to? Which of these items use electricity and which don't?
	2. Identify when a lamp will light in a simple series circuit	2. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	2. series circuit, circuit diagram, switch, buzzer, electrical current	2. Disassemble a torch, draw its constituent parts, then create a circuit diagram of your torch.	Build a Series Circuit with a Bulb 6 volt batteries Switch junctions Bulb junctions Alligator clips Motors Buzzers, Torch Investigation Torches Pencils Paper, Handout	If one light goes out in a series circuit then all of the lights in that circuit will go out. Complete the statement: A series circuit is one continuous {{loop}}. The electricity flows directly from the {{power source}} to the load. There may be a switch included in the circuit in order to {{stop}} the flow of electricity when it is flicked. What might be some of the reasons for loads (such as light bulbs) not working in a series circuit? Select three. Put all of these components in the correct order so that the circuit would work. What is the purpose of a resistor?
	3. Understand the difference between a series and parallel circuit	3. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	3. parallel circuit, open circuit, loop, push switch, slide switch	3. Complete a room audit to draw of circuit diagram.	Electrical Appliances and Socket Room Audit, Series & Parallel Circuit Challenge 9V battery Tape Aluminium foil 2 identical torch bulbs, Handout	If one of the bulbs in a parallel circuit goes out then all of the bulbs will go out. Complete the statement: A parallel circuit has different {{components}} connected through different paths, or branches, before returning to a {{common path}} and, finally, back to the {{power source}} Can you sort these images depending on whether they run on a parallel circuit or a series circuit? True or false: Adding additional paths (branches) will make the lights already in the circuit dimmer. Select the statements that are true about the benefits of a parallel circuit over a series circuit. Two are correct, two are incorrect.
	4. Explain how to recognise some common conductors and insulators, give examples of good and poor conductors	4. Setting up simple practical enquiries, comparative and fair tests	4. conductor, insulator, resistance, electrical shock, short circuit	4. Which materials are conductors and which ones are insulators. Predict and then test.	Insulators and Conductors Challenge At least four pieces of coated electrical wire (preferably with alligator clips on each end of wires) D battery Small lightbulb Various household items to test - paperclips, toothpick, aluminium foil, banana, drink can, copper coin, used match, rubber band, cotton bud, galvanised screws, eraser, etc. Bulb holder (optional) D battery holder (optional) Batteries Card Bulb Clothes pegs, Handout	True or false: Most metals are good conductors. Complete the statement: Materials that do not let electricity pass through them are called {{insulators}}. Some examples of these are plastic, wood, glass and {{rubber}}. Materials that do conduct electricity are called {{conductors}}. Some examples of these are {{copper}}, silicon, zinc and sea water. Sort these items into ones that conduct electricity and ones that don't. In which of these scenarios is there a danger of electrocution? Which one of these statements is true?
	5. Know how an electrical circuit works	5. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	5. solar power, hydropower, wind turbine, battery cell, cable	5. Name a variety of electrical appliances, then produce a report which explains what it would be like not to have access to those appliances.	Identifying the Power Sources of Electrical Appliances Sticky notes Magazines Catalogues Paper Marker pens, Handout	Which of these ways make electricity? Which of these appliances are powered by batteries and which are powered from the national power grid? Which type of particle is electricity made by? Which of these ways of generating electricity do you think are sustainable/renewable? True or false: electricity can be stored in batteries or cells.
	6. To know how to work safely with electricity	6. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	6. specialist, training, precaution, repair, electrical socket	6. Create your own health and safety booklet which explains how to use electrical appliances correctly.	Safety Poster Challenge: paper, paints, computers, printer, handout, magazines, health and safety booklet, pens.	Which of the things listed below would make working with electricity more dangerous? Which of the things listed below are safe ways to use electricity? Have a look at the expert video on slide 20. Why do you think that holding the grass against the electric fence does not give either of them a big electric shock? Why would it be dangerous to swim in the sea during a thunder storm? Which of these things would make working with electricity safer and which of them would not make it any safer?



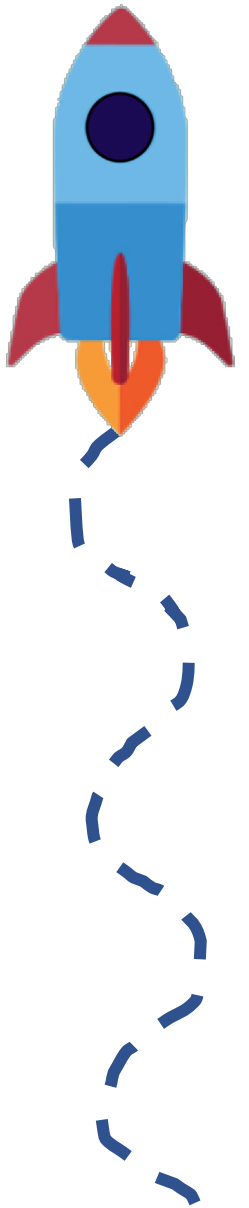
Block 2						
Sound	1. Explore how sound is caused when an object vibrates	1. Setting up simple practical enquiries, comparative and fair tests	1. eardrum, voice box, sound, sound waves, vibrating	1. Exploring sound vibration!	Chicken Cup Paper cups Paperclips or cocktail sticks Wool of various types and/or string of various types Kitchen towels Water Pencils Tape measures, Rice Drum Investigation Plastic cups Elastic bands Rice Cling film Tin containers, Handout	Sound is created by waves moving backwards and forwards. Put these things in the order that they happen when you hear something make a sound. True or false: You cannot hum while holding your nose. Why might someone not be able to hear something when it makes a sound? Can you sort these images into things that block sound and things don't.
	2. Know that sound travels through solids, liquids, and gases, understand that sound waves are much slower than light waves	2. Asking relevant questions and using different types of scientific enquiries to answer them.	2. echo, volume, speed of sound, telephone, drum	2. Create your own musical bottles then perform a song with your talk partner. Complete the tests on the handout.	How Sounds Travel Investigation A variety of surfaces. Talking Cups 2 paper cups A sharp pencil or sewing needle to help poke holes. String (kite string and fishing lines work well). Paperclips or cocktail sticks. Musical Bottles 6 plastic bottles per group Water Jug, Handout	True or false: Sound moves quicker through air than water. Can you sort these images into examples that prove that light waves move quicker than sound waves. Which of these places would you expect to hear echos? See if you can sort them into places that you would hear echos and places that you wouldn't. If you moved further away from a source that makes sound and light, what do you think would happen to the length of time between the moment that you saw the light and the moment that you heard the sound? Even though sound travels faster through liquids, why do you think that it is hard to hear clearly underwater?
	3. Understand the difference between high and low-pitched sounds	3. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	3. loud, quiet, larynx, vocal chords, high-pitched	3. Creating your sound water whistle.	Sound Water Whistle Straws Scissors Glasses of Water Sound sensor, Rubber Band Band Rubber bands Door/drawer/cupboard handles, Handout	Which of these things makes a high pitched sound and which of them make low pitched sound? Complete the statement: When you sing a high note, your vocal chords vibrate {{very quickly}}, hundreds of times a second. When you sing a {{low note}}, your vocal chords vibrate more slowly. This is called the {{pitch}} of your voice. If you place and hold a ruler half way on a table, pull it down and let it go, it will make a sound. If you move the ruler slightly further onto the table while it is still vibrating, what do you think will happen to the pitch of the sound? Your body makes sound by moving air across your larynx, vibrating your larynx and making sound. Which of these statements are true?
	4. Recognise sounds get fainter as the distance from the sound source increases; understand soundproofing	4. Setting up simple practical enquiries, comparative and fair tests	4. muffle, soundproof, decibel, summon, vuvuzela	4. Sound muffler challenge!	Sound Proofing Fair Test Boxes Sound! (phones with music playing, wind-up music boxes, ticking clocks, music players etc.). Cotton wool Bubble wrap Tissue paper Quilt batting Foil Felt Kitchen towels Woolen scarves Any other material you have that you think you would like to get the children to test, Handout	True or false: Sound, just like light, can move through a vacuum. Complete the statement: All materials are different in terms of letting sound pass through them. {{Hard}} materials such as metals allow sound to pass through them easily. However, softer materials such as foam or {{absorb}} the sound. This makes foam a good material to use to {{sound proof}} rooms. Why would you choose to have carpet in a room instead of a hard floor? Which room is the sound more like to echo? True or false: Dress the windows with plenty of fabric to soften the hard surface of the glass.
	5. To know about insulating your ears against sound	5. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	5. ear protection, transit, frequency, distorted, sensitivity	5. Classify materials to see which are best at insulating sound.	Testing Materials as Ear Defenders Materials for testing (paper, cotton wool, cleaning cloths, dusters, aluminium foil, sandpaper, fabric, wool, etc.). Data loggers to measure sound volume, e.g. Decibel 10th, Handout	Which of these materials do you think would best insulate against sound? Pick three. True or false: Bones and muscles transmit sound. True or false: Different materials transmit sounds better than others. Complete the statement: Unless you wrap your {{whole body}} in many thicknesses of insulating material, some sound will always get through, as bones and muscles {{transmit sound}}. Different materials transmit {{frequencies}} better than others. Which of the places do you think that it would be a good idea to wear hearing protection?
	6. Explore pleasant and unpleasant sounds	6. Identifying differences, similarities or changes related to simple scientific ideas and processes	6. tinnitus, squeal, soundscape, unpleasant, pleasant	6. Creating a sound story.	Mailk's noisy day: Handout	What are some of the reasons that noise barriers are NOT used near motorways? Pick three. True or false: Noise and sound can affect our health. Which of these sound sources do you think produce sounds that people would find pleasant, and which ones do you think make sound that people would find unpleasant? What is the name of the measurement of sound frequency? 'Hertz' (Hz) is used to measure sound {{frequency}}. Sounds between 2,000 and 5,000 Hz were most unpleasant. This is very high-pitched, and our ears are very sensitive to this.



Block 3						
States of Matter	1. Understand that water exists in three different states of matter	1. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	1. water cycle, liquid, solid, gas, steam	1. Explore a range of substances to determine if they are a solid or liquid.	Pick up Ice cubes Bowl Water Salt String. Solid or Liquid or Gas? Range of household items / food stuffs Handout	Which three states does water exist in? What happens when you boil water? Which of these pictures shows water in liquid form and which show it in a different form? At what temperature does water freeze and become ice? Sort these examples of water so that water at the highest temperature is at the top and water at the lowest temperature is at the bottom.
	2. Investigate the effect of temperature on drying washing	2. Setting up simple practical enquiries, comparative and fair tests	2. molecule, drain, rinse, centrifuge, radiator	2. Explore how quickly a range of fabrics dry.	Drying Investigation An assortment of fabric sample squares Water Sugar paper Data loggers, handout	Complete the statement: A washing machine is like a {{centrifuge}} and can wash away {{dirt}}, stains and sweat from our clothes. This takes less than an hour usually, but the downside is your clothes will be {{soaking wet}} once finished! Which of these things could you put wet clothes in/on in order to dry them more quickly? What is the scientific name for turning wet clothes into dry clothes? Can you put these events in order as your clothes go from wet to dry on a radiator. Which of these pictures show places where clothes would dry quickly and which pictures show places where clothes would not dry very quickly.
	3. Understand dissolving and diluting	3. Setting up simple practical enquiries, comparative and fair tests	3. solute, solvent, saturated solution, dissolve, mixture	3. Explore how to make the best bubble mixture by diluting substances.	Bubble Investigation Water Baby shampoo Pack of unflavoured gelatine Glycerine Shallow baking trays Bubble-blowing materials, such as drinking straws, funnels, wire hangers, etc. Dissolving Clear glass or large test tubes Water Sugar Measuring spoons Small cups	What happens when you put water and oil in a bottle and shake it? What happens when you put sugar and water into a bottle and shake it? True or false: We call things that dissolve in water solutes. Which of these things dissolve in water and which do not dissolve in water? Complete the statement: You cannot go on adding sugar to a water solution forever. A {{solvent}} (in this case water) can only dissolve a certain amount of {{solute}} (in this case sugar). When you cannot dissolve any more sugar in the water, we say that it has become a {{saturated solution}}.
	4. Understand evaporation and condensation	4. Setting up simple practical enquiries, comparative and fair tests	4. evaporation, condensation, groundwater, humidity, water vapour	4. Create your own evaporation investigation to describe and explain your findings to the class.	The Evaporation Challenge Jam jars Water, oil, vinegar, washing up liquid, etc. Permanent Markers Paper Towels Hot water Sealable plastic bags, Modelling the Water Cycle Bowl Hot water Shells Large Shell Vegetation (leaves, twigs, etc.) Ice, Handout	True or false: Only one third of the surface of the Earth is covered in water. Complete the statement: The water in rivers, lakes and oceans is {{liquid}}. But every day, some of this liquid turns to {{gas}}. Every day, as the Sun shines down, some of the water {{evaporates}}. This means it turns into water vapour (gas) and mixes with the air. Where does most of the water in the air come from? Which of these places do you think have air with a high humidity and which of these places do you think have air with a low humidity. What happens to water that does not evaporate?
	5. Understand the water cycle	5. Using straightforward scientific evidence to answer questions or to support their findings.	5. infiltration, surface run off, transpiration, sleet, hail	5. Water cycle collage.	Water Cycle Wall Display Wool Sugar Paper Paint, Handout	What is the journey called that a drop of water takes as it evaporates from the ocean, forms clouds, changes into rain, and then falls back to Earth? Which of these words describes water falling from clouds back to Earth? Complete the statement: Geographical water cycle facts show that Planet Earth is about 70% {{water}}, 97% of which is {{salt water}} and therefore not safe for humans to consume or use in farming to grow crops. Of the 3% that remains, 2% is actively stored in {{glaciers or ice caps}}. True or false: Water that falls back to Earth and infiltrates the ground is called dormant crystals. How much water on Earth takes each of these forms? Put the largest at the top and the smallest at the bottom.
	6. Explore separating simple mixtures of substances	6. Asking relevant questions and using different types of scientific enquiries to answer them	6. impurities, efficient, vinegar, substance, distillation	6. Separating Mixtures.	Separating Mixtures: Container of dried beans, Container of sand, Empty container for mixing dried beans and sand, Broom and dustpan for spills, Per Group: Objects good for sorting by size (e.g. buttons, beans, or blocks) Containers of dried beans and sand, Strainers, Containers of 'polluted water.' Water with Styrofoam, soil, leaves, and pebbles. Cheesecloth, Coffee filters, Funnels, Cotton, Spoons and other scoopers, Mesh screens with safe edges, Bins or boxes for catching filtered materials, Handout	Which of these definitions describes what a 'mixture' is? Which of these ways could be used to separate different substances in a mixture? Can you separate this mixture of images into the ones that show mixtures being separated and ones that don't? Which of these ways of separating mixtures are improving human health and the environment? Which of these words describe how mixtures might be separated?



Block 4						
Animals including humans	1. Understand salivary glands and taste buds	1. Setting up simple practical enquiries, comparative and fair tests	1. saliva, solvary gland, taste buds, digest, bitter	1. Using the blindfold can you identify the various type of foods presented using your senses?	Taste Tests Food colouring Blindfolds Orange juice Pineapple and orange juice Pineapple and passion fruit juice Plastic cups Paper plates Pens and pencils for drawing Potatoes Apples, Handout	True or false: Digestion begins before you even put the food in your mouth. Can you sort these things into the order that they happen when you eat an apple? Complete the statement: When you take a bite of the apple, your {{tongue}} tastes the sweetness and tells your brain, "Mmm, here's something good and sweet". Then your {{brain}} sends an order to the parts of the mouth called the {{salivary glands}}, "Get to work!" Which of these parts of the body are involved in digestion and which aren't? Which of these statements about a human's sense of taste are true?
	2. Know the different types of teeth	2. Setting up simple practical enquiries, comparative and fair tests	2. incisors, canines, premolars, molars, oesphagus	2. Design an experiment which explores how different substances stain the surface of an egg.	Egg Staining Experiment Cola Blackcurrant squash Tea bags Coffee granules 4 hardboiled eggs with shells on per group Toothbrushes Toothpaste Cups of water for rinsing Spoons to remove egg from cups Kitchen towels Stopwatches. Match the Teeth Books/internet research Pens/paper	Your front {{eight}} teeth cut, munch and crunch the food into smaller pieces. Your front eight teeth, four on the top and four on the bottom, are called your {{incisors}}. To incise means to {{cut}}. True or false: You only ever bight off pieces of food that are small enough to swallow whole. Why are your four pointy teeth at the front of your mouth called canines? Which of these are real names for human teeth? Which of these foods would do the most damage to your teeth? Which would do the least amount of damage?
	3. Understand the intestines	3. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	3. small intestine, large intestine, stomach, appendix, nutrient	3. Draw a life size drawing of the human digestive system tracking the pathway a piece of food takes.	Life Size Drawing of the Human Digestive System: Wallpaper roll or very large sheets of paper, Pens and pencils Gums to Bums, Mixing bowl labelled 'mouth', Baked beans, Biscuits, Bread (or a range of soft foods of your choice), Potato masher, 2 litre bottles of water labelled saliva, 2 litre bottles of blackcurrant juice to labelled 'enzymes', 2 litre bottles of cola labelled 'stomach acid', 2 litre bottles of water labelled 'sodium bicarbonate', 2 litre bottles of water labelled 'bile salts', Plastic bags, Sponges, Empty buckets labelled 'blood', 2 litre bottles of water labelled 'bile pigments', Mixing bowl labelled 'stomach', Mixing bowl labelled 'small intestines', Mixing bowl labelled 'large intestines', Bucket labelled 'toilet', Scissors	An intestines quiz: this might be longer than you think. True or false: You produce between one and three pints of saliva per day. The stomach is like a small cement mixer - as it stirs up the food, it adds {{liquids and chemicals}} to break your food down into digestible pieces. If you have eaten a hard chunk of an apple, your stomach breaks it down into a mushy substance. True or false: Your small intestine is eight meters long. If held up vertically then it would be taller than four fully grown men. Once your food leaves your stomach, it enters the small intestine. What happens here? Can you put all of these events in order to show the journey that food takes through the human body?
	4. Understand the food pyramid and why it is important	4. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	4. food pyramid, natural sugar, dairy product, meat, fruit and vegetables	4. Make and design your own pizza which includes food from all of the food groups.	Food Audit, Make a Pizza Recipe makes one pizza 375g (13 oz) plain flour 1 teaspoon of salt per 1 tablespoon caster sugar 7g (1/4oz) dried active baking yeast 2 tablespoons olive oil 225ml (8oz) warm water Pizza toppings of your choice Baking tray Rolling pin, Handout	In the food pyramid for humans, which is the biggest section - the section you should take most of your diet from? True or false: Eating too many foods that contain a lot of fat could damage your heart. These pictures show foods that are in two different food groups: carbohydrates and dairy. But can you tell which of these foods goes into each group? Can you put these food groups in the correct order for the food pyramid? Which one goes at the top? Work your way down from there. Which of these foods are a source of protein?
	5. Know about vitamins and minerals	5. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	5. vitamin A, vitamin B, vitamin C, vitamin D, mineral	5. Help people's health and wellbeing by giving them advice about the vitamins and minerals in food.	Iron for Breakfast: Small box of cereal, Ceramic bar magnet, Sealable bag, Water, Analysing Food Packaging, Food packets brought from home. Either complete, or just the cut-out ingredients lists (don't forget to label these lists so you know what food they are from). Handout	True or false: Vitamin A helps keep skin, tissue and eyes healthy. What does vitamin C do? There are two correct answers. Which of these things are a good source of vitamin D? Meat, green leafy vegetables, whole grain cereals, raisins, and dried beans are all good sources of what? Have you ever heard people say that eating carrots will help you see in the dark? Why do you think that people say this?
	6. Understand the food chain, know how natural cycles work	6. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	6. producer, consumer, decomposer, wheat, soda bread	6. Identify the longest foodchain possible!	Habitats and foodchains, Whiteboard and markers	The bright colours on a ladybird's back are to advertise it to predators and let them know that it is safe to eat. Which of these groups of living things does a pond's cycle of nature depend on? Select three. Which of these are the producers in a pond environment and which are the consumers? Can you put these creatures in the right order for a food chain? The energy will travel from the bottom to the top. Complete the statement: Plants use {{nutrients}} to produce their own {{food}}. This is why they are called {{producers}}. So, like a circle, this cycle of nature goes on and on.



Block 5						
	1. Know how scientists classify animals	1. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	1. classify, creature, animal, insect, bird	1. Classifying into groups.	Grouping and Classifying How to Classify Animals, Handouts	True or false: All insects have six legs. Which of these characteristics are possessed by ALL birds? Complete the statement: The commonality of all mammals is that they have {{hair}}, secrete {{milk}} to feed their babies and are vertebrates. They are also {{warm blooded}}. In warm-blooded animals, blood warms up or cools down depending on the time of day (being linked with the Sun's movement). Which of these creatures are mammals and which of them are birds?
	2. Understand the difference between vertebrate and invertebrate	2. Identifying differences, similarities or changes related to simple scientific ideas and processes	2. vertebrate, invertebrate, amphibian, exoskeleton, skeleton	2. Go on an animal finding expedition outside and classify and sort them into vertebrates and invertebrates.	Animal Hunt Magnifying Glasses Pencils Paper, Drawing Vertebrates and Invertebrates Pencils Paper, Handout	Which of these animals are vertebrates and which are invertebrates? True or false: Being a vertebrate means having a backbone. Can you put these vertebrates in size order, with the largest at the top and the smallest at the bottom. Some animals don't have a {{spine}}, or even a skeleton, but they have an {{exoskeleton}} which protects their bodies. All amphibians are {{vertebrates}}. What is the largest land snail (which is an invertebrate) in the world?
	3. Know about cold-blooded reptiles	3. Identifying differences, similarities or changes related to simple scientific ideas and processes	3. cold-blooded, gills, oxygen, scales, reptile	3. Model your own cold-blooded reptile using modelling clay, then investigate how long it takes for your clay model to change its body temperature based on its surrounding.	Clay Reptiles Modelling clay (not the self-hardening type), Building a Habitat for Amphibian Shoebox or something similar Card Straws Pebbles Paint, Fact Sheet Reference books and the internet Handout	Which of these creatures are cold-blooded and which are not? True or false: There are under 600 species of reptiles on the planet. Where do amphibians live? Complete the mission: The word {{amphibian}} means 'living in two places'. When they are young, amphibians have {{gills}} to take {{oxygen}} from the water. Then they grow up and most develop {{lungs}} that allow them to take oxygen from the air. Which of these characteristics do ALL reptiles have?
Living things and their habitats	4. Know about warm-blooded birds and animals	4. Identifying differences, similarities or changes related to simple scientific ideas and processes	4. robin, parrot, horse, whale, dolphin	4. Create an investigation which explores how you can change your body temperature. 4. Interview a mum with caring for a baby.	Changing the Body Temperature Thermometers Stopwatches Interview a Parent with a Baby A mother or father with their baby Handout	Which of these characteristics do ALL mammals have? Which of these creatures are mammals and which aren't? True or false: There are two species of squirrel. The red one and the grey one. Complete the statement: Whales and dolphins breathe air using {{lungs}}, not gills. They need to come to the surface to breathe air. Whales and dolphins communicate using {{high pitched sounds}} and are very {{intelligent}} creatures. Which of these creatures are rodents?
	5. Understand how fish are different from amphibians and reptiles	5. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	5. panda, goldfish, shark, lungs, trout	5. Using secondary sources of information research the rule breakers which break the sorting and classifying rules for fish, amphibians and reptiles.	The Rule Breakers, Library books, internet search engine, Fish Mobile, Large squares of yellow paper, Small squares of violet paper, Pieces of rectangular shaped paper, 4 circles, 2 black and 2 white per person, Glue sticks, Hole punches, Rope, Scissors, Pencils, Handout	True or false: A cold-blooded creature's body temperature goes up and down depending on whether it is hot or cold around them. Which of these classes have the largest number of species in their class? Which of these are amphibians and which are fish? As a warm blooded creature, your body temperature stays almost exactly the same almost all of the time. Do you know what temperature that is? Complete the statement: Fish are {{cold blooded}}, live in water, use gills and not lungs to breathe, and take {{oxygen}} from the water. Most fish are covered in {{scales}} and hatch from {{eggs}} which are laid by the female outside of her body.
	6. Understand habitats	6. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	6. pond dipping, sample, sediment, water lily, newt	6. Completing a habitat investigation.	Pond Dipping: Collecting pots, Pond dipping nets, Beakers, Plastic spoons, Plastic trays, Gloves, Wellies, Habitat Investigation, Quadrat or hula hoop, Create a Creature Factsheet, Research tools (books, internet), Paper, Pencil, Colouring pens. Handout	Which of these creatures live in or around a pond? This will be their natural habitat. Which of these plants would you expect to find growing near, in or around a pond? Creatures that live near each other and share a habitat often depend on each other for their own survival. Complete the statement: Have you ever walked along a pondside or lake? If the water is clear you may see {{fish}} swimming but you may also see many {{insects}} laying or hovering on the {{water surface}}. Water is a fascinating habitat to many different creatures. True or false: At night time, the creatures you see in a particular habitat could change because some creatures have adapted to live in their habitat at certain times of day.



Block 6						
Living things and their habitats	1. Know about the balance of nature	1. Asking relevant questions and using different types of scientific enquiries to answer them.	1. habitat, ecology, heron, bacteria, interdependent	1. Using secondary sources of information research the importance of crop rotation when it comes to maintaining the balance of nature in soil. 1. Create and then draw your own animal habitat.	Crop Rotation, Build a Bug Habitat Crisp tubes Masking tape Paint Ribbon Scissors Paintbrush Bark, leaves, sticks, straw, hay, cardboard, etc.	What is the study of how things interact and survive together in environments called? Complete the statement: Remember, when a fish dies and sinks to the bottom of the pond, it creates {{nutrients}} for the plants and bushes at the water's edge to grow again. How? When living things rely on one another for {{survival}} is we say they are {{interdependent}}. What might happen if, as a result of good weather, there is a very good year for the growth of seeds and other crops? Which of these creatures would you expect to predators and which ones do you think are most likely to be prey? True or false: Scientists sometimes call environments where creatures rely on each other for survival 'the circle of life.'
	2. Understand ecosystems and how they are affected by changes in the environment	2. Setting up simple practical enquiries, comparative and fair tests	2. woodland, community, surrounding, ecosystem, environment	2. Using seed propagating trays, conduct an investigation which explores the impact an enclosed lid might have on growing plants.	Propagation Investigation Seed propagating trays Soil Seeds Water, Climate Change in a Bottle Two clear plastic 2 litre bottles per team (cut one near the shoulder and one 4" from the bottom) Clingfilm or clear plastic bags to cover the 'greenhouses' String or rubber bands to hold the plastic in place Two thermometers per team Two 2" x 2" pieces of thin cardboard (to hold thermometer in place) Soil, ice cubes and water Plastic rulers Masking tape to tape thermometer to inside of bottle Utility knife or saw for cutting the plastic bottles (can be done by responsible adult in advance) Clip-on light source with at least a 100 watt bulb per team of children, Handout	Which of these definitions describe an ecosystem? Complete the statement: A wetland area is an example of an {{ecosystem}} - the river and pond, the stream flowing into it and the woodland nearby. All the creatures are {{interdependent}}. Not all of the creatures survive - but their {{species}} will. Which of these images show a diverse ecosystem and which images show an ecosystem which is not very diverse? Which of these things might suggest that an ecosystem is healthy? Select three. If you took one species out of an ecosystem, it would have no impact on the other creatures in the same ecosystem.
	3. Understand man's impact on the environment	3. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	3. carrion, wolf, elk, reintroduce, hunt	3. Write a report then present your findings. 3. Soil erosion investigation	Man-Made Disaster Exploration Library, Water Erosion Soil Foil paint tray Plastic cup with hole in Water 30cm ruler Blocks of wood, stones, plastic tubes, string, open weave fabric, etc. Handout	Look again at slides 6 to 12. What impact did reintroducing wolves to the Yellowstone National Park have? Which of these statements is true? Choose five. True or false: Humans never damage the environment or have a negative effect on wildlife. Have another look at the expert film on slide 15. What steps can humans take to try to have a positive impact on the environment? Choose three. Why had wolves disappeared from Yellowstone National Park 70 years before they were reintroduced in 1995? Complete the statement: The {{ecosystem}} of the Yellowstone National Park had been severely changed by the {{elk}} who had greatly increased in number because there were no {{wolves}} or predators to kill them.
	4. Know about air pollution; know how we can help to protect the environment	4. Setting up simple practical enquiries, comparative and fair tests	4. factory, pollute, exhaust fumes, emission, smog	4. Vaseline Air Pollution Investigation	Air Pollutant Catchers Index cards Petroleum jelly Sellotape and masking tape Cotton wool Scissors Hole punch, Handout	Which of these is the correct definition for the word 'pollute'? Which of these images show air pollution happening and which don't? True or false: The word 'smog' is a mix of the words 'smell' and 'dog'. During the 1950s, how many people died in London as result of smog? Complete the statement: Factories can also {{pollute}} the air with their {{smoke and emissions}}. There are {{no laws}} to regulate pollution from factories in some parts of the world.
	5. Understand water pollution	5. Asking relevant questions and using different types of scientific enquiries to answer them.	5. chemical, filter, pesticide, chlorine, pure, smog	5. Design your own experiment which will investigate the impact an ocean oil spill may have on a plant.	Pollution in Water, 4 large, clean jars, 4-5 large, wide-mouth jars, Masking tape, Cone-shaped paper coffee filters, Magnifying glass, Polluting the Water, Large, clear container, Cups, Red food colouring, Water	True or false: Some of your drinking water is taken from lakes and rivers. How is water filtered in cities before it is pumped through to houses for drinking water? Which of these images show water being polluted and which don't? Complete the statement: If water {{evaporates}} into polluted air, the water that comes down as rain, and flows into rivers and lakes, can also become {{polluted}} by the air. That's another reason why it's not safe to drink water straight from {{rivers and lakes}}. Which of these statements are true?
	6. Explore methods that can be used to conserve water	6. Identifying differences, similarities or changes related to simple scientific ideas and processes	6. cistern, debris, Great Pacific Garbage Patch, container, complacent	6. Complete a water audit exercise then work out how you can save water.	Water Audit, Paper, Whiteboards, Pencils, Pens, Handout	True or false: Even if you use less water in your house, you and/or your parents won't save any extra money. Complete the statement: It is unbelievable that {{oceans and lakes and streams}} that contain beautiful {{wildlife}} and are home to so many species, are being used as dumping grounds for our {{waste}}. An example of this is the Great Pacific Garbage Patch. Which of these methods could be used to conserve water? Which of these images show people conserving water and which show people wasting water?

