


KNOWLEDGE OVERVIEW GRID

		Subject: Science			Year Group: 1	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Seasonal Changes (SC)	Everyday Materials	Animals incl. Humans	Animals incl. Humans	Plants (Growing and identifying)	Plants (Harvesting and cooking)
<p>NC Objectives Covered (Taken directly from the National Curriculum)</p> <p>Red= substantive knowledge</p> <p>Blue= disciplinary knowledge</p>	<ul style="list-style-type: none"> • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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, reptiles, birds and mammals, including pets) 	<ul style="list-style-type: none"> • 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, reptiles, 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
<p>Working Scientifically-disciplinary (Taken from the PLAN materials/NC)</p>	<ul style="list-style-type: none"> • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Performing simple tests • Gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Performing simple tests • Identifying and classifying • Gathering and recording data to help in answering questions • Using their observations and ideas to suggest answers to questions 	<ul style="list-style-type: none"> • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Identifying and classifying • Gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Performing simple tests • Identifying and classifying • Gathering and recording data to help in answering questions 	<ul style="list-style-type: none"> • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Identifying and classifying • Gathering and recording data to help in answering questions • Using their observations and ideas to suggest answers to questions 	<ul style="list-style-type: none"> • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Identifying and classifying • Gathering and recording data to help in answering questions • Using their observations and ideas to suggest answers to questions

<p>Previous Knowledge -What have children learnt previously that will support this next step?</p>	<p>Reception – Seasonal changes</p> <ul style="list-style-type: none"> • 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. 	<p>Nursery - Materials, including changing materials</p> <ul style="list-style-type: none"> • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about the differences between materials and changes they notice. <p>Reception</p> <ul style="list-style-type: none"> • Exploring different materials in the provision areas, including constructing with them, exploring them in the water area, and using them in the other areas of provision. They may have a basic understanding of what objects are made from and some simple physical properties. 	<p>Nursery – Plants & Animals, excluding humans</p> <ul style="list-style-type: none"> • Understand the key features of the life cycle of a plant and an animal. • Explore the natural world around them. 	<p>Reception – Seasonal changes</p> <ul style="list-style-type: none"> • Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them. 	<p>Nursery</p> <ul style="list-style-type: none"> • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. <p>Reception</p> <ul style="list-style-type: none"> • Explore the natural world around them. • Recognise some environments that are different to the one in which they live. 	<p>Nursery</p> <ul style="list-style-type: none"> • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. <p>Reception</p> <ul style="list-style-type: none"> • Explore the natural world around them. • Recognise some environments that are different to the one in which they live.
<p>Misconceptions -What are the common misconceptions in knowledge for this unit?</p>	<p>Some children may think:</p> <ul style="list-style-type: none"> • it always snows in winter • it is always sunny in the summer • there are only flowers in spring and summer • it rains most in the winter. 	<p>Some children may think:</p> <ul style="list-style-type: none"> • only fabrics are materials • only building materials are materials • only writing materials are materials • the word ‘rock’ describes an object rather than a material • ‘solid’ is another word for hard. 	<p>Some children may think:</p> <ul style="list-style-type: none"> • only four-legged mammals, such as pets, are animals • humans are not animals • insects are not animals • all ‘bugs’ or ‘creepy crawlies’, such as spiders, are part of the insect group • amphibians and reptiles are the same. 	<p>Some children may think:</p> <ul style="list-style-type: none"> • humans are not animals 	<p>Some children may think:</p> <ul style="list-style-type: none"> • plants are flowering plants grown in pots with coloured petals and leaves and a stem • trees are not plants • all leaves are green • all stems are green • a trunk is not a stem • blossom is not a flower. 	<p>Some children may think:</p> <ul style="list-style-type: none"> • plants are flowering plants grown in pots with coloured petals and leaves and a stem • trees are not plants • all leaves are green • all stems are green • a trunk is not a stem • blossom is not a flower.
<p>Learning Sequence -Detail the learning sequence using key questions in an ordered sequence. -The questions should have a sequential build up to answer the overall learning challenge.</p>	<ol style="list-style-type: none"> 1. Can I make observations about the weather/seasons throughout the year? 2. Can I explain what the four seasons are and predict how they might be different? 3. Can I investigate whether the wind always blows in the same direction? 4. Can I investigate the amount of rainfall in a week? 5. Can I make observations of the daily weather in Autumn? 6. Can I record simple data about the weather in Autumn? 7. Can I make observations of trees and their leaves in Autumn? 	<ol style="list-style-type: none"> 1. Can I identify which materials objects are made of? 2. Can I group objects based on what materials they are made of? 3. Can I make observations of and identify properties of different materials? 4. Can I investigate how absorbent a material is? 5. Can I investigate how strong a material is? 6. Can I investigate how waterproof materials are? 7. Can I choose suitable materials based on their properties? 	<p>SC 1 – Can I understand how some animals adapt to the changing of the seasons?</p> <p>SC 2 – Can I make observations of the Winter (including daily weather and different parts of plants)?</p> <p>SC 3 – Can I identify evergreen and deciduous trees?</p> <ol style="list-style-type: none"> 1. Can I sort animals into the main animal groups? 2. Can I identify similarities and differences between animals? 3. Can I find out what different animals eat? 4. Can I classify animals into herbivores, omnivores and carnivores? 	<ol style="list-style-type: none"> 1. Can I name the main parts of the body? 2. Can I investigate the different heights of children in the class? 3. Can I understand and explain how I use the 5 senses? 4. Can I match up the senses to the correct body part? <p>SC 1- Can I make observations about animals we can find in our local area in Spring?</p> <p>SC 2– Can I make observations of the daily weather in Spring? Can I observe and identify birds visiting the wildlife garden?</p> <p>SC 3 – Can I make observations of plants (including flowering bulbs and trees) in Spring?</p>	<ol style="list-style-type: none"> 1. Can I identify different flowering plants and trees in our wildlife garden? 2. Can I plant and observe bean seeds? 3. Can I identify different wildflowers and sow their seeds in our wildlife garden? 4. Can I identify common parts of plants? <p>SC 1 – Can I collect data about our classes’ favourite type of weather?</p> <p>SC 2 – Can I make observations of the daily weather in Summer?</p>	<p>SC 1– Can I make observations of animals we can find in our wildlife garden in summer?</p> <ol style="list-style-type: none"> 1. Can I make observational drawings of flowering plants in our wildlife garden and identify them in summer? 2. Can I explain what is the same and what is different about evergreen and deciduous trees? 3. Can I share my learning about plants in our wildlife garden with others? 4. Can I identify the parts of a bean plant and harvest the beans? <p>SC 2 – Can I present my findings about the four seasons?</p>

<p>Curriculum End Points</p> <p>-What will children know and be able to do by the end of the unit?</p> <p>-What will the children produce to demonstrate this knowledge?</p>	<p>Children will have a class bear who is going to help them learn about the weather and how nighttime changes throughout the seasons. A different child will take it home each week and record a diary entry of what they did after school, what time the bear went to bed and what the weather was like. This can be discussed with the children and reflected on throughout the year.</p> <p>Children will also make four seasonal observations in the wildlife garden and record in a floor book again for the children to reflect back on and explain the differences between the seasons.</p> <p>Children will track one tree (blossom) throughout the year to observe and note seasonal changes and they will be able to explain the differences throughout the seasons. They will use ID charts throughout the seasons relevant to our wildlife garden to help them identify some plants in the garden and their features.</p>	<p>Children will be able to identify and describe a range of materials using vocabulary like: hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through. Once they understand these properties they will be given a design brief (linked to a story text) to choose suitable materials for the project.</p>	<p>Children will have a visit from 'Lion Learners' at the end of the half term. They will be able to describe the animals that they handled and some of their features. They will be able to identify which of the animal groups they belong to. They will also discuss what the animals like to eat and decide whether they are herbivores, carnivores or omnivores.</p>	<p>Children will be able to identify key parts of the body and associate the 5 senses to the correct body parts.</p> <p>SC – Children will observe tadpoles in the ponds as part of their spring observations over time. They will be able to explain which animal group they are part of when fully grown and what they eat. They will observe again in summer to see changes.</p>	<p>Children will be able to name a range of common garden plants including weeds, wildflowers, trees and other flowering plants that are grown in our wildlife garden. They will grow bean plants to harvest and will be familiar with the other vegetables being grown in the garden by other classes. They will understand that all plants have common parts but that some plants have different parts. They will have observed, identified and collected these different plant parts throughout the year.</p> <p>SC – Children will have presented their data about the weather in different ways throughout the seasons including simple charts, tally charts and pictograms and be able to explain what it means.</p>	<p>Children will be able to explain what they have grown in the wildlife garden and identify some common flowers and trees that grow in there (children could show younger reception children around the garden).</p> <p>SC - Children will look back through their bear diary to discuss the differences in the evenings throughout the seasons. They will look at data collected about the weather and look back at photos of the blossom tree across the seasons. Children will present a piece of work on the four seasons (this could be a short video, poster etc).</p> <p>SC – Children will have observed minibeasts in the garden over time and be able to explain that there are more in Spring/Summertime.</p>
---	--	---	---	--	---	---

<p>Knowledge Sentences -Using the end points, what are the key statements children need to remember by the end of the unit? (I know that...)</p> <p>(To share with children when it is taught during the unit)</p>	<p>1. I know that there are four seasons in a year and that the weather changes throughout the year. I know that in the UK, the day length is longest at mid-summer and gets shorter each day until mid-winter before getting longer again.</p> <p>2. I know that there are four seasons: Autumn, Winter, Spring and Summer.</p> <p>3. I know that the wind can change direction.</p> <p>4. I know that the weather changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer.</p> <p>5. I know that in Autumn the weather is cooler. 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.</p> <p>6. I know that the weather changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer.</p> <p>7. I know that the basic structure of a tree includes: roots, a trunk, branches, leaves and sometimes flowers.</p> <p>Knowledge to be gathered throughout the year through observations of the seasons and weather data collection.</p>	<p>1. I know that all objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons.</p> <p>2. I know that different objects are made of different materials and can be classified into groups like: plastic, wood, metal, paper, stone, wool, rubber, card etc.</p> <p>3. I know that materials can be described by their properties e.g. hard, soft, stretchy, stiff, bendy, floppy, shiny, dull, smooth, rough.</p> <p>4. I know that some materials are absorbent and soak up water.</p> <p>5. I know that some materials are stronger than others and some materials may break or tear easily.</p> <p>6. I know that some materials are waterproof and do not allow water to be absorbed.</p> <p>7. I know that some materials are more suitable for a particular purpose based on their properties.</p>	<p>SC 1. I know that some animals hibernate in the winter. I know that some birds migrate to warmer countries in the winter.</p> <p>SC 2. I know that in winter it is usually colder and rainier. I know that plants have a range of different parts including: Leaf petal, berry, root, seed, trunk, branch, stem, bark, stalk.</p> <p>SC 3. I know that trees which keep their leaves in winter are evergreen and those that lose their leaves are deciduous.</p> <p>1. I know that the main animal groups are mammals, fish, birds, amphibians, reptiles and insects.</p> <p>2. I know that animals have different features e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair.</p> <p>3. I know that some eat other animals, some eat plants, some eat both plants and animals.</p> <p>4. I know that:</p> <p>a. herbivores eat plants</p> <p>b. omnivores eat plants and other animals</p> <p>c. carnivores eat other animals.</p>	<p>1. I know that the main parts of the human body are: head, arm, ear, eye, nose, mouth, finger, toe, leg, head, foot</p> <p>2. I know that not all humans are the same.</p> <p>3. I know that humans (and other animals) find out about the world using their senses. I know that humans have five senses – sight, touch, taste, hearing and smelling.</p> <p>4. I know that:</p> <p>a. eyes = sight</p> <p>b. hands = touch</p> <p>c. mouth = taste</p> <p>d. ears = hearing</p> <p>e. nose = smell</p> <p>SC1. I know that there are animals being born in spring like lambs, calves and chicks. I know that tadpoles in a pond will grow into frogs.</p> <p>SC 2. I know that in spring the weather starts to become warmer. I know that there are a variety of garden birds.</p> <p>SC 3. I know that plants have different parts including: flowers, blossom, berries, fruit, leaves, stem, bud.</p>	<p>1. I know that there are different plants in our garden like trees, bushes, weeds, flowering bulbs and herbs.</p> <p>2. I know that a seed will grow into a plant.</p> <p>3. I know that seeds can look different and that different seeds will grow different plants.</p> <p>4. I know that plants have common parts (like roots, leaves, stem) but that they can also have different parts (like berries, flowers, fruit, trunk).</p> <p>SC 1. I know that the weather changes with the seasons.</p> <p>SC 2. I know that the weather is hotter and dryer in the summer.</p>	<p>SC 1 – I know that there are lots of minibeasts and other animals in the garden in the summer including: insects, worms, woodlice, frogs, birds.</p> <p>1. I know that flowering plants have roots, stem, leaves and a flower.</p> <p>2. I know that trees which keep their leaves in winter are evergreen and those that lose their leaves are deciduous. I know they all have their leaves in summer.</p> <p>3. I know that there are different plants in our garden like trees, bushes, weeds, flowering bulbs and herbs and can name some. I know that plants have common parts (like roots, leaves, stem) but that they can also have different parts (like berries, flowers, fruit, trunk).</p> <p>4. I know that some plants produce fruit and vegetables which can be harvested.</p> <p>SC 2 – See Au 1.</p>	
<p>Key Vocabulary (To share with children and add to working walls/knowledge mats)</p>	<p>Weather (sunny, rainy, windy, snowy etc.) Seasons (winter, summer, spring, autumn) Sun, sunrise, sunset, day length</p>	<p>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</p>	<p>•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 (Lion Learners)</p>	<p>• Parts of the body - head, arm, ear, eye, nose, mouth, finger, toe, leg, head, foot • Senses – touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue</p>	<p>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</p>	<p>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</p>	
<p>What does</p>	<p>Enrichment Activities (trips, residentials, speakers, SMSC)</p>			<p>Lion Learners visit – Discover a range of animals first hand.</p>	<p>Naming trees and plants in the school grounds – Link with local Gardner, Bramhope in Bloom</p>	<p>This will include a visit from a Hedgehog Sanctuary.</p>	

Physical Resources	Bulbs to plant towards end of Au 1 Clipboards/outdoor observation equipment Rain Gauges Materials for wind vanes	Materials Building materials Clipboards/outdoor observation equipment		Magnifying glasses Pooters Containers Clipboards/outdoor observation equipment	Seeds Gardening equipment	Matching cards/Identification keys Magnifying glasses Pooters Containers Clipboards/outdoor observation equipment
Cross Curricular learning (Include opportunities for writing and quality texts)	Texts - Trees: Seasons come, Seasons go The Weather Girls			Texts - Professor Astrocat's Human Body Odyssey (relevant pages – not whole book)	Texts - The Tiny Seed by Eric Carle A seed is sleepy Ten Seeds A Little Guide to Wildflowers by Charlotte Voake	Art links – Sketching flowers, plants, trees
Local Learning including outdoor learning	<p>Pupils to make observations throughout the year of the changes in weather and to the plants, trees, wildlife in the school grounds. Take photos and annotate.</p> <p>Pupils to use natural materials to create a picture which represents the current season.</p> <p>Pupils to plant bulbs which they can then observe in spring.</p> <p>Pupils can make weather diaries for a week – do this at different points during the year.</p> <p>Use opportunities with different weather days to understand the different weather e.g. snow days, windy days to make wind vanes.</p>	<p>Pupils talk about objects in the playground or local environment and name the materials they are made from.</p> <p>Pupils identify materials in the playground and local environment.</p> <p>Pupils to take part in a material hunt – shown a material and find other items made of that material.</p> <p>Pupils talk about the properties of materials in the playground and local environment. Pupils could go on a nature hunt to collect materials which they then describe.</p> <p>Create an outdoor area with a range of materials to explore and investigate.</p>	<p>Pupils use identification charts to name birds and mammals seen in the playground, wildlife garden or on local walk.</p> <p>Set up a bird watching area in the wild life garden, make bird feeders and go back to observe.</p> <p>Pupils visit a local farm to identify common mammals (None go bye/Meanwood Farm).</p> <p>Pupils describe the features of birds and mammals seen in the playground or local environment.</p> <p>Annotate photos of animals they have seen with their observations of the differences between the animals.</p>	<p>Draw around the body on the playground and use life-size outline to label.</p> <p>Pupils might look closer at animals from local environment e.g. insects, tadpoles and to learn how to return them safely to their environment.</p> <p>Pupils to go on a sensory walk and use their senses to explore the outdoor environment.</p>	<p>Pupils to make observations throughout the year of the changes in weather and to the plants, trees, wildlife in the school grounds. Take photos and annotate.</p> <p>Pupils to use natural materials to create a picture which represents the current season.</p>	<p>Pupils to make observations throughout the year of the changes in weather and to the plants, trees, wildlife in the school grounds. Take photos and annotate.</p>
Opportunities for cultural Diversity				British Science Week		