

Science



Our Subject Intent



Our Curriculum Map

		Cycle A				Cycle B		
	EYFS	Year 1/2	Year 3/4	Year 5/6	EYFS	Year 1/2	Year 3/4	Year 5/6
Autumn 1	Can We Be Friends? Come Rhyme With Me	Why do I love to be beside the seaside?	Sticks and stones	Hurry up, you've Benin there a while!	Can We Be Friends? Come Rhyme With Me	The great animals	The Vikings on the wall	It's all Greek to me!
Autumn 2	Tell Me A Story	Darling, put the fire out!	We built this mega city on rock and roll!	Lavas all you need	Tell Me A Story	Happily Everest after	You crack me up!	Ain't no mountain high enough
Spring 1	Are We Nearly There Yet?	A toy story!	Bronze ain't bad!	What did the Romans do for us?	Pole To Pole	What's the nurse that can happen?	Where's my mummy?	The big Shang theory
Spring 2	It's A Bug's Life	Why don't penguins need to fly?	National parks	Walking on sunshine	Land Of The Giants	Wicked weather!	Don't rainforest on my parade	How is fair trade fair?
Summer 1	How Does Your Garden Grow?	It's pasture bedtime!	I've got my iron you	Mirror, Royal Signal, Manoeuvre	Commotion in the Ocean	Location, location, location	Great scot!	Only we can save the world!
Summer 2	The Best Show Of Your Life!	On the road again!	Save it for a train-y day	Current affairs	Here Comes The Sun!	Too hot to handle	Ch-ch-changes!	Who do you think you are, Mr Hitler?



What does Science look like at Downlands?

Science at Downlands Community School is primarily based on 'Plymouth Science' mixed age planning over a two year rolling programme. Cycle A commences Autumn in odd numbered years and Cycle B commences Autumn in even numbered years.

Volume of content:

1. Each mixed-age class will complete **three** units per year (one per term).
2. Each unit will be at least **eleven** lessons.

Subject delivery:

1. Each lesson will have evidence recorded in pupils' books (if this is a purely practical lesson, there should either be photos taken and stuck in books, with an individual reflection written by pupils afterwards in KS2, or photos and notes made by pupils in the class floor book).
2. Each lesson will contain a form of retrieval practice relating to the learning from the previous lesson or prior unit.
3. Date and learning objective (to be written in an 'I can' form) for each lesson.
4. Working scientifically skills will be embedded within each lesson alongside the subject knowledge for that particular unit.
5. Summative assessment will be mostly in the form of an end-of-unit quiz, creation of a knowledge organiser, or an extended piece of writing.

Science – Unit Overview



	Cycle A			Cycle B		
	Year 1/2	Year 3/4	Year 5/6	Year 1/2	Year 3/4	Year 5/6
Autumn	Materials (Everyday materials Y1&2)	Nurturing Nature (Plants Y3 & Living things and their habitats Y4)	Living, growing and changing (Living things and their habitats Y5 & Animals, including humans Y5)	Changing Materials (Everyday materials Y1&2)	Our Amazing Body (Animals, including humans Y3&4)	Out of this world (Earth and Space Y5 & Materials Y5)
Spring	Looking After Plants (Plants Y1&2 & Seasonal changes Y1)	Archaeology (Rocks Y3 & Animals, including humans Y3&4)	Bright Sparks (Light Y6 & Electricity Y6)	Animal Safari (Animals, including humans Y1&2 & Living things and their habitats Y2)	From the Amazon Rainforest to Antarctica. (States of matter Y4 & Living things and their habitats Y4 & Animals, including humans Y4)	Engineers (Forces Y5)
Summer	Animals, The Human Body and Staying Healthy (Animals, including humans Y1&2 & Living things and their habitats Y2)	Movie Magic (Light Y3 & Sound Y4)	Healthy body, healthy mind (Animals, including humans Y6)	How does your garden grow (Plants Y1&2)	How things work (Electricity Y4 & Forces and magnets Y3)	Following Darwin's Footsteps (Evolution and Inheritance Y6) That's classified (TWINKL) (Living things and their habitats Y6)

Science – progression of TAPS skills (disciplinary knowledge)



	SKILL	FS2	End of KS1	End of LKS2	End of UKS2
PLAN	Asking questions Making predictions Deciding on method and equipment	<ul style="list-style-type: none"> listen attentively and respond to what they hear with relevant questions 	<ul style="list-style-type: none"> listen attentively and respond to what they hear with relevant questions 	<ul style="list-style-type: none"> ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests 	<ul style="list-style-type: none"> plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
DO	Carry out an enquiry using equipment	<ul style="list-style-type: none"> show an ability to follow instructions involving several ideas or actions be confident to try new activities... use a range of small tools... safely use and explore a variety of materials, tools and techniques 	<ul style="list-style-type: none"> observe closely, using simple equipment perform simple tests identify and classify 	<ul style="list-style-type: none"> make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers 	<ul style="list-style-type: none"> take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
RECORD (part of Do)	Use drawings, tables or graphs to note observations and measurements	<ul style="list-style-type: none"> explore the natural world around them, making observations and drawing pictures of animals and plants 	<ul style="list-style-type: none"> gather and record data to help in answering questions 	<ul style="list-style-type: none"> gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 	<ul style="list-style-type: none"> record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
REVIEW	Interpret, communicate and evaluate results	<ul style="list-style-type: none"> participate in discussions, offering their own ideas, using recently introduced vocabulary offer explanations for why things might happen... express their ideas and feelings about their experiences know some similarities and differences... drawing on their experiences 	<ul style="list-style-type: none"> use their observations and ideas to suggest answers to questions 	<ul style="list-style-type: none"> report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings 	<ul style="list-style-type: none"> use test results to make predictions to set up further comparative and fair tests report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations identify scientific evidence that has been used to support or refute ideas or arguments

Science – EYFS curriculum map - Cycle A and B



		Link to Early Learning Goals	Key Learning Focus/Questions	Vocabulary
Cycle A	Autumn	Area of Learning: Understanding the World Early Learning Goal - The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants. 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. Understand some important processes and changes in the natural world around them, including seasons and changing states of matter.	What season are we in? What changes do we notice? How can we keep our bodies healthy? What planets are in our solar system? What planet do we live on? What materials are hard/soft/smooth/squashy/rough/waterproof, hot/cold?	Spring, Summer, Autumn, Winter, Day, Daytime, night, wind, rain, sleet, snow, hail, fog, sun, cold, hot. Hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, waterproof, absorbent, wood, plastic, metal, water, fabric, properties, materials.
	Spring		What season are we in? What changes do we notice? What animals hibernate? What materials are hot/cold? What things can melt and how can we make them melt faster? Animals and where they live/camouflage. What is an insect? What is their habitat? What is a life cycle? SCIENCE WEEK	Living, dead, never alive, habitats, food chain, shelter, seashore. Petal, root, leaf, stalk, stem, water, oxygen, sunshine, soil, grow., seed. Plant, flower.
	Summer		What season are we in? What changes do we notice? How do plants grow? Name parts of the plant (roots, stem, flower, petal, seed, leaf) How does my body change as I grow? Sea creatures.	Minibeast, fish, animal, birds, senses, tongue, taste, nose, smell ears, hearing, eyes, seeing, skin, touch, omnivore, carnivore, herbivore.
Cycle B	Autumn		What season are we in? What changes do we notice? How can we keep our bodies healthy? What planets are in our solar system? What planet do we live on? What materials are hard/soft/smooth/squashy/rough/waterproof, hot/cold?	
	Spring		What season are we in? What changes do we notice? What animals hibernate? What materials are hot/cold? What things can melt and how can we make them melt faster? Animals and where they live/camouflage. SCIENCE WEEK	
	Summer		What season are we in? What changes do we notice? What is an insect? What is their habitat? What is a life cycle? How do plants grow? Name parts of the plant (roots, stem, flower, petal, seed, leaf) How does my body change as I grow?	

Science – curriculum map – KS1 – cycle A



	Autumn	
Unit	Materials (Everyday Materials Year 1/2)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple tests. Identifying and classifying. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can distinguish between an object and the material from which it is made. (M Y1) I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. (M Y1) I can describe the simple properties of a variety of everyday materials. (M Y1) I can compare and group together a variety of everyday materials on the basis of their simple properties. (M Y2) 	<p>In this unit, the pupils will distinguish between an object and the material from which it is made, and identify a variety of everyday materials such as wood, plastic, glass, metal, water, and rock. They will describe the simple properties of these materials and compare and group them based on these properties. The unit encourages pupils to ask simple questions, observe closely using basic equipment, perform tests, classify materials, and use their observations to suggest answers. Pupils will also gather and record data to help answer these questions.</p>
Learning Objectives	<ol style="list-style-type: none"> I can distinguish between an object and the material from which it is made. I can identify materials and classify items. I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. I can identify and classify different materials.. I can describe the simple properties of a variety of everyday materials. I can group and classify materials based on how they feel I can compare and group together a variety of everyday materials on the basis of their simple properties. I can compare the suitability of materials using a comparative test. I can compare and group together a variety of everyday materials on the basis of their simple properties. I can carry out a comparative test. I can compare and group together a variety of everyday materials on the basis of their simple properties. I can notice patterns in my results. I can describe the simple properties of a variety of everyday materials.. I can conduct a comparative test. I can compare and group together a variety of everyday materials on the basis of their simple properties.. I can identify and classify different materials. I can describe the simple properties of a variety of everyday materials. I can set up a comparable test. I can compare and group together a variety of everyday materials on the basis of their simple properties. I can observe what happens to the materials over a period of time. I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. I can notice patterns in my results. I can distinguish between an object and the material from which it is made. I can use my subject knowledge to sort a range of objects. 	
Vocabulary	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through.	

Science – curriculum map – KS1 – cycle A



	Spring	
Unit	Looking after plants (Plants Yr 1/2 & Seasonal changes Year 1)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple tests. Identifying and classifying. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> Identify and name a variety of common wild and green plants, including deciduous and evergreen trees. (P Y1) Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (P Y2) I can observe changes across four seasons. (S Y1) I can observe and describe weather associated with the seasons and how day length varies. (S Y1) 	<p>In this unit, the pupils will identify and name a variety of common wild and green plants, including deciduous and evergreen trees. They will learn how plants need water, light, and a suitable temperature to grow and stay healthy, and observe changes across the four seasons. Pupils will also observe and describe the weather associated with the seasons and how day length varies. The unit encourages pupils to ask simple questions, make close observations using basic equipment, perform tests, classify, and use their observations to suggest answers. They will also gather and record data to help answer these questions.</p>
Learning Objectives	<ol style="list-style-type: none"> I can identify and describe the basic structure of a variety of common flowering plants including trees. I can observe seed growth over time. I can identify and describe the basic structure of a variety of common flowering plants including trees. I can identify plants in the environment. I can identify and describe the basic structure of a variety of common flowering plants including trees. I can identify and classify parts of the plant. I can identify and name a variety of common wild and garden plants including deciduous and evergreen trees. I can identify and classify different leaves from deciduous and evergreen trees. I can identify and name a variety of common wild and garden plants including deciduous and evergreen trees. I can observe types of leaves over time. I can find and describe how plants need water, light and a suitable temperature to grow and stay healthy. I can look for patterns in my tests. I can observe the changes across four seasons. I can identify the four seasons. I can observe the changes across four seasons. Today's focus= Autumn. I can look for patterns with the colours found in different leaves. I can observe the changes across four seasons. Today's focus= Winter. I can observe how crystals form over time I can observe the changes across four seasons. Today's focus= Spring. I can identify signs of spring. I can compare my results to research about rainfall in different seasons I can observe the changes across four seasons. Today's focus= Summer. I can carry out a comparative test. I can observe and describe weather associated with the seasons and how day length varies. I can identify different clouds and understand how they are formed. 	
Vocabulary	<p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud.</p> <p>Names of trees in local area, garden and wild flowering plants. Weather (sunny, rainy, windy, snowy etc) Seasons (winter, summer, spring, autumn) sun, sunrise, sunset, Day length, Leaf, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, light, shade, sun, warm, cool, water, grow, healthy, nutrients</p>	

Science – curriculum map – KS1 – cycle A



	Summer	
Unit	Animals, The Human Body and Staying Healthy (Animals, including humans Year 1/2 & Living things and their habitats Year 2)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple tests. Identifying and classifying. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can describe the importance for humans of exercise, eating the right amounts if different types of food and hygiene. (A Y2) I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. (A Y1) I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (A Y1) I notice that animals including humans have offspring which grow into adults. (A Y2) I notice that animals including humans have offspring which grow into adults. (L Y2) 	<p>In this unit, the pupils will describe the importance of exercise, eating the right amounts of different types of food, and maintaining hygiene for human health. They will identify and name a variety of animals, including carnivores, herbivores, and omnivores, and learn about the basic parts of the human body, including which part is associated with each sense. Pupils will observe that animals, including humans, have offspring that grow into adults. The unit encourages pupils to ask simple questions, observe closely using basic equipment, perform tests, classify, and use their observations to suggest answers. They will also gather and record data to help answer these questions.</p>
Learning Objectives	<ol style="list-style-type: none"> I can identify, name, draw and label basic parts of the human body and say which part of the body is associated with each sense. I can identify different parts of the human body I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. I can identify each taste and categorise them into sweet, salty, sour and bitter. I can notice that animals including humans have offspring which grow into adults. I can look for patterns, similarities and differences in families. I can notice that animals including humans have offspring which grow into adults. I can observe life cycles over time. I can research the life cycles of different animals. I can describe the importance for humans of exercise, eating the right amounts if different types of food and hygiene. I can set up a comparative test. I can describe the importance for humans of exercise, eating the right amounts if different types of food and hygiene. I can look for patterns in how germs spread. I can describe the importance for humans of exercise, eating the right amounts if different types of food and hygiene I can use research and observation skills to identify and design bacteria. I can describe the importance for humans of exercise, eating the right amounts if different types of food and hygiene I can use research and observation skills to identify and design bacteria. I can describe the importance for humans of exercise, eating the right amounts if different types of food and hygiene. I can observe what happens over time. I can describe the importance for humans of exercise, eating the right amounts if different types of food and hygiene. I can identify and classify foods based on their food group. I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. I can identify and sort animals according to what they eat. I can 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. I can use secondary sources to find out what animals eat to make a food chain. 	
Vocabulary	Offspring, grow, adults, nutrition, reproduce, survival, water, food, exercise, hygiene, Head, body, eyes, ears, mouth, teeth, leg, omnivore, carnivore, herbivore, senses.	

Science – curriculum map – LKS2 – cycle A



	Autumn	
Unit	Nurturing Nature (Plants Yr 3 & Living things and their habitats Yr 4)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking relevant questions and using different types of scientific enquiry to answer them. Setting up simple practical enquiries, comparative, and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gathering, recording, classifying, and presenting data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can identify and describe the functions of different parts of a flowering plant. (P Y3) I can explore the requirements of plant life and growth. (P Y3) I can investigate the way in which water is transported within plants. (P Y3) I can explore the part that flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal. (P Y3) Recognise that living things can be grouped in a variety of ways. (LT Y4) Explore and use classification keys to help group, identify and name a variety of living things in the environment. (LT Y4) Recognise that environments can change and this can sometimes pose dangers to living things. (LT Y4) 	<p>In this unit, the pupils will identify and describe the functions of different parts of a flowering plant and explore the requirements for plant life and growth. They will investigate how water is transported within plants and examine the role flowers play in the life cycle of flowering plants, including pollination, seed formation, and seed dispersal. Pupils will also learn to group living things in various ways, using classification keys to help identify and name a variety of living things in the environment. They will recognize how changes in environments can pose dangers to living things. The unit encourages pupils to ask relevant questions, use different scientific enquiry methods, set up practical investigations, and make systematic observations, taking accurate measurements when necessary. Pupils will gather, classify, and present data in various ways, record findings using scientific language and diagrams, and report on their results through oral or written explanations. They will also use their results to draw conclusions, make predictions, and suggest improvements, while identifying differences, similarities, or changes related to scientific processes.</p>
Learning Objectives	<ol style="list-style-type: none"> I can identify and describe the functions of different parts of a flowering plant. I can identify the parts of the plant. I can explore the requirements of plant life and growth. I can carry out a comparative test. I can investigate the way in which water is transported within plants. I can make observations over time. I can explore the part that flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal. I can use research and my own scientific knowledge to explain the process. I can explore the part that flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal. I can look for patterns. I can explore the part that flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal. I can identify and classify different seeds. I can group living things in a variety of ways. I can identify different animals and classify them into different groups. I can explore and use classification keys to help group. I can identify and classify based on human characteristics. I can identify and name a variety of living things in the environment. I can identify patterns by finding and identifying minibeast habitats. I can identify and name a variety of living things in the environment and I can explore classification keys further. I can identify and classify living things. I can recognise that environments can change, and this can sometimes pose changes to living things. I can use research about endangered animals to show how environments can change I can recognise that environments can change and this can sometimes pose changes to living things. I can research the effects of changing environments on animals. 	
Vocabulary	<p>Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal- wind dispersal, animal dispersal, water dispersal, pollen, roots, stem, trunk, leaves, absorb, nutrients, reproduce, germination, stamen, style. Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, fish, amphibian, reptile, bird, mammal, vertebrate, invertebrate, shelter, food, protection.</p>	

Science – curriculum map – LKS2 – cycle A



	Spring	
Unit	Archaeology (Rocks Yr 3 & Animals, including humans Year 3/4)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Ask relevant questions and use different scientific enquiries. Make systematic and careful observations, take accurate measurements using standard units, use a range of equipment. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. Report on findings from enquiries including oral and written explanations. Use results to draw simple conclusions, suggest improvements and raise further questions. Identify similarities and differences. Use straightforward scientific evidence to answer questions or to support their findings. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. (R Y3) To describe in simple terms how fossils are formed when things that have lived are trapped within rock. (R Y3) To recognise that soils are made from rock and organic matter. (R Y3) Identify that humans and some other animals have skeletons for support, protection and movement. (A Y3) Identify different teeth in humans and name their functions. (A Y4) Compare teeth of carnivores and herbivores, and suggesting reasons for differences. (A Y4) 	<p>In this unit, the pupils will compare and group different kinds of rocks based on their appearance and physical properties, and describe how fossils are formed when living things are trapped in rock. They will recognize that soils are made from rock and organic matter, and identify that humans and some animals have skeletons for support, protection, and movement. Pupils will also identify different teeth in humans, name their functions, and compare the teeth of carnivores and herbivores, suggesting reasons for the differences. The unit encourages pupils to ask relevant questions, use scientific enquiries, make careful observations, take accurate measurements with standard units, and use various equipment. They will gather, classify, and present data in different ways, record findings using simple scientific language and diagrams, and report on their results both orally and in writing. Pupils will use their results to draw conclusions, suggest improvements, and raise further questions, while identifying similarities and differences and using scientific evidence to support their findings.</p>
Learning Objectives	<ol style="list-style-type: none"> I can compare and group together different kinds of rocks based on their appearance and simple physical properties. I can compare and group materials together depending on their properties. I can compare and group together different kinds of rocks based on their appearance and simple physical properties. I can classify rocks using their properties I can compare and group together different kinds of rocks based on their appearance and simple physical properties. I can sort and classify materials into magnetic and non-magnetic. I can describe in simple terms how fossils are formed when things that have lived are trapped within rock. I can research and learn about significant scientists in history. (Mary Anning) I can recognise that soils are made from rock and organic matter. I use research and models to help demonstrate my learning. I can recognise that soils are made from rock and organic matter. I can make systematic and careful observations over time. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can research the bones in the skeletal system. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can identify and classify animals into vertebrate and invertebrates. I can identify different types of animal teeth. I can identify the different teeth in animals and know how to categorise into carnivore, herbivore and omnivore. I can construct and interpret a variety of food chains identifying producers, predators and prey. I can research what different animals eat. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can use measurements and evidence to make conclusions. I can evaluate my learning about rocks, fossils and animals-I can demonstrate my learning using research and my own scientific knowledge 	
Vocabulary	<p>Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb, water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil.</p> <p>Teeth, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, skeleton, bones, ribs, spine, muscles, support, joints, protect, move, skull, endoskeleton, Exoskeleton, hydro skeleton.</p>	

Science – curriculum map – LKS2 – cycle A



	Summer	
Unit	Movie Magic (Light Yr 3 & Sound Yr 4)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking relevant questions and using different types of scientific enquiry to answer them. Setting up simple practical enquiries, comparative, and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gathering, recording, classifying, and presenting data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> To recognise we need light in order to see things and that dark is the absence of light. (L Y3) Light is reflected from surfaces. (L Y3) Recognise that light from the sun can be dangerous and that there are ways to protect your eyes. (L Y3) Recognise that shadows are formed when light from a source is blocked by an opaque object. (L Y3) Find patterns in the way that the shadows change. (L Y3) To identify how sounds are made, associating some of them with something vibrating. (Vibration stations). (S Y4) Recognise that vibrations from sounds travel through a medium to the ear. (String phones). (S Y4) Find patterns between pitch of a sound and features of the object that produced it. (S Y4) Find patterns between the volume of a sound and the strength of the vibrations that produced it. (S Y4) Recognise that sound gets fainter as the distance from the sound source increases. (S Y4) 	<p>In this unit, the pupils will recognize the importance of light for seeing and understand that darkness is the absence of light. They will learn that light reflects off surfaces and that sunlight can be dangerous, with ways to protect the eyes. Pupils will also understand that shadows form when light is blocked by an opaque object and identify patterns in how shadows change. They will explore how sounds are made through vibrations and how sound travels through a medium to the ear, examining the relationship between pitch, volume, and vibration strength. They will investigate how sound diminishes with distance. The pupils will engage in scientific inquiry by setting up practical tests, making observations, and taking measurements with tools like thermometers and data loggers. They will gather, classify, and present data, and report findings using simple scientific language, drawings, diagrams, and charts. Pupils will draw conclusions, make predictions, and raise further questions based on evidence.</p>
Learning Objectives	<ol style="list-style-type: none"> I can recognise that we need light in order to see things and that dark is the absence of light. I can compare how different materials react to light. I can understand that light is reflected Light from surfaces. I can spot patterns in my results to answer questions I can recognise that light from the sun can be dangerous and that there. I can observe what happens over time. I can recognise that shadows are formed when the light source is blocked by a solid object.I can look for patterns in my results to make a conclusion. I can find patterns in the way the size of the shadows change. I can look for patterns in my results to make a conclusion. I can recognise we need light in order to see things and that dark is the absence of light. I can carry out a fair test and control variables. <u>(Extra Lesson – Can be missed)</u> I can recognise that shadows are formed when light from a light source is blocked by an opaque object. I can look for patterns in the size of my shadows for effect. I can identify how sounds are made, associating some of them with something vibrating. We are identifying how sounds are made. I can Recognise that vibrations from sounds travel through a medium to the ear. and recognise that sounds get fainter as the distance from the sound source increases. I can plan a fair test. I can find patterns between pitch and volume of a sound and features of the object that produced it. I can spot patterns in my results. I can recognise that sound gets fainter as the distance from the sound source increases. I can spot patterns in my results to make conclusions. I can find patterns between pitch and volume of a sound and the features of the object that produced it. I can carry out a pattern seeking enquiry. 	
Vocabulary	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, sound, source, vibrate, vibration, travel, pitch, volume, faint, loud, insulation.	

Science – curriculum map – UKS2 – cycle A



	Autumn	
Unit	Living, Growing and Changing (Living things and their habitats Year 5 & Animals, including humans Year 5)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Using test results to make predictions to set up further comparative and fair tests. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. Identifying scientific evidence that has been used to support or refute ideas or arguments. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird. (LT Y5) Describe the life process of reproduction in some plants and animals. (LT Y5) Describe the changes as humans develop to old age. (A Y5) 	<p>In this unit, pupils will learn about the life cycles of different animals, including mammals, amphibians, insects, and birds, as well as how plants and animals reproduce. They will also explore how humans change as they grow older. Alongside this, pupils will develop their scientific enquiry skills by planning investigations, controlling variables, and taking accurate measurements using a range of equipment, including repeat readings to ensure precision. They will record their findings in various ways, such as diagrams, tables, and graphs, and use their results to make predictions and plan further tests. Pupils will also present their conclusions, explain cause-and-effect relationships, and evaluate how reliable their results are. Finally, they will learn how to identify and use evidence to support or challenge scientific ideas.</p>
Learning Objectives	<ol style="list-style-type: none"> I can describe the differences in life cycles of a mammal, an amphibian, an insect and a bird. I can use oral and written forms to report conclusions I can describe the differences in life cycles of a mammal, an amphibian, an insect and a bird. I can present data in a variety of different ways to help answer my questions. I can describe the life process of reproduction in some plants and animals. I can ask relevant questions and find ways to answer them. I can describe the life process of reproduction in some plants and animals. I can make accurate and relevant predictions. I can describe the life process of reproduction in some plants and animals. I can suggest next steps based on the weakest aspects of my enquiry. I can describe the life process of reproduction in some plants and animals. I can record my results using a bar chart and can explain the results. I can describe the changes as humans develop from birth to old age. I can make predictions on gestation periods of animals. I can describe the changes as humans/animals develop to old age. I can record data using a scatter graph. I can describe the changes as humans develop to old age. I can make careful observations as we grow older. I can describe the changes as humans develop to old age. I can record my learning using scientific diagrams and vocabulary. I can describe the changes as humans develop to old age. I can interpret my findings to help others. I can describe the changes as humans develop to old age. I can evaluate my learning. 	
Vocabulary	<p>life cycle, live, young, fertilises, egg, runners, reproduce, sperm, metamorphosis, gestation, cuttings, plantlets, bulb, sexual/asexual reproduction, Adolescent, adult, asexual reproduction, sexual reproduction, fertilization, death, teenager, elderly, toddler, reproduction, foetus, growth, puberty, menstrual cycle, gestation.</p>	

Science – curriculum map – UKS2 – cycle A



	Spring	
Unit	Bright Sparks (Light Yr 6 & Electricity Yr 6)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Recording data and results of increasing complexity using scientific diagrams and labels. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> Recognise that light appears to travel in straight lines. (LY6) 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. (LY6) 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. (LY6) Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. (LY6) To 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. (EY6) To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (EY6) To use recognised symbols when representing a simple circuit in a diagram. (EY6) 	<p>In this unit, pupils will recognise that light appears to travel in straight lines and use this understanding to explain how objects are seen by reflecting or emitting light into the eye. They will explore how light travels from sources to the eye or via objects, and use this concept to explain why shadows match the shape of the objects casting them. Additionally, pupils will compare and explain variations in how electrical components function, such as the brightness of bulbs, the loudness of buzzers, and the operation of switches, investigating how the number and voltage of cells affect these outcomes. Pupils will develop their working scientifically skills by planning different types of scientific enquiries, recognising and controlling variables as needed. They will take precise measurements using a range of scientific equipment, recording data with increasing complexity through diagrams and labels. They will use test results to make predictions for further comparative and fair tests and present findings, including conclusions, causal relationships, and degrees of trust, in both oral and written formats. Pupils will also identify scientific evidence used to support or refute ideas and arguments throughout their investigations.</p>
Learning Objectives	<ol style="list-style-type: none"> I can recognise that light appears to travel in straight lines. <i>I can use scientific diagrams, models and labels.</i> I can 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. <i>I can use labelled diagrams to support my explanation.</i> I can 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. <i>I can make careful observations about how the eye works.</i> I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. <i>I can draw diagrams to represent concepts with accuracy</i> I can 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. <i>I can make predictions based on scientific knowledge and use tests to gather evidence to support my predictions.</i> I can 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. <i>I can evaluate, using scientific language, how my enquiry answers the question.</i> I can compare and give reasons for variations in how components function. <i>I can answer questions by investigating.</i> I can use recognised symbols when representing a simple circuit in a diagram. <i>I can take accurate measurements using a data logger.</i> I can compare and give reasons for variations in how components function. <i>I can make predictions using my own ideas and subject knowledge.</i> I can associate the volume of a buzzer with the number and voltage of cells used in the circuit. <i>I can use my results and present them in a line graph.</i> I can design and construct simple electric circuits for a purpose. (application of...variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.) <i>I can use labelled diagrams to support my explanations.</i> I can use and understand recognised symbols when representing a simple circuit in a diagram. <i>I can use scientific diagrams and labels accurately.</i> 	
Vocabulary	<p>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense.</p> <p>Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage.</p>	

Science – curriculum map – UKS2 – cycle A



	Summer	
Unit	Healthy body, Healthy mind (Animals, including humans Year 6)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Evaluate different aspects of their enquiries such as equipment and accuracy of measurements. Use scientific language and illustrations to discuss, communicate and justify scientific ideas. Make careful observations when heating solutions. Plan own investigation to test how materials react with each other. Record my results in a table. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. I can describe the ways in which nutrients and water are transported within animals including humans. I can recognise the impact of diet, exercise, drugs and lifestyle on the way their body's function. I understand the term 'food group' and 'balanced diet'. I understand the importance of a balanced diet. I understand the importance of a healthy body and a healthy mind. 	<p>In this unit, pupils will explore the human circulatory system, understanding the roles of the heart, blood vessels, and blood, and how nutrients and water are transported in the body. They will examine the effects of diet, exercise, drugs, and lifestyle on health, emphasising the importance of a balanced diet and overall well-being. Pupils will plan and conduct investigations, make observations, and record results in tables. They will use scientific language and illustrations to communicate ideas and evaluate the accuracy of their enquiries.</p>
Learning Objectives	<ol style="list-style-type: none"> I can identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. I can use scientific diagrams, models and labels to explain processes. I can identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. I can take accurate measurements and record in a table. I can identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. I can use labelled diagrams to support my explanation about the structure of blood. I can describe the ways in which nutrients and water are transported within animals including humans. I can focus on scientific reasons for why things happen and use models to explain my thinking. I can I can identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. I can focus on scientific reasons for why things happen and use models to explain my thinking. I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. I can plan my investigations and record my results. I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. I can observe what happens when you smoke using a model. I can recognise the impact of diet, exercise and drugs and understand the term 'food groups' and 'balanced diet'. I can record my learning using tables and bar graphs. I can understand the importance of a balanced diet. I can evaluate which diet has the most variety and use this to create my own. I can understand the importance of a healthy body and a healthy mind. I can pose questions to ask in a sensitive way and think about other's emotions. I can understand the importance of a healthy body and healthy mind. I can design a poster using images to support people keep a healthy mind. I can evaluate my learning. 	
Vocabulary	<p>Heart, pulse, rate, pumps, blood, blood vessel, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle, mental health, physical health, illness, anxiety, depression, happiness. Healthy eating, Balanced diet, Food groups, Carbohydrates, Proteins, Fats, Fibre, Nutrients, Energy, Vitamins, Antioxidants, Bacteria immune system. Sustainability.</p>	

Science – curriculum map – KS1 – cycle B



	Autumn	
Unit	Changing Materials (Everyday materials Year 1/2)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple tests. Identifying and classifying. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can distinguish between an object and the material from which it is made. (M Y1) I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. (M Y1) I can describe the simple properties of a variety of everyday materials. M Y1) I can compare and group together a variety of everyday materials on the basis of their simple properties. (M Y1) I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (M Y2) 	<p>In this unit, the pupils learn to distinguish between objects and the materials from which they are made. They can identify and name a variety of everyday materials such as wood, plastic, glass, metal, water, and rock, and describe their simple properties. They compare and group materials based on these properties, and explore how the shapes of solid objects can be changed by squashing, bending, twisting, and stretching. Pupils ask simple questions, observe closely using basic equipment, perform simple tests, and identify and classify materials. They gather and record data to help answer questions and use their observations to suggest possible answers</p>
Learning Objectives	<ol style="list-style-type: none"> I can distinguish between an object and the material from which it is made. I can identify materials. I can name and compare a variety of everyday materials. I look for similarities and differences in different materials. I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching. I can look for relationships between materials. I can compare and group together a variety of everyday materials on the basis of their simple properties. I can use my knowledge of materials to solve problems. I can name and compare a variety of everyday materials. I can look for patterns in my results. I can research famous scientists. I can find out about famous scientists. I can compare and group together a variety of everyday materials on the basis of their simple properties. I can conduct a comparative test to find a suitable material. I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. I can look for patterns in my results. I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. I can identify the relationship between a material and its properties. I can identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. I can identify materials. I can describe the simple properties of a variety of everyday materials. I can use my knowledge of materials to solve problems. I can I can describe the simple properties of a variety of everyday materials. I can apply my knowledge of materials in my design. 	
Vocabulary	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, design	

Science – curriculum map – KS1 – cycle B



	Spring	
Unit	Animal Safari (Animals, including humans Year 1/2 & Living things and their habitats Year 2)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple tests. Identifying and classifying. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals. I can identify and name a variety of common animals that are carnivores, herbivores, and omnivores. I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds, and mammals including pets). I can explore and compare the differences between things that are living, dead, and things that have never been alive. I can 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. I can identify and name a variety of plants and animals in their habitats, including microhabitats. I can notice that animals have offspring which grow into adults. I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). 	<p>In this unit, the pupils will identify and name a variety of common animals, including fish, amphibians, reptiles, birds, and mammals, as well as animals that are carnivores, herbivores, and omnivores. They will describe and compare the structures of these animals, including pets, and explore the differences between living, dead, and non-living things. Pupils will learn that most living things live in habitats suited to them and will describe how different habitats meet the basic needs of animals and plants, showing how they depend on each other. They will identify plants and animals in different habitats, including microhabitats, and observe that animals have offspring that grow into adults. The pupils will also explore the basic needs of animals, including humans, for survival, and engage in simple scientific inquiry by asking questions, making observations, performing tests, classifying, and recording data to help answer questions.</p>
Learning Objectives	<ol style="list-style-type: none"> I can explore the differences between things that are living, dead and things that have never been alive. I can identify and classify objects that are alive, dead and never been alive. I can identify most living things live in habitats to which they are suited and describe how different habitats provide for basic needs of different kinds of animals and plants and how the depend on each other.. I can identify which habitat each animal lives in. I can identify most living things live in habitats to which they are suited and describe how different habitats provide for basic needs of different kinds of animals and plants and how the depend on each other.. I can research facts about my animal using observations and secondary resources. I can identify and name a variety of plants and animals in their habitat, including microhabitats. I can look for patterns in my data as to where different minibeasts live. I can identify most living things live in habitats to which they are suited and describe how different habitats provide for basic needs of different kinds of animals and plants and how the depend on each other. I can look for patterns in my data as to where different minibeasts live I can 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. I can use secondary sources to find out what animals eat to make a food chain. I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammal. I can classify animals based on their characteristics. I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). I can spot patterns between different groups of animals. I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. I can identify and sort animals according to what they eat. I can identify and name a variety of common animals such as minibeasts. I can identify different minibeasts based on observations. I can identify and name a variety of common animals such as birds. I can research facts about different birds. I can notice that animals including humans have offspring which grow into adults. I can look for patterns, similarities and differences in families. 	
Vocabulary	mammal, omnivore, carnivore, herbivore, habitat, offspring, age, growing, environment, biome, minibeast, animal, food chain, insect, fish, mammal, reptiles, bird, amphibian, Living, dead, never been alive, suited, suitable, basic need, food, food chain, shelter, move, feed, names of local habitats	

Science – curriculum map – KS1 – cycle B



	Summer	
Unit	How does your garden grow? (Plants Yr 1/2)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Performing simple tests. Identifying and classifying. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> To identify and describe the basic structure of a variety of common flowering plants including trees. To identify and name a variety of common wild and garden plants including deciduous and evergreen trees. Observe and describe how seeds and bulbs grow into mature plants. 	<p>In this unit, the pupils will identify and describe the basic structure of a variety of common flowering plants, including trees, and name a range of wild and garden plants, including deciduous and evergreen trees. They will observe and describe how seeds and bulbs grow into mature plants. The unit encourages pupils to ask simple questions, make close observations using simple equipment, perform tests, classify plants, and use their observations to suggest answers to questions. Pupils will also gather and record data to help answer these questions.</p>
Learning Objectives	<ol style="list-style-type: none"> I can identify the common structure of flowering plants. I can identify the common structure of flowering plants. I can identify and describe the structure of flowering plants. I can identify the common structure of flowering plants. I can recognise the similarities and differences in common flowering plants. I can identify similarities and differences. I can observe and describe how seeds and bulbs grow into mature plants. I can observe how plants grow over time. I can observe and describe how seeds and bulbs grow into mature plants. I can sort and classify seeds using my own criteria. I can observe and describe how seeds and bulbs grow into mature plants. I can identify plants in the natural environment. I can use ID sheets to help me identify seeds. I can observe and describe how seeds and bulbs grow into mature plants. I can observe plants growing over time. I can observe and describe how seeds and bulbs grow into mature plants. I can carry out a comparative test. I can observe and describe how seeds and bulbs grow into mature plants. I can record my observations after 2 weeks I can identify some common plants including deciduous and evergreen trees. I can identify and classify deciduous and evergreen trees. I can find and describe how plants need water, light and a suitable temperature to grow and stay healthy. I can identify and classify different trees or foods. I can find and describe how plants need water, light and a suitable temperature to grow and stay healthy. I can recap all key concepts in the unit. 	
Vocabulary	Leaf, root, bud, flower, blossom, bud, petal, berry, root, seed, stalk, trunk, branch, stem, bark, fruit, sun, warm, cool, water, grow, healthy, evergreen, deciduous.	

Science – curriculum map – LKS2 – cycle B



	Autumn	
Unit	Our Amazing Body (Animals, including humans Year 3/4)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Asking relevant questions and using different types of scientific enquiry to answer them. Setting up simple practical enquiries, comparative, and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gathering, recording, classifying, and presenting data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Using results to draw simple conclusions, make predictions for new values, suggest improvements, and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. (A Y3) I can 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. (A Y3) I can describe the simple functions of the digestive system in humans. (A Y4) I can identify different teeth in humans and name their functions. (A Y4) I know how to keep my teeth healthy. (A Y4) I can construct and interpret a variety of food chains identifying producers, predators and prey by examining animal faeces. (A Y4) 	<p>In this unit, the pupils will learn about the role of skeletons and muscles in humans and animals for support, protection, and movement. They will explore the importance of nutrition for animals, including humans, and how they get nutrition from food. Pupils will describe the digestive system and the different types of teeth in humans, along with their functions and how to maintain healthy teeth. They will construct and interpret food chains, identifying producers, predators, and prey. Pupils will engage in scientific enquiry by setting up investigations, making observations, and using equipment like thermometers and data loggers to collect and present data. They will record their findings using scientific language, diagrams, and charts, and report on their results through oral and written explanations. Pupils will draw conclusions, make predictions, and use evidence to answer questions and support their findings.</p>
Learning Objectives	<ol style="list-style-type: none"> I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can research the bones in the skeletal system. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can identify and classify parts of the human skeletal system. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can identify bones in the body and the hand. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can look for patterns in how each part of the hand moves and adjustments that need to be made. I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. I can use secondary sources (internet clips) to find out about how muscles work I can 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. I can research the nutritional values of foods by reading data from food labels. I can 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. I can look for patterns in my results and compare the nutritional values of different foods. I can describe the simple functions of the digestive system in humans. I can identify organs in digestive system I can identify different teeth in humans and name their functions. Identify the different teeth in the human body and know their function. I can explain how to keep my teeth healthy. I can set up a fair test. I can explain how to keep my teeth healthy. I can set up a fair test. I can construct and interpret a variety of food chains identifying producers, predators and prey by examining animal faeces (poo). I can identify the food each animal eats and classify 	
Vocabulary	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints. Mouth, esophagus, phalanges, tendons, biceps, triceps, intestine, anus. Pancreas, stomach, gallbladder, liver, saliva, rectum, teeth.	

Science – curriculum map – LKS2 – cycle B



	Spring	
Unit	From the Amazon Rainforest to Antarctica. (States of matter Year 4 & Living things and their habitats Yr 4 & Animals, including humans Year 4)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Ask relevant questions. Make careful observations and use a range of equipment. Gather, record and classify data. Record findings using scientific language, drawings, labelled diagrams. Identify similarities and differences. Use straightforward scientific evidence to answer questions to support findings. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> Compare and group materials together, according to whether they are solids, liquids or gases. (S Y4) 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. (S Y4) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (S Y4) Recognise that living things can be grouped in a variety of ways. (L Y4) Explore and use classification keys to help group, identify and name a variety of things in their local and wider environment. (L Y4) Recognise that environments can change and that this can sometimes pose dangers to living things. (L Y4) Construct and interpret a variety of food chains, identifying producers, predators and prey. (A Y4) 	<p>In this unit, the pupils will compare and group materials as solids, liquids, or gases, and observe how some materials change state when heated or cooled, measuring the temperature at which this happens in degrees Celsius. They will learn about the role of evaporation and condensation in the water cycle and how temperature affects the rate of evaporation. Pupils will explore how living things can be grouped in different ways and use classification keys to identify and name various organisms in their environment. They will also recognize how changes in the environment can pose dangers to living things. Pupils will construct and interpret food chains, identifying producers, predators, and prey, and ask relevant questions. Throughout, they will make careful observations, use a range of equipment, and gather, record, and classify data, presenting their findings using scientific language, diagrams, and identifying similarities and differences. They will use evidence to support their findings and answer questions.</p>
Learning Objectives	<ol style="list-style-type: none"> I can compare and group materials together according to their properties solid, liquid and gas. <i>I can compare and group materials depending on their properties.</i> I can compare and group materials together according to their properties solid, liquid and gas. <i>I can look for patterns in my observations.</i> I can explain that some materials change shape when they are heated or cooled. <i>I can construct a fair test to investigate melting points.</i> I can explain that some materials change shape when they are heated or cooled. <i>I can observe over time what happens when a liquid changes to a solid.</i> I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. <i>I can observe the water cycle over time to describe the process.</i> I can group living things in a variety of ways. <i>I can identify different animals and classify them into groups.</i> I can explore and use classification keys to help group. <i>I can identify and classify based on human characteristics.</i> I can identify and name a variety of living things in the environment. <i>I can identify patterns by finding and identifying minibeast habitats.</i> I can construct and interpret a variety of food chains identifying producers, predators and prey. <i>I can research what animals eat.</i> I can recognise that environments can change, and this can sometimes pose changes to living things. <i>I can use research about endangered animals to show how environments can change</i> I can recognise that environments can change, and this can sometimes pose changes to living things. <i>I can carry out a comparative test to prove how animals adapt to their environment.</i> I can apply my knowledge from the unit and revise key facts. <i>I can revise key facts from the unit to aid future learning.</i> 	
Vocabulary	Solid, liquid, gas, state, change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle, matter, air, oxygen, ice, water, water vapor, steam, heated, heat, cooled, cool, temperature, degrees Celsius, melt, melting point, freeze, freezing point, solidify, boil, boiling point, evaporate, evaporation, condense, condensation, precipitation, infiltration. Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate.	

Science – curriculum map – LKS2 – cycle B



	Summer	
Unit	How things work (Electricity Year 4 & Forces and magnets Year 3)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Ask relevant questions. Make careful observations and use a range of equipment. Gather, record and classify data. Record findings using scientific language, drawings, labelled diagrams. Identify similarities and differences. Use straightforward scientific evidence to answer questions to support findings. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> I can identify common appliances that run on electricity I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers I can 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 I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit I can recognise some common conductors and insulators, and associate metals with being good conductors. Compare how things move on different surfaces. 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. 	<p>In this unit, the pupils will identify common appliances that run on electricity and construct a simple series electrical circuit, naming its basic parts, including cells, wires, bulbs, switches, and buzzers. They will investigate whether a lamp will light in a circuit depending on whether it is part of a complete loop with a battery and understand how a switch controls the circuit. Pupils will also recognize common conductors and insulators, associating metals with being good conductors. They will compare how things move on different surfaces and learn that some forces, like magnetic forces, can act at a distance, while others require contact between objects. Pupils will observe how magnets attract or repel each other, attract some materials, and identify magnetic materials. They will describe magnets as having two poles and predict whether two magnets will attract or repel based on their poles. Throughout, pupils will ask relevant questions, make careful observations, and use a range of equipment to gather, record, and classify data, presenting their findings with scientific language, diagrams, and identifying similarities and differences. They will use evidence to support their findings and answer questions.</p>
Learning Objectives	<ol style="list-style-type: none"> I can identify common appliances that run on electricity. I can identify electrical components and classify electrical appliances. I can 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. I can identify patterns in my observations. I can recognise some common conductors and insulators, and associate metals with being good conductors. I can conduct a comparative test. I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. I can identify the properties of different materials. I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I can find out about different scientists and energy sources. I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I know how electricity has developed over time. I can explain that some forces need contact between two objects. I can group and classify different forces based on observations and scientific knowledge I can compare how things move on different surfaces. I can use the research and findings of John McAdam to create my own road surfaces I can 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. I can sort and classify materials into magnetic and non-magnetic. I can I notice that some forces need contact between two objects, but magnetic forces can act at a distance. I can carry out a fair test using magnets I can describe magnets as having two poles and predict whether two magnets will attract or repel each other, depending on which poles are facing. I can spot patterns in my drawings and explain what is happening in terms of magnetic fields. I can I can describe magnets as having two poles and predict whether two magnets will attract or repel each other, depending on which poles are facing. I can use research and secondary sources to aid my explanations. 	
Vocabulary	<p>Electrical, appliance, mains, plug, circuit, component, cell, battery, positive, negative, connect/connectors, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol, voltage, current. Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel. Magnetic material, metal, iron, steel, poles, north pole, south pole.</p>	

Science – curriculum map – UKS2 – cycle B



	Autumn	
Unit	Out of this world (Earth and Space Yr 5 & Materials Yr 5)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Evaluate different aspects of their enquiries such as equipment and accuracy of measurements. Make predictions about which materials are soluble or insoluble. Use scientific language and illustrations to discuss, communicate and justify scientific ideas. Make careful observations when heating solutions. Plan own investigation to test how materials react with each other. Record my results in a table. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> Compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity and response to magnets. (M Y5) 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 solid, liquid and gas to decide how mixtures might be separated including through filtering, sieving and evaporation. (M Y5) Give reasons based on evidence from comparative tests for the particular uses of everyday materials including metals, wood and plastic. (M Y5) Demonstrate that dissolving, mixing and changes of state are reversible changes. (M Y5) Explain that some changes result in the formation of new materials and this kind of change is not usually reversible including changes associated with burning and the action of acid on bicarbonate of soda. (M Y5) Describe the movement of the Earth and other planets, relative to the sun in the solar system. (ES Y5) Describe the movement of the moon relative to the Earth. (ES Y5) Describe the Sun, Earth and Moon as approximate spherical bodies. (ES Y5) Use Earth rotation to explain day and night due to the apparent movement of the sun across the sky. (ES Y5) 	<p>In this unit, pupils will explore the properties of materials, including solubility, conductivity, and magnetism, and investigate reversible and irreversible changes. They will learn methods to separate mixtures and explain changes like burning and chemical reactions. In the Earth and space strand, pupils will study the movements and relationships of the Sun, Earth, and Moon, explaining phenomena such as day and night. Throughout, they will conduct investigations, record results, and use scientific language to communicate and evaluate their findings.</p>
Learning Objectives	<ol style="list-style-type: none"> I can compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity and response to magnets. I can evaluate my test. I can understand that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. I can make predictions about which materials are soluble or insoluble. I can use knowledge of solid, liquid and gas to decide how mixtures might be separated including through filtering, sieving and evaporation. I can use scientific language and illustrations to discuss, communicate and justify scientific ideas. I can demonstrate that dissolving, mixing and changes of state are reversible changes. I can make careful observations when heating solutions. I can explain that some changes result in the formation of new materials and this kind of change is not usually reversible including changes associated with burning and the action of acid on bicarbonate of soda. I can plan my own investigation to test how materials react with each other. I can give reasons based on evidence from comparative tests for the particular uses of everyday materials including metals, wood and plastic. I can record my results in a table. I can describe the movement of the Earth and other planets, relative to the sun in the solar system. I can raise questions and ask questions and suggest reasons for similarities and differences. I can describe the movement of the Earth and other planets, relative to the sun in the solar system. I can use measurement to represent planets in a model. I can describe the movement of the moon relative to the Earth. I can record my work using scientific diagrams and labels when representing the Moon phases. I can describe the Sun, Earth and Moon as approximate spherical bodies. I can use a model to discuss, communicate and justify scientific ideas using scientific vocabulary. I can use the Earth's rotation to explain day and night due to the apparent movement of the sun across the sky. I can present my results in a variety of ways to answer a question. I can describe the movement of the moon relative to the Earth. I can plan my own fair test and control variables. 	
Vocabulary	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/not reversible, change, burning, rusting, new material. Earth, sun, moon, Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune, Pluto (dwarf planet), spherical, solar system, rotates, star, orbit, planets, axis, night, day, season, galaxy. Meteorite, celestial.	

Science – curriculum map – UKS2 – cycle B



	Spring	
Unit	Engineers (Forces Yr 5)	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Using test results to make predictions to set up further comparative and fair tests. Reporting and presenting findings from enquiries, including conclusions, causal relationships, and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identifying scientific evidence that has been used to support or refute ideas or arguments. 	
Knowledge (substantive knowledge)	<ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (The act of gravity on our lives) Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<p>In this unit, pupils will explore the effects of gravity, air resistance, water resistance, and friction on objects, as well as understand how mechanisms like levers, pulleys, and gears amplify force. They will develop skills in planning and conducting scientific enquiries by controlling variables, taking accurate measurements, and recording complex data using diagrams, classification keys, and graphs. Pupils will use test results to make predictions, design further investigations, and present findings through conclusions, causal explanations, and evaluations of reliability. They will also identify and evaluate scientific evidence used to support or challenge ideas.</p>
Learning Objectives	<ol style="list-style-type: none"> I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. <i>I can observe different forces and measure the force using scientific equipment.</i> I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. <i>I can set up a test which answers a scientific enquiry, to change the speed of a pendulum</i> I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. I can interpret and communicate results, from my data using scientific vocabulary. <i>I can make recommendations to the sky diving company.</i> I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. <i>I can plan different types of enquiry to answer questions.</i> I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. <i>I can record my results in a table.</i> I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. <i>I can evaluate my boat design.</i> I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. <i>I can take measurements using a range of scientific equipment with increasing accuracy and precision, taking repeat readings.</i> I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces. <i>I can take measurements using a range of scientific equipment with increasing accuracy and precision taking repeat readings.</i> I can understand that some mechanisms, including levers, pulleys and gears allow a smaller force to have a great effect. <i>I can interpret what I've learnt using models.</i> I can understand that some mechanisms, including levers, pulleys and gears allow a smaller force to have a great effect. <i>I can record my results in a table.</i> I can understand that some mechanisms, including levers, pulleys and gears allow a smaller force to have a great effect. <i>I can evaluate my learning and recall key knowledge.</i> 	
Vocabulary	Force, Gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears, Newton, upthrust, opposing, streamline, brake, cog, weight, mass.	

Science – curriculum map – UKS2 – cycle B



	Summer A		Summer B	
Unit	Following Darwin's Footsteps (Evolution and Inheritance Year 6)		That's classified! (Living things and their habitats Year 6) <i>TWINKL UNIT</i>	
Skills (disciplinary knowledge)	<ul style="list-style-type: none"> Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identifying scientific evidence that has been used to support or refute ideas or arguments 		<ul style="list-style-type: none"> Identifying scientific evidence that has been used to support or refute ideas or arguments. Research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. 	
Knowledge (substantive knowledge)	<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. 	In this unit, pupils will explore evolution and adaptation, using fossils to understand changes over time and how variations in offspring support survival. They will record and analyze data using scientific methods, present findings through various formats, and evaluate evidence to support or challenge scientific ideas.	<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. Give reasons for classifying plants and animals based on specific characteristics. 	In this unit, pupils will classify living things based on observable characteristics and similarities, including microorganisms, plants, and animals, and justify their classifications. They will research unfamiliar species, analyze data using various scientific tools, and plan enquiries to answer questions while controlling variables. Pupils will present findings through diverse formats, drawing conclusions, explaining causal relationships, and evaluating the reliability of their results.
Learning Objectives	<p>1.I can understand that fossils provide information about living things that inhabited the Earth millions of years ago. <i>I can use ideas from secondary sources to support my ideas.</i></p> <p>2.I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. <i>I can raise questions about a range of phenomena.</i></p> <p>3.I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. <i>I can develop predictions not based on results of a scientific enquiry but using own ideas and subject knowledge.</i></p> <p>4.I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <i>I can focus on scientific reasons for overall patterns rather than comparisons.</i></p> <p>5.I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <i>I can use scientific diagrams and labels to explain abstract concepts.</i></p> <p>6.I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <i>I can use scientific diagrams and labels to explain abstract concepts.</i></p>		<p>1.I can identify observable characteristics used to classify living organisms.</p> <p>2.I can sort and group animals using a classification key.</p> <p>3.I can group and classify plants using a classification key.</p> <p>4.I can investigate whether yeast is a living organism.</p> <p>5.I can explain how microorganisms are grouped and classified.</p> <p>6.I can identify and classify plants and animals in the local area.</p>	
Vocabulary	Offspring, sexual reproduction, vary, variation, characteristics, suited, adapted, environment, inherited, species, fossils, adaptation, acquired characteristic, inherited characteristic, gene, natural selection, artificial selection.		Microorganism, species, characteristics, classification, classification key, organism	