

BEING A SCIENTIST



Whole School Progression Document Science

Science

Development matters non-statutory guidance Three and Four Year Olds	Communication and Language	Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"	Marvellous me and my family tree <ul style="list-style-type: none"> Look at the past and present in relation to 'self'-from baby to now Investigate and use construction materials Ask why things happen and how they work Let's Celebrate <ul style="list-style-type: none"> Exploring light and dark in relation to seasons and celebrations e.g., Bonfire night, Christmas Baking- Christmas cookies/ biscuits/ cakes Toys/ Bears <ul style="list-style-type: none"> Exploring and describing materials Collecting and sorting toys into simple categories, big, small, hard, soft, shiny, dull, how they work. Tasting porridge with different toppings- Which was your favourite? Enchanted Garden <ul style="list-style-type: none"> What do plants need to grow? - learning about weather and suitable conditions for growth What do we need to be able grow? Learning about how to keep a healthy body Learning about the development of a seed- carry out growth experiments- Grow cress Children grow fruit, vegetables and seeds themselves. Watch for signs of growth Minibeasts <ul style="list-style-type: none"> Look for mini beasts in the local grounds and observe their behaviour Compare the different mini-beats and find ways to group them Talk about mini-beast habitats Look at lifecycles of a caterpillar. Around the World
	Personal, Social and Emotional Development	Make healthy choices about food, drink, activity and toothbrushing.	
	Understanding the World	Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Begin to make sense of their own life-story and family's history. Explore how things work. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice.	

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Development matters non-statutory guidance Reception	Communication and Language		<p>Learn new vocabulary. Ask questions to find out more and to check what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. Use new vocabulary in different contexts.</p>	<p>How to be a superhero</p> <ul style="list-style-type: none"> • Explore everyday clothes and name each garment. Discuss the types of materials that would be needed to ensure that the properties match the purpose. Begin to sort and describe different materials • Superhero senses: know the 5 senses and relevant body parts. • Know about ways to stay healthy • Sort and label healthy / unhealthy food • Key vocabulary: Senses: touch, taste, smell, sight, hearing. Eyes, nose, mouth, tongue, ears, skin • Seasonal changes: Key vocabulary: season, autumn, spring, summer, winter. Months of the year, changes, weather, hot, cold, warm, frost, ice, sun, wind, rain, heat <p>How many buns in the baker's shop?</p> <ul style="list-style-type: none"> • Seasonal changes / weather • Bake Bread. How does dough change when heated? - observe dough rising <p>Whatever Next!</p> <ul style="list-style-type: none"> • Seasonal changes / weather • Day and night, light and dark. Compare the different activities done during the day & at night • Read the Letter from the Aliens to the class asking children to find the magnetic items they dropped from their spaceship - sort magnetic and non-magnetic materials <p>What's inside the egg?</p> <ul style="list-style-type: none"> • Hatching chicks - life cycle of a hen • Compare themselves to chicks, similarities/differences. <ul style="list-style-type: none"> • Key vocabulary: egg, chick, hen, incubate, lay, hatch, wings, beak, feathers, yolk, brooder box, incubator, life cycle, <p>Dinosaurs</p> <ul style="list-style-type: none"> • Sort objects and images of objects into 3 categories, living, dead or never alive • Can we humans eat the same food as the dinosaurs? What is a healthy diet for us? Help create a menu of dinosaur theme snacks and smoothies. <p>What's that growing in the garden?</p>
	Personal, Social and Emotional Development		<p>Know and talk about the different factors that support their overall health and wellbeing:</p> <ul style="list-style-type: none"> - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine being a safe pedestrian 	
	Understanding the World		<p>Explore the natural world around them. Describe what they see, hear and feel while they are outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them.</p>	
Statutory Framework Early Learning Goals	Communication and Language	Listening, Attention and Understanding	<p>Make comments about what they have heard and ask questions to clarify their understanding.</p>	
	Personal, Social and Emotional Development	Managing Self	<p>Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.</p>	



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	Understand the World	The Natural World	<p>Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <p>Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</p> <p>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p>	<ul style="list-style-type: none">• Ask children to bring in own baby photos - guess who? Compare now and then. When I was a baby I now I.... How have I changed?<ul style="list-style-type: none">• Baby, toddler child, adult, grow, change, develop, now, then• Go on a plant and flower hunt in the local area. Use frames to compare areas of the garden - what did you find in your frame? Was it the same as someone else's? Use tablets for children to record what they have found.• Plant own sunflower seeds. Discuss what might happen to the seeds.<ul style="list-style-type: none">- Encourage children to go into nature area and explore other plants. (Remind children of health and safety - not touching berries/ nettles etc.)• Plant different kinds of beans, look at the life cycle of a bean• Name parts of a flowering plant• Look at plants already growing in the garden and compare• Sort different seeds<ul style="list-style-type: none">• Flower, leaf, stem, roots, water, soil, light, dark, beans seeds, bulbs, flowers, fruit, vegetables <p>Pretty Pirates and Powerful Princesses</p> <ul style="list-style-type: none">• Investigate floating and sinking objects. Ask children to make predictions as to whether object will float or sink. Does it matter which way round the object is? Can you make some plasticine float?• Design and make a boat that floats
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Year Group	National Curriculum	Sticky Knowledge	Vocabulary	Skills
Y1	<p>Seasonal Changes (Taught throughout the year)</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies. 	<ul style="list-style-type: none"> In the UK we have four seasons. Summer is the hottest, winter is the coldest. The shortest day is in the winter and the longest day is in the summer Seasons change throughout the year because of the way the earth travels around the sun Deciduous trees change throughout the year, with trees shedding their leaves in autumn. 	<p>Vocabulary</p> <p>Season, sun, sky, autumn, winter, spring, summer, day, week, month, year, weather, hot, warm, cool, cold, sunny, cloudy, snowy, rainy, dry, windy, still, light, dark, senses, temperature, day-length, table of results, record, tally, pictogram, block-chart, axis, coordinate.</p>	<p>Explaining Science</p> <ul style="list-style-type: none"> Remember some simple science facts within a topic Use & remember science words during an activity <p>Classification</p> <ul style="list-style-type: none"> Use simple table recording in words and numbers Use a frame to add to pictograms and block charts Add to block charts by counting up
	<p>Plants</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees. 	<ul style="list-style-type: none"> Name the parts of a plant including roots, stem, leaves, bud, flower, petals, Explain that leaves can be many different shapes and they take in sunlight and use water and food from the roots to make the plant grow. Name the parts of a tree and their function- the trunk is the main body of the tree and the trunk is covered with bark which protects it from damage Name a variety of common wild and garden plants Name a variety of common trees in the school grounds- silver birch/ ash/ hawthorn/ laurel. Explain the difference between deciduous and evergreen trees We can eat certain plants. 	<p>Vocabulary</p> <p>Plant, leaf, stem (trunk, branch), root, flower (petals), bud, fruit, seed, bulb, grow, evergreen, deciduous, spring, summer, autumn, winter, (hibernate), (chlorophyll - green substance in leaves that 'makes' food), sort, group, classify, feature (criteria), spider key.</p>	<p>Explaining Science</p> <ul style="list-style-type: none"> Remember some simple science facts within a topic Use & remember science words during an activity Add science word labels to diagrams <p>Classification</p> <ul style="list-style-type: none"> Sort by using yes/no statements Group by difference or similarity

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<p>Materials Pupils should be taught to:</p> <ul style="list-style-type: none"> Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties. 	<p>Name the uses of different materials-</p> <ul style="list-style-type: none"> Glass is used for windows (transparent), Wood is used for furniture Metal is used for planes, cars, trains-strength Plastic is used to form any shape such as toys Brick is used to build houses 	<p>Vocabulary Solid, bending, squashing, twisting, stretching, similarity, difference, property, hard/soft, shiny/dull, bendy/not bendy, stretchy/stiff, transparent/opaque, rough/smooth, waterproof/not waterproof, absorbent/not absorbent, metal, plastic, glass, brick, paper, fabric, foil, elastic, wood</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Remember some simple science facts Use & remember science words during an activity Add science word labels to diagrams with help <p>Classification</p> <ul style="list-style-type: none"> Sort using yes/no statements Group by difference or similarity Link properties of materials to an application
<p>Animals including humans Pupils should be taught to:</p> <ul style="list-style-type: none"> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals including fish, amphibians, reptiles, birds and mammals, including pets. 	<ul style="list-style-type: none"> Name the parts of the body: head, neck, shoulder, arm, elbow, hand, wrist, finger, leg, knee, foot, ankle, toe, face, ear, nose, eye, hair, mouth, teeth We have 5 senses A mammal has live babies, breathe air, warm blooded and have a backbone A carnivore is an animal that eats meat: lion, meerkat, polar bear A herbivore is an animal that eats plants: elephant, giraffe, zebra, Arctic hare An omnivore is an animal that eats both plants and animals: humans, baboon, Arctic fox Name the key differences between fish, birds, amphibians, reptiles, invertebrates and mammals. 	<p>Vocabulary Animal, vertebrate (backbone), invertebrate (exoskeleton), fish, amphibian, , reptile, bird, mammal, scales, fins, gills, lung, scales, fur, carnivore, herbivore, omnivore, habitat, pet, head, hair, ears, eyes, nose, mouth, tongue, teeth, neck, arm, elbow, shoulder, hands, fingers, leg, knee, ankle, feet, toes, sight, hearing, touch, taste, feeling, sort, group, classify, feature (criteria), spider key.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Remember some simple science facts Use & remember science words during an activity Add science word labels to diagrams <p>Classification</p> <ul style="list-style-type: none"> Sort by using yes/no statements Group by difference or similarity

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<p>Y2</p>	<p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> • Explore and compare the differences between things that are living, dead, and things that have never been alive • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • Identify and name a variety of plants and animals in their habitats, including micro-habitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. 	<ul style="list-style-type: none"> • Living things grow reproduce, produce waste (excrete) and need nutrition. • A habitat is a natural environment or home of a variety of plants and animals-it provides the animal with food, water and shelter. • Name some different habitats and some animals you would find there. • A microhabitat is a very small habitat, for example for woodlice under stones, logs or leaf litter. • Explain what a food chain is. • Name different sources of food. 	<p>Vocabulary Living, dead, non-living, movement, respiration, breathing, energy, sensitivity, sight, touch, hearing, smell, taste, growth, reproduction, offspring, excretion, waste, nutrition, habitat, microhabitat, conditions, adapted, adaptation, light, temperature, water, humidity, food chain, feeding, sort, group, classify, criteria, spider key.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> • Use & remember science words over a short time • Add science labels & information (with help) to diagrams <ul style="list-style-type: none"> • Use science to describe & recall what I have seen <p>Classification</p> <ul style="list-style-type: none"> • Group by difference, similarity or change • Use spider keys with obvious differences
	<p>Uses of everyday materials</p> <ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<ul style="list-style-type: none"> • Explain why some materials are suitable to certain jobs, eg plastic for rulers, rubber for an umbrella, wood for furniture and use appropriate vocabulary to give reasons eg waterproof, flexible, smooth, strong. • Explain how to make a test (on suitability of materials) fair. Eg keep everything the same apart from the material being tested. • Explain how certain object shapes can be changed, eg towel, pipe cleaner, drinks can by twisting, stretching or bending • Name three substances correctly as a solid, liquid or a gas. Eg wood, milk, oxygen and explain their differences. 	<p>Vocabulary Object, material, wood, metal, plastic, wool, cotton, paper, cork, rock, glass, fabric, ceramic, rope, concrete, brick, rubber, sponge, elastic, foil, ice, water, water vapour, property, rigid, bendy (flexible), hard, soft, waterproof, absorbent, warm, cold, rough, smooth, dull, shiny, opaque, transparent, application, solid, liquid, gas, squash, bend, twist, stretch, force, sort, group, classify, criteria, equipment, variable,</p>	<p>Skills Designing Experiments</p> <ul style="list-style-type: none"> • Use a range of equipment correctly • Follow short spoken & written instructions • Identify the cause variable correctly <p>Classification</p> <ul style="list-style-type: none"> • Use a spider key with obvious differences • Group using differences, similarities or changes

BEING A SCIENTIST



			variable label, cause, effect, investigation, range, method.	
	<p>Animals including humans</p> <ul style="list-style-type: none"> Notice that animals, including humans, have offspring which grow into adults Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> Humans have offspring that looks like them. Humans and animals need water food and air to survive. Explain what keeping healthy means caring for our body so we have enough energy to learn, play and grow. Food contains nutrients (link to living things) which we need for our body to stay active. What does 5 a day mean/look like? Sugary foods are bad for your health. Explain what happens to our heart rates when we exercise. 	<p>Vocabulary</p> <p>Baby, offspring, toddler, child, adolescent, teenager, adult, reproduction, growth, water, hydrated, food, nutrition, diet, balanced, air, oxygen, breathing, respiration, exercise, fitness, heart rate, pulse, hygiene, microbes (bacteria, viruses, fungi), number track, number line, division, table of results, cause, effect, pictogram, block, block chart, bar, bar chart, axes, coordinate.</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> Use & remember science words over a short time Add science labels & information (with help) to diagrams <ul style="list-style-type: none"> Use science to describe & recall what I have seen <p>Data, Tables & Graphs</p> <ul style="list-style-type: none"> Measure labelled divisions on a number line Use a simple table; record in words and numbers (inc. tally) Construct pictograms and block charts
Y2	<p>Plants</p> <ul style="list-style-type: none"> Observe and describe how seeds and bulbs grow into mature plants Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. 	<ul style="list-style-type: none"> Trees and shrubs take in water and carbon dioxide and give out oxygen- link to humans. Trees get their food and water from their roots in the ground. Leaves take in sunlight. Explain that plants need water, sunlight (warmth and nutrients) to grow. 	<p>Vocabulary</p> <p>Leaf, leaf vein, mid-rib, stem, root, flower, bud, shoot, tap root, side root, seed, bulb, germinate, grow, cotyledon, seedling, adult, water, light, temperature, survive, reproduction, experiment, variable, observe, measure, cause, effect, comparative test, fair test, method, data range, predict, pattern.</p>	<p>Skills</p> <p>Designing Experiments</p> <ul style="list-style-type: none"> Suggest what might happen (simple prediction) Follow short spoken & written instructions in order Identify the cause variable correctly <p>Making Conclusions</p> <ul style="list-style-type: none"> Describe features and patterns in data and charts Describe the changes that have happened Suggest a different way to do things with help

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Y3	<p>Rocks Links with history topic Stone Age</p> <ul style="list-style-type: none"> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter. 	<ul style="list-style-type: none"> Rocks have different attributes Rocks have been used by humans for millions of years, to make early tools and weapons When magma cools and solidifies it forms igneous rock. Examples are granite and pumice. Explain that sediment deposited over time, often as layers at the bottom of lakes and oceans, forms sedimentary rocks. Extreme pressure and heat over time forms metamorphic rocks. Examples are marble and slate. Recognise that fossils show creatures from millions of years ago Soil develops from rocks and organic matter. 	<p>Vocabulary Rocks (e.g. sandstone, limestone, chalk, shale, coal, conglomerate, granite, slate, marble, basalt, obsidian, pumice, etc), texture, crystals, minerals, sedimentary, layers / bands, metamorphic, heat, pressure, igneous, magma, larva, fossil (body, trace, cast, mould), petrification, soil, clay, silt, sand, organic matter, key, spider key, criteria, classify (classification), sort, group, material, property, application.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Remember science words used before Begin to use science models to describe Add science labels & information to diagrams <p>Classification</p> <ul style="list-style-type: none"> Use a large spider key with obvious differences Create groups for sorting (create criteria) Combine properties of materials required for an application.
	<p>Animals including humans</p> <ul style="list-style-type: none"> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat 	<ul style="list-style-type: none"> Explain how nutrients, water and oxygen are transported within animals and humans Recognise that different species have different nutritional requirements, e.g., human, cat, dog, Explain the importance of a balanced diet. Be able to say some of the foods that will fit into each food group, e.g., pasta, rice, bread, vegetables and fruit, milk, cheese, meats, fish, crisps, chocolate etc. Become familiar with the 'eat well' plate and nutrition pyramid. 	<p>Nutrition, photosynthesis, energy, transfer, diet, carbohydrate (sugar), protein, fat, vitamins, minerals, fibre, balanced, unbalanced, obesity, starvation, skeleton, bones (various, humerus, ulna, radius), joint (hinge), vertebrate, invertebrate, muscles (triceps, biceps), tendon, antagonistic, pull force, push force, number line, division, table of results, cause, effect, pictogram, block, block chart, bar, bar chart, axes, coordinate.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Remember science words used before Begin to use science models to describe Add labels & information to diagrams <p>Data, Tables & Graphs</p> <ul style="list-style-type: none"> Measure unlabelled divisions on a number line Use a frame to construct a simple table of results Use a frame to construct a bar chart

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	<p>Animals including humans</p> <ul style="list-style-type: none"> Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 	<ul style="list-style-type: none"> Explain the purpose of the skeletal system in the body Explain how the skeleton is connected through joints, types of joint and begin to understand their movement. Explain the purpose of muscles and be able to identify some more familiar muscle by name. Explain how muscles are connected to our bones for movement Muscles work in pairs and begin to describe how they help the body to move. There are different types of skeletons, e.g., endo, exo and hydrostatic 	<p>Vocabulary</p> <p>Circulation, blood, heart, vertebrate, invertebrate, skeleton (simple examples of bones: pelvis, rib cage, spine), support, protection, movement, muscle, joint, cartilage, tendon, ball and socket joint, hinge joint, bicep, triceps, contract, endo, exo and hydrostatic skeleton.</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> Remember science words used before Begin to use science models to describe Add labels & information to diagrams <p>Data, Tables & Graphs</p> <ul style="list-style-type: none"> Measure unlabelled divisions on a number line Use a frame to construct a simple table of results Use a frame to construct a bar chart
	<p>Plants</p> <ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, water, nutrients from the soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<ul style="list-style-type: none"> Name the different parts of a flowering plant and their function in relation to keeping the plant alive. Explain the conditions required for successful plant growth and begin to explain the effects when needs are not met, e.g., water, light, air. Explain how water is transferred around a plant. Identify different methods of seed dispersal Use diagrams and explanations to describe the life cycle of a flowering plant 	<p>Vocabulary</p> <p>Life cycle, leaf, photosynthesis, mid-rib, leaf-veins, petiole, stem, xylem vessels, flower, bud, petal, sepal, anther, filament, stigma, pollen, style, ovary, ovule, shoot, root, tap root, lateral root, root hairs, seed, seed coat (testa), bulb, grow, radicle, plumule, cotyledon, seedling, adult, water, light, temperature, survive, reproduction, absorb (absorbed), transported, healthy, nutrients, carbon dioxide, oxygen, germinate (germination), pollen, pollination, fertilise (fertilisation), dispersal, variable, cause, effect, prediction, pattern, comparative test, fair test,</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> Remember science words used before Begin to use science models to describe Add science labels & information to diagrams <p>Designing Experiments</p> <ul style="list-style-type: none"> Predict cause & effect (science prediction) Identify cause & effect in an investigation Suggest a suitable data range for the cause variable

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		method, relationship, trend, data range, data interval.	
<p>Light</p> <ul style="list-style-type: none"> 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 an opaque object Find patterns in the way that the size of shadows change. 	<ul style="list-style-type: none"> Darkness is the absence of light. Light is needed to be able to see and reflects off surfaces. Explain the difference between natural and man-made light sources and be able to give examples, e.g., torch, sun, stars, lights, fires Shadows are formed when the path of light is blocked by an opaque object and can change size and shape according to distance from the light source. Recognise opaque, transparent and translucent objects and the effect of light on them. Some animals are nocturnal and how their eyes differ from that of humans. Explain how to protect oneself from direct sunlight and the dangers of looking directly at the sun 	<p>Vocabulary</p> <p>Life cycle, leaf, photosynthesis, mid-rib, leaf-veins, petiole, stem, xylem vessels, flower, bud, petal, sepal, anther, filament, stigma, pollen, style, ovary, ovule, shoot, root, tap root, lateral root, root hairs, seed, seed coat (testa), bulb, grow, radicle, plumule, cotyledon, seedling, adult, water, light, temperature, survive, reproduction, absorb (absorbed), transported, healthy, nutrients, carbon dioxide, oxygen, germinate (germination), pollen, pollination, fertilise (fertilisation), dispersal, variable, cause, effect, prediction, pattern, comparative test, fair test, method, relationship, trend, data range, data interval.</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> Remember science words used before Begin to use science models to describe Add labels & information to diagrams <p>Designing Experiments</p> <ul style="list-style-type: none"> Predict cause & effect (science prediction) Identify cause & effect in an investigation Suggest a suitable data range for the cause variable
<p>Forces and magnets</p> <ul style="list-style-type: none"> Compare how things move on different surfaces 	<ul style="list-style-type: none"> Recognise forces as a push or a pull. Explain that forces can be balanced and unbalanced 	<p>Vocabulary</p> <p>Force, force arrow, contact force, push force, pull force, twist force, friction force, non-</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> Remember science words used before Begin to use science models to describe

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	<ul style="list-style-type: none"> • Notice that some forces need contact between two objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing. 	<ul style="list-style-type: none"> • Gravity is a force within the earth and has a north and south pole. • Magnets have a north and south pole and opposites attract while same repel • Some metal materials are magnetic, while other materials are not. 	<p>contact force, gravity force, movement, magnet (types), attract, repel, poles (north and south), magnetic, non-magnetic, magnetism, variable, cause, effect, prediction, comparative test, fair test, pattern, method, relationship, trend, data range, data interval.</p>	<ul style="list-style-type: none"> • Add labels & information to diagrams <p>Designing Experiments</p> <ul style="list-style-type: none"> • Predict cause & effect (science prediction) • Identify cause & effect in an investigation • Suggest a suitable data range for the cause variable
<p>Y4</p>	<p>Animals, including humans Pupils should be taught to:</p> <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. 	<ul style="list-style-type: none"> • Name and explain the functions of the following parts of the digestive system: mouth, tongue, teeth, oesophagus, stomach, and small and large intestines. • Name the three types of teeth in carnivores and herbivores and the specific jobs that they do. • Teeth are covered in enamel which protects them. • Explain how to keep teeth healthy, recognising which foods can be harmful to teeth. • State the difference between carnivores, omnivores and herbivores. • Be able to give an example of a food chain that includes a producer, predator and prey. • Recognise and give examples of food chains within the local area. 	<p>Vocabulary Nutrition, nutrients, digestion (physical / chemical), enzymes, acid, mouth, teeth, incisor, canine, pre-molar, molar, enamel, bacteria, plaque, decay, hygiene, gullet (oesophagus), stomach, small intestine, large intestine, anus, liver, gall bladder, pancreas, absorb (absorption), faeces, diet, carbohydrate, protein, fat, energy, calories, food chain, producer, consumer, predator, prey, transfer, carnivore, herbivore, omnivore, pattern, trend, relationship, conclusion, valid (validity).</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> • Remember & use science words correctly. • Use science models to describe • Annotate diagrams to help describe & explain <p>Making conclusions</p> <ul style="list-style-type: none"> • Describe simple patterns, trends & relationships • Describe trends & use science models to explain • Suggest sensible improvements to a method

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	<p>States of Matter Pupils should be taught to:</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"> The sun heats rivers, lakes and seas. Water then evaporates into the air and is called water vapour. The water vapour rises, cools and condenses to form clouds. The droplets in the clouds become too heavy and fall as rain, snow or hail, which runs into the rivers, lakes, seas and the whole process starts again. Name the three states of matter and give examples of each. Solids hold a shape, liquids form a pool and gasses escape. Explain how water changes when it is heated and cooled. Explain the effects of temperature of substances such as chocolate, butter and cream (to make cakes) 	<p>Vocabulary Material, substance, solid, liquid, gas, flow, compressed, volume, density, state, particle, energy, movement, collision, attraction, heat, temperature (°Celsius), ice, water, water vapour, melting, boiling, freezing, condensation, evaporation, speed (rate), melting point, boiling point, water cycle, run-off, rainfall (precipitation), variable, cause, effect, prediction, comparative test, fair test, pattern, method, relationship, trend, data range, data interval.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Remember & use science words correctly Use science models to describe Annotate diagrams to help describe & explain <p>Designing Experiments</p> <ul style="list-style-type: none"> Predict a trend (relationship prediction) Plan investigations by selecting variables to change Suggest a data range & interval for the cause variable
	<p>Living Things and their Habitats Pupils should be taught to</p> <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"> Give examples of habitats and the living things which grow/live there, particularly in the local area. State the differences between different vertebrate animals such as fish, birds, reptiles and give examples of each. Explain how a habitat might change throughout the year and effect that might have on living things within it. Explain ways that humans can have impact on the environment (positive and negative) e.g., deforestation, natures reserves. 	<p>Vocabulary Habitat, environment, micro-habitat, abiotic, plants (habitat specific examples), animals (habitat specific examples), vertebrates, invertebrates, predator, prey, adapted (adaptation), competition, pollution, toxic, conservation, species, diversity, richness, abundance, biodiversity, sample (sampling), pit-fall trap, sweep net, pooter, key, spider key, number key, classify (classification), feature, table of results, cause, effect, repeats (repetition), bar chart,</p>	<p>Skills Classification</p> <ul style="list-style-type: none"> Use a spider key with fine differences Create appropriate groups for sorting (create criteria) <p>Data, Tables & Graphs</p> <ul style="list-style-type: none"> Construct a simple table to compare cause & effect Construct a bar chart correctly <p>Plot coordinates (data points) on a graph</p>

BEING A SCIENTIST



			bar, graph, axes, data point, coordinate.	
	<p>Sound Pupils should be taught to:</p> <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 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"> Explain that sound is made when something vibrates. Explain that those vibrations travel through the air to the ears so it can be heard. Explain the correlation between pitch and the object producing a sound. Explain the correlation between volume of a sound and the strength of the vibrations that produced it. A sound gets fainter as it travels away from a sound source. 	<p>Vocabulary Sound, energy, transfer, source, ear, particles, solid, liquid, gas, vibration, volume, decibels, frequency, pitch, Hertz, reflected, transmitted, absorbed, fainter / louder, lower / higher, variable, cause, effect, prediction, comparative test, fair test, pattern, method, relationship, trend, data range, data interval.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Remember & use science words correctly Use science models to describe Annotate diagrams to help describe & explain <p>Designing Experiments</p> <ul style="list-style-type: none"> Predict a trend (relationship prediction) Plan investigations by selecting variables to change <p>Suggest a data range & interval for the cause variable</p>
	<p>Electricity Pupils should be taught to:</p> <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 	<ul style="list-style-type: none"> Explain the energy transfer model Name common appliances that run on electricity. Demonstrate how to construct a simple series electrical circuit. Identify and name parts of a circuit including cells, wires, bulbs, switches, buzzers. Identify that a switch opens and closes a circuit. Name a common conductor and a common insulator. Metals are good conductors. Draw a picture of a circuit. Explain how to work safely with electricity. 	<p>Vocabulary Electric (electricity), source, energy, transfer, flow, closed / open circuits, series, cell, battery, positive, negative, wire, bulb, buzzer, motor, switch, clip, light, sound, conductor, insulator, metal, copper, iron, steel, non-metals, plastic, wood, glass, rubber, pattern, trend, relationship, conclusion, valid (validity).</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Remember & use science words correctly Use science models to describe Annotate diagrams to help describe & explain <p>Making Conclusions</p> <ul style="list-style-type: none"> Describe simple patterns, trends & relationships <p>Describe trends & use science models to explain</p>

BEING A SCIENTIST



	<p>with whether or not a lamp lights in a simple series circuit</p> <p>recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Talk about patterns they notice such as bulbs getting brighter when more cells are added and that some materials can and some cannot be used to close the gap in a circuit.</p>		
Y5	<p>Earth and Space Pupils should be taught to:</p> <ul style="list-style-type: none"> Describe the movement of the earth, and other planets, relative to the sun in the solar system Describe the movement of the moon relative to the earth Describe the sun, earth and moon as approximately spherical bodies Use the idea of the earth's rotation to explain day and night and the apparent movement of the sun across the sky 	<ul style="list-style-type: none"> The sun is considered to be an average size star. Earth is the third planet from the sun and is the only world known one to support an atmosphere with free oxygen, oceans of liquid water on the surface and life. The Earth and other planets orbit the Sun. The Earth's position and where about on the earth in relation to the Sun gives us day and night. The Sun is a star at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006). A moon is a celestial body that orbits a planet (Earth has one moon; Jupiter has four large moons and numerous smaller ones). Day and night are a result of the Earth's rotation/position. 	<p>Vocabulary Solar system, sun, star, planet, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Asteroids, moon, orbit, ellipses, gravity force, temperature, solid, liquid, gas, axis, tilted axis, day, night, month, year, satellite, atmosphere, surface, new moon, full moon, quarter moon, waxing, waning, crescent, gibbous, energy, transfer, Universe, telescope, astronomy, heliocentric, pattern, data, primary data, secondary data, trend, relationship, conclusion, valid (validity).</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Begin to use complex words correctly Use science models to describe & begin to explain Begin to create & annotate my own 2D/3D diagrams <p>Making Conclusions</p> <ul style="list-style-type: none"> Describe patterns, trends & relationships Use data in conclusions & science models to explain
	<p>Forces Pupils should be taught to:</p>	<ul style="list-style-type: none"> All forces are either a push or a pull. 	<p>Vocabulary</p>	<p>Skills Explaining Science</p>

BEING A SCIENTIST



<ul style="list-style-type: none"> • Explain that unsupported objects fall towards the earth because of the force of gravity acting between earth and the falling object • Identify the effects of air resistance, water resistance and friction, that act between moving surfaces • Recognize that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect 	<ul style="list-style-type: none"> • Gravity is a pulling force acting between Earth and a falling object. • Frictional force is any force that is caused due to friction. • Surface resistance is the force on objects moving across a surface such as an ice skater, skating on ice. • Air resistance is the force on an object moving through air. • Water resistance is the force on objects floating on or moving in water. • Magnetic force is an invisible force created by electrons. Magnetic force controls magnetism and electricity. • Some forces can be measured using a newton metre • List the different uses of a pulley, lever and springs 	<p>Force, force arrow, contact force, non-contact force, push force, pull force, twist force, friction force, upthrust force, reaction force, gravity force, air resistance force, water resistance force, particle, solid, liquid, gas, balanced, unbalanced, resultant force, force meter, Newton (N), mass, weight, machine, lever (type 1,2 & 3), pivot, fulcrum, effort, load, pulley, mechanical advantage, force multiplier, gear, cog, turning force, speed, acceleration, table of results, cause, effect, repeats, bar chart, bar, coordinate, graph, data point, extrapolate, scale, plot, mean, trend line.</p>	<ul style="list-style-type: none"> •Begin to use complex science words correctly •Use science models to describe and begin to explain •Create & annotate diagrams 2D/3D diagrams <p>Data, Tables & Graphs</p> <ul style="list-style-type: none"> • Use a frame to construct a complex table of results • Use a frame to construct a graph & scale axes with help • Join plotted coordinates with straight lines
<p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Describe the life process of reproduction in some plants and animals (sexual/asexual) 	<ul style="list-style-type: none"> • Many insects have four stages in their life cycle: egg or the unborn stage; larva - young stage; pupa - inactive (no feeding) stage; and adult stage. • In general, the life cycles of plants and animals have three basic stages including a fertilised egg or seed, immature juvenile, and adult. However, some organisms may have more than three life cycle stages, and the exact names of each stage can slightly differ depending on the species. (Mammal, amphibian and Insects) • The difference between sexual and asexual reproduction in plants. 	<p>Vocabulary Sexual, asexual, growth, metamorphosis, puberty, reproduction, fertilisation (internal / external), gamete, egg, sperm, embryo, foetus, larva, pupa (chrysalis), testes, uterus, gestation, birth, petals, sepals, carpel, stigma, ovary, anther, stamen, pollen, pollination, dispersal, vegetative, bulb, runner, tuber, rhizome, corm, stem, root, variation, clone, independent variable, dependent variable, controlled</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> •Begin to use complex science words correctly •Use science models to describe and begin to explain •Create & annotate diagrams 2D/3D diagrams <p>Designing Experiments</p> <ul style="list-style-type: none"> • Use K&U to explain prediction (relationship)

BEING A SCIENTIST



			<p>variable, data range, data interval, repetition, reliability, risk, relationship prediction, hypothesis, method, scale.</p>	<ul style="list-style-type: none"> Plan investigations & ensure controlled variables kept the same Design & write an ordered method (control variables)
	<p>Properties and changes of materials Pupils should be taught to:</p> <ul style="list-style-type: none"> Compare and group together everyday materials on the basis of properties (e.g., their hardness, solubility, transparency, conductivity (electrical/thermal) and response to magnets Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning 	<ul style="list-style-type: none"> Irreversible changes, like burning cannot be undone. Reversible changes, like melting and dissolving can be changed back again Mixtures can be separated out by methods like filtering and evaporating. A change is called irreversible if it cannot be changed back again. Examples of reversible changes: Melting is when a solid converts into a liquid after heating. An example of melting is turning ice into water. Freezing is when a liquid converts into a solid. A cooked egg cannot be changed back to a raw egg again. Mixing substances can cause an irreversible change. For example, when vinegar and bicarbonate of soda are mixed, the mixture changes and lots of bubbles of carbon dioxide are made. Burning is an example of an irreversible change. 	<p>Vocabulary Material, particle, substance, mixture, compound, state, solid, liquid, gas, melting, boiling, evaporation, condensation, freezing, energy, attraction, dissolve (dissolving), solute, solvent, soluble (solubility), insoluble, opaque, translucent, transparent (transparency), conductive (conductivity), insulating (insulation), heat, temperature, thermal, flexible (flexibility), rigid (rigidity), elastic (elasticity), absorbent (absorbency), magnetic, filtration, sieving, permeable (permeability), chromatography, chemical, physical, reaction, bond (bonded), combined, reversible, irreversible, variable, cause, effect, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliability, risk, relationship</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Begin to use complex science words correctly Use science models to describe and begin to explain Create & annotate diagrams 2D/3D diagrams <p>Designing Experiments</p> <ul style="list-style-type: none"> Use K&U to explain prediction (relationship) Plan investigations & ensure controlled variables kept the same Design & write an ordered method (control variables)

BEING A SCIENTIST



	and the action of acid on bicarbonate of soda			
	<p>Animals including humans (Part of topic is covered by School nurse - date dependent on availability)</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age (link to school policy on RSE) 	<ul style="list-style-type: none"> Draw a timeline to indicate stages in the growth and development of humans. Be able to describe some of the changes experienced in puberty. Children can compare the gestation periods of other animals and comparing them with humans Describe what happens when people get old and the changes to their bodies. 	<p>Vocabulary Offspring, baby, toddler, child, adolescent, adult, geriatric, growth, puberty, fertilisation, gestation, birth, egg, sperm, gamete, embryo, foetus, periods, pubic hair, testicle, penis, vagina, uterus, womb, ovary, breasts, erection, intercourse, ejaculation, metamorphosis, table of results, cause, effect, repeats, bar chart, coordinate, graph, data point, scale, plot, mean, trend line.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Begin to use complex science words correctly Use science models to describe and begin to explain Create & annotate diagrams 2D/3D diagrams <p>Data, Tables & Graphs</p> <ul style="list-style-type: none"> Use a frame to construct a complex table of results Use a frame to construct a graph & scale axes with help Join plotted coordinates with straight lines
Y6	<p>Light Pupils should be taught to:</p> <ul style="list-style-type: none"> Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain why 	<ul style="list-style-type: none"> Light travels in straight lines. Understand that because light travels in straight lines, objects are seen because they give out or reflect light into the eye. We see things because light travels from light sources to objects then to our eyes. Light travels in straight lines and therefore shadows have the same shape as the objects that cast them. Light will travel in a completely straight line until it hits an object that will reflect it. Light doesn't travel as fast when it has to pass through mediums that are different, such as: air, water or glass. 	<p>Vocabulary Light, source, energy, transfer, reflection (reflected), transmits (transmitted), absorbs (absorbed), shiny, dull, mirror, transparent, translucent, opaque, ray, eye, receptor, shadow, angle, incidence, perpendicular, pattern, data, primary data, secondary data, trend, relationship, conclusion, valid (validity), limitation.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Use complex science words correctly (growing fluency) Use science models to describe & explain Create & annotate my own 2D/3D diagrams <p>Making conclusions</p> <ul style="list-style-type: none"> Describe changing patterns, trends & relationships Use primary & secondary data in my conclusions

BEING A SCIENTIST



<p>shadows have the same shape as the objects that cast them.</p>	<ul style="list-style-type: none"> The light that we see from the sun actually leaves the sun ten minutes before we see it. Light can be controlled and produced in so many ways. Light is a type of energy named electromagnetic radiation. 		<ul style="list-style-type: none"> Suggest limitations (data) & practical improvements
<p>Evolution and Inheritance Pupils should be taught to:</p> <ul style="list-style-type: none"> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<ul style="list-style-type: none"> Evolution is a scientific theory used by biologists. It explains how living things changed over a long time, and how they have come to be the way they are. Living things have changed over time because we see their remains in rocks. Animals and plants of today are different from those of long ago. Evolution is ongoing and is still being actively researched by biologists today. Explain Charles Darwin and the Galapagos Islands case study concerning finches. 	<p>Vocabulary Inherit (inheritance), variation, asexual, sexual, reproduction, sperm, egg, cell, nucleus, gene, characteristic, feature, trait, environment, parent, offspring, selection (selected), adapt (adaptation), species, evolution, fossil, extinct (extinction), survival, table of results, cause, effect, repeats, bar chart, bar, coordinate, graph, data point, extrapolate, scale, plot, mean, trend line, linear, non-linear.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Use complex science words correctly (growing fluency) Use science models to describe & explain Create & annotate my own 2D/3D diagrams <p>Data, Tables and Graphs</p> <ul style="list-style-type: none"> Construct a complex table to show repeated data Construct a graph & scale at least one axis independently Plot mean value coordinates & draw a trend line
<p>Living things and their habitats Pupils should be taught to:</p> <ul style="list-style-type: none"> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals 	<ul style="list-style-type: none"> Explain how to classify living things into broad groups according to observable characteristics and based on similarities and differences. Explain how living things have been classified. Give reasons for classifying plants and animals based on specific characteristics. 	<p>Vocabulary Classification, taxonomy, characteristic, diversity, variation, Kingdom, phylum, class, order, family, genus, species, binomial, animal, plant, fungi, Protista (single-celled), Monera (bacteria), virus, vertebrate, invertebrate, agar, sort, group, re-group, classify,</p>	<p>Skills Classification</p> <ul style="list-style-type: none"> Construct both spider & number keys Group & sub-group by fine observations <p>Designing Experiments</p> <ul style="list-style-type: none"> Reason K&U to make a hypothesis (relationship) Plan reliable investigations (variable terminology)

BEING A SCIENTIST



<ul style="list-style-type: none"> Give reasons for classifying plants and animals based on specific characteristics. 	<ul style="list-style-type: none"> An invertebrate is an animal that does not have a backbone; 97% of all animal species are invertebrates. Vertebrates tend to be much more intelligent than invertebrates. Vertebrate animals can be either warm or cold-blooded (a cold-blooded animal cannot maintain a constant body temperature as this is determined by its outside surroundings). A wide range of ocean animals are invertebrates: sponges, corals, jellyfish and starfish are some examples. Explain about the Linnaean system of classification. The genus and species of humans is homo sapiens 	<p>criteria, spider key, number key, variable, cause, effect, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliable, risk, relationship prediction, hypothesis, method, precision, error.</p>	<ul style="list-style-type: none"> Plan to minimise risk & describe safe equipment use
<p>Animals including Humans Pupils should be taught to:</p> <ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans. 	<ul style="list-style-type: none"> Name the main parts of the circulatory system and their functions (heart, blood vessels, blood and lungs). The heart will beat around 115,000 times each day, pumping around 2,000 gallons of blood. The entire trip around the body only takes blood about 20 seconds in total. Explain the ways in which nutrients and water are transported in animals, including humans. Explain who William Harvey was. The circulatory system is vital for fighting diseases and maintaining temperature. The heart affects every part of the body and the impact that diet, exercise, drugs, alcohol, overall lifestyle and emotional well-being can have on it. 	<p>Vocabulary Circulation (circulatory), heart, atrium (atria), ventricle (ventricles), valve, vessel, artery, vein, capillary, blood, red blood cell, white blood cell, platelets, plasma, lungs, oxygen, oxygenated, deoxygenated, carbon dioxide, nutrients, obesity, exchange, exercise, pulse, recovery time, drugs (various), variable, cause, effect, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliability, risk, relationship prediction, hypothesis, method, precision, error.</p>	<p>Skills</p> <p>Explaining Science</p> <ul style="list-style-type: none"> Use complex science words correctly (growing fluency) Use science models to describe & explain Create & annotate my own 2D/3D diagrams <p>Designing Experiments</p> <ul style="list-style-type: none"> Reason K&U to make a hypothesis (relationship) Plan a reliable investigation (use variable terminology) Collect repeated readings (>3) & calculate mean

BEING A SCIENTIST



		<ul style="list-style-type: none"> Because the heart is crucial to human survival, it is essential that it is kept healthy with a well-balanced diet, regular exercise and the avoidance of things that can damage it, such as smoking. 		
	<p>Electricity Pupils should be taught to:</p> <ul style="list-style-type: none"> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram 	<ul style="list-style-type: none"> The brightness of a bulb is associated with the voltage. Compare and give reasons for variations in how components function. Use recognised symbols when representing a simple circuit in a diagram. Construct simple series circuits. Answer questions about what happens when different components are used: switches, bulbs, buzzers and motors. Electricity travels at the speed of light. Electricity can come from power stations, the wind, the sun, water and even an animal's waste. Coal is the biggest source of energy for producing electricity. Electric fields can either attract or repulse. 	<p>Vocabulary Electric (electricity), source, energy, transfer, Voltage, flow, Current, resistance, insulator, conductor, closed / open circuits, series, cell, battery, positive, negative, wire, bulb, buzzer, motor, switch, clip, metal, light energy, sound energy, heat energy, kinetic energy, Voltmeter, variable, cause, effect, independent variable, dependent variable, controlled variable, data range, data interval, repetition, reliability, risk, relationship prediction, hypothesis, method, precision, error.</p>	<p>Skills Explaining Science</p> <ul style="list-style-type: none"> Reason K&U to make a hypothesis (relationship) Plan reliable investigations (variable terminology) Plan to minimise risk & describe safe equipment use <p>Designing Experiments</p> <ul style="list-style-type: none"> Reason K&U to make a hypothesis (relationship) Plan reliable investigations (variable terminology) Plan to minimise risk & describe safe equipment use