

Science – Knowledge End Points by Topic

PLANTS				
Year group	Curriculum	Sticky knowledge	Skills	Key vocabulary
Nursery	Shows care and concern for living things and the environment.	To know we need to look after our world. Plants and food grow to feed us and animals.	Can talk about things they have observed	World Earth Growing Plant Animal Food Water Caring
Reception	Explore the natural world around them, making observations and drawing pictures of animals and plants.	To know that plants grow from the ground. To know that we can eat plants. To know that animals are different to plants.	Understands and talks about some of the changes in the natural environment. To mark-make about the world around them.	Growing Seed Plant Flower Life cycle Stem Petal
Year 1 In the Garden Plant Detectives Biology	Identify and describe the basic structure of a variety of common flowering plants, including trees Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Know a variety of common garden plants Know wild plants are different from common plants Understand that I can sort plants by their flowers Know that all plants have a root system Know the trees that grow in the school grounds Know how to draw and label a diagram of a flower	Asking questions. Performing simple tests and using equipment. Saying why a test is unfair. Observing and measuring. Using books, videos, the internet, people and photos to find answers. Recording information. Looking for patterns-sorting and grouping. Explaining results-saying what we found out.	petal, wild, trunk, similar, different, soil, blossom, fruit, leaves, branch, bulbs, shrub, vegetables, grass, garden, habitat, deciduous, earth, evergreen. Names e.g. daffodil, daisy, sunflower, rose, lavender, tulip, snowdrop, holly, dandelion, oak, beech, chestnut, pine

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<p>Year 2</p> <p>Growing Plants</p> <p>The Apprentice Gardener</p> <p>Biology</p>	<p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>Know that different seeds grow into different plants</p> <p>Know seeds need water, soil to germinate</p> <p>Know plants need water, light, in order to grow</p> <p>Know the life cycle of a plant</p> <ul style="list-style-type: none"> name the main parts of a plant's life cycle know that this cycle will carry on <p>Know what a bulb is</p> <ul style="list-style-type: none"> stores all the food for the next plant to grow 	<p>Asking questions.</p> <p>Performing simple tests and using equipment.</p> <p>Saying why a test is unfair.</p> <p>Observing and measuring.</p> <p>Using books, videos, the internet, people and photos to find answers.</p> <p>Recording information.</p> <p>Looking for patterns-sorting and grouping.</p> <p>Explaining results-saying what we found out.</p>	<p>seedling, bulb, buds, shoot, water, sun light, seeds, nuts, fruit stones, warm, grow, temperature, geminate, gardener, root system, soil</p>
<p>Year 3</p> <p>Investigating Plants</p> <p>How does your garden grow</p> <p>Biology</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>	<p>Know why plants have leaves</p> <ul style="list-style-type: none"> plants make their own energy from the sun this process is photosynthesis and uses light from the sun <p>Know the function of a plant's roots</p> <ul style="list-style-type: none"> they are usually hidden underground take up water and nutrients from the soil store food for the plant <p>Know the two main types of roots are taproots and fibrous</p> <p>Know pollen is the male part of the flower</p> <p>Know pollen is transferred from one plant to the next by pollinators</p> <p>Know bright colours and scent attract insects and birds so that they can pollinate the plant.</p> <p>Know there are different types of pollination: wind, insect, bird</p>	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	<p>Ground, transport, attract bees, catch sunshine, green, air, nutrients, growth, pollen, pollination, seed formation, seed dispersal, nutrition, support, anchor, reproduction</p>

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Year 4	N/A			
Year 5	N/A			
Year 6	N/A			

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ANIMALS, INCLUDING HUMANS				
Year group	National Curriculum	Sticky knowledge	Skills	Key vocabulary
Nursery	N/A			
Reception	Explore the natural world around them, making observations and drawing pictures of animals and plants.	Children will be able to explore and talk about the world around them. .	Understands and talks about some of the changes in the natural environment. To mark-make about the world around them.	Life cycle Growing
Year 1 Animals Including Humans Biology	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p>	<p>Name and identify different types of common animals grouping according to their features (fish, amphibians, reptiles, birds and mammals)</p> <p>Know why animals' bodies are different Body parts: eyes, ears, elbows, hair, mouth, nose, teeth, paw, hoof, tail, fin, shell, skin, wings, beak, fur, scales, feathers</p> <p>Know that different animals move in different ways</p> <p>Understand that some animals only eat meat, some eat only plants and others eat both meat and plants</p>	<p>Asking questions.</p> <p>Performing simple tests and using equipment.</p> <p>Saying why a test is unfair.</p> <p>Observing and measuring.</p> <p>Using books, videos, the internet, people and photos to find answers.</p> <p>Recording information.</p> <p>Looking for patterns-sorting and grouping.</p> <p>Explaining results-saying what we found out.</p>	<p>Fish: goldfish Birds: robin Reptiles: snake Mammals: horse, human Amphibians: frog Carnivore, omnivore, herbivore</p>

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<p>Year 2</p> <p>Growth & Survival</p> <p>Biology</p>	<p>Notice that animals, including humans, have offspring which grow into adults</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>Know humans need food, water and air to survive and a place to be safe in</p> <p>Know changes take place as a baby grows</p> <ul style="list-style-type: none"> • Know that adults give birth to offspring • children can sit up, walk and talk • children are able to feed themselves <p>Know how our bodies change as we become older</p> <ul style="list-style-type: none"> • name all the stages of the human life cycle • we stop growing <p>Know how to keep our bodies healthy</p> <ul style="list-style-type: none"> • That we need to eat different types of food to stay healthy. • We need to exercise to stay healthy. • Know the importance of washing hands 	<p>Asking questions.</p> <p>Performing simple tests and using equipment.</p> <p>Saying why a test is unfair.</p> <p>Observing and measuring.</p> <p>Using books, videos, the internet, people and photos to find answers.</p> <p>Recording information.</p> <p>Looking for patterns-sorting and grouping.</p> <p>Explaining results-saying what we found out.</p>	<p>Baby, toddler, adult, eggs, fruit, vegetables, water, meat, fish, cheese, beans washing, exercise, diet offspring</p>
<p>Year 3</p> <p>Healthy Eating & Healthy Bodies</p> <p>Biology</p>	<p>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</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>Know that humans need energy to survive</p> <p>humans need food and water to survive</p> <ul style="list-style-type: none"> • they need a place to safe in • they need clothes to keep warm <p>Know that humans must eat a balanced diet. Name all the main food groups and say why each is important</p> <p>Know the main functions of the human skeleton: supporting muscles and protecting organs.</p> <p>Understand that muscles help us move</p> <p>Know how exercise helps our muscles become stronger</p> <ul style="list-style-type: none"> • we need more oxygen when we exercise • regular exercise makes our muscles grow <p>Know the function of the spinal column</p> <ul style="list-style-type: none"> • protects the spinal cord 	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	<p>Balanced diet, carbohydrates, protein, fats, fibre, fruit and vegetables, bones, muscles, femur, ribs, spine, tibia, shoulder blade, relax and contract, protect, support, internal skeleton, exoskeleton</p>

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<p>Year 4</p> <p>Teeth & Digestion</p> <p>Biology</p>	<p>Identify the different types of teeth in humans and their simple functions</p> <p>Describe the simple functions of the basic parts of the digestive system in humans</p>	<p>Know the human digestive system is</p> <ul style="list-style-type: none"> a complex series of organs and glands that processes food has to excrete (or get rid of) waste <p>Know what the main parts of the digestive system are and name them</p> <p>Know the different types of teeth are and their functions</p> <ul style="list-style-type: none"> Incisors, Canines, Molars Adults have 8 incisors, 12 molars and 12 canine teeth <p>Know how to care for our teeth</p> <p>Know how food is broken down by the digestive system</p>	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	<p>Teeth and eating: incisor, molar, canine, diet, decay, healthy, teeth, acids, sugars, mouth, rip, tear, chew, grind</p> <p>Digestive system: saliva tongue, toilet waste, nutrients energy, stomach, large/small intestine, brain, lungs, movement, acids, urine, faeces, oesophagus</p>
<p>Year 5</p> <p>Human Life Cycles</p> <p>Biology</p>	<p>Describe the changes as humans develop to old age</p>	<p>Know a life cycle is the different stages of life for a living thing</p> <p>Know the key stages of a human's life cycle</p> <ul style="list-style-type: none"> order the stages of human development. name the 6 stages of human development. <p>Explain and understand how babies grow in height and weight.</p> <p>Describe the main changes that occur during puberty. Give reasons why changes occur during puberty. analyse the similarities and differences between how boys and girls experience puberty</p> <p>Identify the main changes that take place in old age.</p> <p>Identify the definition of gestation. Compare different animal's gestation periods.</p> <p>Look for patterns between the size of an animal and its expected life span. Identify definition of life expectancy.</p>	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	<p>New born, infant, child, teenager, puberty, adult, wrinkles, grey hair, height, weight</p>

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<p>Year 6</p> <p>Humans & Health</p> <p>Biology</p>	<p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans</p>	<p>Know how the circulatory system works</p> <ul style="list-style-type: none"> the circulatory system is made up of three parts: the heart, blood vessels and the blood itself the heart keeps all the blood in your circulatory system flowing the blood travels through a network of blood vessels to everywhere in your body it carries useful materials like oxygen, water and nutrients and removes waste products like carbon dioxide <p>Know how the heart pumps blood around the body</p> <ul style="list-style-type: none"> it is a muscle which functions as a really powerful pump <p>Know what the main functions of the heart are</p> <ul style="list-style-type: none"> the heart takes in blood low in oxygen from the body in the lungs the blood passes through very small blood vessels and absorbs oxygen <p>Know the main functions of the blood</p> <ul style="list-style-type: none"> it brings oxygen and nutrients to all the parts of the body so they can keep working blood carries carbon dioxide and other waste materials to the lungs, kidneys, and digestive system to be removed from the body blood also fights infections, and carries hormones around the body <p>Know how the blood transports gases around the body</p> <ul style="list-style-type: none"> red blood cells are responsible for picking up the oxygen in the lungs and carry oxygen to the body cells the red blood cells then collect the carbon dioxide (waste gas product) produced by our cells and transport the carbon dioxide back to the lungs which we breathe out when we exhale <p>Know what the function of valves is</p> <ul style="list-style-type: none"> the body has a network of blood vessels that carry blood around it 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	<p>Heart, veins, arteries, capillaries, blood, pulse, beats, oxygen, carbon dioxide nutrients, organs, drugs, medicines, minerals, vitamins, lungs,</p>
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LIVING THINGS AND THEIR HABITAT

Year group	National Curriculum	Sticky knowledge	Skills	Key vocabulary
Nursery	N/A			
Reception	<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>	<p>To know that not everywhere looks the same as where they live.</p> <p>To know that people live their lives in different ways.</p> <p>There are 4 seasons.</p> <p>Each season has different weather.</p>	<p>Children can talk about the similarities and differences between their own environment and other environments.</p> <p>Children will be able to talk about the seasons and the effects it has on the natural world.</p>	<p>TBC</p> <p>Seasons, Weather, Year, Autumn, Winter, Spring, Summer, Sun, Rain, Snow, Hail, Cloudy, Storm, Thunder</p>
<p>Year 1</p> <p>Seasonal Changes</p> <p>Biology</p>	<p>Observe changes across the four seasons</p> <p>Observe and describe weather associated with the seasons and how day length varies</p>	<p>Explain the differences in the seasons and how they change over the year.</p> <p>Know that when the seasons change they impact us</p> <p>Know that plants change during a year</p> <p>Know that different seasons have an impact on animals</p> <p>Understand that the weather changes over the year</p> <ul style="list-style-type: none"> identify the main types of weather in the UK say why the weather is different for each season identify the length of day and how it varies in different seasons <p>Know the key features of each season</p>	<p>Asking questions.</p> <p>Performing simple tests and using equipment.</p> <p>Saying why a test is unfair.</p> <p>Observing and measuring.</p> <p>Using books, videos, the internet, people and photos to find answers.</p> <p>Recording information.</p> <p>Looking for patterns-sorting and grouping.</p> <p>Explaining results-saying what we found out.</p>	<p>Seasons: Autumn, Spring, Summer, Winter, deciduous, evergreen, fruit, earth, seeds, leaves, flowers,</p> <p>weather types: rain, hail, snow, ice, frost, sun, showers, wind,</p> <p>birds, insects, cold, warm, hot, sunrise, sunset</p>

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<p>Year 2</p> <p>Habitats</p> <p>Biology</p>	<p>Identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>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</p> <p>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</p>	<p>Know that some things were once alive but are now dead</p> <p>know that for something to be alive, it might do some of the following: breathe, eat, move, reproduce and go to the toilet.</p> <p>Know that things that no longer do these things are now dead.</p> <p>Know that things that never lived are not dead</p> <p>Know that plants and animals live together in a habitat</p> <p>Know that animals and plants can only live in habitats that suit them.</p> <ul style="list-style-type: none"> There are different types of habitats. <p>Understand what a food chain is.</p> <ul style="list-style-type: none"> To understand that animals eat different things. 	<p>Asking questions.</p> <p>Performing simple tests and using equipment.</p> <p>Saying why a test is unfair.</p> <p>Observing and measuring.</p> <p>Using books, videos, the internet, people and photos to find answers.</p> <p>Recording information.</p> <p>Looking for patterns-sorting and grouping.</p> <p>Explaining results-saying what we found out.</p>	<p>Dead, alive, living, non-living, habitats, keys, breathe, grow, eat, have babies, move, sense, go to the toilet, habitat, microhabitat, food chain</p>
<p>Year 3</p>	<p>N/A</p>			

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<p>Year 4</p> <p>Classification and Interdependence (This includes food chains statement from animals including humans)</p> <p>Who am I?</p> <p>Biology</p>	<p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Know what a classification key is and create one.</p> <ul style="list-style-type: none"> Recognise living things can be grouped in a variety of ways by answering a set of questions <p>Know the key characteristics of a vertebrate</p> <p>Know the key characteristics of an invertebrate: no backbone; some have soft bodies; others have a hard outer casing called an exoskeleton</p> <p>Know the function of a food chain</p> <p>Know what impact humans have on food chains: pollution, habitat destruction, over fishing and hunting</p> <p>Know environments can change and that this can sometimes pose dangers to living things.</p> <ul style="list-style-type: none"> plastic is also harming animals and wildlife in rivers, lakes and oceans - they can get tangled up in plastic objects or can even eat them an oil spill is a form of pollution - harmful or poisonous things that people put into the environment. 	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	<p>Predator, prey, producer, river, ocean, desert, arctic, rainforest, mountain, farmland, wood, dry, wet, vegetation, shelter, vertebrate, invertebrate, classify, characteristic, flowering plant, non-flowering plant (fern, moss)</p>
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<p>Year 5</p> <p>Life Cycles</p> <p>Biology</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals</p>	<p>Know what a life cycle is</p> <ul style="list-style-type: none"> is the different stages of life for a living thing <p>Know the key stages of a frog's life cycle</p> <ul style="list-style-type: none"> frogs are a type of amphibian, so they start off as eggs they go through four stages in their life cycle <p>Know the key stages of an insect's life cycle</p> <p>Insects have four stages in their life cycle: Egg, larva, pupa, adult</p> <p>There are four stages in a bird's life cycle: Egg, hatchling, fledgling, mature or adult bird</p> <p>Know endangered means that there aren't many of that kind of animal left and that the ones that are left are having trouble surviving</p> <ul style="list-style-type: none"> we must work hard to stop it becoming extinct 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	<p>Live young, hatch, tadpole, caterpillar, butterfly, ladybird, pupae, larvae, chrysalis, reproduction, asexual, sexual, life cycle, pollination, seed dispersal, pollen, stamen, stigma</p>
<p>Year 6</p> <p>Classification</p> <p>Biology</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p>	<p>Know what classification is</p> <ul style="list-style-type: none"> Organisms can be divided into groups or 'classified' by looking at the similarities and differences between them animals are divided into two main groups animals that have a backbone are called vertebrates animals that do not have a backbone are called invertebrates <p>Know why we use keys when classifying organisms</p> <ul style="list-style-type: none"> a key is a set of questions about the characteristics of living things you can use a key to identify a living thing or decide which group it belongs to by answering the questions 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p>	<p>Micro-organism, microbe, fungus, bacteria, virus, classified, classification key, yeast, characteristic, microscope</p>

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		<p>Know how life on earth started</p> <ul style="list-style-type: none"> • we now that life on Earth started at least 3.8 billion years ago • by this time, the young planet had cooled and formed a rocky crust • some scientists believe life began in a rock pool or in the ocean • others think it may have arrived from space with comets and asteroids <p>Know what microorganisms are</p> <ul style="list-style-type: none"> • microorganisms are tiny living organisms • they are so small they can only be seen with a microscope • yeast is a helpful microorganism which makes bread rise • bacteria is a microorganism which breaks down plants into nutrients <p>Know what bacteria are</p> <ul style="list-style-type: none"> • bacteria are among the smallest living things • a single bacterium consists of just one cell, and is called a single-celled organism • even though it is just a single cell, it can carry out all seven life processes (movement, respiration, sensitivity, growth, reproduction, excretion and nutrition) <p>Know how fossils are formed</p> <ul style="list-style-type: none"> • a dinosaur dies and is buried before the remains are completely destroyed • over time, layers of sediment build up and press down on the buried remains • dissolved minerals, transported by ground-waters in the sediment, fill tiny spaces in the bones 	<p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	
<p>Year 6</p> <p>Evolution & Inheritance</p>	<p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p>	<p>Know how physical traits are passed on</p> <ul style="list-style-type: none"> • inheritance is when living organisms pass on their characteristics when they reproduce • some physical traits that are passed on are hair and eye colour • know that offspring are not identical to their parents 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p>	<p>Variety, variation, offspring, species, competition, adapt, adaptation, reproduce, survive, evolve, fossil record, gills, blubber, moulting, long neck,</p>

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<p>Biology</p>	<p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p>	<p>Identify how animals and plants are adapted to suit their environment</p> <p>-Name and describe some key animals and their adaptations</p> <p>Know that fossils provide information about living things that inhabited the earth</p> <p>Understand how fossil records can provide evidence for evolution</p> <ul style="list-style-type: none"> • more sediment builds up and the skeleton begins to compact and turn to rock <p>Know how a new species forms</p> <ul style="list-style-type: none"> • happens when the offspring is very different from the parents • could be due to geographical location • could also be due to mutations 	<p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	<p>hooves, eyelashes, tails, generation</p>
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Materials

Year group	National Curriculum	Sticky knowledge	Skills	Key vocabulary
Nursery See 'Animals including humans'	Talk about the differences between materials and changes they notice.	Children will be able to talk about what happens to something dry when you put it in water.	To identify differences and changes. To describe what they can see.	Change Look Different Same Wet Dry
Reception	Understand some important processes and changes in the natural world around them including the seasons and changing states of matter.	Children understand that water freezes when it's cold and melts when it is warm.	To observe and talk about change	Water Freeze Melt Hot Cold
Year 1 Everyday Materials Chemistry	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	Know different types of materials <ul style="list-style-type: none"> name and identify wood, plastic, glass, water, rock and metal sort objects made from wood, plastic, glass, water, rock and metal Know what materials are used for different objects <ul style="list-style-type: none"> sort object depending on the material that they are made from explore why the material is suitable Know words that describe the physical properties of a variety of materials <ul style="list-style-type: none"> Hard, stiff, rough, not bendy, opaque, strong, soft, shiny, smooth, waterproof, stretchy, material, transparent, dull, bendy, absorbent sort objects by their properties 	Asking questions. Performing simple tests and using equipment. Saying why a test is unfair. Observing and measuring. Using books, videos, the internet, people and photos to find answers. Recording information. Looking for patterns-sorting and grouping.	Hard, stiff, rough, not bendy, opaque, strong, soft, shiny, smooth, waterproof, stretchy, material, transparent, dull, bendy, absorbent, wood, plastic, glass, magnetic, elastic, fabric, metal, water, rock,

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	<p>basis of their simple physical properties.</p>	<p>Know that some objects are made from many materials</p> <ul style="list-style-type: none"> • identify the materials that all objects are made from • say why these materials are a good choice <p>Know that some materials can be bendy or stretchy</p> <ul style="list-style-type: none"> • when materials are bent or stretched, their shape can change <p>Know why some materials absorb water and others do not</p> <ul style="list-style-type: none"> • know which materials allow water to pass through them • know which materials do not allow water to pass through them 	<p>Explaining results-saying what we found out.</p>	
<p>Year 2</p> <p>Use of Everyday Materials</p> <p>Chemistry</p>	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Know that some objects shape can be changed when we bend or twist them</p> <ul style="list-style-type: none"> • identify which objects' shape can be changed • know that some materials shape cannot be changed by bending or twisting <p>Know that materials are used for specific objects due to their properties</p> <ul style="list-style-type: none"> • certain materials have the best properties for that object • Know that some objects are made from more than one material. • Know that the same object can be made with different materials (e.g. a spoon can be made out of wood or metal) <p>Know some materials can be stretched</p> <ul style="list-style-type: none"> • different types of elastic can be stretched for different amounts 	<p>Asking questions.</p> <p>Performing simple tests and using equipment.</p> <p>Saying why a test is unfair.</p> <p>Observing and measuring.</p> <p>Using books, videos, the internet, people and photos to find answers.</p> <p>Recording information.</p> <p>Looking for patterns-sorting and grouping.</p> <p>Explaining results-saying what we found out.</p>	<p>Brick, cardboard, transparent, waterproof, keep warm, hard, rigid, strong, flexible, squash, stretch, twist, bend</p>

Science – Knowledge End Points by Topic

<p>Year 3</p> <p>Rocks, Fossils and Soil</p> <p>Chemistry</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter</p>	<p>Know what the properties of rocks are</p> <ul style="list-style-type: none"> describe three different properties of rocks explain why these properties are suitable to their uses <p>Know that soft rocks are different from hard rocks</p> <ul style="list-style-type: none"> chalk is made from limestone hard rocks are igneous and metamorphic rocks <p>Know that all rocks have different hardness properties</p> <ul style="list-style-type: none"> hard types of rocks are usually resistant to erosion some soft rocks hold a lot of water <p>Know that rocks change over time</p> <ul style="list-style-type: none"> rocks are eroded over time – follow the rock cycle there are three main types of rocks: -igneous -metamorphic -sedimentary <p>Know how soil is formed</p> <ul style="list-style-type: none"> soil is a mixture of tiny particles of rock, dead plants and animals, air and water <p>Know how fossils are formed</p> <ul style="list-style-type: none"> a fossil is the preserved remains or traces of a dead organism after an animal dies, it decomposes and its skeleton is buried by small particles of rock - sediment more sediment builds up and the skeleton turns to rock to become a fossil 	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	<p>Rock, soil, marble, granite, sand, stone, slate, chalk, clay, texture, absorbed, permeable, pebble, characteristic, surface, organic, impermeable, crystal, grains, crumbly, igneous, sedimentary, metamorphic, fossil</p>
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Science – Knowledge End Points by Topic

<p>Year 4</p> <p>Solids, Liquids and Gases</p> <p>Chemistry</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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)</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Know the properties of solids, liquids and gases</p> <ul style="list-style-type: none"> • a solid can hold its shape (for example, water in solid form is ice) • a liquid like water forms a pool: it flows or runs but it cannot be stretched or squeezed • a gas can flow, expand and be squeezed; if it is in an unsealed container it escapes (water in gas form is steam) <p>Know what melting and freezing mean</p> <p>solids and liquids can be changed from one state to another by heating or cooling</p> <ul style="list-style-type: none"> • ice (solid) when heated, changes to water (liquid) – this is called melting • water (liquid) when cooled, changes to ice (solid) – this called freezing <p>Know the properties of gases</p> <ul style="list-style-type: none"> • gases do not have a definite shape • they completely fill any container they are put into • materials can change from one of these states to another <p>Know what evaporation and condensation are</p> <ul style="list-style-type: none"> • if water (liquid) is heated, it changes to water vapour (gas- this is called evaporation • if water vapour (gas) is cooled down, it changes into water (liquid) – this is called condensation <p>Know what melting and boiling points are</p> <p>Know how rain is formed</p> <ul style="list-style-type: none"> • water vapour rises in the atmosphere and there it cools down and forms tiny water droplets • these droplets are formed through condensation • the droplets all combine together to form clouds • when clouds become too heavy to stay in the air, the droplets fall as rain 	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	<p>Water, air, ice, milk, lemonade, juice, metal, solid, liquid, gas, pour, flow, change shape, squash, heat, cool, temperature, thermometer, freeze, melt, boil, evaporate, condense, steam, smoke, sea water, properties, melting point, degrees Celsius,</p>
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Science – Knowledge End Points by Topic

<p>Year 5</p> <p>Changes of Materials</p> <p>Chemistry</p>	<p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials including metals, wood, plastic.</p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>Explain that some changes result in the formation of new materials, and that this</p>	<p>Know that materials have different jobs which are dependent on their properties</p> <ul style="list-style-type: none"> • most metals are strong and can be hammered into different shapes without breaking • metals are good thermal and electrical conductors • wood is a good thermal and electrical insulator <p>Know the key properties of magnets</p> <ul style="list-style-type: none"> • they create a magnetic field • magnets attract, or pull, objects made with iron <p>Know what the three states of matter are</p> <ul style="list-style-type: none"> • matter makes up our planet and the whole universe • on Earth, all matter exists in one of three different states: solid, liquid or gas • solids can hold their shape (for example, water in solid form is ice) • liquids like water form pools: it flows or runs but it can't be stretched or squeezed • gas can flow, expand and be squeezed; if it is in an unsealed container it escapes (water in gas form is steam) • depending on its temperature, matter can change state; heating, cooling, evaporating and condensation are ways in which a material changes state <p>Know what the key properties of metals are</p> <ul style="list-style-type: none"> • they are shiny, hard and heavy • the particles in a metal are closely packed together • they are not transparent <p>Know the key properties of plastic</p> <ul style="list-style-type: none"> • they are light in weight • they can be transparent • they are cheaper than metals • they can be moulded into any shape 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	<p>Hardness, solubility, transparency, conductivity, thermal, insulation, dissolve, solution, separation, polymers, reversible, irreversible, evaporating, melting, evaporation, filtering, sieving, , dissolving, burning, rusting, vinegar, bicarbonate of soda, magnetism, insulators, conductors, soluble, insoluble</p>
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Science – Knowledge End Points by Topic

	kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	<ul style="list-style-type: none">• they are not easily corroded• they are not biodegradable		
Year 6	N/A			

Science – Knowledge End Points by Topic

Light and Sound				
Year group	National Curriculum	Sticky knowledge	Skills	Key vocabulary
Nursery	N/A			
Reception	N/A			
Year 1	N/A			
Year 2	N/A			
Year 3 Light and Shadows Physics	<p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Find patterns in the way that the size of shadows change</p>	<p>Know that we need light in order to see</p> <ul style="list-style-type: none"> a source of light makes light the sun and other stars, fires, torches and lamps all make their own light and so are examples of sources of light without light we cannot see because there is nothing to reflect off <p>Know how light travels</p> <ul style="list-style-type: none"> light travels in straight lines light scatters and reflects in different directions <p>Know that different objects reflect different amounts of light</p> <ul style="list-style-type: none"> shiny materials or objects reflect light more than dull ones <p>Know that reflective clothes are safe to wear at night</p> <ul style="list-style-type: none"> reflective materials are effective at night because they reflect light back to the source reflective materials contain microscopic glass beads that reflect light 	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p>	<p>Shadow, light, flames, opaque, block, direction, light, travels, shortest, longest, highest, torch, shape, similar, transparent, translucent, light source, sun, object daytime, night-time, reflect, shine, shiny, absorb, reflective surface, surface, mirror, sundial, lamp</p>

Science – Knowledge End Points by Topic

		<p>Know how a mirror reflects our image</p> <ul style="list-style-type: none"> when light from an object is reflected by a surface, it changes direction smooth, shiny surfaces such as mirrors reflect light well <p>Know what a shadow is</p> <ul style="list-style-type: none"> shadows are formed when opaque objects block a source of light <p>Know how the size of a shadow can be changed</p> <ul style="list-style-type: none"> the closer an object is to the light source, the larger the shadow it casts this is because an object closer to the source blocks a larger area of the light, therefore increasing its shadow size 	<p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	
<p>Year 4</p> <p>Sound and Vibration</p> <p>Physics</p>	<p>Identify how sounds are made, associating some of them with something vibrating</p> <p>Recognise that vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound and features of the object that produced it</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases</p>	<p>Know what sound is</p> <ul style="list-style-type: none"> sounds are made when objects vibrate these vibrations enter the ear and are heard as sound. <p>Know how sound travels</p> <ul style="list-style-type: none"> sound travels as waves of energy (vibration) into our ears the vibrations travel through the air or another medium (solid, liquid or gas) to the ear. <p>Know why some sounds are loud and other are quiet</p> <ul style="list-style-type: none"> if the vibrations are strong, then the sound is loud if the vibrations are weak, then the sound is quiet sound becomes fainter when you travel further away from the source. <p>Know what the pitch is and how it changes</p> <ul style="list-style-type: none"> sound changes depending on how fast or slow an object vibrates to make sound waves pitch is the quality of a sound (high or low) and depends on the speed of the vibrations different materials produce different pitches if an object vibrates quickly we hear a high-pitched sound 	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p>	<p>Sound, pitch, volume, vibrations, medium, insulation, travel, instrument, faint, loud, particles, sound source, strike, vibrate</p>

Science – Knowledge End Points by Topic

		<ul style="list-style-type: none"> if an object vibrates slowly we hear a low-pitched sound. <p>Know how musical instruments make sounds</p> <ul style="list-style-type: none"> sounds can be made by twanging a string or an elastic band, blowing down a pipe, or banging something together, and scraping or shaking something these instruments produce vibrations which can then be heard. <p>Know how a string telephone works</p> <ul style="list-style-type: none"> when you speak into the cup, the back of the cup vibrates these vibrations move into the string, like a push on a slinky; the sound waves, or vibrations, move through the string so you can hear the sound in the other cup. 	Explaining results – drawing conclusions and using results.	
Year 5	N/A			
Year 6 Light Physics	<p>Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>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.</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>Know what a light ray or beam is</p> <ul style="list-style-type: none"> a source of light makes light it is a source of energy the Sun and other stars, fires, torches and lamps all make their own light and so are examples of sources of light <p>Know what reflection is</p> <ul style="list-style-type: none"> when light from an object is reflected by a surface, it changes direction it bounces off the surface at the same angle as it hits it smooth, shiny surfaces such as mirrors and polished metals reflect light well dull and dark surfaces such as dark fabrics do not reflect light well <p>Know how we see</p> <ul style="list-style-type: none"> when we see something, what we actually see is reflected light 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p>	Reflection, transparent, translucent, opaque, periscope, luminous, non-luminous, absorb, direction

Science – Knowledge End Points by Topic

		<ul style="list-style-type: none">• light bounces off the object and that is how we see• if you shine light into water, glass, plastic or another more dense material: it slows down quite dramatically• this tends to make light waves bend—something we usually call refraction <p>Know how to make a rainbow</p> <ul style="list-style-type: none">• rainbows are formed when light shines through water, like when the sun shines through the rain• his light is bent and reflected, like a reflection in a mirror, and this causes all of the amazing colours that you see	<p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	
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Science – Knowledge End Points by Topic

Forces				
Year group	National Curriculum	Sticky knowledge	Skills	Key vocabulary
Nursery	N/A			
Reception	N/A			
Year 1	N/A			
Year 2	N/A			
Year 3 Forces and Magnets Physics	<p>Compare how things move on different surfaces</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>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</p> <p>Describe magnets as having two poles</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Know what a force is</p> <ul style="list-style-type: none"> an effect that causes things to move push and pull are forces <p>Know that air can make things move</p> <ul style="list-style-type: none"> air resistance is a force that slows things down <p>Know that friction acts in the opposite direction of the force that has been applied</p> <ul style="list-style-type: none"> friction slows objects down <p>Know what magnetism is</p> <ul style="list-style-type: none"> there are two poles of magnetism – north and south like poles repel opposite poles attract <p>Know which metals are magnetic</p> <ul style="list-style-type: none"> not all metals have magnetic properties metals that contain iron, nickel or cobalt are magnetic <p>Know what a magnetic field is</p> <ul style="list-style-type: none"> the area around a magnet is the magnetic force 	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p> <p>Explaining results – drawing conclusions and using results.</p>	<p>Force, push, pull, speed up, slow down, change shape, change direction, movement, direction, friction, magnets, magnetic, surface, magnetism, north pole, south pole, repel, attract,</p>

Science – Knowledge End Points by Topic

Science – Knowledge End Points by Topic

Year 4	N/A			
Year 5 Earth and Space Physics	<p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>Describe the movement of the Moon relative to the Earth</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p>	<p>Know which planets make up our solar system</p> <ul style="list-style-type: none"> the Sun is a star the Earth is one of eight planets that travel around the Sun the planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune the solar system is also home to many asteroids, moons, and dwarf planets such as Pluto <p>Know that the rotation of the Earth causes day and night</p> <ul style="list-style-type: none"> the Earth is always spinning around – so if you are facing the Sun it is day time when you face away from the Sun so it is dark, this is the night-time it takes 24 hours for the Earth to spin all the way around, and we call this a day <p>Know how we see the Moon</p> <ul style="list-style-type: none"> the Moon does not have any light of its own we only see the Moon when light from the Sun falls on it and is reflected back to us on Earth <p>Know the four main phases of the Moon</p> <ul style="list-style-type: none"> New Moon. First Quarter. Full Moon. Third Quarter (Last Quarter) <p>Know we have seasons because the Earth's tilt means that one side of the Earth is always pointing directly towards the Sun</p>	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	<p>Earth, Sun, planet, Mercury, Venus, Mars, Jupiter, Moon, Saturn, Uranus, Neptune, solar system, spherical, moon, day and night, celestial body, rotation, hemisphere, orbit, gravity, shadow, daylight</p>

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<p>Year 5</p> <p>Forces</p> <p>Physics</p>	<p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p>	<p>Know what friction is</p> <ul style="list-style-type: none"> • is a force between two surfaces that are sliding • it always works in the direction opposite to the direction in which the object is moving • always slows a moving object down <p>Know what gravity is</p> <ul style="list-style-type: none"> • force that pulls things to the ground on Earth (and other planets) • it holds Earth and the other planets in their orbits around the Sun <p>Know what balanced forces are</p> <ul style="list-style-type: none"> • when two forces are balanced, it means the forces are the same size but are acting in opposite directions • when two balanced forces are acting on an object, that object will not change its motion <p>Know how levers work</p> <ul style="list-style-type: none"> • a lever is a long, sturdy body that rests on a support called a fulcrum • you apply force in one direction, and the pivot point re-directs the force in another direction <p>Know who Sir Isaac Newton was</p> <ul style="list-style-type: none"> • Isaac Newton was born in 1643 and became famous for his work on gravity and his three laws of motion • the famous story of an apple falling to the ground from a tree illustrates how Newton's work on gravity was inspired by things he observed in the world around him 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p> <p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	<p>force, air resistance, water resistance, magnetic attraction, gravitational attraction, direction, force, motion, weight, upthrust, Newton, forcemeter, stationary, surface area, force applied, pulley, lever, gear</p>
<p>Year 6</p>	<p>N/A</p>			

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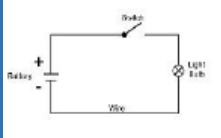
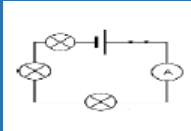
Electricity

Year group	National Curriculum	Sticky knowledge	Skills	Key vocabulary
Nursery	N/A			
Reception	N/A			
Year 1	N/A			
Year 2	N/A			
Year 3	N/A			
Year 4 Circuits and Components Physics	<p>Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>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</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p>	<p>Know that electricity is formed from the flow of electrons</p> <ul style="list-style-type: none"> electrons are found in atoms along with protons and neutrons <p>Know how electricity is generated</p> <ul style="list-style-type: none"> it is created by generators which can be powered by gas, coal, oil, wind or solar electrical energy can be converted into other types of energy such as light, heat, movement or sound electricity is dangerous, so be careful when using electrical appliances <p>Know how we can light a bulb</p> <ul style="list-style-type: none"> electricity flows through all the components in a circuit a circuit has a power source, wires and other components such as bulbs or buzzers electricity only flows through a complete circuit <p>Know the function of an electrical switch</p>	<p>Asking relevant questions.</p> <p>Setting up enquiries and choosing equipment.</p> <p>Setting up fair tests (with help).</p> <p>Carefully observing and accurately measuring.</p> <p>Recognising when to use other sources of information to find answers.</p> <p>Choosing how to record information – tables, tally charts, Venn and Carroll diagrams and bar charts.</p> <p>Looking for patterns – identifying and classifying.</p>	<p>Battery, cell, wires, switch, crocodile clips, buzzer, bulb, circuit, symbols, insulator, conductor, plastic, metal, appliance, component</p>

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	Recognise some common conductors and insulators, and associate metals with being good conductors	<ul style="list-style-type: none"> an open switch breaks the circuit stopping electricity from moving around the circuit <p>Know the difference between electrical conductors and insulators</p> <ul style="list-style-type: none"> conductors: are materials that let electricity pass through them easily; metals, such as copper, iron and steel, are good electrical conductors insulators: these materials do not allow electricity to pass through them; plastic, wood, glass and rubber are good electrical insulators that is why they are used to cover materials that carry electricity <p>Know which types of metals are conductors</p>	Explaining results – drawing conclusions and using results.	
Year 5	N/A			
Year 6 Physics	<p>Use recognised symbols when representing a simple circuit in a diagram</p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>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</p>	<p>Know what a battery is</p> <ul style="list-style-type: none"> a source of power so that electrical objects can work symbol:  <p>Know what the function of a switch is in an electrical circuit</p> <ul style="list-style-type: none"> electricity flows around a circuit a switch will break the flow of electricity symbol:  <p>Know how to draw an electrical circuit accurately</p> <ul style="list-style-type: none"> show how an electrical circuit is set up symbols represent the electrical components example circuit: 	<p>Using scientific knowledge to ask questions.</p> <p>Planning different types of enquiry controlling variables where necessary.</p> <p>Accurately taking measurements using scientific equipment.</p> <p>Recognising when to use other sources to answer questions and separating opinion from fact.</p> <p>Recording data, taking repeat measurements where necessary and calculating a mean.</p>	Voltage, current, series, component, circuit, conductor, positive/negative terminal, complete circuit, battery, cell

Science – Knowledge End Points by Topic

		 <p>Know how to construct a series circuit</p> <ul style="list-style-type: none"> • when all the electrical components are connected in a ring or • loop, this is a series circuit • each component follows the next in a loop • example of a series circuit:  <p>To associate the brightness of a lamp or volume of a buzzer with the number and voltage of cells used in circuit</p> <p>Compare and give reasons for variations in how components function</p> <ul style="list-style-type: none"> - Know how the position of a switch in a circuit can affect its function 	<p>Using and developing keys to identify and classify living things and materials.</p> <p>Using scientific language to draw conclusions.</p> <p>Evaluating plans and results and suggesting improvements.</p>	
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