Year 1 Science Long Term Plan

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Why do we use different materials for different things? Everyday Materials		Am I an animal? Animals, Including Humans		What are common plants near me? Plants	
What is my favourite season? Seasonal Change *NB: covered in 4 fortnightly sections across the year*					

Unit 1 Science – Why do we use different materials for different things?		
National Curriculum Links	**Disciplinary Knowledge (working scientifically)**	**Key Vocabulary**
Everyday Materials • Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties.	• Know how to sort objects according to the material they are made from. • Know that science is about asking questions, • Use observations to suggest answers to questions	**Tier 2:** object, wood, plastic, metal, rock, water; hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof. **Tier 3:** properties, material, opaque/transparent absorbent/not absorbent
Pupil Offer		**Famous People**

Unit 1	Week 1	Week 2	Week 3	Week 4
Lesson Overview including Substantive knowledge	**Identifying, grouping and classifying** **What Materials Are These Objects Made From?** • Name a variety of everyday materials. • Know that objects are made from materials. Retrieval: Materials used by the Three Little Pigs Show class a collection of objects made from one single material. Discuss object name and the material it is made from. Repeat with a few other collections. After this is secured, the collection can contain a mix of materials. Children should sort the materials using sentences such as 'This object is a watering can. The material it is made from is metal.' Children can sort trays of materials or photographs of objects into wood, plastic, metal and rock.		**Identifying, grouping and classifying** **What properties Do Materials Have?** • Describe and name the simple physical properties of a variety of everyday materials. Retrieval: "I spy something made from …" Introduce vocabulary transparent/opaque. Look for objects such as windows. Introduce the idea of using what we see and feel to describe materials and that these are properties. Use a feely bag to gather describing words for some materials, working though different objects hidden to show all vocabulary listed above. Repeat with objects outside of the bag to link to materials. E.g. This object is shiny and opaque. The saucepan is made from metal.	**Comparative/fair testing** **What Material Is Best At Absorbing Water?** • Become familiar with the term absorbent/not absorbent Retrieval: Children to be shown three objects that share a similar property – can children identify this? Introduce absorbency. Demonstrate how objects soak up water if we spill it. Emphasise the name of the object and the material with which it is made. Scenario: Sometimes we accidentally spill water in the lunchtime hall on the table. The lunchtime supervisors need something really good to absorb water. Discuss materials which might be best or worst (it's good to use contrasting materials here: paper, fabric, tinfoil, plastic). Do you think we could make up a test to see which paper or cloth would work best – which would be most absorbent? Demonstrate using two of the materials (e.g. tin foil and fabric). Pupils to these test out a small number of materials, where the size and amount of liquid has remained the same. Children to explain which was most absorbent and how they knew from what was seen.
Working Scientifically	Know how to sort objects according to the material they are made from.		Know that science is about asking questions Ask and suggest answers to one key question: What properties does the material have? Using observation of the different materials, suggest answers.	Reminder – science is about asking simple questions Ask a simple question: What material is best at absorbing water? Using observations to suggest what material is best at absorbing water?
Organisation & Communication	Photographs of children working together to sort objects into labelled hoops		Children to choose a couple of objects to draw, record the materials they are made from and the properties of those materials	Photographs of children testing different materials Observation slips: What do they think will happen?
Famous People			Charles Macintosh – waterproof raincoat	Charles McCurdy – carbon-negative raincoat

Unit 1	Week 5	Week 6	Week 7	Week 8
Lesson Overview including Substantive knowledge	**Comparative/fair testing** **Which Material Is Best at Keeping Us Dry/ Is Waterproof?** • Become familiar with the terms waterproof/ not waterproof Retrieval: I spy – including review of absorbent Teach children how to use a timer which lasts for one minute. Scenario: Teddy (the class bear or other known toy) needs a rain hat. Discuss what properties the material (fabric) of the hat would need to have from the key list. Emphasise that the most important property is that it needs to be waterproof What does waterproof mean? Would a dishcloth make a good hat? Discuss different fabrics and whether they would be suitable. Perform simple test for being waterproof (after modelling with one material). Test will allow children to put set amount of water on a material and measure how much water has leaked though after one minute.	**Identifying, grouping and classifying** ***Working Scientifically TAPS*** Ways to test reflectiveness (do) Explore a range of materials e.g. foil, shiny fabric, glossy acetate, shiny paper, brightly coloured paper, netting… list words to describe their properties on a whiteboard (e.g. shiny/dull, glossy, translucent/opaque). Discuss how to test which are the most reflective, e.g. put in sunlight / torchlight / use a lamp, does it bounce off onto the wall/table? Can you see yourself in it? Groups test and sort a range of materials (could be for a purpose, e.g. to find the most reflective materials for making rockets in DT). Children sit in a circle and consider one group's sorting / ordering – do you agree? Would you move any? Why? This activity will best be completed in small groups where adults can record the explanations of each child as the sorting is happening.	***BIG QUESTION ANSWER*** Children to go on a materials walk to retrieve learning from the term. Children will match the material with a property they have learned in the unit. They will be asked to choose from the materials in the classroom for making different objects, for example using glass to make a window.	***REVIEWING*** Teachers to plan one additional week to address missing knowledge or remaining misconceptions. This lesson content and outcomes will vary between classes.
Working Scientifically	Reminder - Ask a simple question / use observation to suggest answers to questions Use simple equipment for measurement – a teaspoon to measure water Measure the water gathered from each material and present this in a pictogram. Perform a simple test to find out which material is the most waterproof. Collectively draw a conclusion about which material is best for keeping us dry.	asking simple questions and recognising that they can be answered in different ways		
Organisation & Communication	Pupils should record on a pictogram (fabric swatches along the bottom and teaspoons up the side). Although pupils should have drawn pictograms before recording in this way, model using your results. Pupils could then record on their own pictogram.	Pictures of sorting along with comments from discussions.		
Famous People				

Unit 2 Science – Am I an animal?		
National Curriculum Links	**Disciplinary Knowledge (working scientifically)**	**Key Vocabulary**
Animals including Humans • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, birds and mammals including pets) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	• Use observations and evidence from tests to suggest answers to questions • Use tests to identify if something is true • Identify the characteristics of birds and fish; identify what is the same and what is different about these two animal groups.	**Tier 2:** head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth, tongue, feet, hands, torso, skin, senses, ears/hearing, hands/touch, nose/smell, eyes/sight, tongue/taste, birds, fish, feathers, scales, breathe, lay, young, diet **Tier 3:** characteristic, cold-/warm-blooded, mammal, reptile, amphibian, carnivore, omnivore, herbivore

Pupil Offer	Famous People
Letter from an alien	

Unit 2	Week 1	Week 2	Week 3	Week 4
Lesson Overview including Substantive knowledge	**Identifying, grouping and classifying** **Which Parts Make Up the Human Body?** • Know where parts of the body are - head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth **Hook:** **Children to receive a message from an alien visitor, asking questions about humans and the parts of the body.** Retrieval: Which body parts do you know? Body parts bingo. Show a picture of two people. Ask if all humans are the same and discuss similarities and differences that they see. Make a class list of things all humans have (see vocabulary above). Play 'Simon Says' to practise naming parts. Children to identify errors on an incorrectly labelled picture. They should then create their own labelled picture. Answer true or false questions as a class.	**Identifying, grouping and classifying** **Which Parts Make Up the Human Body?** • Know that eyes are associated with sight, ears with hearing, noses with smelling, skin with touching and tongues with taste. Retrieval: Quiz on previously taught body parts Explain that we have senses and have children share what they think they know about which body parts are used for these. Set up 5 stations to test whether they are correct: one for each sense. After finishing, share information about these senses and body parts. Discuss why they are important.	***Working Scientifically TAPS*** Body Parts (Review) Play body part games e.g. Heads, shoulders, knees & toes, Simon says etc. What parts of the body do you know? Point to parts on themselves or others. Could look closely at body parts using magnifying glasses / mirrors (mouth, eyes, ears, noses) – are they all the same? What are these parts for? Ask children to create a model (e.g. play dough or clay) of the human body and label the parts (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth). Describe which part is associated with each sense and explain what we use each sense for. Could label with different coloured paper or on a class/group model.	**Research** **Which Parts Make Up the Human Body?** • Know that all animals move freely, eat other living things, need water, produce young. • Know that each animal group has a set of characteristics, some of which are unique to them: ***Birds*** *have feathers, beaks and wings, lay eggs and are warm blooded.* ***Fish*** *have fins, scales and gills, which allow them to live and breathe underwater, they lay eggs and are cold blooded* Retrieval: True or false statements involving senses and body parts Show pictures of body parts from different animals. Discuss which animal it could be and why. Create list of what animals do: move, eat, drink water, have offspring. Explain that we can group them further. Birds: Watch videos of birds. What do they have in common? What is different? Create list of features. Learn names of common birds. Fish: Watch videos of fish. What do they have in common? What is different? Create list of features. Learn names of common fish. Show a range of pictures for children to say whether it is a fish, bird or neither.
Working Scientifically	Know that scientists compare things and observe closely to answer questions.	Know that scientists understand the world by carrying out tests to see if things are true or find out answers. Test each of their senses to answer the lesson's question and identify which body part is required for each test. Use evidence from the tests to draw conclusions.	Use observations and ideas to suggest answers to questions	Know scientists classify animals into different groups to make sense of the world and understand how living things are related to each other. Identify the characteristics of birds and fish; identify what is the same and what is different about these two animal groups.
Organisation & Communication	Draw around bodies on large paper and label the parts	Grids or picture matching to match sense with body part		Pictures of birds seen, with labels to show names they have learned List (or circled pictures) of features for fish and birds
Famous People				

Unit 2	Week 5	Week 6	Week 7	Week 8	Week 9
Lesson Overview including Substantive knowledge	**Research** **How Can We Group Animals?** • Know that each animal group has a set of characteristics, some of which are unique to them: ***Mammals*** *are warm blooded, have skin, fur or hair, give birth to live young and breathe air:* ***Amphibians*** *are cold-blooded, have slimy skin, lay soft eggs, breathe underwater and in the air, live on land and in water.* ***Reptiles*** *are cold-blooded, scaly skin, lay eggs with harder shells, and breathe air.* • Know that humans are mammals Retrieval: What do all animals do? Show a range of photos with mammals, reptiles and amphibians in them. Children to sort them, after teacher model. Discuss features of these animals Mammals: Watch videos of mammals. What do they have in common? What is different? Create list of features. Learn names of common mammals. Reptiles: Watch videos of reptiles. What do they have in common? What is different? Create list of features. Learn names of common reptiles. Amphibians: Watch videos of amphibians. What do they have in common? What is different? Create list of features. Learn names of common amphibians. Show a range of pictures for children to say whether it is a mammal, reptile or amphibian.		**Identifying, grouping and classifying** **Do All Animals Eat the Same Things?** • Know **carnivores** eat other animals and not plants. • Know **herbivores** eat plants and not animals. • Know **omnivores** eat both plants and animals. Retrieval: Show children animals that have been incorrectly classified, for them to correct the mistakes. Watch videos about what animals eat. Show children plates with meat, grass, fruit and insects on them. Have pictures of animals available too. Children to discuss which animal would prefer to eat which plate, and can add their own animals too. Introduce words herbivore, carnivore and omnivore, with picture clues. Children to complete own grid to sort animals under the correct heading. Allow them to explain how they know they are correct. Ask children if the deadliest animals are carnivores and watch 'Deadly 60' to investigate. Link carnivores with the sharper teeth.	***BIG QUESTION ANSWER*** Complete 5 tasks: 1. What is your animal? Children to name animal and talk about characteristics and diet. 2. What is the difference? Look at pairs of animals. 3. Which are most similar and why? Look at grid of animals in different groups and decide which groups are most like each other. 4. True or False? Make statements about different animals. 5. Do animals have 5 senses? Check that animals have body parts that help with this. Finish by asking the children the big question.	***REVIEWING*** Teachers to plan one additional week to address missing knowledge or remaining misconceptions. This lesson content and outcomes will vary between classes.
Working Scientifically	Sort animals into the 5 animal groups using knowledge learnt to make decisions about animals that are difficult to place and decide whether humans are animals.		Using knowledge of animals and their diets, group them accurately into herbivores, carnivores and omnivores		
Organisation & Communication	Photograph sorting List (or circled pictures) of features for fish and birds		Sorting grid	Pink and Green slips Answer sheets, where appropriate	
Famous People	David Attenborough				

Unit 3 Science – What are common plants near me?		
National Curriculum Links	**Disciplinary Knowledge (working scientifically)**	**Key Vocabulary**
Plants • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • identify and describe the basic structure of a variety of common flowering plants, including trees.	• Identify and classify plants as garden plants, wild plants, trees or weeds. • Monitor growth over time, and use simple drawings to record this • Use magnifying glasses and hand lenses to observe closely • Choose criteria to sort leaves by	**Tier 2:** plants, wild plants, garden plants, weeds, trees, seeds, root, shoot, soil, magnifying glass, flower, petal, stem, leaf/leaves, tree, trunk, bark, branch, blossom, acorn, **Tier 3:** local plant names, hand lens, common tree names, deciduous, evergreen Senacre Wood Tree Names: Ash, Sweet Chesnut, Oak, Hazel, Pine, Red Oak, Elderflower, Silver Birch
Pupil Offer		**Famous People**
		• Alan Titchmarsh • David Douglas

Unit 3	Week 1	Week 2	Week 3	Week 4
Lesson Overview including Substantive knowledge	**Identifying, grouping and classifying** **Observation over time** **What Plants Do We Know and Where Can We Find Them?** • Know and name a variety of common wild and garden plants, including deciduous and evergreen trees Retrieval: Find me a tree, a flower, some grass. Can you name any common flowers? (daisy, daffodil, dandelion, sunflowers) Explain the plants are alive like animals. Watch video to compare where plants grow, e.g. garden and wild. Explore the school grounds to look for plants and see if they can name any that they see. Make sure they look close and far at different plants. Explain what a seed is and look closely as a small number of seeds. Model planting and then have children plant their own. Children to start a grid to record what they see as they observe over time.	**Identifying, grouping and classifying** **What Part of a Plant Is Under the Ground?** • Know that roots are the part of the plant which is under the ground Retrieval: Show wild plant, garden plant, tree and weed for children to identify. Look at plants in the planter. Ask children what they think is happening under the soil. Explain terms shoot and root. Dig up one weed and show them the root and the shoot. Look at a tree and identify what will be under the soil. Inside the classroom show children magnifying glasses. Practise using on everyday objects before using on weeds that have been dug up by an adult.	**Identifying, grouping and classifying** **Research** **Can We Use a Flower to Name a Plant?** • Know how to identify and describe flowers, petals, roots, stem and leaves of flowering plants Retrieval: Recall purpose of roots Look at flowering plants in a pot or planter. Remove the pot so children can look at the roots. Find its stem, leaves and flowers, also discussing seeds. Children to repeat with a different flowering plant, or picture of one, so that they can add labels. Look at plants on an identification chart. Tell children they will be flower detectives and will look at leaves, flowers and petals to help them identify and name the plants they find.	**Pattern Seeking** **Are All Tree Trunks the Same?** • Identify and describe the basic structure of trees – trunk, branch, bark, blossom Retrieval: Recall the features of plants Retrieve names of some common trees, especially those list above from the school site. Ensure children are shown trees with flowers, fruit and nuts (e.g. acorn). Explain difference between trunk and branches. Link this to a stem of a flowering plant. Visit the trunks of different trees, feeling the different bark. Investigate the different thicknesses by wrapping string around the tree. Children to explain what the different length strings tell them about the thickness of the trunk.
Working Scientifically	Identify and classify plants as garden plants, wild plants, trees or weeds. Know that by observing living things over time, we can monitor changes. Plant seeds and monitor growth over time, drawing pictures of different stages of development.	Identify and describe the roots of a plant by observing closely using simple equipment – magnifying glasses/hand lenses.	Observe the parts of a flowering plant closely using simple equipment – magnifying glasses/hand lenses Use string to measure trunks and then order them according to size.	Gather and record data (the thickness of a tree trunk) to help answer questions. Gather data about the thickness of tree trunks and compare and contrast to understand variation.
Organisation & Communication	Draw some plants that the see Matching common plants with their names	Drawing of roots, with labels	Labelled picture of flower	Identification of which trunk is thickest – e.g. using cloze sentences
Famous People	Alan Titchmarsh			David Douglas

Unit 3	Week 5	Week 6	Week 7	Week 8	Week 9
Lesson Overview including Substantive knowledge	***Working Scientifically TAPS*** Leaf looking (do) Go on a 'welly walk' in school grounds to collect leaves *(with clear instructions about where they are allowed to go and what they are allowed to collect/pick e.g. try to collect fallen leaves, do not over-pick from one plant, warn to look for prickles and stinging nettles etc – check with an adult if unsure).* Use magnifiers to look closely at the leaves and ask pairs to discuss what is the same/what is different. Draw a leaf, labelling with support. At an appropriate point, you could include a mini-plenary in which you show a drawing by the class teddy/puppet. Ask the children to give advice on how to improve the drawing e.g. *what colour is the leaf stalk? Where do the veins really go?* Children could then improve their own or do another drawing. Wash hands.	**Identifying, grouping and classifying** **What Are the Leaves Like on Different Trees?** • Know that deciduous trees lose their leaves in winter. • Know that evergreen trees keep their leaves all year round. Retrieval: Circle the leaves (selection of parts of the plant on widgit, children to identify which are the leaves) Show pictures of common leaves and discuss what they see. How can they sort them? Match leaves to the tree it came from. Ask pupils what each of these trees look like in winter and discuss deciduous and evergreen trees. Have the children identify if they have got an evergreen or deciduous leaf.		***BIG QUESTION ANSWER*** Provide children with a range of materials and allow them to create a model of a plant. They should add labels. Children can also extend this into make trees (both evergreen and deciduous).	***REVIEWING*** Teachers to plan one additional week to address missing knowledge or remaining misconceptions. This lesson content and outcomes will vary between classes.
Working Scientifically	Observing Closely	Identify and classify common trees according to their physical features: leaves, bark, branches, trunk. Observe closely using simple equipment – magnifying glasses – to observe features of leaves. Choose ways to sort leaves.			
Organisation & Communication		Leaf rubbings		Photographs of models Pink and Green slips	
Famous People					

Unit 4 Science – What is my favourite season?		
National Curriculum Links	**Disciplinary Knowledge (working scientifically)**	**Key Vocabulary**
Seasonal Change • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies	• Observe changes of living things in the school grounds • Record observations by drawing • Use photographic evidence to compare weather and day length • Use evidence to make simple conclusions	**Tier 2:** season, changes, autumn, winter, spring, summer, weather, sunrise, sunset **Tier 3:** temperature

Pupil Offer	Famous People
	• Robert Fitzroy

Note: This will be repeated. Recommended timetabling is the beginning of Term 1, the end of Term 2, the start of term 5 and the end of term 6.

Unit 4	Week 1	Week 2	
Lesson Overview including Substantive knowledge	**Observation over time** **What Is Our Local Area Like in Each Season?** • Know there are four seasons: winter, spring, summer and autumn. • Know the order of the seasons. • Know that seasons lead to changes in plants and animal's behaviour Retrieval: Vocabulary season and weather Discuss the season we are in. Complete a walk around the school environment to look out for key features such as leaves, colours, animals, flowers, etc. Teacher to take some photos so children can look again at these when seasons are revisited.	**Observation over time** **Are Days Always the Same Length? Is The Weather Always the Same Here?** • Know that in different seasons, it gets light and dark at different times. • Know that the warmest temperatures are usually in the summer and the coldest in the winter. • Know the changes in weather in each season Retrieval: What are the four seasons and what is the weather like in each? (only covering those taught each time) ADVISE: SPLIT THIS INTO FOUR 10 MINUTE MORNING SESSIONS RATHER THAN A WHOLE AFTERNOON ONE. Discuss sunrise, sunset and the weather today. Draw comparisons across the days and seasons. Use pictures to identify which ones are autumn. In Term 2, this can become looking for which ones are autumn and winter to allow for retrieval. Work up to classifying all 4 seasons at the end of the year. How do they know?	***BIG QUESTION ANSWER*** Lay out lots of items of clothing a products and children to share thoughts on the seasons they are appropriate for. Present true or false statements about the seasons. Children to watch example weather reports and create their own about one of the seasons (all four to be covered across the class).
Working Scientifically	Make observations about living things in the local area in each season. Observe changes and link to seasons.	Compare and contrast the length of days and the weather in different seasons. Draw together the knowledge learnt to make statements about each of the seasons.	
Organisation & Communication	Drawing of tree in each season	Recording what Rosie would need in that season and why	Weather forecast
Famous People	Robert Fitzroy		