Year 1 and 2 – Cycle A

All Year

Seasonal Change					
Lesson Sequence					
Observe a tree (school garden) through photos and drawings, to watch closely over a period of time how it changes Through observation, photograph and draw the tree in Autumn, looking closely at the trunk, branch and leaves In Autumn, measure the temperature outside with a thermometer and compare this to how it feels when the weather is this temperature.	*Look at animals, trees, clothes we wear.* Observe how day length varies over the course of a year depending on the season	*Look at animals, trees, clothes we wear.* Observe how day length varies over the course of a year depending on the season. In Winter, measure the temperature outside with a thermometer and compare this to how it feels when the weather is this temperature	*Look at animals, trees, clothes we wear.* Observe how day length varies over the course of a year depending on the season.	*Look at animals, trees, clothes we wear.* Observe how day length varies over the course of a year depending on the season. In Spring, measure the temperature outside with a thermometer and compare this to how it feels when the weather is this temperature	Describe how the length of the day varies depending on the season. In Summer, measure the temperature outside with a thermometer and compare this to how it feels when the weather is this temperature
Substantive Knowledge					
There are 4 seasons in the UK. **Autumn** – September, October, November **Winter** – December, January, February **Spring** – March, April, May **Summer** – June, July, August	**Autumn** - Harvest time is in this season. - Temperatures drop and it gets dark earlier because there is less sunlight. Skies can be overcast. Birds migrate to warmer climates. - Leaves change colour and start	**Winter** - The coldest time of the year. - There are less and less hours of daylight. - We sometimes see snow, frost in the morning, sleet blizzards and hail. Water freezes to ice. - Many plants stop growing. - Some trees lose all their leaves.	**Spring** - In this season temperatures rise and the ground starts to warm up. - Flowers begin to grow. - This season is associated with rebirth and growth. Some baby animals are born (e.g. lambs, chicks)	**Summer** - The hottest time of the year. - There is usually sunshine, generally dry weather but there may be thunderstorms too. - Flowers and trees are in bloom.	In the winter the sun rises later and sets earlier and our days are short. In the summer the sun rises earlier and sets later and our days are long

	to fall from some trees. - Animals begin storing up food for the winter	- Some animals including hedgehogs and tortoises hibernate.			
Disciplinary Knowledge					
Methods: Observation over time Observing over time is when you watch or measure something over a period of time to see how it changes. Pattern Seeking Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. **Apparatus & techniques:** A thermometer is an instrument that measures temperature.	**Methods:** Observation over time Observing over time is when you watch or measure something over a period of time to see how it changes. Pattern Seeking Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. **Apparatus & techniques:** A thermometer is an instrument that measures temperature. **Data Analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand. **Using evidence to develop explanations:** Know that you can answer questions using	**Methods:** Observation over time Observing over time is when you watch or measure something over a period of time to see how it changes. Pattern Seeking Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. **Apparatus & techniques:** A thermometer is an instrument that measures temperature	**Methods:** Observation over time Observing over time is when you watch or measure something over a period of time to see how it changes. Pattern Seeking Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. **Apparatus & techniques:** A thermometer is an instrument that measures temperature. **Data Analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand. **Using Evidence to develop explanations**: Know that you can answer questions using	**Methods:** Observation over time Observing over time is when you watch or measure something over a period of time to see how it changes Pattern Seeking Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. **Apparatus & techniques:** A thermometer is an instrument that measures temperature. **Data Analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand.	Methods: Observation over time Observing over time is when you watch or measure something over a period of time to see how it changes. Pattern Seeking Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. **Data analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand. A table is a simple way to present data. A tally chart is a simple way of recording data. Each item is represented by a line and the fifth line is drawn diagonally. Each gate represents five.

	knowledge from what you have observed. Know that you can use data you have collected to help answer questions. Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.		knowledge from what you have observed. Know that you can use data you have collected to help answer questions. Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.		

Year 1 and 2 – Cycle A

Autumn

Animals Including Humans					
Lesson Sequence					
Explore how animals have offspring that turn into adults.	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).	Understand that humans are animals and that we too have offspring that turn into adults. Explore how babies change to toddlers, to teenagers, adults, then elderly.	Understand that we need to eat the right amount of different types of food.	Investigate the importance of human exercise.	Investigate the importance of good hygiene to keep the body healthy.
Substantive Knowledge					
All living things **reproduce** and have **offspring**. Some animals give birth to live young and they look like them when they are born e.g. cats, dog, and humans. - Some animals have offspring that doesn't look like them e.g. fish, frogs. - Some animals lay eggs which hatch into live young e.g. birds, snakes.		To survive, animals (including humans) need **water, food, shelter, warmth and oxygen.**		Offspring must receive the **basic needs** of an animal to grow into an adult. When they are fully grown, they can also reproduce. - Egg > chick > chicken - Spawn > tadpole > frog - Eggs > larva > pupa > ladybird	
Disciplinary Knowledge					
Methods: **<u>Identifying and classifying</u>** Classifying is when you sort items into groups based on similarities and differences. To help classify objects, it is good to observe them.	**<u>Research using secondary sources</u>** Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions.	**<u>Research using secondary sources</u>** Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. Secondary sources of information can be used to research what animals need to survive and what will happen if any of these are missing.		**<u>Research using secondary sources</u>** Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. Children use secondary sources and information to research what animals needs to survive and what **Using evidence to develop explanations:**	

Observing means to look closely. Identify that humans, dogs and cats' offspring look like their parents. Frog offspring doesn't look like its parent.	You can use secondary sources of information to investigate which animals lay eggs and which give birth to live young.	Secondary sources of information can be used to identify the basic needs of an animal. **Data Analysis:** A pictogram is a chart that has images that represent the value of data. Know how to read the data on a pictogram to answer questions.	A conclusion is when you answer a question using what you have found out from scientific enquiry.

Year 1 and 2 – Cycle A

Spring

Materials					
Lesson Sequence					
Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.	Distinguish between an object and the material from which it is made by naming objects and identifying the materials they are made from.	Describe the simple physical properties of a variety of everyday materials.	To describe the simple physical properties of a variety of everyday materials by testing different objects.	Investigate which material would be best to make different objects e.g. an umbrella.	Compare and group together a variety of everyday materials on the basis of their simple physical properties.
Substantive Knowledge					
Children know, name and recognise materials made from; wood, plastic, glass and metal.	Children can explain what these everyday materials are used for and give examples: Wood – pencils, benches Plastic – school trays, lunchbox Glass – windows, drinking glasses Metal – scissors, knife and fork	Waterproof – something that repels liquid and does not absorb liquid Absorbent – something that soaks in a liquid Transparent – something that you can see through Opaque – something that you cannot see through Hard – something that is solid and does not easily break Soft – something that can bend and move without breaking Shiny – something that reflects light Dull – something that does not reflect light		Investigate which material would be best to make different objects e.g. an umbrella.	Compare and group together a variety of everyday materials on the basis of their simple physical properties.
Disciplinary Knowledge					
Methods: **Identifying, classifying and grouping.** Classifying is when you sort items into groups based on similarities and differences Know that we can sort objects into the different materials they are made	**Methods:** **Identifying, classifying and grouping.** To observe by looking closely at the materials a car is made of. Classify what materials a car is made out of by identifying the different	**Methods:** **Pattern seeking** Know that pattern seeking is when observe the features of the different materials and their uses. Carry out simple tests on materials to look for patterns in properties e.g. if they are waterproof, absorbent, transparent, opaque, hard, soft, shiny or dull. Evidence to develop explanations: Know that you can answer questions using knowledge from what they have observed about materials. Explain		**Methods:** **Pattern seeking** Know that pattern seeking is when you carry out simple tests or observe closely when checking the suitability of materials to make a fairground ride model (playdough, LEGO, wooden blocks).	**Methods:** **Pattern seeking** Know that pattern seeking is when you carry out simple tests or observe closely. Test fairground rides to look for patterns in properties of materials to check and evaluate the

from. E.g. wood, glass, metal and plastic. To help classify what materials objects are made from, know that it is good to observe them closely. To help classify what materials the objects are made from, know that it is good to ask questions. **Data Analysis:** Know that when you collect results from an experiment, it can be recorded in a table that is clear and easy to understand. **Evidence to develop explanations:** Know that you can answer questions about materials using knowledge from what they have observed Know that you can use data you have collected to help answer questions about some objects and the materials they are made from. Know that a conclusion is when you answer questions about some objects and what they are made from.	materials: wood, plastic, glass and metal **<u>Pattern Seeking</u>** Ask simple questions about the make-up of a car to help look for patterns **Evidence to develop explanations:** Know that you can answer questions about the materials a car is made from, using knowledge from what they have observed Know that a conclusion is when you can explain why different materials are used for certain parts (e.g. windows are made of glass because they need to be transparent), following what you have found out in your scientific enquiry	they materials can come in different forms, which therefore means they have different features. E.g. some plastic is transparent and some is opaque Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry. To conclude, explain they can come in different forms, which therefore means they have different features. E.g. some plastic is transparent and some is opaque. .	**Using evidence to develop explanations:** Know that results from a scientific enquiry can be used to answer which materials are most suitable to make a fairground ride with	suitability of their chosen materials **Using evidence to develop explanations:** Know that a conclusion is when you answer a question about what you have found out in your scientific enquiry, which is the suitability of the materials chosen for their fairground rides.

Conclude that some objects are made of more than one material.				

Year 1 and 2 – Cycle A

Summer

Plants							
Lesson Sequence							
Identify and describe the basic structure of a variety of common flowering plants - *children to plant sunflowers to observe growth throughout topic.* Give children an incorrect example of the structure of a plant.	Identify and name a variety of common garden plants.	Identify and name a variety of common wild plants.	To observe and describe weather associated with the seasons by observing the weather in spring. *Look at animals, trees, clothes we wear.* Observe how day length varies over the course of a year depending on the season.	Identify and name common trees including deciduous and evergreen.	Identify and describe the basic structure of a variety of common flowering plants.	Observe changes that have happened to seeds/beans planted in week 1.	Children are to describe the changes as a plant grows from a seed.
Substantive Knowledge							
The main parts of a plant are: **Flowers** – look pretty and come in different colours. They help attract animals and insects that help the plant to make seeds for new plants. **Stem** – helps support the plant and keeps it upright. Water and food are	**Common garden plants** People grow plants in their garden. They may grow flowering plants which are beautiful to look at or grow beans/seeds for food. Rose Poppy Heather Lavender Sunflower	**Common wild plants** A wild plant is one that grows by itself. A wild plant grows where a seed falls – it doesn't need to be planted. A wild plant doesn't need to be cared for. Daisy Nettle Buttercup Dandelion Clover Ivy	**Common trees** Beech Oak Sycamore Chestnut Apple Holly Cedar Spruce Parts of a tree: Leaves Fruit Blossom Branches Trunk			**Trees** **Deciduous** – a tree that sheds its leaves during autumn. During autumn they change colour before falling off. **Evergreen** – A tree that keeps its leaves all year round even in winter.	

taken up from the roots and transported through the stem. **Leaves** – they absorb sunlight which is used to make food for the plant. **Roots** – anchor the plants in the ground. Without roots a plant would fall over. Roots also take water and nutrients from the soil.	Pansy		Roots			
Disciplinary Knowledge						
Methods: **Observation over time (every week)** Observing over time is when you watch or measure something over a period of time to see how it changes. A sunflower seed can be planted and observed closely to see how it grows/changes every week. **Identifying and classifying** You can identify the different parts of a	**Methods:** **Identifying and classifying** You can classify garden plants as ones that are for looking beautiful and ones that are for food. Know that when you classify plants, you look for similarities and differences. Parts may look different but have the same function.	**Methods:** **Identifying and classifying** Know that to identify and classify wild plants you need to observe them closely. These can be found on the school field. Using a tally chart, children will sort flowers found in the field into a tally chary. **Research using secondary sources** Know that Kiddle is a child friendly search engine that you can use to research the names of garden plants. **Pattern seeking** Know that pattern seeking can be used to spot patterns in where certain wild flowers grow A ruler is used to measure the height and length of something. It measures in cm.	**Methods:** **Identifying and classifying** You can identify the different parts of a tree: roots, a trunk, branches, leaves. Observation can be used to compare parts of a tree to parts of a plant. **Pattern seeking** Know that you can ask questions to identify what is the same and what is different about the parts of a tree. This	**Apparatus & Techniques:** A ruler is used to measure the height and length of something. It measures in cm. You can measure the height of a sunflower using a ruler. Data Analysis: Know that you can record the changes in a sunflower overtime in a sunflower diary.	Methods: **Identifying and classifying** Sorting trees into groups- those that are deciduous and those that are evergreen. **Apparatus & Techniques:** A ruler is used to measure the height and length of something. It measures in cm. You can measure the	**Apparatus & Techniques:** A ruler is used to measure the height and length of something. It measures in cm. You can measure the height of a sunflower using a ruler. **Data Analysis:** Know that you can record the changes in a

plant (sunflower, tulip) by observing closely (flower, stem, leaves and roots). **Pattern seeking** Know that pattern seeking is when you carry out simple tests or observe closely. You can test what a plant needs to grow through pattern seeking. **Data Analysis:** Know that the data and results presented will help answer questions using the knowledge from what has been observed. A sunflower diary is a way to collect data each week and present results clearly.	**Research using secondary sources** Know that you can use the internet to research the names of common garden plants, Know that Kiddle is a child friendly search engine. **Data Analysis:** Know that a VENN diagram can be used to present the classification of garden plants as ones that are beautiful and ones that are for food. **Using evidence to develop expalantions:** Conclude that garden plants may look different but have the same parts and functions.	**Apparatus & Techniques:** You can measure the height of a sunflower using a ruler. To measure correctly 0 needs to be at the start of the item you are measuring. **Data Analysis:** A sunflower diary as a way of recording the observation of changes of a sunflower over time. A table is a clear way to record the sorting of wild flowers. . A tally chart is a simple way of recording data. Each item is represented by a line and the fifth line is drawn diagonally. Each gate represents five. A tally chart can be used to record the number of wild flowers observed in the school garden or recreation ground. **Using evidence to develop explanations:** Know that from observing in the field, you can answer questions about where wild flowers grow, using what you have found out in scientific enquiry. Know that nettles and ivy can be found at the edge of a green space and daises, buttercups, dandelions and clovers are scattered around, with no particular pattern.	will help look for patterns. **Apparatus & Techniques:** A ruler is used to measure the height and length of something. It measures in cm. You can measure the height of a sunflower using a ruler. To measure correctly 0 needs to be at the start of the item you are measuring. **Data Analysis:** Know that you can record the changes in a sunflower overtime in a sunflower diary. A labeled diagram can be used to show the different parts of a tree. **Evidence to develop explanations:** Conclude that trees can look different but have the same features.		height of a sunflower using a ruler. Data Analysis: Know that you can record the changes in a sunflower overtime in a sunflower diary. When you collect data it needs to be presented in a way that is clear and easy to understand. A table is a simple way to present data.	sunflower overtime in a sunflower diary.

Year 1 and 2 – Cycle B

Autumn

Animals Including Humans					
Lesson Sequence					
Seasonal Change Lesson	Identify, name, draw and label the basic parts of the human body. Draw around a friend and label the body.	Identify which part of the body is associated with each sense. Senses experiment. Record results in a table.	Identify and name a variety of common animals, grouping them into fish, amphibians, reptiles, birds and mammals.	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets	Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Group animals into these three categories.
Substantive Knowledge					
	Children can identify name, draw and label these basic parts of a human body: **head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth**	Children know the five senses and the body parts associated with them: - We **smell** using our nose - We **taste** using our tongue - We **touch** using parts of our body e.g. hands - We **see** using our eyes - We **hear** using our ears.	Children can identify the following animals: **Fish** – cod, trout, mackerel, bass **Amphibians** – frog, toad, salamander, newt **Reptiles** – snake, crocodile, turtle, Komodo dragon. **Mammals** – humans, monkeys, bears, dogs **Birds** – sparrow, robin, seagull, crow	**The structure of common animals** **Fish** (live in the sea) – cold blooded, breathe through gills, scales on skin, fins to help them move through water. **Amphibian** (live on land or in water) – cold blooded, lay eggs, have gills and lungs so **Reptile –** cold blooded, scales on skin, breathe through lungs, have 4 legs, lay eggs. **Birds** – have wings, feathers, 2 legs, most can fly, and they have a beak instead of teeth. They hatch from eggs, live in a nest and have lungs to breathe.	.**What animals eat** **Carnivores** – eat meat e.g. lions, snakes, spiders, wolves **Herbivore** – eat plants e.g. rabbits, cows, sheep, pandas **Omnivore** – eat meat and plants e.g. pigs, chickens, rats, badger

				Mammals (including humans) – warm blooded, large brain, usually have 4 legs, have a coat of hair to trap warm air, they give birth to live babies who are fed milk produced by the mother.	
Disciplinary Knowledge					
	Methods: Identify and Classify Know that the name of the body part matches a part of the body.	Methods: Identify and Classify Know that parts of the body have different senses Data Analysis: Know that when you collect results from an experiment, it can be recorded in a table that is clear and easy to understand. A table is a simple way to present data.	**Methods:** Identify and Classify Classifying is when you sort items into groups based on similarities and differences. Know that animals can be sorted into different groups, based on their similarities and differences **Data Analysis:** A table is a simple way to present data	**Methods:** Identify and Classify Classifying is when you sort items into groups based on similarities and differences. Know that animals can be sorted into different groups, based on their similarities and differences. Know the different classification of different animal groups. **Data Analysis**: A table is a simple way to present data **Using evidence to develop explanations:** Know that you can use data collected to help answer questions Know that you can answer questions using knowledge from what you what animals you have observed, based on their features.	Methods: Identify and Classify Know that animals can be grouped based on their diet **Data Analysis:** A Venn diagram is used to classify three different groupings **Using evidence to develop explanations:** Know that you can answer questions using knowledge from what animals you have observed,

					based on their diet.

Year 1 and 2 – Cycle B

Spring

Materials						
Lesson Sequence						
Investigate how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Children are given a set of materials and predict if they will float or sink and explain why. Children test out the objects to see if they float or sink.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - focus on *absorbency.*	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - *waterproof.*	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - *waterproof.*	Find out about people who have developed new materials. *E.g. John Dunlop, John McAdam, Charles Macintosh.*	investigate common items looking at the materials they are made from and why they are suitable for the purpose
Substantive Knowledge						
Shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **Squashing:** pushing an object together in your hands **Bending:** holding both ends of the object and bring it towards yourself **Twisting:** holding an object and turn the object in opposite directions	Properties of everyday materials - Wood - strong, sturdy, floats, opaque - Plastic – transparent, common material - Glass – transparent, strong - Metal – strong, opaque, will sink	An absorbent material allows water to enter or pass through it. - Cotton wool – absorbs water - Sponge – absorbs water - Fabric – absorbs water - Paper – absorbs water Wood – absorbs water	A waterproof material is designed to prevent water from entering or passing through. - Wood – not waterproof - Plastic –waterproof - Glass –water proof - Metal – waterproof Brick –waterproof - Rock – waterproof - Paper –not waterproof - Cardboard – not waterproof - Polystyrene- waterproof		Charles Macintosh - Born in 1766 in Scotland - Got rubber from trees - He was 20 years old when he started a factory - His dad was a merchant He put two pieces of cloth together and found that water did not sink through	A suitable material is a material with the appropriate properties for the purpose it is being used for. - Life jackets are made out of plastic because they need to be waterproof, light, and expandable and be

Stretching: Slowly pulling the object in opposite directions	- Brick – heavy, opaque Rock – heavy, will sink - Paper –light weight, opaque - Cardboard – light weight, opaque - Polystyrene- light weight, opaque	- Plastic – does not absorb water - Glass – does not absorb water - Polystyrene – does not absorb water		- He made the first waterproof fabric - He wanted to be a scientist - He made coats and waterproof	able to float. - Cash boxes are made out of metal because they are strong, waterproof and the metal is easy to shape when made. Some different materials are used for the **same thing-** spoons can be made from plastic, wood, metal, but not normally from glass
Disciplinary Knowledge					
Methods: Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. A pattern seeking enquiry can be carried out to investigate how to change different materials. **Identify/classify**	**Methods:** **Identify/classify** Classifying is when you sort items into groups based on similarities and differences. To help classify objects, it is good to observe them closely. Observing means to look closely.	**Methods:** **Pattern seeking** Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. You can use the results from pattern seeking enquiries to	**Methods:** **Pattern Seeking** Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can ask questions to help you look for patterns. You can use the results from pattern seeking enquiries to suggest answers to questions. You can make predictions about what patterns you might find before carrying out a pattern seeking enquiry		**Methods:** **Pattern seeking** Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. A pattern seeking enquiry can be carried out to look at which materials have been chosen to make certain objects.

Classifying is when you sort items into groups based on similarities and differences. To help classify objects, it is good to observe them. Observing means to look closely. **Data Analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand. A table is a simple way to present data.	Objects can be classified by the materials they are made from. **Evidence to develop explanations:** Know that you can answer questions using knowledge from what you have observed. Conclude that we choose the material that objects are made from based on the material's properties.	suggest answers to questions. You can make predictions about what patterns you might find before carrying out a pattern seeking enquiry. A prediction is when you use your existing knowledge to say what might happen. A pattern seeking enquiry can be carried out to observe whether a floatable device can hold a weight over a period of time. Apparatus & techniques: We measure weight in grams. We can use block weights in to measure weight	A prediction is when you use your existing knowledge to say what might happen. A pattern seeking enquiry can be carried out to observe whether a box made from different materials can keep an object dry when in water. **Evidence to develop explanations:** Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry. Conclude that plastic, glass, metal, rock and polystyrene are waterproof. Conclude that the best materials to make a boat from would be plastic or polystyrene as they are waterproof, can hold a weight but are not too heavy.		**Evidence to develop explanations:** Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry. Conclude that materials have been chosen to make different objects based on their properties.

Year 1 and 2 – Cycle B

Summer 1

Living Things and their Habitats					
Lesson Sequence					
Explore the differences between things that are living and things that are dead.	Study local area and identifying and naming the plants and animals and the habitat they live in.	Look at microhabitats and identify and name the plants and animals that live in them.	Explore larger habitats from around the world looking at the plants and animals that live in them.	Describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other by considering the adaptations of animals, and how living things in a habitat depend on each other.	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.
Substantive Knowledge					
Animals and plants are living things. Dead things are animals and plants that have died. Parts of living things that are no longer attached, such as empty shells or fallen leaves are also dead. Objects made from rock, metal or plastic have never lived. Things that are alive move, respire, excrete, reproduce, grow, are sensitive and need nutrition.	A habitat is somewhere that animals and plants live. Animals can find food, water and shelter in a habitat. Plants can grow in a habitat. Plants grow in areas that provide them with food, water and sunlight.	A microhabitat is a very small habitat where mini beasts live. E.g. under a stone, under fallen leaves.	Desert habitat: dry with very little water - accacia tree, camel, ghecko, scorpion Ocean habitat – fish, seaweed (algae), plankton, whale Coastal habitat: wet and windy - limpets, star fish, crab, Polar: cold, windy, snowy/ice, not many plants – polar bear, arctic fox, snowy owl, lichens, seal, penguin	Animals and plants depend on each other to survive. For example: - Worms depend on plants because they feed on dead leaves, but plants depend on worms who make the soil healthy by digging holes and allowing air in. - Birds also need worms because they eat them. - Worms are a source of food for birds. - If there were no worms, there would be less birds as there would be more competition for food. The soil would not be as healthy without worms.	Food chains show where plants and animals get their food from. All living things have their part to play in food chains. Without them, other plants and animals may not be able to survive. Sun > grass > rabbit > fox Sun > leaves > worm > bird Energy is fuel for living things so they can move, respire, excrete, reproduce, grow, are sensitive and need gain nutrition.

Disciplinary Knowledge					
Methods: **<u>Identify and classify</u>** Classifying is when you sort items into groups based on similarities and differences. To help classify objects, it is good to observe them. Observing means to look closely. Know that you can classify things into those that are living, things that are dead and things that have never lived. **Data Analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand. A table is a simple way to present data from a classification enquiry. **Evidence to develop explanations:** Know that you can answer questions using knowledge from what you have observed. Conclude that objects made from rock, metal or plastic have never lived.	**Methods:** **<u>Research using secondary sources</u>** Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. Secondary sources can be used to find out what a habitat is and what animals get from a habitat. **Evidence to develop explanations:** Know that you can use information gathered from secondary sources to answer questions.	**Methods:** **<u>Identifying</u>** Identifying means that you find out what something is. You can observe a habitat to identify the different creatures that can be found in different habitats in the school grounds. Observing means to look closely. **Apparatus & techniques:** You can use a magnifying glass to observe closely and look at things that are small.	**Methods:** **<u>Classifying</u>** Classifying is when you sort items into groups based on similarities and differences. To help classify objects, it is good to observe them closely. Observing means to look closely. **<u>Research using secondary sources</u>** Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. Secondary sources can be used to find out about the animals, plants and their habitats. Research from secondary sources can help with class Know that you can ask questions to help you look for patterns. E.g. *'Do animals only physically adapt to their habitat?'*	**Methods:** **<u>Pattern seeking</u>** Pattern seeking is when you carry out simple tests or observe closely to look for patterns in results. You can make predictions about what patterns you might find before carrying out a pattern seeking enquiry A prediction is when you use your existing knowledge to say what might happen. You can pattern seek to investigate how animals and plants rely on each other. **<u>Research using secondary sources</u>** Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. Information collected from secondary sources can be used to answer questions and prove/disprove predictions.	**Methods:** **<u>Observation over time</u>** Observing over time is when you watch or measure something over a period of time to see how it changes. You can observe over time how energy travels through a food chain and how this is needed for animals and plants to survive **Apparatus & techniques:** You can use a magnifying glass to observe closely. You can use time-lapse on an iPad to observe changes over time. **Data Analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand. A table is a simple way to present data. **Evidence to develop explanations:** Know that you can answer questions using knowledge from what you have observed.

			'What familiar characteristics can you find in these animals?' *'What adaptation would a polar bear need to make to live in the desert?'*		Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry.

Year 1 and 2 – Cycle B

Summer 2

Plants					
Lesson Sequence					
Set up investigation to observe how seeds and bulbs grow into mature plants.	Observe and describe how seeds and bulbs grow into mature plants.	Set up investigation to find out that plants need water in order to grow.	Observe/describe how plants need water in order to grow. Set up investigation to show that plants need light in order to grow and stay healthy.	Investigate the impact of temperature on plants growth and health.	Describe and explain what plants need in order to grow and stay healthy.
Substantive Knowledge					
Growth from seeds to mature plants Every seed has the beginnings of a new plant inside it, along with a store of food to help it grow. When the conditions are right, the seed soaks up water and swells, and the new plant bursts out of its shell. This is called germination. **Life cycle of a plant** Like all living things, plants have a life cycle. They live, reproduce and then die. **Germination** – if the conditions are right, a seed begins to grow. It puts out roots and shoots to turn into a young plant. **Growth** – the young plant produces leaves in order to get energy from the sun. **Flowering** – the plant creates flowers to help it reproduce. The flower needs pollen from another flower to do this.		**What plants need to grow** **Water** – they get water from the soil through their roots. They also catch water on their leaves. **Nutrients** – Plants take nutrients from the soil. **Sunlight** – plants do not eat food, instead they use sunlight to make their own food. If plants get too little light, they will be weak	**Temperature** – plants need the right temperature to grow properly. If it is too hot they may burn/wilt. If it is too cold they may freeze and die. **Space** – plants need room for their roots and stem to grow. Without space, they may not grow large enough.	To grow plants need: Water, nutrients, light, space and the right temperature.
Disciplinary Knowledge					
Methods **Research using secondary sources.**		**Methods:** **Fair test**		**Research using secondary sources**	**Methods:** **Fair test**

Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. **Apparatus & techniques:** We can measure temperature using a thermometer. Degrees Celsius is the measure we use for temperature. To take the temperature using a thermometer, you need to hold the top and place the opposite end where you want to measure. You need to read the scale to see what the temperature is We can use a ruler/tape measure to measure height. Centimetres and millimetres are units of measure we use for length. 1cm = 10mm. **Data Analysis:** Analyse data collected from rainforest rainfall and how this impacted plant growth. Analyse results to discuss how the investigation shows changing in variables in plant growth. **Evidence to develop explanations:** Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry. Conclude that: - Plants change and grow over time. - Plants need water, sunlight and nutrients to grow. - Plants who do not have one of these elements, will differ from the plants that have all 3.	A fair test is when one variable is changed and the other remain constant. A variable is a factor that can change. **Research using secondary sources.** Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. Secondary sources of information can be used to research the variables that plants need to grow, and how the growth of a plant is affected if removed. **Apparatus & techniques:** We can measure the amount of liquid in millilitres. We can measure millilitres using a pipette. We can use a ruler/tape measure to measure height. Centimetres and millimetres are units of measure we use for length. 1cm = 10mm. **Data analysis:** Monitoring a fair test, supervising the fair test. Monitoring change, measuring the plant in mm/cm. Recording the findings. **Evidence to develop explanations:** Plants change and grow over time. Plants need water, sunlight and nutrients to grow. Plants who do not have one of these elements, will differ from the plants that have all 3.	Research is an investigation or study to find out facts in order to reach a conclusion. You can carry out research to answer simple questions. Find out the variables that plants need to grow, and how the growth of a plant is affected if removed. **Fair test** A fair test is when one variable is changed and the other remain constant. A variable is a factor that can change. Apparatus & techniques: We can measure the amount of liquid in millilitres. We can measure millilitres using a pipette. We can use a ruler/tape measure to measure height.	A fair test is when one variable is changed and the other remain constant. A variable is a factor that can change **Data Analysis:** When you collect data it needs to be presented in a way that is clear and easy to understand. A table is a simple way to present data. **Evidence to develop explanations:** Know that you can answer questions using knowledge from what you have observed. Know that you can use data you have collected to help answer questions. Know that a conclusion is when you answer a question using what you have found out in your scientific enquiry. Conclude that: - Plants change and grow over time. - Plants need water, sunlight and nutrients to grow.

- Plants live, reproduce and die.			- Plants who do not have one of these elements, will differ from the plants that have all 3.