



# SCIENCE

# 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 Hamilton Trust 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 **six** units per year (one each half term).
2. Each unit will be at least **five** lessons.

Subject delivery:

1. Each lesson will have evidence recorded in pupils' books (if this is a purely practical lesson, there should be photos taken and stuck in books, with an individual reflection written by pupils afterwards in KS2).
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. A skills (disciplinary knowledge) assessment will take place each half term - usually around week 4. Assessing 1 skill only using the TAPS (Teacher Assessment in Primary Science) resources linked to the substantive knowledge.
5. Over the year, each of the skills will be assessed.
6. 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 1	Everyday Materials <b>Brilliant builders!</b> <b>Choosing the best materials</b>	Light <b>Shining the Light!</b>	Living Things & their Habitats <b>Illustrating Life Cycles</b>	Everyday Materials <b>Brilliant builders!</b> <b>Comparing Materials</b>	States of Matter <b>What's the Matter?</b>	Properties and changes of Materials <b>Special Effects Materials</b>
Autumn 2	Seasonal Changes <b>Weather Art</b>	Rocks and Fossils <b>This Planet Rocks!</b>	Properties and changes of Materials <b>Materials Consultants</b>	Seasonal Changes <b>Wild Weather!</b>	Sound <b>Sounds Spectacular!</b>	Earth and Space <b>Space!</b>
Spring 1	Animals including Humans <b>People and their Pets</b> <b>Twinkl Y2</b>	Electricity <b>Electric Personalities</b>	Medical Manoeuvres (revision unit)	Animals including Humans <b>Amazing Me!</b>	Living things and their habitats <b>A World of Living Things</b>	Sensational Science (revision unit)
Spring 2	Use of Everyday Materials <b>Exploring changes (ice)</b>	Animals Including Humans <b>The Circle of Life</b>	Light <b>Theatre Lighting Technicians</b>	Plants <b>Growing Things</b>	Forces and Magnets <b>Magnets fun and games</b>	Forces <b>Welcome to Force-Land</b>
Summer 1	Plants <b>Art and Nature</b>	Plants <b>Greatly Green Growers</b>	Electricity <b>Electric Art</b>	Animals, including humans <b>Wild and Wonderful Creatures</b>	Animals including Humans <b>Fit for Success</b>	Living Things and their Habitats <b>The Classification Code</b>
Summer 2	Habitats <b>Habitats and Homes</b>	Living things and their habitats <b>Habitat Helpers</b>	Animals (including humans) <b>The Human Species</b>	Animal Life Cycles <b>Food Chains</b>	Plants <b>Feast for flowers, fruits and seeds</b>	Evolution and Inheritance <b>Survival of the Fittest</b>

# Science – progression of skills (disciplinary knowledge)



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

# SCIENCE - TAPS (Teacher Assessment in Primary Science) Scientific Skills Assessment Activities



	Cycle A			Cycle B		
	Year 1/2	Year 3/4	Year 5/6	Year 1/2	Year 3/4	Year 5/6
Autumn 1	Everyday Materials Plan Waterproof paper testing	Light Do Can everything make a shadow?	Living Things & their Habitats Review Lifecycle research	Everyday Materials Plan Ways to test reflectiveness	States of Matter Do Measuring Temperature	Properties and changes of Materials Do Sugar cubes stacks
Autumn 2	Seasonal Changes Do Seasonal Change	Rocks and Fossils Review Reporting on Rocks	Properties and changes of Materials Do Insulation Layers	Seasonal Changes Do Seasonal Change	Sound Plan Investigating Pitch	Earth and Space Review Solar system research
Spring 1	Animals including Humans Review Body Parts	Electricity Review Does it Conduct Electricity?	Medical Manoeuvres (revision unit)	Animals including Humans Review Comparing Handspans	Living things and their habitats Do Local environment study	Sensational Science (revision unit)
Spring 2	Use of Everyday Materials Do Float and Sink	Animals Including Humans Review Teeth (eggs) in Liquid	Light Plan Raising and sorting light questions	Plants Do Comparing plant growth in different conditions	Forces and Magnets Plan Magnet tests	Forces Do The formula 1 tubs
Summer 1	Plants Do Plant Structure	Plants Review How much water do plants need	Electricity Plan Bulb Brightness	Animals, including humans Review Animals Classification	Animals including Humans Review Teeth (eggs) in Liquid	Living Things and their Habitats Do Outdoor keys
Summer 2	Habitats Do Woodlice Habitat	Living things and their habitats Do Local environment study	Animals (including humans) Do Heart rate poses	Animal Life Cycles Review Nature Spotters	Plants Do Close observation of flowering plants	Evolution and Inheritance Plan Growing Yeast

# Science – EYFS Learning Steps



		EYFS = ELG	FS		Vocabulary
<b>C y c l e A</b>	Autumn	ELG: The Natural World Children at the expected level of development will: <ul style="list-style-type: none"> <li>Explore the natural world around them, making observations and drawing pictures of animals and plants;</li> <li>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;</li> </ul>	Changing Seasons Healthy Bodies Space Materials	Changing Seasons Materials - hard/soft, hot/cold, waterproof Floating/ Sinking	Spring, Summer, Autumn, Winter, Day, Daytime, night, wind, rain, sleet, snow, hail, fog, sun, cold, hot.
	Spring		Changing Seasons Hibernation Floating/ Sinking Animals Melting	Changing Seasons Minibeasts/Life Cycles Healthy Bodies Science Week	Hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, waterproof, absorbent, wood, plastic, metal, water, fabric, properties, materials
	Summer		Changing Seasons Growing – plants/flowers Cooking	Changing Seasons Changing Bodies/growth Cooking Environment Week Animals	Living, dead, never alive, habitats, food chain, shelter, seashore.
<b>C y c l e B</b>	Autumn	<ul style="list-style-type: none"> <li>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>	Changing Seasons Healthy Bodies Space	Changing Seasons Materials Floating/ Sinking	Petal, root, leaf, stalk, stem, water, oxygen, sunshine, soil, grow., seed. Plant, flower
	Spring		Changing Seasons Winter Animals Hibernation Melting Camouflage	Changing Seasons Life Cycles - chicken Growing Healthy Bodies Science Week	Minibeast, fish, animal, birds, senses, tongue, taste, nose, smell ears, hearing, eyes, seeing, skin, touch, omnivore, carnivore, herbivore.
	Summer		Ocean Animals Changing Seasons Floating and Sinking Cooking	Changing Seasons Life Cycle - Butterflies/plants/frogs Naming parts of plant Changing Bodies/growth Cooking Environment Week	

# Science – curriculum map – KS1 – cycle A



	Autumn	Autumn 2	Spring 1
<b>Unit</b>	Everyday Materials <b>Brilliant builders</b>	Seasonal Changes <b>Weather Art</b>	Animals including Humans <b>People and their Pets</b> <b>Twinkl Unit Y2</b>
<b>Skills</b> (disciplinary knowledge)	<p>listen attentively and respond to what they hear with relevant questions</p> <p>observe closely, using simple equipment</p> <p>perform simple tests</p> <p>identify and classify</p> <p>gather and record data to help in answering questions</p> <p>use their observations and ideas to suggest answers to questions</p>		
<b>Knowledge</b> (substantive knowledge)	Rise to the challenge of fixing a torn umbrella, explore different materials and answer the questions: how can we know that this material will not let the rain through? How can we test it? Go on further to investigate the absorbency and waterproofing of materials.	Talk about the four seasons and make a seasons collage together. Go outside to experience the wind and make a windsock, windmill and bottle wind spinner in the classroom. Talk about the importance of the sun, design sun catchers to hang in the classroom and a sundial for the playground. Then explore shadows using torches and make shadow theatre characters to use with DIY light boxes.	Children will begin by looking at animal young and comparing them to their adults. They will look at how animals change as they grow up and be introduced to the life cycles of several varied common animals, including humans. They look in detail at how humans change as they grow older, drawing on their own observations. Children are introduced to the three basic needs of animals for survival (water, food and air).
<b>Learning Objectives</b>	<p>I can predict which material is best for fixing a broken umbrella.</p> <p>I can test which material is best for fixing a broken umbrella.</p> <p>I can test the hypothesis: All hard materials cannot absorb water.</p> <p>I can predict and test which materials are absorbent.</p> <p>I can investigate how to make materials waterproof.</p> <p>I can sort materials into natural and man-made.</p>	<p>I can Observe changes across the four seasons and describe weather associated with the seasons and how day length varies.</p> <p>I can make a wind sock and a weather vane to measure the direction of the wind. Which is best and why?</p> <p>I can make bottle wind spinners and spirals to explore the strength of the wind.</p> <p>I can design sun catchers for the classroom with coloured, dark and reflective materials</p> <p>I can make a group sundial and observe what happens. Why do they work and what would be the reasons for them not working?</p> <p>I can investigate shadows outside and inside.</p>	<p>I can identify and match several animal offspring and their adult forms. They can describe the main characteristics of the offspring found in different animal groups.</p> <p>I can describe the main stages of at least two different animal life cycles. They start to compare these life cycles.</p> <p>I can identify several ways that humans grow and develop through each life cycle stage.</p> <p>I can name the three basic needs of all animals to survive. They can describe the specific needs of a given animal.</p> <p>I can describe the effects of exercise and begin to explain the importance of exercise for the human body.</p> <p>I can identify several foods according to the basic food groups and can talk about the importance of a balanced diet. They can explain how to be hygienic and why this is important.</p>
<b>Vocabulary</b>	waterproof, absorbent, breaks/tears, materials, properties, strong, weak, hypothesis, wood, metal, plastic, glass, brick, rock, paper	rain, snow, storm, thunder, lightning, warm, cold, forecast, summer, autumn, winter, spring, seasons, wind, strength, direction, sun, light source, shadow, day, night, shadow length, change, dark	adult, develop, life cycle, offspring, young, live young, egg, basic needs, exercise, germs, hygiene, nutrition
<b>TAPS Assessment</b>	Plan Waterproof paper testing	Do Seasonal Change	Review Body Parts



# Science – curriculum map – KS1 – cycle A



	Spring 2	Summer 1	Summer 2
<b>Unit</b>	Everyday Materials <b>Exploring Changes</b>	Plants <b>Art and Nature</b>	Habitats <b>Habitats and Homes</b>
<b>Skills</b> (disciplinary knowledge)  <i>I can ...</i>	<p>listen attentively and respond to what they hear with relevant questions</p> <p>observe closely, using simple equipment</p> <p>perform simple tests</p> <p>identify and classify</p> <p>gather and record data to help in answering questions</p> <p>use their observations and ideas to suggest answers to questions</p>		
<b>Knowledge</b> (substantive knowledge)	Observe a block of ice and record the changes. Devise an investigation to melt the ice quickly or slowly. Then create puddles and measure how they change. Take up the challenge of investigating the absorbency of fabrics and explore changes in wax through Batik art and crayon making.	Investigate and sort materials according to where they came from. Learn all about those materials that come from plants. Create a large pollen sculptures out of clay, find flowers outside in the playground and sketch them and then make a large model of the inside of a flower using junk modelling materials! Enjoy being outside by doing bark and leaf rubbings and then do a piece of playground art, using cloths, chalk and found materials.	Make a playground allotment complete with edible plants and bird scaring sculptures. Weed and tend the allotment; visit a farm; and explore farming with small world play. In groups, design a bug hotel and build it.
<b>Learning Objectives</b>	<p>I can devise an investigation to melt ice.</p> <p>I can devise an investigation to melt ice more quickly</p> <p>I can devise an investigation to melt ice more slowly</p> <p>I can observe and measure how puddles change over time</p> <p>I can make a wax resist picture and understand its role in waterproofing.</p>	<p>I can sort materials into plant and non-plant materials..</p> <p>I can investigate how different plants disperse their seeds</p> <p>I can sketch a range of plants and name them.</p> <p>I can name the basic structures of common plants and trees</p> <p>I can use a magnifying lens to look closely and a range of plant material.</p> <p>I can investigate the main features of trees.</p>	<p>I can say what plants need to survive</p> <p>I can explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>I can understand the role farms play in the food chain and why they are important – FARM VISIT</p> <p>I understand that most living things live in habitats design bug hotel.</p> <p>I can understand that most living things live in habitats – build bug hotel.</p>
<b>Vocabulary</b>	water, ice, melts, frozen, observe, materials, properties, absorbency, waterproof, strong, resist	plant, leaf, grow, weed, change, living, water, healthy, similar to, different from, useful, seed, bean, warmth, nutrients, leaves, stem, roots, deciduous, evergreen, trunk, bark	growth, germination, planting, edible, mini-beasts, habitats, harvest, grow, allotment, produce, soil, wash, cook
<b>TAPS Assessment</b>	Do Float and Sink	Do Plant Structure	Do Woodlice Habitat

# Science – curriculum map – LKS2 – cycle A



	Autumn 1	Autumn 2	Spring 1
Unit	Light <b>Shining the Light!</b>	Rocks and Fossils <b>This Planet Rocks!</b>	Electricity <b>Electric Personalities</b>
Skills (disciplinary knowledge)  I can ...	<p>ask relevant questions and use different types of scientific enquiries to answer them</p> <p>set up simple practical enquiries, comparative and fair tests</p> <p>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</p> <p>gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>use straightforward scientific evidence to answer questions or to support their findings</p>		
Knowledge (substantive knowledge)	The Rainbow Theatre have had a robbery. Some diamond earrings have been stolen during the dress rehearsal for the new play. There are 6 suspects to the crime and the police need your help to solve the mystery. There was a small audience for the rehearsal and they witnessed some strange events that led up to the robbery. Can you piece together the clues and solve the crime?	Some independent television programme makers want to make a documentary for children on rocks and fossils called This Planet Rocks! They would like children to present the show and be the rock experts. They have asked your class to help make some pilot programmes for them. Are you up to the challenge? You will need to brush up on your expertise on rocks, fossils and soils.	Create your own amazing electric powered person or robot to impress your friends and family. Design a face with exciting electrical components such as a nose that buzzes when you press it or eyes that light up at the flick of a switch! You could even design some electrical accessories like a revolving bowtie or hat! The possibilities are endless so let your imagination run riot! First you will need to brush up on your electrical knowledge and expertise.
Learning Objectives	<p>I can recognise that they need light in order to see things and that dark is the absence of light.</p> <p>I can notice that light is reflected from surfaces and that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>I can recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>I can find patterns in the way that the size of shadows change.</p> <p>I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes (and a review of all other Light objectives).</p>	<p>I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>I can describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>I can recognise that soils are made from rocks and organic matter.</p> <p>I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties, describe in simple terms how fossils are formed when things that have lived are trapped within rock and recognise that soils are made from rocks and organic matter.</p>	<p>I can identify common appliances that run on electricity.</p> <p>I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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.</p> <p>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 and I can recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p>

# Science – curriculum map – LKS2 – cycle A



	Autumn 1	Autumn 2	Spring 1
<b>Unit</b>	Light (3L) <b>Shining the Light!</b>	Rocks and Fossils <b>This Planet Rocks!</b>	Electricity <b>Electric Personalities</b>
<b>Vocabulary</b>	light, beam, darkness, illuminate, straight lines, investigate, Light source, reflector, reflect, predict, fair test, reflective materials, mirror, reflection, image, angle, line of reflection, concave, convex, symmetrical, transparent, translucent, opaque, shadow, screen, block, measure, distance, plot, graph, data, results, rainbow, white light, spectrum, prism, refraction, dispersion	rock, sandstone, limestone, chalk, granite, slate, marble, classification, observation, man-made rocks, brick, tile, concrete, igneous, sedimentary, metamorphic, permeable, impermeable, acid, erosion, identification key, petrologist, bedrock, properties, fossil, ichthyosaur, plesiosaur, ammonite, sediment, minerals, mould, cast, soil, micro-organisms, organic matter, particles, sand, silt, fair test, compare, sort, predict	electricity, cell, battery, plug, mains, cable, appliance, device, power, danger, safety, circuit, wire, lead, crocodile clip, bulb, bulb holder, buzzer, connection, energy, flow, current, switch, component, conductor, insulator, disconnect, motor, design, test, adapt, modify
TAPS Assessment	Do Can everything make a shadow?	Review Reporting on Rocks	Review Does it Conduct Electricity?

# Science – curriculum map – LKS2 – cycle A



	Spring 2	Summer 1	Summer 2
Unit	Animals Including Humans <b>The Circle of Life</b>	Plants <b>Greatly Green Growers</b>	Living things and their habitats <b>Habitat Helpers</b>
Skills (disciplinary knowledge)  <i>I can ...</i>	<p>ask relevant questions and use different types of scientific enquiries to answer them</p> <p>set up simple practical enquiries, comparative and fair tests</p> <p>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</p> <p>gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>use straightforward scientific evidence to answer questions or to support their findings</p>		
Knowledge (substantive knowledge)	<p>Our amazing planet is teeming with life from the depths of the oceans to the highest mountains. But every living thing is dependent on other living things for its survival. Every animal needs to eat plants or other animals. Plants need rich soil to grow strong and healthy and soil is made rich for growing by the decomposing remains of plants and animals that were once alive. It is an endless circle of life. Your task is to share this amazing never ending story with an audience through dance, music and narration.</p>	<p>The members of the Greatly Green Horticultural Society (AKA The Greatly Green Growers) have been challenged to a growing competition by their rival town Cropping well! The challenge is on to produce the heaviest marrow, the longest runner beans, the juiciest fruits and the biggest flowers! They need your help. Can you become their plant growing experts and find out through research and investigation, what plants need to grow as strong and healthy as possible?</p>	<p>The plants and creatures in our amazing world are in danger because their habitats are changing for lots of different reasons. It is your job to help, but how? Governments are trying to make changes but they can only do so much. To make a difference, everyone needs to care enough to make changes. It is your job to persuade them by staging your own Habitat Helpers Fair which will teach people about the problems and what they can do to help. Are you up for the challenge? You will need to become experts on a number of important Green Issues affecting local and worldwide habitats.</p>
Learning Objectives	<p>I can describe the simple functions of the basic parts of the digestive system in humans.</p> <p>I can identify the different types of teeth in humans and their simple functions.</p> <p>I can construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.</p> <p>I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p>	<p>I can recognise that environments can change and that this can sometimes pose dangers to living things.</p>

# Science – curriculum map – LKS2 – cycle A



	Spring 2	Summer 1	Summer 2
Unit	Animals Including Humans <b>The Circle of Life</b>	Plants <b>Greatly Green Growers</b>	Living things and their habitats <b>Habitat Helpers</b>
Vocabulary	digestion, digestive system, organ, saliva, peristalsis, oesophagus, stomach, acid, intestines, faeces, enzymes, bowels, villi, colon, rectum, anus, jaw, incisors, molars, premolars, canines, tear, grind, chew, gums, enamel, bacteria, tooth decay, herbivore, carnivore, omnivore, diet, features, adaptations, survival, predator, prey, food web, producer, consumer, energy	plants, growth, light, warmth, air, soil, water, investigate, seedlings, research, height, root, stem, leaves, flowers, petals, buds, fruits, seeds, classify, data logger, temperature, wilting, yellowing, requirement, measure, record, line graph, bar graph, light levels, transported, results	environment, habitat, ecosystem, pollution, climate change, human activity, survey, evidence, adapted, adaptation, depend, survival, natural, manmade, global warming, greenhouse gases, carbon dioxide, temperature, waste, landfill, incinerator, reduce, reuse, recycle, plastic, break down, deforestation, sustainable, unsustainable, population, species, endangered, threatened, erosion
TAPS Assessment	Review Teeth (eggs) in Liquid	Review How much water do plants need	Do Local environment study

# Science – curriculum map – UKS2 – cycle A



	Autumn 1	Autumn 2	Spring 1
Unit	Living Things & their Habitats <b>Illustrating Lifecycles</b>	Properties and changes of Materials <b>Materials Consultants</b>	Medical Manoeuvres
Skills (disciplinary knowledge)  I can ...	<p>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use test results to make predictions to set up further comparative and fair tests</p> <p>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</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p>		
Knowledge (substantive knowledge)	You have been commissioned to create an inspirational and informative illustrated book on the theme of animal and plant life cycles. Develop your mastery of key art skills as you create eye catching illustrations that accurately tell the life cycle story of a range of nature's wonders. Along the way, hone your skills as a natural scientist and top off your work by 'meeting' David Attenborough, Jane Goodall and their natural scientist colleagues. Enter your final book into the 'Excellence in Scientific Illustration' awards.	You have been employed as a materials 'agony aunt/uncle' to help solve everyday issues caused by the amazing array of material properties. Do you know your thermal insulators from your thermal conductors? Can you find the best materials to keep one reader's porridge hot for their commute to work, and the best bags for class 2's snack sales? You will need to carry out an impressive array of tests to identify which materials are up to the job for a variety of reader needs.	Use your knowledge from across the year to embrace a series of medical challenges from the Wellfordbury Hospital and see if you can help improve people's lives and the work of our health service. Explore possible approaches to help people recovering from or living with medical conditions, and investigate how understanding insect life cycles can help control certain diseases. Investigate and select the right materials for certain medical equipment as well as designing electrical and lighting systems to help with medical procedures. Test out your computing skills along the way and create your own blog to record your experiences.

# Science – curriculum map – UKS2 – cycle A



	Autumn 1	Autumn 2	Spring 1
Unit	Living Things & their Habitats <b>Illustrating Lifecycles</b>	Properties and changes of Materials <b>Materials Consultants</b>	Medical Manoeuvres (Revision Unit)
Learning Objectives	<p>I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird and the life process of reproduction in some plants and animals .</p> <p>I can compare and group together everyday materials on the basis of their properties, including their hardness, transparency, and conductivity (electrical and thermal) and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p>	<p>I can compare and group together everyday materials on the basis of their properties, including their hardness, transparency, and conductivity (electrical and thermal) and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>I can compare and group together everyday materials based on thermal conductivity properties and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>I can compare and group together everyday materials on the basis of their properties and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>I can compare and group together everyday materials according to their electrical conductivity and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>I can compare and group together everyday materials on the basis of their properties and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>	<p>I can describe the differences in the life cycles of insects, describe the life process of reproduction in insects and recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>I can describe the changes as humans develop to old age and recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood, recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>and describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>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, 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 and use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>I can associate brightness of a lamp/volume of a buzzer with the number &amp; voltage of cells used in the circuit, compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches and Use recognised symbols when representing a simple circuit in a diagram</p>

# Science – curriculum map – UKS2 – cycle A



	Autumn 1	Autumn 2	Spring 1
Unit	Living Things & their Habitats <b>Illustrating Lifecycles</b>	Properties and changes of Materials <b>Materials Consultants</b>	Medical Manoeuvres (Revision Unit)
Vocabulary	gamete, stamen, stigma, carpel, pistil, pollination, germination, flowering, sexual reproduction, life cycle, seed, pollen, anther, filament, style, ovary, botanical illustration, dissection, corm, bulb, spores, cutting, fern, moss, liverwort, tubers, asexual, non-flowering, propagation, artificial, metamorphosis, amphibian, insect, mammal, bird, gestation, foetus, sperm, egg, uterus, chick, baby, adult, natural scientist, naturalist, observation, conservation, endangered	opinion/fact, comparative, fair test, scatter graph, material & property names, enquiry, use, reasoning, Insulator, conductor, thermal, prediction, accuracy, line graph, variables, precision, comparable, strength, transparent, opaque, absorption, hardness, porous/non-porous, bar graph, electrical conductor, electrical insulator, limitations, scientific diagram, acoustic absorption	life cycle, metamorphosis (complete/incomplete), egg, instar, larvae, pupae, disease, medicine, drug, environmental factors, side effects, property, prediction, accuracy, comparative, fair test, enquiry, causal relationships, support/refute, development, child, adolescence, puberty, reproduction, elderly, adult, growth, change, timeline, diet, exercise, lifestyle, health, drugs, addiction, blood, blood vessels, arteries, veins, capillaries, heart, pump, oxygen, carbon dioxide, circulation, circulatory system, nutrients, water, Shadow, light source, beam, ray diagram, Electricity, electrical circuit, complete circuit, circuit symbol, components, cell, battery, positive/negative, wire, crocodile clip, bulb, bright/dim, switch, buzzer, volume, motor, voltage, current, conductor, insulator
TAPS Assessment	Review Lifecycle research	Do Insulation Layer	(revision unit) No Assessment



# Science – curriculum map – UKS2 – cycle A



	Spring 2	Summer 1	Summer 2
<b>Unit</b>	Light <b>Theatre Lighting Technicians</b>	Electricity <b>Electric Art</b>	Animals (including humans) <b>The Human Species</b>
<b>Skills</b> (disciplinary knowledge)  I can .....	<p>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use test results to make predictions to set up further comparative and fair tests</p> <p>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</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p>		
<b>Knowledge</b> (substantive knowledge)	A job opportunity has arisen at the National Theatre for a lighting technician and you have been asked to apply! You will need to put together a portfolio for the interview demonstrating that you have the skills and knowledge to put on a colourful and effects-driven show. You will need to make sure you have the technical know-how as well as a sound understanding of the science behind the behaviour of light.	The National Sensory Art Association (NSAA) has asked you to create an electric art installation for a sensory garden exhibition. Take a lucky dip and find out your specific theme, while following the brief to use motors, switches, bulbs and buzzers to make your art a stand-out choice for display.	You have been approached to create an exhibition about the human species. Can you research and collate information on growth, development, puberty and old age, and present it in a sensitive and logical way that is suited to your audience? Create sculptures and sketches that not only reflect the complexity of the human body but also act as an accurate and informative presentation of the complex systems that help make us human. You have 6 weeks until the exhibition open.
<b>Learning Objectives</b>	<p>I can recognise that light appears to travel in straight lines and use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>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 and explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>Light, dark, shadow, block, absorb, direction, reflect, cone, eye, straight, colour, spectrum, rainbow</p> <p>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 and explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>I can recognise that light appears to travel in straight lines, use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye and explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>I can bring together my knowledge of light and lighting effects to take part in a theatrical interview - Four challenges.</p>	<p>I can 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 and use recognised symbols when representing a simple circuit in a diagram.</p> <p>I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>I can 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 and use recognised symbols when representing a simple circuit in a diagram.</p> <p>I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</p> <p>I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit, compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches and use recognised symbols when representing a simple circuit in a diagram.</p>	<p>I can describe the changes as humans develop to old age.</p> <p>I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood and describe the ways in which nutrients and water are transported within animals, including humans.</p>

# Science – curriculum map – UKS2 – cycle A



	Spring 2	Summer 1	Summer 2
<b>Unit</b>	Light <b>Theatre Lighting Technicians</b>	Electricity <b>Electric Art</b>	Animals (including humans) <b>The Human Species</b>
<b>Skills</b> (disciplinary knowledge)  I can .....	<p>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use test results to make predictions to set up further comparative and fair tests</p> <p>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</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p>		
<b>Vocabulary</b>	light, source, dark, shadow, block, absorb, direct/direction, transparent, opaque, translucent, straight, reflective materials, reflection, angle of incidence/reflection, beam, scatter, distort, convex, concave, plane, ray, bent, focal point, refraction	electricity, electrical circuit, complete circuit, circuit symbol, components, cell, battery, positive/negative, connect/connection, loose connection, wire, crocodile clip, bulb, bright/dim, switch, buzzer, volume, motor, fast(er)/slow(er), voltage, current, conductor, insulator, metal/non-metal, enquiry question, investigation, findings, scatter diagram, causal relationship	causal relationships, support/refute, gestation, life cycle, sperm, egg, foetus, development, child, diet, exercise, lifestyle, health, drugs, addiction, disease, medicine, alcohol, cigarettes, stimulant, depressant, analgesic, hallucinogen, blood, blood vessels, arteries, veins, capillaries, heart, pump, oxygen, carbon dioxide, circulation, circulatory system, nutrients, water
TAPS Assessment	Plan Raising and sorting light questions	Plan Bulb Brightness	Do Heart rate poses

# Science – curriculum map – KS1 – Cycle B



	Autumn 1	Autumn 2	Spring 1
<b>Unit</b>	Everyday Materials <b>Brilliant builders!</b>	Seasonal Changes <b>Wild Weather!</b>	Animals including Humans <b>Amazing Me!</b>
<b>Skills</b> (disciplinary knowledge)  I can ...	<p>Plan - Listen attentively and respond to what they hear with relevant questions                      Do - observe closely, using simple equipment                      perform simple tests                      identify and classify                      Record - gather and record data to help in answering questions                      Review - use their observations and ideas to suggest answers to questions</p>		
<b>Knowledge</b> (substantive knowledge)	Explore and compare different materials and sort them into Consider what it would be like if the tables were made of jelly or the chairs were chocolate! Then recreate the story of the three little pigs and predict what will happen to their houses.	In this block, think about the weather, learn how to present data and make your own weather forecast to present to the class. Play shadow tag and create bar charts to record shadow length over time. Set up rain gauges to observe rainfall and bring all the learning together in a recorded weather forecast for the school website!	Think carefully about what you were like as a baby and how your body has changed since then. Compare foot and hand sizes to make a class display. Consider how to investigate what we can hear in the playground. Investigate fruit and vegetables and plan a balanced picnic for guests.
<b>Learning Objectives</b>  I can ...	distinguish between an object and the material from which it is made (1EM) ii. identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock (1EM) iii. describe the simple physical properties of a variety of everyday materials (1EM). iv. compare and group together a variety of everyday materials on the basis of their simple physical properties (1EM) v. identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (2EM) vi. find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies	identify, name, draw and label the basic parts of the human body and say which of the body is associated with each sense (1AH) ii. notice that animals, including humans, have offspring which grow into adults (2AH) iii. find out about and describe the basic needs of animals, including humans, for survival (water, food and air) (2AH) iv. describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene (2AH)
<b>Vocabulary</b>	rough/smooth, flat/bumpy, sharp/blunt, wood, metal, plastic, glass, rock, materials, properties, magnetic, non-magnetic	rain, snow, storm, thunder, lightning, cloudy, clothing, warm, cold, forecast, summer, autumn, winter, spring, seasons, day, night, shadow length, change, light, dark, weather, rainfall, precipitation, data, direction, gauge, patterns	compare, describe, similar, different, measure, record, predict, gather, centimetre, millimetre, ears, senses, hearing, spotting patterns, touch, sight, smell, taste, hear, sense, fruit/vegetables, bread/rice/potatoes/pasta, milk/dairy/food high in fat/sugar, meat/fish/egg/beans
TAPS Assessment	Plan Ways to test reflectiveness	Do Seasonal Change	Review Comparing Hand spans

# Science – curriculum map – KS1 – cycle B



	Spring 2	Summer 1	Summer 2
<b>Unit</b>	Plants <b>Growing Things</b>	Animals, including humans <b>Wild and Wonderful Creatures</b>	Animal Life Cycles <b>Food Chains</b>
<b>Skills</b> (disciplinary knowledge)  I can ....	<p>listen attentively and respond to what they hear with relevant questions</p> <p>observe closely, using simple equipment</p> <p>perform simple tests</p> <p>identify and classify</p> <p>gather and record data to help in answering questions</p> <p>use their observations and ideas to suggest answers to questions</p>		
<b>Knowledge</b> (substantive knowledge)	Explore outside and prepare tubs for planting potatoes. Record the growth of a bean and look at how it develops. Can you recreate the plant with craft materials? Can you label the parts of the plant? Look really closely at little cress plants and draw what you see. Then pop them into egg sandwiches for an egg and cress snack!	Sort plastic animal toys into groups and learn about carnivores, herbivores and omnivores. Create show box dioramas for a toy animal and annotate it with researched information. Make a micro-safari for a toy car, with a recorded message for the pretend drivers!	Talk about food chains and role play the interdependence between creatures in a chain, considering what part each plays in its survival. Explore the school grounds, looking for examples of food chains. Learn about water-based food chains and reconstruct them in tanks of water. Interpret the transfer of energy in a food chain through a dance, using masks and torches.
<b>Learning Objectives</b>  I can ....	<p>identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (1P)</p> <p>ii. identify and describe the basic structure of a variety of common flowering plants, including trees (1P)</p> <p>iii. observe and describe how seeds and bulbs grow into mature plants (2P)</p> <p>iv. find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>	<p>i. identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates</p> <p>ii. identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>iii. describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, and including pets)</p> <p>iv. identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</p> <p>. notice that animals, including humans, have offspring which grow into adults</p> <p>ii. find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>iii. describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>explore and compare the differences between things that are living, dead and things that have never been alive (2LvH)</p> <p>ii. 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 (2LvH)</p> <p>iii. identify and name a variety of plants and animals in their habitats, including micro-habitats</p> <p>iv. describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food</p>
<b>Vocabulary</b>	plant, leaf, grow, weed, change, living, water, healthy, similar to, different from, potato, seeds, warmth, light, dry, wet, moist, growth, germination, coat, bean, nutrients, leaves, stem, roots	birds, fish, reptiles, mammals, invertebrates, group, classify, carnivores, herbivores, omnivores, basic needs, water, food, air, breathing, survival, offspring, babies, adults	food chain, predator, habitats, dependence, dead, alive habitat, Savannah, rainforest, tundra, micro-habitat, features ocean, water
TAPS Assessment	Do Comparing plant growth in different conditions	Review Animals Classification	Review Nature Spotters

# Science – curriculum map – LKS2 – cycle B



	Autumn 1	Autumn 2	Spring 1
Unit	States of Matter <b>What's the Matter?</b>	Sound <b>Sounds Spectacular!</b>	Living things and their habitats <b>A World of Living Things</b>
Skills (disciplinary knowledge)  I can ...	<p>ask relevant questions and use different types of scientific enquiries to answer them</p> <p>set up simple practical enquiries, comparative and fair tests</p> <p>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</p> <p>gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>use straightforward scientific evidence to answer questions or to support their findings</p>		
Knowledge (substantive knowledge)	<p>The Dartspring Science Museum is setting up an exciting new section for visitors which is all about States of Matter and they need your help. They need some good ideas to teach people the differences between solids, liquids and gases. Can you demonstrate what happens to matter when it is heated and cooled and how this happens in the local environment? The museum café wants to serve special themed foods and drinks and they need your help to develop this idea. Are you up to the challenge?</p>	<p>A new rhythm band called "Sounds Spectacular" is being set up. The band members want to make great music using rhythms and tunes made from everyday items. Dave, the leader of the band needs a sound consultant to help him understand the scientific aspects involved, e.g. How will the audience hear the music? How can they change the volume or the pitch of the sounds? Dave hopes you will be able to help but it will mean setting up some investigations and getting to grips with some scientific research. Are you up to the challenge?</p>	<p>Our planet is full of beautiful plants and remarkable animals, it is an incredible world of living things, but what is special about something that is alive? Your task is to create an amazing interactive book that explains all about our incredible world of living things. Discover how living things are grouped according to their features. Create exciting pop-ups, spring-outs, lift-up flaps and turning wheels which show the wonderfully diverse groups of plants and animals on our planet.</p>
Learning Objectives  I can ....	<p>compare and group materials together, according to whether they are solids, liquids or gases</p> <p>observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</p> <p>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<p>identify how sounds are made, associating some of them with something vibrating</p> <p>recognise that vibrations from sounds travel through a medium to the ear</p> <p>find patterns between the pitch of a sound and features of the object that produced it</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>recognise that sounds get fainter as the distance from the sound source increases</p>	<p>recognise that living things can be grouped in a variety of ways</p> <p>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p>

# Science – curriculum map – LKS2 – cycle B



	Autumn 1	Autumn 2	Spring 1
<b>Unit</b>	States of Matter <b>What's the Matter?</b>	Sound <b>Sounds Spectacular!</b>	Living things and their habitats <b>A World of Living Things</b>
<b>Skills</b> (disciplinary knowledge)  I can ...	<p>ask relevant questions and use different types of scientific enquiries to answer them</p> <p>set up simple practical enquiries, comparative and fair tests</p> <p>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</p> <p>gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>use straightforward scientific evidence to answer questions or to support their findings</p>		
<b>Vocabulary</b>	states of matter, material, solid, liquid, gas, natural, manmade, classify, molecule, atom, bonds, air, oxygen, nitrogen, carbon dioxide, argon, molecules change, state, bromine, ice, freeze, melt, heat, energy, solidify, vapour, evaporation, condensation, condense, water vapour, invisible, change state, particles, precipitation, water cycle	music, sound, noise, investigate, explain, vibration, vibrate, ears, hear, travel, air, water, solid, vibrations, source, sound waves, sound proof medium, transmit, detect, vibrating, energy, decibel, fair test, data, graph, loudness, volume, strength, rhythm, stronger, weaker, pitch, note, high, low, tune, instrument, change.	life processes, movement, reproduction, sensitivity, nutrition, excretion, respiration, growth, living things, oxygen, energy, waste products, senses, environment, plants, animals, similarities, differences, kingdom, classify, classification, flowering plants, trees, mosses, ferns, spores, cones, leaves, flowers, seeds, vertebrates, invertebrates, insects, spiders, worms, woodlice, habitat, slugs, snails, molluscs, annelids, echinoderms, arthropods, crustaceans, arachnids, fish, amphibians, birds, reptiles, mammals, warm-blooded, cold-blooded, scales, feathers, fur, hair, milk, adapted
TAPS Assessment	Do Measuring Temperature	Plan Investigating Pitch	Do Local environment study

# Science – curriculum map – LKS2 – cycle B



	Spring 2	Summer 1	Summer 2
Unit	Forces <b>Magnetic Fun and Games</b>	Animals Including Humans <b>Fit for Success</b>	Plants <b>A Feast of Flowers, fruits and seeds</b>
<b>Skills</b> (disciplinary knowledge)  I can .....	ask relevant questions and use different types of scientific enquiries to answer them set up simple practical enquiries, comparative and fair tests make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identify differences, similarities or changes related to simple scientific ideas and processes use straightforward scientific evidence to answer questions or to support their findings		
<b>Knowledge</b> (substantive knowledge)	Play and Learn (P & L) Toys make toys and games that are fun and great for learning. They have asked you to help them design and test some new products. These toys and games will work using forces and magnetism. If you accept the challenge you will need to brush up on your scientific knowledge and skills and there will be plenty of testing and investigating to be done. Your final challenge will be to design a new toy or game that works using magnetism.	Teignford hockey team have not won a match all season, and now is the time to turn things around if they want to win the league next year. Can you take on the challenge of coaching them to fitness? They need a whole pack of advice on diet, exercise and how to prevent injury, not to mention positive team spirit and self belief!	Create a feast of flowers, fruits and seeds. Over the sessions, build up expertise on plant lifecycles, understanding the importance of flowers, bees, fertilisation, and the huge variety of fruits and seeds. Know how each stage in the lifecycle can provide delicious, nutritious food and cook up some mouth-watering dishes to serve at your feast. But this will be a feast with a difference, each course will be accompanied by a fascinating presentation of facts and information about plant life cycles.
<b>Learning Objectives</b>  I can .....	compare how things move on different surfaces ii. notice that some forces need contact between two objects, but magnetic forces can act at a distance iii. observe how magnets attract or repel each other and attract some materials and not others iv. 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 v. describe magnets as having two poles vi. predict whether two magnets will attract or repel each other, depending on which poles are facing	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 identify that humans and some other animals have skeletons and muscles for support, protection and movement	explore the part that flowers play in the life cycle of flowering plants

# Science – curriculum map – LKS2 – cycle B



	Spring 2	Summer 1	Summer 2
<b>Unit</b>	Forces <b>Magnetic Fun and Games</b>	Animals Including Humans <b>Fit for Success</b>	Plants <b>A Feast of Flowers, fruits and seeds</b>
<b>Skills</b> (disciplinary knowledge)  I can .....	<p>ask relevant questions and use different types of scientific enquiries to answer them</p> <p>set up simple practical enquiries, comparative and fair tests</p> <p>make systematic and careful observations and, where appropriate, take accurate measurements using standard units, use a range of equipment, including thermometers and data loggers</p> <p>gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>use straightforward scientific evidence to answer questions or to support their findings</p>		
<b>Vocabulary</b>	force, push, pull, prediction, fair test, investigate, measure, friction, twist, gravity, magnetism, contact, Newton, force meter, plot, magnetic, attract, attraction, question, strength, non-magnetic, theory, metal, iron, steel, repel, repulsion, poles, north, south	herbivore, carnivore, omnivore, nutrition, diet, food chain, data, table, bar chart, carbohydrates, proteins, dairy, fats, sugars, vitamins, minerals, fibre, growth, repair, health, energy, vertebrate, invertebrate, bone, skeleton, skull, ribcage, pelvis, femur, muscles, joints, tendons, contract, relax, biceps, triceps, lungs, diaphragm, heart, investigate, measure, compare, breathing rate	botany, botanist, botanical, petals, reproduction, male, female, stigma, style, stamens, seed, nectar, pollination, fertilisation, bee, pollen, waggle dance, honey, hive, attract, transfer, ovary, ovules, pollen grains, fruit, pod, parent plant, dispersal, germination, investigate, fair test, record, results
TAPS Assessment	Plan Magnet tests	Review Teeth (eggs) in Liquid	Do Close observation of flowering plants



# Science – curriculum map – UKS2 – cycle B



	Autumn 1	Autumn 2	Spring 1
<b>Unit</b>	Properties and changes of Materials <b>Special Effects Materials</b>	Earth and Space <b>Space!</b>	Sensational Science (Revision Unit)
<b>Skills</b> (disciplinary knowledge)  <i>I can ....</i>	<p>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use test results to make predictions to set up further comparative and fair tests</p> <p>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</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p>		
<b>Knowledge</b> (substantive knowledge)	The British Film Institute (BFI) directors need a new team of special effects technicians for a series of upcoming movies. You will need to explore a range of materials to create the desired special effects and compile a technician's guide.	Galileo Galilei needs your help at The Roman Inquisition: he needs to prove that the Earth moves round the sun; that the moon moves around the Earth; and that the seasons and day & night are all a consequence of these movements. He needs you to provide experimental evidence, not just current astrological thinking... and he is running out of time!	Explore the more unexpected side to science and see how some things challenge our scientific expectations. Investigate some mind-blowing reactions, sensational space behaviour, fickle forces, crazy creature classifications, and some extraordinary evolution antics. Understand better how the scientific community develops theories and how some science debates will continue for a while to come.
<b>Learning Objectives</b>  <i>I can ...</i>	<p>compare and group together everyday materials on the basis of their properties, including their solubility and response to magnets</p> <p>ii. know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>iii. use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>iv. demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>v. explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda</p>	<p>describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>ii. describe the movement of the Moon relative to the Earth</p> <p>iii. describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>iv. use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p>	<p>know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>ii. use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p> <p>iii. demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>iv. explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda</p> <p>v. describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>vi. describe the movement of the Moon relative to the Earth</p> <p>vii. describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>viii. use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p> <p>ix. 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</p> <p>x. give reasons for classifying plants and animals based on specific characteristics</p> <p>xi. explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>xii. identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>xii. recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p> <p>xiii. recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>xiv. recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>xv. identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>

# Science – curriculum map – UKS2 – cycle B



	Autumn 1	Autumn 2	Spring 1
<b>Unit</b>	Properties and changes of Materials <b>Special Effects Materials</b>	Earth and Space <b>Space!</b>	Sensational Science
<b>Skills</b> (disciplinary knowledge)  <i>I can ....</i>	<p>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use test results to make predictions to set up further comparative and fair tests</p> <p>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</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p>		
<b>Vocabulary</b>	enquiry, solid, liquid, gas, dissolve, soluble, solute, solution, insoluble, heterogeneous/homogeneous mixture, colloid, suspension, reversible, irreversible, changes of state, evaporation, sieving, filtering, heating/cooling, variables, precision, line graph, bar chart, accuracy, reaction, reactant, non-reversible, rust, oxidation	heliocentric, geocentric, spherical, solar system, astrology, enquiry, evidence, star, moon, planet, sun, Earth, Galileo, Copernicus, scale, planet names, orbit, sundial, shadow, axis, day, night, time-zone, Greenwich Meantime, eclipse, light, reflection, telescope, satellite, tide, mass, gravity, phase, lunar, direct/indirect light, equinox, solstice, season, hemisphere, longitude, latitude, proof, theory, hypothesis, argument, idea, fact	mixture, solution, inert, reversible, irreversible, acid, alkaline, oxidation, carbon dioxide, copper oxide, tarnished, physical reaction, chemical reaction, Heliocentric, geocentric, spherical, solar system, astronomy, enquiry, evidence, star, moon, planet, sun, Earth, planet names, orbit, axis, day, night, eclipse, telescope, satellite, tide, mass, gravity, phase, lunar, season, proof, theory, hypothesis, argument, idea, fact, force, friction, air pressure, inertia, Newton, push, pull, classification, kingdom, phylum, class, order, family, genus, species, Linnaeus, opinion, characteristics, adaptation, environmental factor, evolution, extinction, survival of the fittest, debate, dispute, reliable, unreliable, experimentation, theorisation
TAPS Assessment	Do Sugar cubes stacks	Review Solar system research	Revision Unit No Assessment

# Science – curriculum map – UKS2 – cycle B



	Spring 2	Summer 1	Summer 2
<b>Unit</b>	Forces <b>Welcome to Force-Land</b>	Living Things and their Habitats <b>The Classification Code</b>	Evolution and Inheritance <b>Survival of the Fittest</b>
<b>Skills</b> (disciplinary knowledge)  <i>I can ....</i>	<p>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use test results to make predictions to set up further comparative and fair tests</p> <p>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</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p>		
<b>Knowledge</b> (substantive knowledge)	<p>A new theme park is in the planning process and you have been selected to join the development team. Explore a range of forces and mechanisms, and see if you can incorporate them into a number of theme park rides.</p>	<p>Explore the world of classification and release the next part of your classification code with each new challenge. As you become more expert you will move closer to cracking the code and discovering an interesting fact from the world of classification. Meet Linnaeus along the way; identify a range of living things right on your back door step; and explore creatures further afield as well. Your challenge culminates in designing your own new creatures that fit within the classification system.</p>	<p>Take part in a series of challenges and explore which living things have survived in the game of life, evolving to keep one step ahead of the game. You will need to have your evolutionary wits about you and a keen eye for the survival of the fittest. Meet some evolutionary revolutionaries and use their approach to write your own Just So story.</p>
<b>Learning Objectives</b>  <i>I can ...</i>	<p>explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>ii. identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>iii. recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p>	<p>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>ii. recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>iii. identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>ii. recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>iii. identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>

# Science – curriculum map – UKS2 – cycle B



	Spring 2	Summer 1	Summer 2
<b>Unit</b>	Forces <b>Welcome to Force-Land</b>	Living Things and their Habitats <b>The Classification Code</b>	Evolution and Inheritance <b>Survival of the Fittest</b>
<b>Skills</b> (disciplinary knowledge)  <i>I can ....</i>	<p>plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>use test results to make predictions to set up further comparative and fair tests</p> <p>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</p> <p>identify scientific evidence that has been used to support or refute ideas or arguments</p>		
<b>Vocabulary</b>	support, fall, Earth, gravity, balancing force, resistance force, weight, Newtons, elasticity, variables, accuracy, friction, air resistance, causal relationship, moving surfaces, speed, water resistance, up thrust, precision, mechanisms, levers, pulleys, transfers, gears	classification, kingdom, phylum, class, order, family, genus, species, Linnaeus, opinion, classification key, similarities, differences, group, observations, support, refute, branching, botanical illustration, micro-organism, organism, taxonomy	offspring, characteristics, vary/variation, inherit/inheritance, environmental variation, suited/suitable, environment, adaptation, natural selection, evolution, adapted/adaptation, fossils, theory, opinion, cladogram
TAPS Assessment	Do The formula 1 tubs	Do Outdoor keys	Plan Growing Yeast