Subject Curriculum Overview



Science

Southwater Infant Academy Planning and Progression

'Growing, Learning and Succeeding Together'

Curriculum Statement

Intent

Here at The Southwater Infant Academy it is our intention to develop our children's love for learning through the Science curriculum. We aim to develop creative learners with imaginations that are ignited through exploration and curiosity within our 'hands-on' and engaging science curriculum. We aspire for our children to perceive themselves as future scientists, to have ambition with no limitations. Our study of real-life scientists ensures that our children have a diverse range of positive role models to aspire to, and a purpose for their learning. Children from all cultures, genders and ethnicities are able to see themselves represented as scientists.

Right from the Early Years Foundation Stage our children will study the world in which we live, developing an understanding of nature and processes. Throughout their time here, they study seasonal changes, our environment, materials, animals, plants, and humans, enabling them to develop an understanding of the world in which they live and how all of these associate and connect with one another. Essentially, they will begin to understand how our world works. We will nurture their own wellbeing, ensuring they feel valued with an understanding of their role as responsible global citizens, protecting the environment in which they live. We will nurture our children's enquiring minds and develop their skills in asking and answering scientific questions through investigative approaches.

Implementation

Our science curriculum provides children with a range of first hand engaging and stimulating experiences. Science is memorable and fosters a thirst for knowledge and a deeper understanding of the skills essential to the subject. Whilst knowledge is important we are aware that we are growing the scientists of the future, preparing our children to question, investigate and analyse a world we know nothing about. With the expectation of huge advances in technology, we anticipate that our children will be able to understand more about our world than we can possibly imagine. In order to prepare them for this our children are encouraged to be reflective, resourceful and resilient in their scientific thinking and learning. Where possible our science learning is linked to our Theme Units and is purposeful. Creativity is key, and cross curricular links between science and other STEM subjects are constantly growing and developing.

Our outdoor learning environment is a huge strength within the implementation of the science curriculum and children regularly access the range of habitats within our academy grounds to support and extend their skills and understanding. We pride ourselves in offering 'Forest School' experiences to our children, and believe this practice is invaluable to our children's first-hand experiences and knowledge of the environment in which they live.

In Reception our children are encouraged to ask questions. Excellent teacher questioning and intervention in play and exploration enables the children to respond to their own questions, observing and discussing similarities and differences in the world around them. They are encouraged to ask 'why?' and draw on their experiences of the world around them to solve problems and reflect.

In Key Stage One children raise pertinent questions and draw conclusions based on their own observations. Children carry out simple tests using a range of different enquiries, with a strong emphasis on practical experiences to reflect and challenge their understanding. They deepen their understanding and broaden their skills building upon what they have learnt in the EYFS.

Impact

Children at The Southwater Infant Academy speak in a positive and animated way about their science learning. Through exciting, engaging and inspiring learning opportunities children develop knowledge and skills in the field of science. Children perceive themselves as scientists and are confident to investigate, observe and analyse the world in which they live. By the end of Year Two, they are well equipped with the skills to question, problem solve, challenge and inquire with independence.

Long Term Plan

Driver	Developing kindness, and supportive relationships	Respecting our environment	Being part of the global community	Being resourceful and creative	Respecting diversity and equality	Driving to aspire and achieve
	Winston	s World	Sout	hwater Stars	Into the Blue	
R	The Natur Introduction to Woodland walk – chil gather signs Discuss Autumn and Science Discuss signs of Wint changes froi Science Woodland walk – chil gather signs	ral World the seasons. dren to observe and of Autumn. set up nature tray. e Day. er and the seasonal m Autumn. e Day. dren to observe and of Winter.	The Natural World Introduction to the seasons. Woodland walk – children to observe and gather signs of Autumn. Discuss Autumn and set up nature tray. Science Day. History Link – learn about Mary Anning as a scientist	The Natural World Dissolving – observe and investigate the process of dissolving. Discuss new life and animals that are born in spring – comparing animals born in eggs and those not. Seasonal walk – looking at signs of Spring and new life. Planting bulbs and seeds to observe the changes over time. Discuss parts of a plant.	The Natural World Discuss different sea creatures and think about their habitats. Seasonal changes discussion and observation linked to Summer. Discuss environmental issues and their effects on turtles and other sea creatures (World Oceans Day).	The Natural World Make drawings and notes/take photos about/of plants and animals spotted on trip to country park. Bug hunting – identifying, drawing, classifying minibeasts found in school environment. Children to compare different habitats in the local area of Southwater and Horsham (e.g.school grounds vs country park). Children to discuss and watch life cycles of butterflies/frogs/turtles.
	Bog Baby / Wild and Wonderful	London's Calling	Didgeridoos and Kangaroos	This is Me	Once upon a tale	Southwaters past
1	Seasons – Nature Walk, Signs of Autumn (Bog baby bed link), measuring the weather.	Materials – naming and sorting, properties, distinguishing between, testing (link to Paddington). Paddington's Blanket: materials investigation. Seasonal changes – Autumn to Winter.	My Body – parts, senses, Senses Detective: senses investigation , senses poems.	Animals – grouping, describing and comparing, carnivore/herbivore/omnivores, identifying and classifying, Whose Poop: animals investigation. Famous scientists - research	Plants – Planting – growing investigation, parts of a plant, plant guides.	Pond life – pond dipping. Plants – guide books continued. Seasonal Changes – Spring to Summer.

	To Infinity a	nd Beyond	Wo	rld Explorers	Champi	ons and Heroes
2	Materials – knowledge recap, properties and suitability, Alien Spaceship Crash: Transparency investigation, manipulating materials, How to Catch a Star: suitability of materials investigation	Materials – Recycling, reusing, reducing, Climate change: Greenhouse Gases Investigation.	I think – I know – I wonder Living things – baby animals, life cycles and growth, Tall Tales: Are older people always taller investigation.	Basic Needs – animals, healthy eating, hygiene; Bread: Hand washing investigation, exercise. Habitats – Around the World, Antarctic, meeting a real-life scientist: Dr Morley visit.	Living things – alive/not alive/never alive, Local habitats, micro habitats – bug hotels and pond dipping, food chains.	Plants – Charles Darwin, Growing hyacinths: growth investigation, life cycles.

Ongoing Scientific Disciplines

'Working scientifically' specifies the understanding of the nature, processes and methods of science for each year group. It should not be taught as a separate strand. The notes and guidance give examples of how 'working scientifically' might be embedded within the content of biology, chemistry and physics, focusing on the key features of scientific enquiry, so that pupils learn to use a variety of approaches to answer relevant scientific questions. These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data. 'Working scientifically' will be developed further at key stages 3 and 4, once pupils have built up sufficient understanding of science to engage meaningfully in more sophisticated discussion of experimental design and control.

	EYFS	KS1	Thinking about LKS2
1. Questioning	Asking simple questions and recognising that they can be answered in different ways	Ask a range of simple questions about what they notice	Asking relevant questions and using different types of scientific enquiries to answer them
2. Observing over time	Observing closely, using simple equipment	Observing closely, using simple equipment	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
3. Testing – fair and unfair	Perform simple test	Performing a range of simple tests	Setting up simple practical enquiries, comparative and fair tests
4. Classification	Identifying and classifying	Identifying and classifying things in the natural and humanly constructed world	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
5. Drawing conclusions and evaluation	Using their observations and ideas to suggest answers to questions	Using their observations and ideas to suggest answers to questions	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
6. Evidence based learning	Gathering and recording data to help in answering questions	Gathering and recording data to help in answering questions	Using straightforward scientific evidence to answer questions or to support their findings.

Progression of skills, knowledge and vocabulary

EYFS – Autumn

Skills and Objectives	Whole Class Work/Input	Focus Task/Continuous Provision ideas	Vocabulary
Explore the natural world around them (Reception) Describe what they see, hear and feel whilst outside (Reception) Understand the effect of changing seasons on the natural world around them (Reception)	 Input 1: What is a season? Talk about the season names and their order in the year. What do children know about each season? Read <i>Fletcher and the Falling Leaves</i> Discuss the story and the seasonal changes Fletcher observes, have we seen any changes happening in the world around us? Input 2: Autumn spotting game Using ppt (see resource file on Sharepoint) play Autumn spotting game – reveal only part of an Autumn image, children guess what it is and discuss 	Autumn tray with leaves, conkers, acorns etc for free exploration – magnifying glasses, pencils and clipboards. Leaf sweeping outside – brooms and wheelbarrows. Small world woodland animals to play within leaves.	Nature Season Spring Summer Autumn Winter Change Leaves Acorns Conkers Hibernation

Understand some	what it tells us about the changing season – link to prior learning/previous discussions.	Take photos on ipad of seasonal	Weather
important processes and changes	Input 3: Autumn Walk	changes observed on Autumn walk.	
in the natural world around them,	Take children out for a walk through Conservation Area and gardens,	Autumnal artwork – leaf printing,	
including the seasons and	discussing what we see on the way and taking photographs/collecting	collage etc.	
changing states of matter (ELG)	treasures for class Autumn tray.	Autumn/harvest singing.	
Explore the natural world around them (Reception) Describe what they see, hear and feel whilst outside (Reception) Understand the effect of changing seasons on the natural world around them (Reception) Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG)	Input 1: Winter is coming! Winston Wolf turns up with a hat and scarf on! Why is he wearing these extra clothes? What have we already noticed happening outside? What will we see over the next few months? Discuss the changing season as we move into Winter – look at photos and videos of seasonal changes. <u>https://www.youtube.com/watch?v=-n_cXcOe6xk</u> Which part of the film shows the Winter coming? How do we know? Input 2: Read a winter story (eg. Fletcher and the Snowflake, Percy the Park Keeper One Snowy Night) Discuss seasonal changes that were part of the story. 'Find' a toy frozen in ice! What has happened? Why? How can we get the toy back? Why might this happen in Winter? Discuss changing state of matter water to ice. Input 3: Winter Walk Revisit conservation area and gardens – what has changed since we visited in Autumn? What else will change? Photograph signs of Winter.	Ice activities – leaving items out to freeze and investigate, water in different containers. Sketching of Winter twigs, sticks, fir cones. Small world play – animals to hibernate, fake snow, twigs and sticks etc.	Nature Season Spring Summer Autumn Winter Change Leaves Snow Ice temperature Hibernation Weather

Explore collections of materials with similar and/or different properties (3-4 yrs) Talk about what they see, using a wide vocabulary (3-4 yrs) Talk about the differences between materials and changes they notice (3-4 yrs)	Science Day This is a fun and engaging way to develop children's enquiring minds and develop a love of science. Particularly use this opportunity to practice asking questions, using observation skills and thinking about new vocabulary. Each Science Day will be planned around a whole school theme, however ideas can be found at the links below https://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2017/09/Kitchen-science.pdf https://www.stem.org.uk/elibrary/resource/30149 https://www.thoughtco.com/kitchen-science-round-up/ https://littlebinsforlittlehands.com/4-mini-easiest-kitchen-science-activity-trays/	How many drops of water can fit on a penny? Building bridges from paper. Dancing Raisins. Balloon rockets. Skittles colour. Magic Milk. Paper flowers. Paper rainbows. Cornflour. Spaghetti and marshmallow structures.	Observe Feel Texture Investigate Experiment Scientist
	trays/		

EYFS - Spring

Skills and Objectives	Whole Class Work/Input	Focus Task/Continuous Provision ideas	Vocabulary
Recognise some environments that are different to the one in which they live (Reception) 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 (ELG)	XC Fairtrade Fortnight/ UTW – The World (geography) link: As part of discussion/inputs about banana growing in South America. Consider the difference in the natural environment in the UK to that in Colombia. Why can bananas grow there but not here? What vegetables/fruit do we grow in the school gardens/ at home? What is the weather like here/there? Look at photos of banana growing – what nature features can we see? What plants grow there? What animals live there? Mathematical environment Mathematical environment https://schools.fairtrade.org.uk/teaching-resources/b-is-for-banana-activity-pack-for-early-years/ https://schools.fairtrade.org.uk/teaching-resources/pablo-the-superbanana/	Sorting activity – photos of nature from South America/UK comparing environments, farming, nature etc	Country Continent Environment Weather Nature Habitat Difference Similar
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG)	Input – The teacher has been busy on their break and not had time to have a cup of tea! Would the children mind if you made one now with them? Make a cup of tea and add sugardiscuss the process of dissolving – children watch the sugar disappear to stimulate observation and discussion. Where else do we see this happen?	Candy canes and containers of warm water for children to observe, photograph, draw and describe the process of dissolving.	Dissolve Change Disappear Observe

Explore the natural world around them Describe what they see, hear and feel whilst outside Understand the effect of changing seasons on the natural world around them Explore the natural world around them, making observations and drawing pictures of animals and plants (ELG)	Input 1 - Signs of Spring Recap seasons and their sequence. What season are we coming into now? Look at images/videos showing seasonal changes. https://www.youtube.com/watch?app=desktop&v=aaPWCFa7B5I https://www.youtube.com/watch?app=desktop&v=oMAAHmq-yxA https://www.youtube.com/watch?app=desktop&v=tiYqOpt_tyA https://www.youtube.com/watch?app=desktop&v=tiYqOpt_tyA https://www.youtube.com/watch?app=desktop&v=iEK1bY31bS8 https://www.youtube.com/watch?app=desktop&v=x0H36jhKOm4 Input 2 - Listen to Spring poems/songs. Recap previous learning on the signs of Spring. Watch/listen to Spring songs and poetry eg. https://www.bbc.co.uk/cbeebies/radio/down-on-the-farm-spring https://www.bbc.co.uk/cbeebies/watch/down-on-the-farm-spring-poem https://www.dailymotion.com/video/x2o8zye xc link – learn Spring Chicken song.	Sketching of Spring flowers. Small world play – farm, animals etc. Spring singing and poetry. Spring art/cards. Class Spring book/display – children to take photos, make drawings, write labels/captions.	Season Spring Summer Autumn Winter New life Growth Baby Egg Bud Sprout Shoot
---	---	--	---

	Discuss new life and animals that are born in spring – talking about babies coming out of eggs and why some do and some do not – eg. Reptiles/human babies. Input 3 -Spring walk and photography. Recap what we saw in the conservation area/gardens in Autumn and Winter. What do we think may be different out there now? Head out on a Spring walk to search for signs of Spring. Take ipad/cameras to take photos to create a class book/pictures for display.		
Plant seeds and care for growing plants (3-4 yrs) Understand the key features of the life cycle of a plant and an animal (3-4 yrs)	Input 1 – The parts of a plant Show the children a picture of a Spring plant you had prepared for them but dropped the labels from on the way back to the classroom! Can the children help you sort out the muddle and label to drawing correctly? Play/watch the following Imput 2 Phaper 2 – The life cycle of a plant Read a story such as Sam plants a sunflower to introduce the growth of plants. Talk about what plants need to grow, watch Topsy and Tim clip: https://www.youtube.com/watch?v=fwCe3zzNzL8	Garden centre/planting role play. Digging pit. Labelling the parts of a plant. Simple plant diary/photos to record growth. Life cycle sequencing. Planting/caring for plants in the outdoor classroom beds.	Root Stem Leaf Bulb bud Seed Growth Plant flower

Model planting a bulb and discuss what we expect to see! What are the parts and what will happen to them?	
Sing A Tiny Seed song.	
Watch the bulb sprout and grow over the coming days/weeks, discussing parts and life cycle as time passes.	

EYFS – Summer

Skills and Objectives	Whole Class Work/Input	Focus Task/Continuous Provision ideas	Vocabulary

Recognise some environments that are different to the one in which they live (Reception) 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 (ELG)	Inputs (multiple!) – Children to share their takeaway tasks from the Easter holiday. Children to lead fact sharing about the different sea creatures they have researched. Talk about the different habitats of the animals and the oceans and countries in which they are found. How are these environments different to the natural world in this country and in our seas?	Information books about sea creatures and their habitats.	Animal names Country Continent climate Habitat Weather Plant life Food Temperature Same Similar Different
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG)	 Input 1 – Here comes Summer! Discuss the changing of the seasons as we move into Summer – what will we notice happening in the world around us? <u>https://www.youtube.com/watch?v=Z3RSpxiD8tc</u> Sort some photos from different seasons to recap the seasonal features of natural world. Play a corners game with each corner of the room representing a different season. Children to vote for their favourite season by choosing a corner to stand in. Ask some children in each corner to tell the class why that season is their favourite eliciting reference to the seasonal features of the natural world we have learnt about! Input 2 – Summer Walk Look back at the class Spring book/display/photos takenwhat did we see at the start of Spring and what do we expect to see now? Revisit the gardens and 	Magnifying glasses, minibeast/plant/bird spotting books and sheets. Bug catching equipment. Clipboards and sketching pencils for drawings of plants and minibeasts. Sun safety posters. Watering cans to water plants in outdoor areas.	Season Autumn Winter Spring Summer Weather Temperature Heat Sun

	conservation area on a Summer walk with clipboards and pencils to sketch plants, flowers and minibeasts in conservation area and garden.		
Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter (ELG)	Input 1 - The life cycle of a turtle. (XC work – writing tasks – lost posters/life cycle labelling) A baby turtle (hatchling)is found in a bucket in the outdoor classroom! Where has she come from? Learn about how she would have hatched from an egg and about her life stages to come. <u>A baby turtle (hatchling)</u> <u>https://www.youtube.com/watch?v=YAS7ARJHRrU</u> <u>https://www.youtube.com/watch?v=7RLcUWu_QfA</u>	Draw and label a diagram of the life cycle of a sea turtle. Life cycle sequencing. Design and make a paper bag to use as an alternative to plastic bags. 'Save the turtles' posters.	Life cycle Grow Change Turtle Hatchling Juvenile Egg Caterpillar Chrysalis Cocoon Pupa Environment Eco Conservation Protect Pollution

Input 2 - World Oceans Day		
damage human behaviour can do to sealife and ocean babitats		
What can we do to help? – discuss reducing plastic use, keeping beaches clean		
etc.		
Watch the Octonauts episode:		
https://www.youtube.com/watch?v=458UOLxgvNY and discuss what we can		
learn from the story.	Make a pasta plata life avala of a	
More cline and recourses here:	buttorfly	
https://www.wwwf.org.uk/got.involved/schools/colondar/world.ocoops.dov	butterny.	
https://www.wwi.org.uk/get-involved/schools/calendal/wond-oceans-day	Information books about	
https://worldoceanday.school/	hutterflies/caternillars	
	butter mes/euterpinars.	
	Class Caterpillars to observe, draw.	
Input 3 – Read 'The Hungry Caterpillar' - discuss the life cycle of a butterfly. Link	photograph and discuss.	
to previous learning about life cycles.		
0		
X		
☆☆◇◇		
Watch: https://www.youtube.com/watch?v=jivWeOrCael		
Read: The Crunching, Munching Butterfly, Butterfly, butterfly		
And a selection of non fiction books.		
Over a few weeks watch our own class caterpillars grow and change in the		
classroom. Discuss life cycle and make observations. Release the butterflies!		

Is beginning to understand	Input 1 – What is a miniheast?	Draw the miniheasts and	Miniheast names
the need to respect and	How many can we think of? Where do they like to live?	plants/flowers we find on our hunt	Flower/plant names
care for the natural	How many can we think or: where do they like to live:	plantsynowers we find on our nullt.	Habitat
environment and all living	Read Mad about Minibeasts I by Giles Andreae	Magnifying glasses	Food
things (3-4 yrs)	Read Mad about Millibrasts; by Glies Anareae	miniheast/nlant/hird spotting books	1000
tilligs (5-4 yis).	Play (What am 12' game (from PowerPoint or using own clues and nictures 1) to	and cheets. Bug catching	
Explore the natural world	stimulate discussion and sharing of existing knowledge	and sheets. Dug catching	
around them (Recention)	stimulate discussion and sharing of existing knowledge.		
around them (neception)		Cliphoards and sketching pencils for	
Describe what they see		drawings of plants and minibeasts	
hear and feel whilst	\sim		
outside (Reception)	What kind of minibeasts do we think live in the school grounds? Where should we		
	look for them? Create a list of minibeasts we think we may find.		
Explore the natural world	8		
around them, making	ፈъ		
observations and drawing	$\Delta \Delta$		
pictures of animals and	wvv0		
, plants (ELG)	Input 2 – Bug hunting		
	Explore the school environment, go bug hunting on a nature walk. Take spotting		
Understand some	sheets/information books/magnifying glasses, paper on clipboards and pencils.		
important processes and			
changes in the natural			
world around them,			
including the seasons and			
changing states of matter	Refer back to our list – any we didn't find? Why? Where may they found in a		
(ELG)	habitat different to that of the school grounds?		
	6.0000		
Know some similarities and	Input 3 – Minibeasts from a different place		
differences between the	Contrast the natural world we have found out about to a contrasting		
natural world around them	environment eg. Australia/the rainforest. What different minibeasts are found		
and contrasting	there? Why?		
environments, drawing on			
their experiences and what	https://www.minibeastwildlife.com.au/		
has been read in class (ELG)			
	https://www.twinkl.co.uk/resource/au-t-3648-new-australian-insects-powerpoint		

	https://www.youtube.com/w	atch?v=Dx1PRCaPkaM		
Explore the natural wor around them, making observations and drawi pictures of animals and plants (ELG)	Id On trip to the country park (p and animals seen, take photo	irate picnic!) children to make sketches of plants s etc.	Spotting sheet of natural features. Clipboards and pencils for sketching.	Environment Habitat Minibeast/plant/tree names
	Back at school look at drawing are the same as ones we have	gs and photos – which plants or minibeasts spotted e seen around the school? Which are different?		
Year 1 –	- Autumn			
Skills and Objectives	Sticky Knowledge	Learning Task	Vocabular	y Cultural Capital, significant individuals and curriculum enrichment

LO: Describe changes across the four seasons.	 There are four seasons Each season has a different name The seasons are autumn, winter, spring and summer There are different months in each season 	 Lesson 1: Nature walk linked to finding Bog Baby. Introduce the concept of the 4 seasons. Watch: BBC Teach: The Great British year. <u>https://www.youtube.com/watch?v=VYpGBtR8Lbs</u> Familiarise children with the 4 seasons including the order this could be introduced as a wheel or as part of your daily weather chart. Children to create a season's wheel to go on the front of their 'Season's Diary' (See example). Children to go on an Autumn walk – what signs can you spot that show us that it is the season of Autumn? Stretch – compare seasons to one another 	Season Autumn Winter Spring Summer Similarities Differences Where is the evidence? Science Book: Seasons Wheel-Front Cover of Season Booklet	What is a meteorologist? meteorologists study weather, climate, and other aspects of the atmosphere. They develop reports and forecasts from their analysis of weather and climate data.
LO: To identify and name a variety of everyday materials	 There are many different materials A material is something we can use to make different objects There are different materials around our school There are many different objects around us An object is different to a material Some objects are made from one material Some objects are made from more than one material 	 Lesson 2: Naming materials: Look at a selection of objects, pass around the circle so all can touch, feel, look at etc. Have enough for each child. Children to place their object into the correct sorting circle Plastic-wood-metal-glass-rock etc Have a pre-prepared photograph of the sorted objects children to label with the material name. Children to glass was never invented? 	Material Object Plastic Wood Metal Water Glass Stone Paper Brick Fabric Where is the evidence? Science Book: Labelled Material Groups: Plastic, wood, metal, glass, rock.	Who was Charles Macintosh?

LO: To distinguish between an object and the material it is made from.	 Different materials have different properties Objects are made from different materials depending on their properties 	 Lesson 3: Distinguish between materials and their properties: Play odd one out. Put 4 objects in front of the children. Ask them to name each object eg. Key, paper clip, tinned can and a feather. Ask which is the odd one out? Discuss the fact that 3 of the objects are made from metal and the feather is not. Repeat with objects of different materials (address misconceptions) Children to go on a material hunt around the school take material labels and take photographs of children eg. The picnic benches take a photo of someone holding the plastic label etc. Upload to Tapestry with individual quotes Stretch – What if was made from? 	Material Object Plastic Wood Metal Water Glass Stone Paper Brick Fabric Where is the evidence? Pupil voice identifying object names and the material in which they are made.	What is a materials engineer? Materials engineers work with metals, ceramics, and plastics to create new materials. Materials engineers develop, process, and test materials used to create a range of products, from computer chips and aircraft wings to golf clubs and biomedical devices.
---	--	--	--	--

Different materials have	Lesson 4: Describing materials:	Describe	What is nylon and is
 Different materials have different properties We can find out some of those properties by investigating ho materials look and feel We can describe materials by using their properties 	 Provide the children with a bag of objects and some labels as follows Teddy = soft Crystal = hard Stretchy man/elastic band = stretchy Large bull dog clip = stiff Tinned foil = shiny Any dull material = dull Bark = rough Pebble = smooth Slinky = bendy Raincoat = waterproof Sponge = absorbent Clingfilm = transparent. Children to match the label to the object on the carpet objects children to stick and label the materials on large sugar paper. Display on the magpie wall. Stretch – to create a short story using the learning and vocabulary from today 	Property Physical property Soft Hard Stretchy Stiff Shiny Dull Rough Smooth Bendy Waterproof Absorbent Transparent Where is the evidence? Tapestry: Group labelled pictures and pupil voice	it a good material? (think environmentally) Nylon is an artificial fibre. It is one of the most commonly used polyamides, and was first produced on February 28, 1935. Nylon makes a silky material which was first used in toothbrushes.

	 Objects are made from different materials They are chosen because of their properties Some materials are a good choice for an object Some materials are a bad choice for an object Objects are tested before they 	 Lesson 5: Testing materials: Bog Baby's coat/Blanket Recap on the vocab from last week Explain that Paddington wants to buy a new coat but he doesn't know which material he should choose. Explain the Dingle Dangle scarecrow thinks he should wear a coat of straws. 	Test Pros and cons Suitable Observation Compare Where is the evidence? Science Book: Yes/No	When was a glass window invented? around 100 AD While ancient China, Korea and Japan widely used paper windows, the
LO: To test the suitability of materials	are sold to see if they are suitable and safe	 The Tin man thinks from tinned foil Baa Baa black sheep thinks from cotton wool Barbie thinks from plastic (cellophane) Flat Stanley thinks from paper Give each group a material from the above list. Test it to see if it is Absorbent/not absorbent Waterproof/not waterproof Bendy/not bendy Stretchy/not stretchy Transparent/opaque Discuss the pros and cons of each property for a coat. Children to fill in a simple yes/no tick sheet modelled by teacher (could demo on wood) Share results at the end Stretch – display your data in a different way, a chart for example 	tick sheet	first known to use glass for windows around 100 AD.

LO: To investigate the suitability of materials	 Objects are made from different materials They are chosen because of their properties Some materials are a good choice for an object Some materials are a bad choice for an object 	 Lesson 6: Investigation: Bog Baby's coat/blanket Explain that Paddington has bought a new coat but it isn't waterproof so now he needs a new umbrella for when it rains! Ask children the question: Which material should we make Paddington's Umbrella from? Children to make a hypothesis about which will be the best material. Provide children with the method. Give each group 1 plastic pot, 1 pipette, 1 compare bear, 1 elastic band and a selection of different materials e.g. Metal (foil) Plastic (cellophane) Paper (paper) Textile (a small piece of fabric) Glass (a square coaster) Children to suggest an answer to the question- encourage them to think of other features eg flexibility, stretch etc Stretch – can you explain why people who fit bathrooms might need to know this information too? 	Prediction Wet Dry Results Where is the evidence? Science Book: Bog Baby's Coat/Blanket booklet: Prediction Photographs of investigation Tick sheet Simple recording of results Answer to question (which material will make the best umbrella)	
LO: To sort materials into different categories.	 Different materials have different properties We can sort materials by how materials look and feel We can sort materials by using their properties 	 Lesson /: Assessment activity sorting materials Give children a selection of picture cards in groups. Can they sort them? E.g. waterproof/not waterproof Absorbent/not absorbent Transparent/opaque etc 	Property Physical property Soft Hard Stretchy Stiff	wrapping on fruit and vegetables?

		Teacher to model the use of Venn diagrams Stretch – explain any mistakes that the teacher purposefully creates	Shiny Dull Rough Smooth Bendy Waterproof Absorbent Transparent Where is the evidence? Tapestry: Photographs of pupil voice.
LO: To understand the signs of Autumn.	 We can use symbols to show what the weather is like Weather forecasts tell us what the weather is going to be like In autumn, is gets colder and the weather can be sunny, cloudy, windy or rainy We need to wear clothes in autumn that keep us warm In autumn, we can see many changes in the world around us Leaves change colour and fall from the trees We can see lots of berries and nuts Animals begin to act differently in the autumn 	 Lesson 8: Signs of Autumn (Linked to Bog Baby's bed) Children to go for a walk recapping on the signs of autumn, eg leaves off trees, leaves changing colour, conkers, acorns, squirrels collecting nuts etc. *Collect items in a shoebox to use for Bog Baby's bed (encourage to bring from home too)-Take photos for science book, can chn. name the objects? Come back to the classroom. Look at the concept of weather e.g what has the weather been like this week, what have we been wearing, what has the temperature been (discuss this concept if unfamiliar), what do we see in autumn Children to record this information onto the first page of their 'Season's Diary' (See example). Done in groups whilst other children use seasonal objects to create a bed for bog baby in a shoe box 	Weather Autumn Colder Warmer Leaves Fruit Where is the evidence? Science Book: All About Autumn – page 1 of seasons booklet - Weather - Clothing - Signs - Daylight hours

LO: To understand how we can measure the weather.	 We can use symbols to show what the weather is like Weather forecasts tell us what the weather is going to be like In autumn, is gets colder and the weather can be sunny, cloudy, windy or rainy We need to wear certain clothes in Autumn to keep warm 	 Lesson 9: Measuring the weather: Explain to the children that where bog baby comes from he doesn't have so many types of weather. He is finding that he is too hot, too cold, too wet, etc Watch a simple weather report. <u>https://www.youtube.com/watch?v=HSHNkT-V7LY</u> Discuss some key vocabulary you have heard. Introduce your classroom weather chart and introduce weather monitors explaining we will look at the weather each day and record it on our class chart (this can be as detailed as you choose. Discuss key weathers eg wind, rain, sunshine, cloud, snow etc Children to choose to make a rain gauge from pre-cut bottles bought from home or weather vane discuss how we can use these to measure the wind direction and rainfall Children to fill in a simple weather chart in their science book each day for a week or each Monday for a month helping bob baby know what to wear each day etc. 	Weather Colder Temperature Where is the evidence? Science Book: Weekly Weather chart (Autumn) - Temperature - Weather type - Key weather word Tapestry: Making weather stations – Photographs and pupil- voice.	How does a thermometer work? A thermometer is usually made up of a small, hollow glass tube. At the bottom of the tube is a bulb, which holds a liquid such as alcohol or mercury. When there is an increase in heat, the liquid inside the bulb expands, pushing up into the tube. A decrease in heat lets the liquid contract, moving down the tube.
LO: To understand the signs of Winter.	 The temperature gets colder from autumn to winter Some trees lose their leaves and become bare The days get shorter as we get fewer hours of daylight in winter We can use symbols to show what the weather is like In winter, the weather gets much colder 	 Lesson 11: Autumn to Winter Watch this clip <u>https://www.bbc.co.uk/teach/class-clips-video/the-changing-seasons/zh4rkmn</u> Encourage children to identify when it is winter Go for a winter walk around the academy-discuss the fact last time we went we didn't need to wear a coat, gloves (wellies, hats etc) Link this to the change in temperature. Children to observe the loss of leaves on the trees, discuss deciduous and evergreen trees. 	Winter Temperature Colder Snow Sleet Where is the evidence? Science Book: All about Winter – Page two of seasons booklet - Weather	What do you think of The Magpie by Monet?

	 It can show in winter, but it does not have to snow We need to wear clothes in winter to keep ourselves warm 	 Complete 'Winter Page' of Season's booklet. Complete weather chart over the week Stretch – create a short story using the signs of winter Lesson 12: XC Art Create a Seasons print art piece using the patterns and shapes found in winter 	 Clothing Signs Daylight hours Weekly Weather chart (Winter) Temperature Weather type Key weather word
LO: To carry out a range of science experiments and explore what happens.		Science DayThis is a fun and engaging way to develop children's enquiring minds and develop a love of science.Children should focus on the objectives from 'Working Scientifically'. Particularly use this opportunity to gather evidence of children asking their own questions.Each Science Day will be planned around a whole school theme, however ideas can be found at the links belowhttps://learning.sciencemuseumgroup.org.uk/wp- content/uploads/2017/09/Kitchen-science.pdfhttps://www.stem.org.uk/elibrary/resource/30149https://www.science-sparks.com/kitchen-science-round-up/https://www.thoughtco.com/kitchen-science-experiments-for-kids- 604169https://littlebinsforlittlehands.com/4-mini-easiest-kitchen-science- activity-trays/	Science Experiment Investigation Prediction Explore Fair



Year 1 – Spring

Skills and Objectives	Sticky Knowledge	Learning Task	Vocabulary	Cultural Capital, significant individuals and curriculum enrichment
L.O: To identify, name and sort a variety of common animals including fish, amphibians, retiles, birds and mammals.	 There are many different types of animals Animals can de described in different ways Animals are living things that eat, grow, breathe, reproduce and move Animals, including pets, can be grouped into different categories The five vertebrate animal categories are: mammals, birds, fish, amphibians and 	 Lesson 1: Grouping Animals Ask children in advance to bring in photographs of their pets from home, prepare some pictures of a range of different pets that children who do not have pets can choose from try to include a range of animal groups Using sorting circles on the carpet children to sort their pets into fish, amphibians, reptiles, birds and mammals- introducing these terms and discussing why these animals are grouped this way. (Try to ensure all of the animal groups are covered with the photographs you provide.) Now add in a variety of animals that wouldn't be pets (from around the world). Spend some time looking at similarities e.g. a domestic cat vs 	Mammals Fish Reptile Amphibians Birds Characteristic Similarities Differences	What is a vet? Why are they important?

	The animals in each category share special characteristics	 Give the children a selection of animals and two sorting circles ask the children to sort them into two groups and label them explain why they have sorted them this way (you could offer a variety of challenge here encouraging naming key animal groups) Some children may need pairs of given simple labels to begin e.g. mammals/not mammals Stretch – how are some groups similar / different? 	Where is the evidence? Science book: Photographs of animal sorting. Pupil voice- confidence in using the vocabulary.	
L.O: To know that different animal groups have different types of features.	 Different animal groups have different features These features help the animal survive where they live 	 Lesson 2: Describing and comparing animals Explain to the children that The Bear from The bear and the piano has seen lots of different creatures along the way but he doesn't know what they are. Explain that he has taken some photographs but they aren't very good. Show children pictures of tusks claws feathers wings tails Can they group them accordingly? Children to invent their own imaginary creature label the different parts – no need to discuss why adaptations have taken place, this is for Y2 	Animal parts e.g. Tusk Claw Feathers Wings Tails	What is a platypus? Platypuses are duck- billed, with beaver- like tails. They have thick fur (like otters) and webbed feet. They lay eggs instead of giving birth, which makes them a kind of mammal
			where is the evidence? Science books: A labelled diagram of their own invented creature- using	

		Animal Parts	the animal part vocabulary	
L.O: To identify a variety of common animals that are herbivores, carnivores and omnivores.	 Animals that eat other animals are called carnivores Animals that eat plants are called herbivores Animals that eat plants and other animals are called omnivores 	 Lesson 3: Carnivore, herbivore or omnivore? Introduce the above terminology to the children, ensuring children have a clear understanding. Give examples of familiar animals diets, e.g. pets and British wildlife. Introduce the RSPCA (explain the work of the RSPCA briefly-there may be parents who work at the headquarters in the village who would be willing to come and discuss). Explain to the children that the RSPCA are looking for new Pet Chefs. Explain that they are all going to apply for the job. Tell the children they must design a menu with a selection for carnivores, (eg worms, mice, chickens) herbivores (grass, seeds, berries) and omnivores (a combination of both). Children to create menus using the language Carnivore/herbivore/omnivore Stretch – explain why certain meals wouldn't work for certain animals 	Carnivore Herbivore Omnivore Diet Where is the evidence? Science book: Pet menu using the vocabulary of carnivore, herbivore and omnivores demonstrating an accurate understanding of these definitions	What are humans? Have a discussion around why we are omnivores.
L O: To sort and	We can classify animals based on their features	 Lesson 4: What am I? Identifying and Classifying Give children a selection of 8 animals and 8 clue lists. Children to work together to solve the clues matching the 	Reptiles Amphibians Mammals	
match animals to a description.	We can classify based on: -Type of food eaten	correct list to the correct animal.	Fish Birds	

-Animal groups -Animal parts -A variety of animals	 Include this term's from the curriculu Type of food eate Animal groups Animal parts A variety of anima 	s learning in the clues, using the la m objectives. Ensure you include. n als	Anguage Warm blooded Cold blooded Vertebrates Where is the evidence? Science books: Completed sorting activities. Tip Top Tasks to address
	Compare the react appropriate to use Animal 1 Name of animal: Circle the category: Mammal Reptile Amphibian Bird Fish	Animal 2 Name of animal: Circle the category: Mammal Reptile Amphibian Bird Fish	misconceptions
	Circle the blood type: Warm-blooded Cold-blooded Circle the correct type: Vertebrate Invertebrate Circle the characteristic: Lays eggs Gives birth to live young	Circle the blood type: Warm-blooded Cold-blooded Circle the correct type: Vertebrate Invertebrate Circle the characteristic: Lays eggs Gives birth to live young	
	Where does it live?	Where does it live? List words to describe the animal.	

	Animal poo gives us clues	Stretch – explain why their habitats might be different Lesson 5: Whose Poop? Investigation		What is a naturalist?
L.O: To carry out a simple investigation to identify the animals from which different poo has come from.	about what an animal eats and helps us to classify them. Animal droppings show what an animal has eaten	 Set the scene by watching <u>https://www.bbc.co.uk/cbbc/watch/p01jv7nt</u> ensure that children know not to copy this! Ask the children if they thought the Musk Ox were Carnivores, herbivores or omnivore. Discuss the grassy poo and the comparison to goats and rabbits. Ask children if they have ever seen a horse poo- discuss the fact you see the hay in it. Explain that we can see what an animal eats from it's poo. Make a selection of false animal poos. Use brown playdough, salt dough or other such material then place cabbage leaves and sweet corn in some (representing herbivores), Cooked spaghetti (worms) in some (representing carnivores, and both in the 3rd batch to represent omnivores. Explain to the children you have some animal poos and you would like them to become like Steve Backshall identifying the animals from which the poos came from- you could offer animals to match these to. E.g. Hedgehog (omnivore) Mole (carnivore) or deer (herbivore) Children to ask questions, observe, use simple equipment, perform simple tests, make observations to answer questions and record their findings to identify Whose Poop it is. What was inside the poo? What does this tell you about the animal? What does it eat? What animal could it be? 	Investigation Compare Naturalist Classify Where is the evidence? Science books: Children to write an explanation underneath a photograph of each poo describing if it is a carnivore, herbivore or omnivore including how they know. —Teachers to scribe where necessary.	Discuss what Steve Backshall does.

 That the next season after Winter is Spring That Spring is over March, April, May As the seasons changes from Winter to Spring, the days get longer and we have more daylight In Spring the temperature gets warmer Signs of Spring – new plants growing, buds, blossom, warmer, birth of animals etc. 	 Children to sort the poo and the animals into 3 sorting circles labelling Carnivore, Herbivore and omnivore. Visit the wildlife trust https://www.wildlifetrusts.org/wildlife/how-identify/identify-poo Children to look for poo to identify in the academy forest. HEALTH AND SAFETEY ENSURE THE CHILDREN DO NOT TOUCH ANY POO. Lesson 6: Winter to Spring Watch this clip: https://www.youtube.com/watch?v=vLAnt9 SMg Ask the children if they have seen any of these signs around and about lately Discuss the changing weather Go for a Spring walk around the academy-discuss the fact last time we went we wore hats, gloves etc, link this to the change in temperature. Children to complete 'Spring Page' of Season's booklet. Complete weather chart over the week Stretch – evaluate The Pink Peach Tree by Vincent Van Gogh 	Winter Spring March April May Daylight hours Day length Weather Temperature Where is the evidence? All about Spring (Page three) of Seasons booklet • Weather • Clothing • Signs • Daylight hours Weekly weather chart (Spring) • Temperature • Weather type • Key weather	What do you think of The Pink Peach Tree by Vincent Van Gogh
--	---	--	--

L.O: To be able to name and identify parts of the human body.	 All humans have a skeleton The bones in your skeleton help you to stay standing up, let you move around and protect the important organs inside you# 	 Lesson 7: Parts of the body Sing a body song, e.g. head shoulders knees and toes, busy body etc. Play Simon say touch your head, elbows, wrists- ensure there is an appropriate level of challenge for all here, some children will be very familiar with body parts-consider shins, knuckles etc 	Body parts Head shoulders Eye Nose Mouth Ears Neck Teeth Arm Elbow Finger Thumb Hand Leg Foot Knee Ankle	Discuss what a physiotherapist does and why they need to know parts of the body.
	- Skin protects the skeleton and organs	Head Hair Nose Neck Chest Stomach Leg Toe Foot		
		 Choose a volunteer. Draw around them on a large roll of paper. Model labelling the body parts- use different colour pens eg green pen simple parts eg head , orange for medium e.g. shoulder, red for hard e.g. shin. Explain that we need to teach red wing the parts of the body. 	Toe Where is the evidence? Science books: Labelled photographs of children's bodies. Tapestry: Videos of songs	

L.O: To understand the 5 senses and what part of the body is associated with each sense.	 We have five senses: sight, hearing, touch, taste and smell We use different body parts for each sense Our senses help to look after us 	 perform songs to red wing. Film as evidence of identification. Upload to Tapestry Stretch - What if we had no bones? Lesson 8: Exploring Senses Introduce the 5 senses to the children offering a visual prompt. Discuss for the need of senses to keep us safe etc Provide each child with a photo of their face (ensure tongue stuck out and hands visible)- label Mouth for tasting Nose for smelling Eyes for seeing Skin for touching Ears for hearing Children to carry out a senses detective carousel Blindfolded taste test Smelling pots -Create the first letter of their name in the Braille Alphabet using a peg board -Topmarks: The listening machine Take photographs and collect pupil voice as evidence 	Senses Hear Touch Sight Smell Taste Where is the evidence? Science books: Labelled photographs of children's senses e.g. tongue and taste Tapestry: Photographs of carousel activities with pupil voice	Who was Ludvig Van Beethoven? He was deaf, how would this impact him?
L.O: To apply our knowledge of senses	 That we can use our senses to sort Some objects are different to others when comparing one sense, but often more 	 Lesson 9: Investigation: Senses detectives (you will need to prepare various biscuits for this lesson. HEALTH AND SAFETEY ENSURE YOU CHECK FOR ALLERGIES Explain that (Teacher's) Biscuit Bears have been muddled up and broken. Explain you made 5 different biscuit bears to share but now you don't know which is which. Present the children with 5 bowls of 'broken biscuits' Give the children the following clues Can they use their SENSES to solve them. 	Investigation Smell Taste Hearing Sight Touch	

	 Batch 1 Smelt minty (e.g mint clubs or penguins for ease of use) Batch 2 Looked pink (e.g. pink wafers) Batch 3 Sounded crunchy (e.g. Jacobs cracker) Batch 4 tasted like orange (e.g. orange club) Batch 5 felt smooth (e.g. a galaxy minstrel) Children to test each biscuit and use their senses to sort the bowl onto the correct batch number Take a photo of the 5 bowls (it would be a good idea to use 5 different colours for use). Children to record which was which including the sense they used to identify. 	Where is the evidence? Science book: Labelled photographs of the 5 biscuits.	
L.O: To apply my knowledge of senses	 Lesson 10: Senses Poem Biscuit Bear Children to make their own biscuit bears XC DT/English Having made their own biscuit bear children to create a senses poem: Biscuit Bear Looks Biscuit Bear Smells Biscuit Bear feels Biscuit Bear tastes As I chew him biscuit bear sounds 	Where is the evidence? Science book: Senses poem	

L.O: To identify and name a variety of local, common animals	 There are a variety of birds that live in our local area We can visit habitats of these birds and 'birdwatch' Birdwatching is important for conservation 	 The Big Schools Birdwatch https://www.rspb.org.uk/fun-and-learning/for-teachers/schools-birdwatch/resources/ Explain to the children that they have an important job to do. Explain that the RSPB need their help to know which birds we have in Southwater. Introduce the work of the RSPB to the children. You could look at some of the current projects if age appropriate. https://www.rspb.org.uk/our-work/ Read the lucky duck story book, introducing a range of birds we may see at school. Use this to gage the children's existing knowledge off garden birds, ensuring there are opportunities for stretch and challenge. Lucky Duck: https://www.rspb.org.uk/globalassets/downloads/kidsschools/big-schools-birdwatch-downloads/luckyduck-story-book.pdf Explain to the children that we want to encourage as many birds to visit our academy as possible. How could we encourage them to visi? Discuss a bird's diet and the fact they are omnivores. Make some simple bird feeders for the children to place out for the birds- Link this to previous learning observing that birds are generally omnivores. HEALTH AND SAFETEY ENSURE YOU DO NOT USE ANY NUTS OR NUT CONTAINING PRODUCTS. 	Birdwatch Habitat Garden bird Omnivore Where is the evidence? Tapestry- Photographs of bird feeders. Pupil voice demonstrating garden bird subject knowledge.	What is conservation? Who is responsible?
L.O: To gather and record data to help in answering questions.	 There are a variety of birds that live in our local area We can visit habitats of these birds and 'birdwatch' 	 The Big Schools Birdwatch 2 XC English and Maths Children to carry out the big schools birdwatch using the resources supplied by the RSPB to ensure accuracy Use the tens frames and the subitising sheets to collect data. 	Where is the evidence? Science books: Data collection sheets and fact files.	What is the need for conservation?
	 Birdwatching is important for conservation 	 Discuss the findings verbally- which bird was most popular? Least popular? How many. Use the pictogram tool on the RSPB Data submission page to represent this. XC English Children to create a fact file about a bird of their choice. –Include if it is a herbivore, omnivore or a carnivore and name it-could also name other birds from the family or discuss the different appearances of males and females if relevant. 		
--	---	---	--	---
L.O: To understand the impact of the scientific work of significant individuals	 Scientists come from many different backgrounds Many scientists have big impacts in their field All scientists work scientifically. 	 Lesson 11: This is Me! Children to learn about a famous scientist they could aspire to be ensure representation of Ethnicity, Gender, Culture etc Split into 4 groups, each to learn about Marie Curie Stephen Hawking Mae Jemison Ada Lovelace Each group to feedback to the rest of the class Stretch – who had the biggest impact? 	Where is the evidence? Science: Fact file/Poster of famous scientist	Marie Curie Stephen Hawking Mae Jemison Ada Lovelace

Year 1 - Summer

Skills and Objectives	Sticky Knowledge	Learning Task	Vocabulary	Cultural Capital, significant individuals and curriculum enrichment
L.O: To understand the features of a tree	 The stem of a tree is known as a trunk and is covered in bark. When trees flower, their flower is known as blossom. Different trees can be identified by their leaves. A deciduous tree is a tree that sheds its leaves in autumn. An evergreen tree is a tree that has leaves on it all year. 	 Lesson 1: Dear Mr. Giant- Identifying British trees. See accompanying PowerPoint Presentation Pose the idea that in fact the Giant from Jack and the Beanstalk was actually the good guy- you could tie this in by reading an alternative version of the traditional tale. E.g. Trust Me, Jack's Beanstalk Stinks! (The Other Side of the Story) by Eric Braun. XC English. Pose the idea that the Giant would like to get home by climbing a tree (see letter) Explain that he thinks an oak tree would be best because they are really tall but he doesn't know what one looks like. Discuss how trees can be different- leaf shape, colour, seeds, height etc Introduce deciduous and evergreen trees. Invite the children to become tree detectives. Give them 6 pictures and 6 descriptions- can the children match the picture to the description. See attached. Children to write back to Mr. Giant telling him how to identify an oak tree. Stretch – how are trees similar / different to a poppy? 	Bark Blossom Deciduous Evergreen Leaves Trunk Where's the evidence? Science books: Letters to the Giant-How do we identify an oak tree?	Who are the Woodland Trust? https://www.woodl andtrust.org.uk/

L.O: To identify some common plants and trees.	 Different trees can be identified by their leaves. There are a variety of wild and garden plants growing in the school grounds that we can name. 	 Lesson 2: Guide to the wildlife of our school Deciduous and Evergreen research. Recap on last week's learning- can they remember the names of the 6 trees and how they would identify them? Look at a selection of plant/tree etc guides, discuss their features. Explain that we will each be making one of our own. Go on a walk around the Academy, give children cameras or ipads in pairs. Children to take photographs of the trees with a close up of the leaves where possible (This work could be linked to Forest Schools) Using the guides and teacher knowledge try to identify some of the plants and trees you will see. 	Where's the evidence? Tapestry: Photographs and Pupil voice	
L.O: To identify and describe a range of common trees.	 A deciduous tree is a tree that sheds its leaves in autumn. An evergreen tree is a tree that has leaves on it all year. There are a variety of wild and garden plants growing in the school grounds that we can name. 	 Lesson 3: Guide book page 1 Trees Read David Attenborough, Little People, BIG DREAMS Explain to the children that David Attenborough wants to know about the plants in our school. Ask the children to make him 'A Guide to the wildlife of Southwater'. Explain that our book will have a few pagestoday we will start with trees. Look at some photographs the children took last week and identify the trees (if necessary add your own close up leaf photographs) Label the 1st two pages of their guide books deciduous trees and evergreen trees. Recap the meaning of these words. Children to draw and label a range of trees found at the infant academy 	Where's the evidence? Science books: Guide book- labelled pictures of deciduous and evergreen trees.	Who is David Attenborough? Discuss impact of his life.

L.O: To identify a range of flowers.	 A wild plant doesn't need to be looked after as it grows. Wild plants grow from seeds wherever they fall. Common summer wild plants include: daisies, buttercups, nettles, ivy, thistles, dandelions, clover, brambles and poppies. Garden plants are plants that people choose to grow in their gardens. Common summer garden plants include: roses, sunflowers, lavender, primula, sweet pea, marigolds, honeysuckle, magnolia trees and hydrangeas. People choose to grow plants for different reasons, such as: they're easy to grow, they smell pleasant, they look beautiful, or they attract insects. 	 Lesson 4: Guide to the wildlife of our school Wild Flower Research Recap on last week's learning- can they remember the names of the 6 trees and how they would identify them? Give the children a selection of Wild flower guides to look through and share Go on a walk around the Academy, give children cameras or ipads in pairs. Children to take photographs of the flowers. Using the guides and teacher knowledge identify some of the flowers seen around the academy. These can be garden flowers or wild flowers. https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/plants/wild-flowers/ 	Common wild plants Daisies Buttercups Nettles Ivy Thistles Dandelions Clover Brambles poppies. Where's the evidence? Tapestry: Photographs and Pupil voice	Importance of wildflowers for bee conservation.
L.O: To identify and describe a range of wildflowers.	 A wild plant doesn't need to be looked after as it grows. Wild plants grow from seeds wherever they fall. Common summer wild plants include: daisies, buttercups, nettles, ivy, thistles, dandelions, 	 Lesson 5: Guide book page 2 Wildflowers Remind the children that David Attenborough wants to know about the plants in our school. Remind the children that our book will have a few pages-look back at our tree pages- can we remember the names? Continue with wild flowers. Look at some photographs the children took last week and identify the wildflowers (if necessary add your own close up photographs) Label the 2nd two pages of their guide books wild flowers. 	Common wild plants Daisies Buttercups Nettles Ivy Thistles Dandelions Clover Brambles	

	 clover, brambles and poppies. Garden plants are plants that people choose to grow in their gardens. Common summer garden plants include: roses, sunflowers, lavender, primula, sweet pea, marigolds, honeysuckle, magnolia trees and hydrangeas. People choose to grow plants for different reasons, such as: they're easy to grow, they smell pleasant, they look beautiful, or they attract insects. 	Children to draw and label a range of wild flowers found at the infant academy Stretch – can you spot any patterns as to where the plants are found?	poppies. Where's the evidence? Science books: Guide book- labelled pictures of deciduous and evergreen trees.	
L.O: To make observations over time	 Plants have scientific names, different features and specific needs. The different parts of plants grow and change over time. Plants need sunlight, water and the correct temperature to grow and be healthy 	 Lesson 6: Planting Beans and starting a Diary. XC English Children to plant beans linked to the story of Jack and the Beanstalk (XC English). Watch: https://www.bbc.co.uk/bitesize/clips/zystsbk Children to keep an observation based diary e.g. drawing and labelling their plant each week with some information about what they have done to care for it. It would be useful to plant the beans in clear tumblers with the seeds at the side so the children can see as the plant and roots begin to emerge from the seedcase. Or children could create their own 'sprout house' to hang in the windows. 	seeds seedlings weed grow growing living alive not living not alive dead healthy Where's the evidence? Science books: Bean Diaries	What does Kew Garden do?

		 Children can use rulers and cameras to support their observations e.g. length of roots, height of plant, label photographs etc. The bean diary should enable them to demonstrate their observational skills. Stretch – what mistakes might we make? 	Growing beans in the classroom	
L.O: To investigate what the best conditions that a plant needs to grow	 The different parts of plants grow and change over time. Plants need sunlight, water and the correct temperature to grow and be healthy. 	 Lesson 7: Investigation: What conditions will we need to grow the tallest bean for Jack? This could be done as an extended lesson or as a follow-on lesson. Receive a letter from Jack, explain that he would really like to visit the Giant again to say sorry because he knows he shouldn't have stolen from him. Explain that Jack wants to grow a really tall beanstalk but without magic beans he doesn't know how. Share some ideas that Jack has in the form of a concept cartoon e.g. a picture of Jack with thought bubbles around his head I wonder if the bean would grow best in my wardrobe where it is nice and warm I wonder if it will grow best on tissue paper or cotton wool instead of soil I wonder if it will grow best if I don't water it. I wonder if it will grow best if I water it with lemonade instead of water. 	Investigate Conditions Predict Where's the evidence? Science books: bean diaries.	What does Kew Garden do?

L.O: To identify creatures found in the pond.	 There is a wide variety of pond life to be observed and named in our school pond. Different creatures live in ponds. 	 I wonder if it will grow best if I give it water and sunlight. Discuss Jack's proposals as a class, trying to answer the question. In what conditions will my bean grow best? Capture this pupil voice e.g. If done as part of writing in the morning TAs could scribe or the discussion could be videoed Pose the above question to the children, recap on the definition of a prediction. Children to make a prediction Children to set up the investigation- Their proposal for this could be illustrated alongside their prediction. Check in with the beans each week in science then follow up in lesson 12. Stretch – ensure key vocabulary is used within my answers Lesson 8: Pond Dipping and Booklet Recap on last week's learning- can they remember the names of the wildflowers and how they would identify them? Pond Dipping Take the children in groups to explore the academy pond identify the wildlife in there Using the guides and teacher knowledge to identify some of the pondlife they see- this could be linked to a visit to a wetland centre such as Warnham Nature Reserve or Chesworth Farm Label pages 5 and 6 of their guide books 'Pond life'. Children to draw and label a range of pond life found at the infant academy. Stretch – imagine there were no ponds – what would the impact be? 	Pord life www.singly iamselfity iamselfity	What is a botanist?
L.O: To identify parts of a plant.	 Plants are noting things that grow. Plants can be found in homes, gardens, parks and the countryside. 	 Complete the plants activity on Education City, use the 'Learn Screen' in 'Pick A Tomato' to support teaching. Then discuss the parts of a tree and how this vocabulary differs. 	Flowers Leaves Petal Roots	Why are they important?

	 Plants can be different sizes, shapes and colours. Weeds, grass, moss, ferns, shrubs flowers and trees are all plants. Plants can grow in soil (like sunflowers) or water (like waterlilies). Plants have three important parts: the roots, the stem and the leaves. Roots keep the plants in the ground and take in water from the soil. The stem holds up the plant and carries water to the leaves. Leaves take in the sunshine and turn it into food for the plant. 	 https://ec1.educationcity.com/content_select/index/3/3/1/ 2#/s=38983 Children to work in groups to create a lotto game. Children to work in groups to create a lotto game. Give each child 2 grids 2 x 4. In the spaces on one grid write the words root, stem, leaf, flower, fruit, blossom, trunk, branch. In the other grid children to draw these 8 plant parts. Children to cut out the eight pictures and place face down on the middle of the table. Children to take turns to pick a card and place on their board on the correct word. (You could give each child on the table a different colour paper so they can easily reclaim their own) NB: Ensure that the pictures in the children's bean diaries are labelled with the parts e.g. root, stem, leaves fruit and flower so they have an opportunity to demonstrate their understanding. Strech – How do the parts of a flower compare to the human body? 	Seeds Stem Where's the evidence? Science books: Lotto game boards Science books: Bean diaries- labelled pictures or photographs.	
L.O: To identify what part of different foods come from.	 Some plants are edible. Many plants have edible food parts and can be taken from different parts of a plant. What is edible on one plant may not be edible on another. 	Lesson 10: Which parts do we eat? You may wish to ask for parent volunteers or ensure this is taught in a morning to enable you to make and taste the stir-fry. • Provide a selection of edible plant parts (ENSURE YOU CHECK FOR ALLERGIES) e.g. Flowers: Cauliflower, broccoli Roots: Beetroot, Carrot, Parsnips Stems: Rhubarb, celery Leaves: Lettuce, Cabbage, spinach Fruit: Apple, plum, tomato Seeds: Sweetcorn, peas	Edible Flowers: Cauliflower, broccoli Roots: Beetroot, Carrot, Parsnips Stems: Rhubarb, celery Leaves: Lettuce, Cabbage, spinach Fruit: Apple, plum, tomato Seeds: Sweetcorn, peas Where's the evidence? Science books: Stir fry design	What is a chef and why do they need to know this?

		 Ask the children initially with no clues which part of the plant they think these things came from. Place 6 labelled sorting circles down. Can they sort them into the plant parts? XC Design technology, children to work in groups to design and make a stir fry containing all the parts of a plant. Children to label their design including the part of the plant it came from. You could make this link further to the theme by designing it for lack or the Ciant 	Tapestry: Photographs and Pupil voice	
L.O: To observe closely using simple equipment over time, gathering and recording data.	 We can find the answers to scientific questions by studying and observing things closely. Gathering and recording data from what we observe can help us to answer a scientific question. 	 Stretch – how does this compare to making a sandwich? Lesson 11: Revisiting beans- Recording data to answer the question. Receive a letter from Jack, reminding the children about the beans they planted 10 weeks ago and the treatment they have each been receiving. Jack to ask what they have found out. Spend some time recording and discussing the children's verbal observations. Introduce a 'table' to the children. Look at a simple data table relating to the height of the teachers at school or any other such table illustrating varying heights Look at the titles, how their name is recorded and next to this is a letter and the letters cm. Encourage the children to interpret this data by asking simple questions, e.g. who is the tallest, who is the shortest, which teachers are the same height etc. Revise from mathematics the meaning of cm using the language of height, measure and ruler. Share with the children two titles: Conditions for Growth (ensure understanding of this) and 2. Height (cm) 	Record Observe Data Condition Measure Where's the evidence? Science books: Investigation: Data table	Who is Steven Hawkins?

• The different parts of plants grow and change over time. • Plants need sunlight, water and the correct temperature to grow and be healthy. • We need to plant seeds in the right conditions L.O: To use data from observations in order to answer questions	 Model writing the list of conditions for growth explaining the term 'control'. Children should all use their own bean as a control plant and attempt to measure this independently. Conditions for Growth Height (cm) Control In cupboard (no sunlight) Watered with lemonade No water Outside Cotton wool (no soil) Cotlaren to then work in teams to measure the other plants and share this data with the class. Encourage children to use the STEM sentence 'The XXX bean is XX centimetres tall.' Collate a class data table at the same time recording somewhere it can be revisited and all can see. Stretch – can you display your data in a different way? Lesson 12: Using data to answer questions. Encourage the use of STEM sentences when answering the questions. Elicit which bean was the tallest, which was the shortest and why. Children to write a letter back to Jack. Include: Where they thought he should plant the bean originally. Where he should actually plant his bean. NB there is no reason for children to give explanation to why this happened- this is covered in year two, however this can 	Conclusion Suggest Conditions Where's the evidence? Science books: Investigation: Letters to Jack answering the question.
---	--	---

		To extend this learning and involve the children at home you could send each child a thank you letter from Jack and a bean seed to plant at home. Stretch – What if you changed part of your investigation?		
L.O: To discuss the signs of summer.	 Summer is the warmest season in the UK and has the highest temperatures. Summer has the most daylight hours. In the summer, it is important to stay safe in the sun. 	Lesson 13: Spring to Summer Watch this clip: https://www.youtube.com/watch?v=-n_cXcOe6xk Ask the children if they have seen any signs of summer Discuss the changing weather Go for a Summer walk around the academy-discuss the fact last time we went we wore hats, gloves etc, link this to the change in temperature. Children to complete 'Summer Page' of Season's booklet. Complete weather chart over the week Following on from the previous week's learning the children could produce a data table comparing the seasons e.g. Average Temperature Daylight hours Amount of rainfall etc Stretch – imagine we had no summer, what would the impact be?	Leaves Flowers Harvest Crop Seasonal Fruit Vegetable Grasshopper Beetle Ladybird Bees Butterflies Where's the evidence? Science: All about Summer-Page four of Seasons booklet Weather Clothing Signs Daylight hours Weekly weather chart (summer) Temperature Weather type	What is the importance of farmers?

	 Key weather word Science book: Comparative data table 	

Year 2 – Autumn

Skills and Objectives	Sticky Knowledge	Learning Task	Vocabulary	Cultural Capital,
				Individuals and curriculum enrichment
L.O: To revisit and identify and name a variety of everyday materials, including wood, plastic, glass, metal water and rock.	 Materials are used to make objects. The same materials are used to make lots of different objects (e.g. metal can be used to make coins, cans and cars). Different materials are used for the same object (e.g. spoons can be made from plastic, wood and metal) Different materials have different properties. 	 Lesson 1: Materials starting point. Ask the children what they remember from learning about materials in year one. Ask the children to be the teachers. Can they design a poster for the children in year one showing all they know about materials? Share a very simple example (not giving too much away). Encourage the children to write about the names, properties and types of objects made from as many materials as they can think of. 	 objects materials properties wood plastic glass metal fabric rock water paper 	What is concrete? In 1824 Joseph Aspdin invented Portland cement by burning finely ground chalk and clay until the carbon dioxide was removed. Aspdin named the cement after the high- quality building stones quarried in Portland, England.

A material is chosen to make an object because of its properties.	 Then ask the children to add a question relating to materials onto the poster that they don't know the answer to but would like to find out. Some children could share their posters in year one in a few weeks when they begin their materials unit. Use these posters to inform teacher assessment and planning, some children may need some catch up sessions before the following lessons are taught. 	Where's the evidence? Wider Curriculum Book	In the 19th Century concrete was used mainly for industrial buildings.
 Different materials have different properties. A material is chosen to make an object because of its properties. The properties of a material make it either suitable or unsuitable. Some materials are more suitability of a variety of everyday materials, including rock, paper and cardboard for particular uses. 	 Lesson 2: Investigating the suitability of materials Same object different material. Collect 3 spoons, 1 small plastic, 1 large wooden and 1 medium metal. Where possible set up a scene or share on the screen. A baby eating lunch Stirring food in a saucepan An adult eating cereal. Invite the children to decide which spoon is best placed with which scenario and why (You may wish to pass the spoons around so children can feel them). Discuss various properties of each spoon e.g. plastic small and safe for toddler, wooden spoon doesn't conduct heat (discuss this terminology) etc. Set up 5/6 stations for the children to visit looking at same object different material. Children to use their observations to discuss why you may need these, which is best suited to each scenario etc Begin to consider environmental implication and cost implications e.g. plastic Suggestions: Rulers: wooden, metal, plastic Coat hangers: wooden, metal, plastic Bag: Paper, fabric, plastic Milk storage: tetra pack, glass, plastic Shoes: leather, fabric, rubber (eg crocs) 	 absorbent transparent opaque suitable waterproof Where's the evidence? Tapestry: Pupil voice/suggestions for use.	Explain this picture:

		Stretch – is cardboard a good material for a coat hanger?	
L.O: To investigate the suitability of materials	 The properties of a material make it either suitable or unsuitable. opaque means that you cannot see though something transparent means you can see though something translucent means the object lets a bit of light through 	 Lesson 3: Transparency investigation: Linked to last week's Alien spaceship crash! Receive a letter from Beegu asking for help explain that she landed on the wrong planet because the sun was in her eyes her eyes and she couldn't see where she was going. Beegu to ask the children to create some blinds ready for her journey to find her way home. Children to investigate which material would be best using the language of Transparent, Translucent and Opaque. Extend more able children to consider other properties of the materials eg, stretchy/bendy/strong etc. Children to make predictions about each material's transparency- extend to considering it's suitability as a blind e.g. strength, flexibility etc Children to draw a conclusion and suggest an answer to Beegu's question. Where possible children to record their findings, this could be a simple tick chart. 	 absorbent transparent opaque suitable waterproof Where's the evidence? Science book: Investigation write-up
L.O: Describe how the shapes of solid objects made from some materials can be changed by	 Objects that can be squashed, bent, twisted or stretched are all made from flexible materials. Flexible materials can change shape. 	 Lesson 4: Manipulating materials: Changing shape XC – Art collage vocabulary Give each child a lump of playdough. 	 shape squash bend twist stretch

squashing, bending, twisting and stretching	 Objects that cannot be squashed, bent, twisted or stretched are all made from rigid materials. Rigid materials cannot change shape. Both flexible and rigid materials are important and used for different things. 	 Children to think of words to describe what they can do with their dough. Encourage the vocab squash, bend, twist and stretch. Sive the children a selection of objects to test at their table children to record if they can squash, bend, twist or stretch. Drinks can Pipe cleaner Paper clip Sock Straw Playdough Clay Sponge Elastic band 	 rigid flexible Where's the evidence? Science book: Results table 	
L.O: To perform simple tests and observe closely, using simple equipment	 The properties of a material make it either suitable or unsuitable. opaque means that you cannot see though something transparent means you can see though something translucent means the object lets a bit of light through Objects that can be squashed, bent, twisted or stretched are all made from flexible materials. 	 Kecold findings in a venil diagram Lesson 5: Investigating the suitability of materials Read 'How to Catch a Star' by Oliver Jeffers Share a 'star' with the children (suggest a relatively fragile Christmas decoration). Explain the boy from the story wants to take his star into school for show and tell. Explain he is worried because (demonstrate with a backpack) The star may get wet e.g. leaking water bottle The star may get squashed or smashed and broken The star must fit into his bag. He needs to carry it around all day so it can't be too heavy The star is very bright and may distract the children's learning so needs not to be seen. 	Absorbent/not absorbent (Y1) Waterproof/not waterproof (Y1) Bendy/not bendy (Y2) Stretchy/not stretchy (Y2) Transparent/Translucent/ Opaque (Y2) Where's the evidence?	Who is Mae Jemison? Why were materials impoart to her?

	 Flexible materials can change shape. Objects that cannot be squashed, bent, twisted or stretched are all made from rigid materials. Rigid materials cannot change shape. Both flexible and rigid materials are important and used for different things. 	 Absorbent/not absorbent (Y1) Waterproof/not waterproof (Y1) Bendy/not bendy (Y2) Stretchy/not stretchy (Y2) Transparent/Translucent/Opaque (Y2) Challenge the children to make a box for the little boy to transport the star in. Provide children with a range of materials. Children to explain why they have selected the materials they have using the above scientific vocabulary e.g. I chose tinned foil because, it is not absorbent, bendy, waterproof and opaque but it is not very strong. Children to test their boxes concluding how many of the above properties they have achieved- this could be a simple tick box. XC Maths (3D Shape nets), DT- Designing and making boxes. 	Science book: Investigation report.	
L.O: To understand the relationship between materials and recycling	 Recycling is when materials can be reused and made into new items. Plastic is non-biodegradable and not all plastic can be recycled. There are special symbols on packaging to tell you if something can be recycled. Lots of plastic ends up in the ocean. Animals can be hurt by plastic, especially if they mistake it for food and eat it. 	 Lesson 6: Materials for Recycling Explain to the children that one of the most important things for them to learn whilst at The Academy is how to protect our environment. (This is one of our key drivers). Recap on the idea that different objects can be made from the same material. Look at grouping materials for recycling Watch <u>https://www.bbc.co.uk/teach/class-clips-video/science-ks1-ks2-sorting-materials-to-be-recycled/zhn2t39</u> Children to make recycling aliens for the classroom, using recycled boxes and recycled materials. 	 litter recycle biodegradable single-use packaging symbols pollution pledge Where's the evidence? Tapestry: Photographs f recycling aliens, sorted materials and pupil voice	Bottles in to Roads <u>https://www.goodn</u> <u>ewsnetwork.org/th</u> <u>ese-5-u-s-states-</u> <u>are-repaving-roads-</u> <u>this-year-with-</u> <u>unrecyclable-</u> <u>plastic-waste-the-</u> <u>results-are-</u> <u>impressive/</u>

		 Children to sort their waste according to material which they are made from Stretch – chose worst and best materials for recycling and explain why you chose them. 	to demonstrate understanding.	
L.O: To understand the impact of materials on our planet	 People often throw away items that can be reused Reusing items is better than recycling them for the environment We can make useful items from reused materials 	 Lesson 7: Reusing Ask in advance to bring in a range of plastic bottles and compost Recap on last week's lesson on recycling. Remembering why it's better to recycle than to just put things in the bin. Discuss the fact that whilst recycling is great- it is not perfect-discuss the energy used in recycling, emissions from the lorries, factories etc (The concept of energy will be covered in depth later this term) Introduce the concept of reusing and reducing waste to the children. Watch a few of the following clips giving suggestions of how we can reuse our old unwanted items to make something new- the clips look at uses for old socks, glass jars, cereal boxes, cardboard tubes, egg boxes, paper plates, lolly sticks, corks etc <u>https://www.bbc.co.uk/cbeebies/makes/junk-rescuerecycled-crafts#playlist</u> Ask the children if they can think of anything we reuse at home-steer the conversation to carrier bags (recap the children's learning from EYFS when they learnt about the danger of plastic bags for turtles in the sea- you may wish to share some not too distressing images.) 	Reuse Recycle Land fill Unwanted junk Where's the evidence? Tapestry: Photographs of bags and pupil voice to demonstrate understanding.	Who is Subodh Gupta? Subodh Gupta's sculpture incorporates everyday objects that are ubiquitous throughout India, such as steel tiffin lunch boxes, thali pans, bicycles and milk pails. From such ordinary items the artist produces breath-taking sculptures that reflect on the economic transformation of his homeland. His works investigate

		 Children to make their own plant pots from plastic bottles XC DT Home Learning: Share the following link on Tapestry: Cbeebies 'junk rescue' <u>https://www.bbc.co.uk/cbeebies/makes/junk-rescue-recycled-crafts#playlist</u> Encourage the children to do some reusing at home with their families. Stretch – what do you recycle the most of at home and what do you think the impact is? 		the sustaining and even transformational power of the everyday.
L.O: To understand how reducing our use of materials can impact our planet	We can help out environment by reducing the amount of materials we use We can all make a difference Materials can be reused in a variety of useful ways	 Lesson 8: Reducing Go through the schools 'Eco-Code' with the children. Look at the first line 'Reduce, reuse, recycle, this is what we do' Ask what does reduce mean? Explain it means using less of something. Ask the children to think of things that they use lots of that they could use less of, give some examples, reusable straws or using a hot drinks flask at a takeaway. Make a class pledge to reduce the use of (select an item, this could be paper towels, paper, plastic bottles.) Once you have agreed to a pledge create an initial survey e.g. Create a survey of how many paper towels are in the bin today, repeat in 3 weeks-has it reduced? XC Maths 	Eco-code Reduce Pledge Survey Impact Where's the evidence? Science book: Results table	Who is Greta Thunberg?Greta Thunberg is a Swedish activist who works to address the problem of climate change. She is the founder of a movement known as Fridays for Future. It is also known as School Strike for Climate. Thunberg began the movement in August 2018 when she missed school to sit outside the Swedish parliament with a sign that

L.O: To understand their role as global citizens within our community.	We are part of a global community and are global citizens Our environment is our surrounding that we live in Some energy can be used again and again and are called renewables Some energy can be used only once and are non-renewable	 Lesson 9: Climate Change- Renewable and Non-Renewable Energy Remind the children of our responsibility to care for the environment as Global Citizens. Recap on our Key Drivers. Define the term environment. Discuss the meaning of energy- children will probably relate to their own energy here. Use this as a starting point. Define Energy as a term to describe the power in our homes and school give examples e.g. computers use energy etc. Try to elicit any misconceptions about electricity (e.g. electricity is a type of energy). Invite the children to explain where our energy comes from Watch: https://www.bbc.co.uk/teach/class-clips-video/primary-science-how-is-electricity-made/zfhfgwx (it is not necessary to watch the entire video- use this as a way into power stations) Discuss the fact that these Power stations won't work forever because coal, oil and gas will run out. Introduce the term renewable energy. Watch: https://www.bbc.co.uk/bitesize/topics/zp22pv4/articles/ztx wqty Focus on Wind power. Watch: https://www.bbc.co.uk/bitesize/clips/zhrwmp3 	Environment Global citizens Energy Renewable Non-renewable Wind-farm Fossil fuels Where's the evidence? Tapestry: Wind turbine and pupil voice incl. speech bubble.	read (in Swedish) "School Strike for the Climate." Just over a year later, in September 2019, millions of protesters marched in climate strikes in more than 163 countries. The protests were held on all seven continents. What is the Rampion Wind Farm? <u>https://www.rampi</u> onoffshore.com/
---	---	--	--	--

		 Children to make a pinwheel (preferably from recycled materials) Create a class wind farm. Give each child a speech bubble. Pretend a windfarm is being built in Southwater. How would they feel? Children to add a speech bubble to their wind turbine to share their opinion- ensure there is a sense of respect and democracy and that children know there is no right or wrong answer. Offer some of the examples below and add them to your display. You could debate each statement in detail over the week if time allows. 		
		Stretch – what would happen if the wind stopped? How would we get our energy then if we used wind power?		
L.O: To understand how our use of materials can lead to climate change	Climate change is happening because of humans Climate change means that our weather patterns are changing Climate change can result in hotter, colder and more unpredictable weather Climate change is dangerous for us and the planet	 Lesson 10: Climate Change- Greenhouse Gases investigation Linking to the theme unit look at some images of 'The Earth' from outer space, as it would be seen by Tim Peak and other astronauts. Discuss what the 'white bits' are? Introduce the Arctic and Antarctic circles or Polar ice caps. Explain to the children that this sea ice is melting which is very dangerous to the animals, and scientists are concerned that Polar Bears may become extinct. Introduce and explain in simple terms the concept of atmosphere, climate change, greenhouse gases Watch: <u>https://www.youtube.com/watch?v=E6zW43U7yqM</u> 	Climate change Weather pattern Unpredictable Greenhouse gas Where's the evidence? Science Book: Investigation write up	Who is Tim Peak?

	Our choice of materials can reduce climate change	 <u>https://www.youtube.com/watch?v=v8unGCTWUWI</u> (this does mention God at the end) Investigation: How can we protect the polar caps? Children to be given a 'climate mission'. Work in groups to apply knowledge on materials and climate change in order to put forward an idea on how to protect the polar regions. 	Experiment: Appre 1 minute. Apprendix 1 minute. Number 1 Reader: Conductor: 1 minute.
	Apply knowledge from the term	Stretch – Additional Lesson: Science Day	Apply vocabulary from the
L.O: To Ask simple questions and recognise that they can be answered in different ways and to gather and record data to help in answering questions.	Apply knowledge from the term	 Additional Lesson: Science Day This is a fun and engaging way to develop children's enquiring minds and develop a love of science. Children should focus on the objectives from 'Working Scientifically'. Particularly use this opportunity to gather evidence of children asking their own questions. Each Science Day will be planned around a whole school theme, however ideas can be found at the links below Attps://learning.sciencemuseumgroup.org.uk/wp-content/uploads/2017/09/Kitchen-science.pdf https://www.stem.org.uk/elibrary/resource/30149 https://www.science-sparks.com/kitchen-science-round-up/ https://www.thoughtco.com/kitchen-science-experiments-for-kids-604169 	Apply vocabulary from the term Where's the evidence? Science Book: Teacher scribed post-it notes with questions posed on the day. Tapestry: Observations from the day. Freetmont Inter: Int

<u>https://littlebinsforlittlehands</u> <u>science-activity-trays/</u>	.com/4-mini-easiest-kitchen-
--	------------------------------

Year 2 – Spring

Skills and Objectives	Sticky Knowledge	Learning Task	Vocabulary	Cultural Capital, significant individuals and curriculum enrichment
L.O: To recall and revisit prior knowledge	Prior knowledge of: -Animals and their babies -Growing and changing -Hygiene -Keeping healthy	 Lesson 1: Humans and Animals: I think - I know - I wonder? Give the children the following headings -Animals and their babies -Growing and changing -Hygiene (explain if necessary) -Keeping healthy Children to complete their grids with any information or about the 4 areas under the 3 headings- use a landscape page and divide into 3 columns. Children can draw/write/have adults scribe- add post it notes with pupil voice where possible. 	Pick up on any prior vocabulary Where's the evidence? Science Book	

	•	Different animals have	Lesson 2: Baby Animals.	Offspring Growth	
LO: To know that animals have offspring which grow into adults.	•	Different animals have different kinds of babies, with different scientific names, in different ways. Animals need to have offspring in order for their species to survive Animal groups give birth in different ways	Lesson 2: Baby Animals. Discuss: how are you different to when you were a baby?	Offspring Growth Reproduction life cycle animal baby names Where's the evidence? Science Book:	
		https://www.bbc.co.uk/bi Task: Match images of baby anir their differences	https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/zttckqt Task: Match images of baby animals to their parents. Observe and record their differences	Tapestry: Pupil voice and photographs of children playing the game	
			Review: •What does the word 'offspring' mean? •How are you different from a baby? •What is similar about a kitten and a cat? What is different? •How do animals' (including humans') needs change as they grow up? •What is the offspring of a sheep called? •A foal is the offspring of which animal? Stretch – Observe the differences between humans and other animals as they grow.		



	Older people are not always	Lesson 4: Discovery Dog – Tall Tails	Height	What is the British
	taller	Children to watch the Discovery Dog Clin	Comparative	Science Association?
	Vou stop growing after being	Address the question posed by the clip	Patterns	https://www.british
	 Fou stop growing after being an adolescent 	• Address the question posed by the clip.	Theory	scienceassociation o
	all addiescent	Are older people always taller?	Formulate	rg/history
	 You can investigate a scientific 		Tormulate	<u>rg/mstory</u>
	question to formulate a theory		Where's the evidence?	
			Science Books: Bocord	
		 Model how to use a meter rule or measuring tape to 	of investigation	
		investigate how tall someone is.	including results table	
		Ensure plentiful resources to select from including	and answer to the	
		mathematical resources for ordering numbers. SEND	and answer to the	
		children could measure with cubes or pencils etc (non-	question.	
		standard units)		
		 You may need children's hirthdays readily available and to 		
O: To be able to		acquire permission from adults for children to ask their age -		
perform a simple		giving people the opportunity to opt out		
comparative test		Children to plan an investigation to approach this question		
		Children to plan an investigation to answer this question.		
		Discuss what we can do.		
		Children to perform a simple comparative test.		
		Children to sequence the people from their investigation to		
		demonstrate their findings e.g. older people aren't always		
		taller Ideally children will use a table e.g.		
		Name: Height: Age: Rank: (Children can rank by age		
		and then note any patterns)		
		Stretch - Suggest answers to the question noticing similarities.		
		differences and patterns		

LO: To be able to discuss the basic needs of an animal	 All animals have 3 basic needs for survival: water, food and air. Shelter and being healthy are also important for animals. If something is essential then we need it to survive. If something is non-essential we can survive without it. 	 Tell the children Mrs Cavallo has to go to another school this afternoon so it is their job to look after Dave the academy hamster. Ask the children what will Dave need whilst he is with them. Watch these videos <u>https://www.youtube.com/watch?v=FOLP8p0jSoA</u> Elicit the basic needs food air -water Discuss further needs Exercise Shelter-cage/house Hygiene-cleaning, grooming Task – decide what is essential and what is non-essential: oxygen, hairbrush, shoes, food, shelter, book, water, mobile phone and get the children to explain Explain to the children that Mrs Cavallo is feeling too busy at the moment and needs a helper for Dave. Children to complete a job application for the role of Dave's carer. Children to record what they would do to look after Daveencourage children to record this in their own way e.g., poster/booklet (a guide to looking after Dave)/ a letter to Mrs Cavallo You could ask Mrs Cavallo to interview them for the job. Ideally children would then care for Dave over forth coming weeks. (XC PSHCE RRS) 	Needs Survival Water Food Air Shelter Exercise Warmth Hygiene Where's the evidence? Science Book: Poster/booklet/job application illustrating the basic needs of humans and animals	Community Link* You could invite the RSPCA into do a lesson on animal needs here ensure this is progressive if the RSPCA visited in year 1
--	---	--	---	---

LO: To know the importance eating a healthy diet and what makes a healthy diet.	 Humans have basic needs to stay healthy – healthy eating being one. A healthy diet should be made up of different food groups and eaten in different amounts. We should eat: A lot-vegetables and salads and fruit (touch on sugar content) Some- Starchy carbohydrates, meats, fish, eggs, nuts, cheese, yoghurt etc Little- Foods high in fat and sugar. 	Lesson 6: Basic Needs – Healthy Eating • Discuss the foods that we can eat • A lot-vegetables and salads and fruit (touch on sugar content) • Some- Starchy carbohydrates, meats, fish, eggs, nuts, cheese, yoghurt etc • Little- Foods high in fat and sugar Group Task - Image: Some Constraints of any more common food and drink to add to the Carroll Diagram? Can you think of any more common food and drink to add to the Carroll Diagram? Discuss the what is meant by a balanced diet by using:	Diet Healthy Nutrition Carbohydrate Protein Where's the evidence? Tapestry: Pupil voice and photographs- ensure you collect assessment information on children's understanding of the food groups: Science Books: Eat well plate completed whilst children are working in groups to make sandwiches	What is a nutritionist and why are they important?
---	--	---	--	--

		 Invite The Little Tea House (village café) in to work with the children to make healthy sandwiches Children to design and make a healthy sandwich, considering the food groups Once finished reflect on the content of this meal- could colour code red, orange and green 		
		Stretch – imagine you didn't include one of your food groups in your balanced diet. How would it affect you?		
LO: To understand the importance of good hygiene.	 Hygiene is any activity that you do to keep things clean. Staying clean is important as it keeps you healthy. Germs are tiny living things that can creep into our bodies and make us unwell. Germs can be spread easily. 	 Lesson 7: Basic Needs – Hygiene the importance of hand washing Model handwashing technique to the children-share the visual guide. Remind children about singing along to Happy Birthday twice Invite two children to come and dip their hands in glitter-explain that today the glitter is representing germs. Ask them to go around the circle shaking hands with the other children. Discuss how easily the germs have spread. Invite the children to go and wash their hands explain that they must get all the glitter off to irradiate the germs. 	Hygiene Germs Spread Where's the evidence? Science Book:	Who are the NHS and how do they help us? Perhaps if there are any NHS or healthcare workers in, they could work with the children or come in for a short

	 Washing your hands well is the best way to stop germs from spreading. 	 Reflect upon this afterwards and discuss how hard it was to get the germs off and out of the way. Bring the children back to the carpet and carry out the pepper experiment: Fill a bowl with water and sprinkle some pepper on the top. Explain to the children that the pepper is representing the germs. Invite the children to dip their fingers in look at how the pepper sticks to their fingers. Next invite a child to come to the front of the class and cover their finger in soap (this would be best performed under the visualiser). Invite the child to dip their soapy finger into the water, watch the 'germs run away'. Children to write their own handwashing song to the tune of a nursery rhyme e.g. to the tune of Frere Jacques: Fronts and backs, fronts and backs In-between, In-between, Rub your hands together Fight the germs forever Now their clean, Now their clean Task – Children write instructions on how to wash hands and turn them into a hygiene campaign posted around the school Stretch - 	Song lyrics for hand wash song Tapestry: Photographs of glitter and pepper experiments-pupil voice to demonstrate understanding.	presentation to support the lesson.
LO: To investigate how germs spread using our knowledge of hygiene	 Careful handwashing prevents the transfer of germs that can use us poorly. Investigations can help answer scientific questions 	Lesson 8: Basic Needs – Hygiene Hand washing Investigation. Recap the term hygiene from last week Discuss whether our health campaign was a success Investigation: Get the children to generate the question How do germs spread? 	Germs Hygiene Spread Where's the evidence? Science books	Same as previous lesson: Who are the NHS and how do they help us? Perhaps if there are any NHS or healthcare workers in, they could work with the children or come in for a short presentation to support the lesson.

			1 1
		Discuss the apparatus we will be using today: lotion, glitter,	
		method:	
		1 Rub some lotion onto your hands and sprinkle on some glitter. The glitter represents germs.	
		2 Shake hands with some of your classmates and look carefully at your hands. Get a photo taken of your hands after you have shaken them with others.	
		3 Wash your hands thoroughly with soap and water before drying them.	
		4 Write down your observations about what happened to the glitter on your hands.	
		5 Look at where else the glitter has gone as you have moved around the classroom and write your conclusion.	
		Children to then come up with their own prediction.	
		Children to draw their observations from their hands	
		Describe their observations in words Come up with a conclusion	
		Stretch – Imagine you did the investigation again, what could improve it?	
	Exercise and staying active leads to	Lesson 9: Basic Needs – Exercise *	exercise
	a healthy heart, healthy lungs and	• Carry out a 'Jumpstart Johnny'.	muscles
	helps burn excess calories.	https://www.jumpstartjonny.co.uk/#/home	heart
		• Observe the effects of this exercise on our bodies, breathing,	bones
LO: To investigate	Humans need to exercise to be	warmer, heart rate.	heart rate
the importance of	healthy	 Discuss the positive effects of exercise, 	artery
exercise.		Introduce the idea of our heart as a muscle and its job to	
	Exercise can make you happier	pump oxygen around our bodies. Explain the more we make	beats per
		It work the better and stronger it gets.	minute (bpm)
		 Discuss the importance of staying active and how we can do this. 	Where's the evidence?
		-Healthy heart, healthy lungs, burn excess calories	

Demonstrate how to take your heartrate – wrist or neck in	Science books
60 seconds.	
Get the : What happens to your heart when you exercise?	
Apparatus: PE kit, stopwatch, pencil, results table	
Come up with an individual prediction	
Agree the method:	
1 Measure your resting heartbeat and record it.	
2 Change into your PE kit and warm up.	
Complete each exercise in turn for 1 minute. When the minute is up, stop and measure your heart rate, recording it in the table.	
4 Rest and record how you feel after each exercise.	
5 Analyse your results and make a conclusion.	
Record resting heart rate.	
Fill in results table:	

		Exercise What activity did you do? United the second secon	Heart Rate (bpm) How many beats per minute could you count?	Feelings How did you feel? Warm? Thirsty? Out of breath?		
LO: To explore habitats and what kinds of creatures live in those different environments and identify why.	 A habitat is a natural environment or home of a variety of plants and animals. Animals have different adaptations to make them suited to living in particular habitats. A microhabitat is a very small area within a wider habitat. 	Stretch – how did this of carried out? Lesson 10: Habitats and Introduce and environment of Receive some world explored middle of the of Ensure there is rainforest, one habitats Invite the child habitat.	compare to other invest bund our world: (XC The define the term 'Habita or home of a variety of postcards from your cla r. Place them into 4 sort circle s one from the Polar Re e desert and one ocean. picture cards of plants dren to sort the animals	igations you have emed unit) at' (<i>a natural</i> <i>plants and animals</i>) iss mascots travels as a cing circles in the gions, One from the and animals from these into the correct	Habitat Micro-habitat Adaptation Adapted Where is the evidence? Tapestry: Photographs of children	Who is Jess French? <u>https://en.wikipedia</u> .org/wiki/Jess Frenc <u>h</u> <u>https://www.vsgd.c</u> o/jess-french 'Minibeasts by Jess French' Book.

- Different wildlife will have different specific needs in a microhabitat.
- Animals with similar features are not always suited to each other's habitats.
- Habitats can be very big or very small. Very small habitats are called microhabitats.
- Different microhabitats meet the needs of different animals and plants.
- We can find minibeasts in microhabitats.

• Begin to talk about why they live here discuss scenarios such as a Polar Bear living in the desert? Why not? Begin to talk about adaptations these plants and animals have to ensure they are suited to their habitat/environment.

Science books: Habitats hunt



Discuss what the term minibeast means whilst showing them these images:





Then discuss that they live in a 'microhabitat': Some habitats may be big, like a wood. Some may be very small. These are called microhabitats. A microhabitat may be as small as the area under a single rock or in the leaves of a single tree. Different microhabitats meet the needs of different animals.

Task – go into an area of the school grounds (paddock, woods etc.) and identify and record both the microhabitats found and the minibeasts that live within them.

Stretch – explain what animals you would definitely not find in our local habitat and why.

To understand the different features animals have so that they can survive in their habitats	 The Arctic is a polar habitat. The north pole is in the Arctic. (Antarctica is also a polar habitat. It is the continent around the south pole.) It is very cold and windy in the Arctic. There is lots of snow and ice. The Sahara in Africa is a desert habitat. It is very hot in the daytime and can be cold at night. There is very little rain. Different animals and plants live in the Arctic and the Sahara because they are different habitats. 	 Lesson 11: Arctic and the Sahara: (XC Themed unit/English) What's the difference between these habitats? What would you need to survive in them? The Arctic is a polar habitat. It is an area of land and sea in the far north. The north pole is in the Arctic. (Antarctica is also a polar habitat. It is the continent around the south pole.) It is very cold and windy in the Arctic. In the winter it snows and the ground is cold and frozen hard. The sea freezes as well. The summer is short so plants only have a short time to grow. Mosses grow well in the Arctic. Mosses are low and so keep out of the strong winds. The short growing season and frozen ground makes it hard for trees to grow. Discuss the features of a polar bear and an arctic fox and how this helps survive in their habitat. It is very hot in the daytime but can be cold at night. There is very little rain. The plants which grow well in the Sahara often have deep roots so that they can reach the water they need deep underground. Acacia trees, which have deep roots, grow in some areas of the Sahara. Discuss the features of a scorpion and a fennec fox and how they help the animal survive in their habitat. Task – Children use a picture of a fennec fox and a polar bear to write up a comparison between them. Stretch – Literacy objectives 	 Habitat Needs Arctic Polar bear Arctic Fox Sahara Desert Fennec fox Scorpion What's the evidence? Science Book 	Discuss previous knowledge of global warming and the impact on this lesson.
--	--	---	--	---

LO: To apply my knowledge of habitats and adaptations	Recap all previous sticky knowledge on characteristics of different habitats.	 Lesson 12: Animal Adaptation: (XC Themed unit/English) Watch the clip on Abdul the Camel: https://www.youtube.com/watch?v=7KoRVGS8stk Follow this with the clips about animal adaptation: https://www.youtube.com/watch?v=anRp7FQ9CKY https://www.youtube.com/watch?v=anRp7FQ9CKY https://www.youtube.com/watch?v=oBx7eDBNRM8 Pause the clips at various points creating a list of ways animals adapt to survive. Add any other ideas not featured in these clips Children to use this knowledge and select a habitat of their choice. Next they should design an animal to live their- considering the adaptations they have. Children to produce a labelled picture of their fictional creature, including at least 5 adaptations it has to survive in the habitat of choice. There are lots of clips to support the children's understanding that may be watched in the build up to this lesson. E.g. https://www.youtube.com/watch?v=vnmPdHmRv9o https://www.youtube.com/watch?v=a85IHgFhyw4 Game: https://368.stem.org.uk/Human%20and%20Animal%20Habitats/page /modules/habitats2.html 	Habitat Adaptation Survive Fictional character Where's the evidence? Science book: Fictional animal from chose habitat- labelled with characteristics for survival.	What is the Natural History Museum – have any children been? This could be a potential school trip.
LO: To learn from others in the scientific world		 Lesson 13: Real Life Scientist: Dr. Morley: (XC Themed unit) Invite Dr Morley- Antarctic explorer and researcher into school to talk to the children. This will need to be planned and organised well in advance. In the lead up to this visit build communications with Dr Morley following his work and diaries. 	Where's the evidence? Tapestry: Photographs, pupil voice and communications with Dr Morley.	Interview of an expert

Year 2 – Summer

Skills and Objectives	Sticky Knowledge	Learning Task	Vocabulary	Cultural Capital, significant individuals and curriculum enrichment
	 We know something is alive because all living things carry out processes that keep us alive. Living things have life processes. 	 Lesson 1: Alive, not alive, never alive! Explain to the children that we know something is alive because all living things carry out processes that keep us alive. Introduce the MRS GREN acronym and display this on your working wall to support children's understanding. It would be a good idea to come up with an action for each word to support children in remembering the processes. 	Living Dead Alive Life processes	
LO: To understand the difference between things that are living, dead and things that have never been alive and to sort objects into these categories.	 They need food, water and air to stay alive. They can sense changes in the environment. They can move, grow and reproduce. 	 remembering the processes. Characteristics of living things Movement Respiration Sensitivity Growth Reproduction Excretion Nutrition Ensure you define each term Look at examples of each e.g. a flower moving up to reach the sunlight a rabbit running away to escape a fox. Watch: <u>https://www.bbc.co.uk/bitesize/clips/zg7s39q</u> Play a game with the children – this may be best in the hall or the playground. Call out the name of a "thing". Label the playground with 2 words (one side living, the other side non-living, call out some objects, e.g. a cat, a glass, an oak tree etc. Once children are change the labels so there are 3: living, dead, never alive Challenge children with things made of wood, or some cut flowers etc. Are children fully understand that, if there is any confusion ask some of the life processes. Living things have life processes. 	Where's the evidence? Science books: Classification activity Game: Tapestry	
		 -They need food, water and air to stay alive. -They can sense changes in the environment. -They can move, grow and reproduce. Children to use their classification skills to sort objects into living, dead and never alive. Children could either draw their own ideas, or use images you provide or a combination of both *Please note this may provoke some emotional discussions for children who have experienced recent bereavements.* 		
---	---	--	---	---
LO: To observe the changes of a seed during the process of germination	 Most plants come from seeds or bulbs. Each seed or bulb is a whole new plant just waiting to grow. Plants need certain conditions to germinate from seeds/bulbs. Most do not need light. Plants need water, light and a warm temperature to grow and develop healthily. Before a seed starts to grow, it is dormant. When a seed germinates, it starts to grow. Germination is the baby plant (embryo) inside a seed waking up and growing. In order to germinate, the conditions must be right. 	 Lesson 1b Germination Remind children of their learning from year 1 re: growing plants. Plant a range of seeds and bulbs to grow in the classroom Children to keep an observational diary of the plants as they grow from seeds/bulbs into mature plants. Consider planting a range of seeds and bulbs in a similar means to those below to enable children to make detailed observations. Children to record the requirements for germination (most do not need light to germinate) Work Wo	Seed Seedling Bulb Germination Germinate Condition Sprout Shoot Where's the evidence? Science book: Observational diary	Life cycle of a plant (Reception). Planting outside in garden.

LO: To create a micro- habitat.	 A habitat is a natural environment or home of a variety of plants and animals. A microhabitat is a very small area within a wider habitat. Different wildlife will have different specific needs in a microhabitat. We can find minibeasts in microhabitats. 	 Lesson 2: Micro Habitats Recap on last term's learning on habitats. Discuss children's homes as their habitats. Explain that if this is their habitat, a micro habitat would be the Spider's web in the corner of their bedrooms. Define microhabitats; a very small habitat, for example for woodlice under stones, logs or leaf litter Recap on the basic needs various wildlife will have in their microhabitats. Read Bug Hotel- A Clover Robin book of nature Invite children to bring in natural objects from home, and collect them from around school. Children to work in groups to create a bug hotel- ensure children have an understanding of why this is a microhabitat-links back to reduce, reuse, recycle. You may wish to ask for donations of pine cones, pallets e.g. in advance. 	Habitat Micro habitat Adaptation Adapted Minibeast Where's the evidence? Tapestry: Photographs and pupil voice
LO: To identify habitats and microhabitats within our Academy.	 A habitat is a natural environment or home of a variety of plants and animals. Animals have different adaptations to make them suited to living in particular habitats. A microhabitat is a very small area within a wider habitat. Different wildlife will have different specific needs in a microhabitat. 	 Exson 5 Habitats and Microhabitats Explain we are going to look at some Southwater Habitats and Microhabitats around our academy now. Children to work with a talk partner. What habitats (A) and micro habitats (B) do we have in Southwater or close by? a) Woodland, grassland, freshwater e.g. stream, lake etc. Coastal (consider have all children been to the beach?) b) Under a stone, leaf litter, flowers Create a map of the habitats and micro habitats around our academy This could be extended to their gardens or The Southwater Country park. 	Habitat Micro-habitat Adaptation Adapted Where's the evidence? Science book- Map Tapestry: Photographs and pupil voice.

	• Animals with similar features are not always suited to each other's habitats.	Give children digital cameras. Children to explore the academy grounds in search of microhabitats. Take photographs of microhabitats and the animals inside them. Use these photographs for next week.	
LO: To create a fact file to describe a habitat/microhabitat within Southwater.	 A habitat is a natural environment or home of a variety of plants and animals. Animals have different adaptations to make them suited to living in particular habitats. A microhabitat is a very small area within a wider habitat. Different wildlife will have different specific needs in a microhabitat. Animals with similar features are not always suited to each other's habitats. 	 Lesson 4 Habitats and Microhabitats 2 Methods Begin the lesson by exploring the photographs the children took last week. Explain to the children you are going to make a class book "A guide to the microhabitats of Southwater"- it would be nice to give this a purpose, e.g. a topic based character is coming to visit or we need to teach redwing. Recap on spring term learning, remind children how animals and plants are adapted to their habitats. Children to each create a unique fact file using the following heading: Habitat: (E.g. woodland) Microhabitat (log pile) Home to: Woodlouse The habitat is (e.g. damp, cool and dark) X like to live here because: (e.g. Describe animals needs, e.g. like damp dark places, can be easily camouflaged) Labelled diagram of the animal Collate the children's learning together into a class book which is available for them to use. 	Habitat Micro-habitat Adaptation Adapted Fact file Heading Diagram Where's the evidence? Science book or Learning journals-
LO: To compare animals from different habitats.	 Animals have different adaptations to make them suited to living in particular habitats – not all animals are suited to the same habitats. 	 Lesson 5: Comparing animals from different habitats. Look at the book Creature features (Science cupboard). Look at how lots of the animals have similar adaptations. Ask does this mean they can swap habitats? Ask could a shrew swap with an elephant just because they both have a long nose? Etc. Share with the children some similar animals, with a postcard explaining they would like to do a house swap e.g. a polar bear to a koala bear, an arctic fox to a fox, a domestic cat to a tiger etc. Children to write a persuasive postcard back explaining why they shouldn't do a house swap. Ensure children make comparisons about the animals in their response. 	Compare Adaptations Similar Persuasive Where's the evidence? Science book: Postcard

		E.g. Dear Koala bear, You should not move to the arctic because your fur is not white, you will not be well camouflaged and you may get eaten by a hungry walrus. Polar bears have white fur this means they are well camouflaged from predators and huntersetc.		
LO: To understand and order various food chains.	 A food chain tells us which animals eat what in the natural environment. A food chain always begins with the sun because this helps the plants to grow. The different parts of the food chain have different names – producer, prey, predator. 	 Lesson 6: Food Chains Follow on from last week's lesson on Microhabitats. Recap on certain animals being best adapted to living in particular areas. Recap on Mrs Gren and focus on Nutrition. Ask how do our animals stay alive? Begin by showing children some familiar animals e.g. Rabbit, fox, hedgehog. Ask what they eat (the children may not be very familiar with this so it may need some time to explore the diet of some common British animals.) Once you have touched on the idea of animals eating other animals introduce the word "Food Chain". Explain a food chain tells us who eats whom. They do this using arrows- the arrow means "eaten by" Begin with pairs- who eats who e.g. lettuce and slug, hazelnut and mouse. Introduce the terms producer, prey and predator (could also use the term consumer to challenge most able scientists) Define these-add to working wall Challenge: tell children that the sun is always at the beginning of the food chain as the sun helps the plant to grow. On the playground: Use the tabards with empty pouches. Give one to each child. Place pictures of various food chains inside- can the children order themselves –include arrows, and sunshine too to ensure full understanding. Children to record some simple food chains into their books. 	Food chain Food source Producer Prey Predator Where's the evidence? Science book Food chains Tapestry: photographs and pupil voice	What does nutrition mean? Explore some diet of some common animals.

		 Challenge children to include food chains from a variety of habitats (this may expand into a second lesson) Use the food chain cards in science cupboard to support children with SEND 		
LO: To identify and classify animals within their food chains.	 Some animals/creatures live in ponds. 	Lesson 7: Pond Dipping/Food chains You will need to do this in a morning. The class will need to be split into small groups. Either the TA or Teacher and a parent volunteer should take no more than 6 children to the pond at a time. The remainder should be in the classroom carrying out activity 2. 1: Take the children pond dipping in the school pond (you could use another pond if the opportunity arises e.g. on an educational visit). Children to explore the wildlife in the school pond. https://www.rspb.org.uk/globalassets/downloads/kidsschools/teaching- resources/spot-it-ponds.pdf 2. Begin to develop children's knowledge of pond life. Look at the fact cards and read together.	Pond life Pond dipping Food chain Herbivore Carnivore Prey Predator	What is the RSPB? What do they do? Link to Pulborough Brooks trip.
		 <u>https://www.npt.gov.uk/media/4424/ponds_lesson_4_make_a_food_chain.pdf?v=20170627002202</u> Children to work in small groups to sort their cards into plants, herbivores and carnivores- recap on the terms prey and predator from last week and discuss the link here. Give the children some arrows. Children to use their cards, reading the pond life facts, sorting them into food chains. Invite the children to draw and label these food chains in their books. 	Where's the evidence? Science book Food chains Tapestry: photographs and pupil voice	

LO: To understand and describe the lifecycle of an animal.	 Animals, including humans, have offspring which grow into adults. Offspring are very much, but not exactly, like their parents. Most animal babies need to be fed and cared for by their parents. 	Lesson 8: Lifecycle of animals: Recap on the lifecycle of a human visited in the Spring term. Following on from our pond dipping lesson last week, read the story of Tadpoles Promise (the text looks at the lifecycle of a frog and butterfly- with a cheeky twist that could be linked to food chains at the end.) Watch: https://www.bbc.co.uk/bitesize/topics/z6882hv/articles/zttckqt Discuss the featured lifecycles. Children to use secondary sources to explore the lifecycle of an animal of their choice. Children to choose a lifecycle XC Computing. Children to use Scratch or PowerPoint to create a lifecycle of their chosen animal. Present to the class. T. To film for Tapestry. * You may wish to observe some frog spawn in the classroom or hatch chicks earlier in the year. This lesson can be taught then if more appropriate.	Offspring Growth Reproduction Life Cycle Baby Toddler Child Teenager Adult Where's the evidence? Science book: Print out of presentation Tapestry: Video of presentation	Discuss previous knowledge about lifecycle of a human/ourselves.
LO: To investigate the best conditions for a plant to grow.	 Plants need certain conditions to germinate from seeds/bulbs. Most do not need light. Plants need water, light and a warm temperature to grow and develop healthily. 	 Lesson 9-11: Plants: Comparative test Create a concept cartoon from a relevant character(s) e.g. from the current class text. Pose the following statements to the children. Quoting the characters "I think the plant will grow best on the window ledge. You need to give it Lucozade, my dad drinks that to give him energy for running so it will give the plant a lots of energy to grow." "I think you should put the plant in the cupboard, so the caterpillars and slugs can't nibble it." "I think you should put the plant in the fridge. It is so hot at the moment it will cool it down." "I think you should wrap the plant in cling film to keep it really warm-like a greenhouse." 	Investigate Conditions Predict Where's the evidence? Science book: Investigation report	

 Children to make predictions about which (if any) is the best way to ensure a plant grows- encourage them to list what the think a plant needs to stay healthy. Measure each plant before conducting the investigation and record. Children to draw the plants with the following labels No light, cool temperature, warm temperature, no water, alternative to water Follow these suggestions for 2 weeks (you could put a picture of the character with a speech bubble on the plants in the relevant places) *Ensure there is a "control" plant you continue to offer light and water etc as previously taught. 	