KS1 Science Cycle A						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Objectives	**Weather and seasonal changes.**	**Everyday materials.**	**Seasonal changes including hibernation.**	**Uses of everyday materials.**	**Weather and seasonal changes.**	**Living things and their habitats.**
	1. observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies	1. distinguish between an object and the material from which it is made 2. identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock 3. describe the simple physical properties of a variety of everyday materials 4. compare and group together a variety of everyday materials on the basis of their simple physical properties	1. observe changes across the four seasons 2. observe and describe weather associated with the seasons and how day length varies 3. recognise that some animals hibernate	1. identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses 2. find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	2. observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies	1. explore and compare the differences between things that are living, dead, and things that have never been alive 2. identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other 3. identify and name a variety of plants and animals in their habitats, including micro-habitats 4. describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food

Scientific understanding	In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in Winter and hotter and dryer in the Summer. The change in weather causes many other changes; some examples are numbers of minibeasts found outside, seed and plant growth, leaves on trees and type of clothes worn by people.	All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons. Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.	Know what hibernation is and recognise which animals hibernate. Identify seasonal weather and climatic conditions and their impact upon the local area. Know how and when animals hibernate.	All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.	In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in Winter and hotter and dryer in the Summer. The change in weather causes many other changes; some examples are numbers of minibeasts found outside, seed and plant growth, leaves on trees and type of clothes worn by people.	All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells, fur, hair and feathers (this is a simplification but appropriate for year 2 children). An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants – shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland – in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect what plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and other animals can be shown in a food chain.

Enquiry	Collect information about the weather regularly throughout the year Present this information in table and charts to compare the weather across the seasons Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans Present this information in different ways to compare the seasons Gather data about day length regularly throughout the year and present this to compare the seasons	Classify objects made of one material in different ways e.g. a group of object made of metal Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials Classify materials based on their properties Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters	Make observations about the local area during different times of the year. Discuss the hibernation pattern for different animals and observe evidence of this in the school grounds/ local area.	Classify materials Make suggestions about alternative materials for a purpose that are both suitable and unsuitable Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat	Collect information about the weather regularly throughout the year Present this information in table and charts to compare the weather across the seasons Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans Present this information in different ways to compare the seasons Gather data about day length regularly throughout the year and present this to compare the seasons	Explore the outside environment regularly to find objects that are living, dead and have never lived Classify objects found in the local environment Observe animals and plants carefully, drawing and labelling diagrams Create simple food chains for a familiar local habitat from first hand observation and research Create simple food chains from information given e.g. in picture books (Gruffalo etc.)
Investigation	Explore what happens to the trees throughout the seasons What are signs of the different seasons? Explore and measure day length throughout different seasons	Observing closely, identifying and classifying the uses of different materials, and recording their observations.	Observe which animals hibernate and why. Where do they hibernate and what does this mean? What do other animals due during cold weather e.g. through exploring migration.	Performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?' Comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs);	Explore what happens to the trees throughout the seasons What are signs of the different seasons? Explore and measure day length throughout different seasons	Sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions for example: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. They could construct a simple food chain that includes humans (e.g. grass, cow, human). They could describe the conditions in different habitats and micro-habitats (under log, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there.

Key vocabulary	Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through	Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length, hibernate, sleep, rest, active, heartrate.	Names of materials – increased range from year 1 Properties of materials - as for year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/puling, twist/twisting, squash/squashing. Bend/bending, stretch/stretching	Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats e.g. under logs, in bushes etc.
Lesson Content	1. Season exploration – what are the seasons? Which months are part of the different seasons? 2. Weather types 3. Explore weather changes throughout the seasons, weather log for the week 4. Explore day length within autumn, keep a log for the week 5. Go on an autumn walk – spot signs of autumn – discuss what happens to the trees across the seasons 6. Explore changes from autumn to winter time	1. Identify and naming different materials 2. Objects/material – distinguish between the name of the object and the material it is made from 3. Describing the properties of every day materials 4. Testing properties of materials – can they bend/stretch/be manipulated? 5. Umbrella/teddy experiment – which material is most suitable for an umbrella? 6. Sort objects by their properties	1- Re-cap – names of the seasons and seasonal changes 2- Weather log in winter – compare to weather log done in autumn 3- Day length in winter – compare to day length in autumn 4- Go on a winter walk – spot features of winter and discuss 5- Animal hibernation – which animals do? Where? Why? 6- What do some other animals do in winter? Migration	1. Identify the uses of different materials 2. Go on an outing – record data to show the uses of different materials – classify and group 3. Compare suitability of different everyday materials 4. Explore how the shape of some objects made from certain materials can be changed 5. Explain the process of recycling 6. Significant individual research - John McAdam	1. Season re-cap – what have we learnt so far? 2. Explore seasonal changes from winter to spring 3. Weather log in spring – compare to weather log done in autumn and winter 4. Day length in spring – compare to day length in autumn and winter 5. Spring to Summer seasonal changes 6. What do the animals do in spring/summer?	1. Explore/sort differences between living, dead and never alive 2. Identify and name a variety of plant and animals in their habitats 3. Explore microhabitats 4. World habitats – how do habitats provide for the basic needs of animals and plants? 5. Explore how living things in a habitat depend on each other 6. Food chain exploration

KS1 Science Cycle B						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Animals including humans- basic structure and senses.	**Animal structures.**	**Health- animals including humans. Growing and staying healthy.**	**Plants- common names and basic structure.**	**Plants- growing plants.**	**Animal survival and growth.**
Objectives	1. identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	1. identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals 2. identify and name a variety of common animals that are carnivores, herbivores and omnivores 3. describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	1. notice that animals, including humans, have offspring which grow into adults 2. find out about and describe the basic needs of animals, including humans, for survival (water, food and air) 3. describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	1. identify and name a variety of common wild and garden plants, including deciduous and evergreen trees 2. identify and describe the basic structure of a variety of common flowering plants, including trees	1. observe and describe how seeds and bulbs grow into mature plants 2. find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	1. notice that animals, including humans, have offspring which grow into adults 2. find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

Scientific understanding	Humans have keys parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.	Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them. Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.	Animals including humans have offspring which grow into adults. In humans and some animals these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals including humans have basic needs of feeding, drinking and breathing that must be satisfied in order to survive, and to grow into healthy adults they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.	Growing locally there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts but they vary between the different types of plants. Some trees keep their leaves all year whilst other trees drop their leaves during autumn and grow them again during spring.	Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc. Seeds and bulbs need to be planted outside at particular times of the year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.	Animals including humans have offspring which grow into adults. In humans and some animals these offspring will be young, such as babies or kittens, that grow into adults. In other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles.
Enquiry	Make first hand close observations of parts of the body e.g. hands, eyes Compare two people Take measurements of parts of their body Compare parts of their own body Look for patterns between people e.g. Do people with big hands have big feet? Classify people according to their features Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?	Make first hand close observations of animals from each of the groups Compare two animals from the same or different group Classify animals using a range of features Identify animals by matching them to named images Classify animals according to what they eat.	Ask people questions and use secondary sources to find out about the life cycles of some animals Observe animals growing over a period of time e.g. chicks, caterpillars, a baby Ask questions of a parent about how they look after their baby Ask pet owners questions about how they look after their pet Explore the effect of exercise on their bodies Classify food in a range of ways, including using the Eatwell guide Investigate washing hands, using glitter gel	Make close observations of leaves, seeds, flowers etc. Compare two leaves, seeds, flowers etc. Classify leaves, seeds, flowers etc. using a range of characteristics Identify plants by matching them to named images Make observations of how plants change over a period of time When further afield, spot plants that are the same as those in the local area studied regularly, describing the key features that helped them	Make close observations of seeds and bulbs Classify seeds and bulbs Research and plan when and how to plant a range of seeds and bulbs Look after the plants as they grow – weeding, thinning, watering etc. Make close observations and measurements of their plants growing from seeds and bulbs Make comparisons between plants as they grow	Ask people questions and use secondary sources to find out about the life cycles of some animals Observe animals growing over a period of time e.g. chicks, caterpillars, a baby Ask questions of a parent about how they look after their baby Ask pet owners questions about how they look after their pet Explore the effect of exercise on their bodies

Investigation	Investigate the use of each sense e.g. tasting different foods, smelling different things, touching different textures. Compare parts of their own body Look for patterns between people e.g. Do people with big hands have big feet?	Using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.	Observe animals growing and think about what they need to be able to grow strong and healthy Explore the effect of exercise on their bodies and try and sort different foods according to the EatWell plate	Observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time, for example, the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.	Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.	Observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.
Key vocabulary	Parts of the body including those linked to PSHE teaching . Senses, touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue NB. Although we often use our fingers and hands to feel objects the children should understand that we can feel with many parts of our body	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves Names of animals experienced first-hand from each vertebrate group N.B. The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics. The children also do not need to use the words carnivore, herbivore and omnivore. If they do, ensure that they understand that carnivores eat other animals not just meat.	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud Names of trees in the local area Names of garden and wild flowering plants in the local area light, shade, sun, warm, cool, water, grow, healthy	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing,

Lesson Content	1. Label body parts 2. Taste – taste different things 3. Touch – touch and describe properties of things 4. Smell – smell and describe the smell of things 5. Hearing – listen and recognise different sounds 6. Sight – learn how we see things	1. Animal groups – explore and sort animals into the different groups 2. Label and explain features of mammals 3. Label and explain features of birds and fish 4. Label and explain features of amphibians and reptiles 5. Sort animals by characteristics 6. Animal diets – classify animals according to what they eat	1. Basic needs for survival 2. Importance of healthy eating Eatwell plate 3. Importance of exercise 4. Importance of good hygiene 5. Animal offspring 6. Life cycles	1. Identify and name common, wild and garden flowers 2. Identify and name types of trees 3. Basic structure of a flowering plant 4. Basic structure of a tree 5. Compare and name types of leaves 6. Sort, compare and classify plants	1. What do plants need to grow? 2. What's inside a seed investigation 3. Life cycle of a plant 4. What do plants need to stay healthy? Experiment – put healthy plants in different situations (one with no water, one with no light, one without the correct temperature and one control plant) make observations/predictions 5. Write up from previous lesson – write conclusion to what happened 6. How do plants grow in hot, cold or dry places?	1. Animal offspring 2. Life cycles of different animals 3. Growing up – how do humans change? How do animals change? 4. Animal survival – what do animals need to survive? 5. Make observations of animals e.g. caterpillars/tadpoles 6. Interview with a pet owner/discuss animal needs