Year R

Year R Autumn 1		
Milestone LO: Children will describe what they see, hear and feel whilst outside. **Children will be able to name and describe different animals.** Big Question: Which animal has four legs, a big tail and can be found in the forest?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology- animals	Know that… • animals are living things that can think, move for themselves, breathe, reproduce (have young) and excrete waste. Humans (people) are animals. Animals are all different. • We can describe how an animal looks, feel or sounds. • Familiar animals (ones they may find in their environment) are squirrels, deer, birds, horses, cows, pigs etc. • A squirrel is small, has a fluffy tail, is furry and lives in trees • A deer has four legs. Has fur and antlers • A bird has wings, feathers and a beak • A horse has four legs is found in the forest, has a mane, and a tail • A cow is black and white, has four legs • A pig is pink, short, four legs, curly tail	Know how… • Scientists will observe (look closely with their eyes) and identify different animals they can see in their environment. • Scientists will be able to describe an animal based on what they can see, hear and feel.
Vocabulary	See Hear Feel Animal	
Enrichment & wider development	Visit from different animals Visit a local farm	

Year R Autumn 2		
Milestone LO: Children will describe what they see, hear and feel whilst outside. **Children will be able to name and describe different plants.** Big Question: Does a rose flower also have red petals?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology- plants	Know that… • Plants are living things, but unlike animals, they can't move on their own. Plants are important. There are lots of different types of plants, like trees and grass. They grow all over the world. Some grow flowers and others grow fruit. • Trees are tall, woody plants that have a trunk. Some can live for hundreds of years. • A flower is the blossom of a plant. This part produces seeds. • A daisy is a wild flower found growing in a field normally. They have white small petals and a yellow centre. • A buttercup is a wild flower which has small yellow petals that are a round shape and a green stem. • A rose is flower which has a prickly green stem with green glossy leaves. Rose petals can be different colours and different sizes. They often have a pleasant smell. • A sunflower is a flower with a long, thick green stem. The petals are big and yellow and it has a big centre. A sunflower grows towards the sun.	Know how… • Scientists will observe (look closely with their eyes) and identify different plants in their environment. • Scientists will be able to describe a plant based on what they can see, hear and feel.
Vocabulary	Plant Tree Flower See Hear Feel	
Enrichment & wider development	Nature trail and field	

Year R Spring 1 & 2		
Milestone LO: Children will understand the effect of changing seasons on the natural world around them. (spend spring 1 observing and talking about weather and spring 2 linking this to seasonal change) Big Question: Which season would you need to wear your hat?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Physics- seasons	Know that… • There are four seasons across the year, the year is split into four parts. (Spring, Summer, Autumn, Winter). Each of these seasons has typical weather patterns and a change in daylight hours, depending of the Earth's position in relation to the sun. • In the United Kingdom and other countries there are four seasons in a year. • The weather changes through the different seasons. • Spring is from March to May • Summer is from June to August • Autumn is from September to November • Winter is from December to February. • In spring the cold weather gradually rises to the warmth of summer. Spring is when plants begin to grow and flowers bloom. Baby animals are often born in spring time. • The weather in spring is often rainy to help the plants to grow. There are rainy and sunny spells in spring, there are often rainbows. • Summer is when the weather is generally at its warmest and driest but it can still rain. The longest break from school in the summer time. Most people spend a lot more time outside in summer. • Autumn is when the leaves change colour and the weather gets colder. • Winter is when all the leaves fall off the trees and the weather is colder. In winter you may see snow.	Know how… • Scientists will observe (look closely with their eyes) the natural world around them. • Scientists will identify and classify different weather patterns in relation to the seasons. • Scientists will observe and identify the changes in animals' behaviour through the seasons.
Vocabulary	Seasons Weather Spring Summer Autumn Winter	
Enrichment & wider development	Nature trail Visit/zoom call from a weatherman	

Year R Summer 1		
<u>Milestone LO:</u> Children will explore the natural world around them by making observations and drawing pictures. Children will be able to interact with **natural world.** <u>Big Question:</u> Why do plants need water and sunlight?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology- plants and animals	Know that… • We need to look after our natural world including plants and animals. • animals are living things that can think, move for themselves, breathe, reproduce (have young) and excrete waste. Humans (people) are animals. Animals are all different. (revisiting from Autumn 1) • Plants are living things, but unlike animals, they can't move on their own. Plants are important. There are lots of different types of plants, like trees and grass. They grow all over the world. Some grow flowers and others grow fruit. (revisiting from Autumn 2) • Animals need food, water and shelter to survive. • Animals have to find their own food (plants or other animals). • Some animals live in trees, some underground, some in desserts (hot places), some in cold weather, some underwater etc. • We need to look after animals' habitats (where they live) in order for them to survive. • Plants make their own food from water and sunlight. • We can look after plants by giving them water, and putting them in the sun • We can grow plants by putting them in soil and looking after them.	Know how… • Scientists will be able to draw and describe animals and plants in the natural world. • Scientists will be able to grow and look after a plant. • Scientists will observe the changes to a plant.
Vocabulary	Natural world Plants Animals Grow Habitat Survive Shelter	
Enrichment & wider development	Growing their own plants	

Year R Summer 2		
<u>Milestone LO:</u> Children will explore the natural world around them by making observations and drawing pictures. Children will be able to interact with **natural processes** including changing states of matter. <u>Big Question:</u> What will happen if I put a block of ice outside in summer?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
	Know that… • natural processes are interactions (the action of one thing affecting another) that shape our planet and support life. • Some different natural process that happen eg. ice melting, sound vibrating, light travelling through transparent material etc. • Ice when warmed up will melt (turn into liquid) • Sound will cause a vibration • Light can travel through transparent (see through) materials • An object that is not see through will cause a shadow when light is shone at it. • A magnet can attract (pull it near) an object. • A boat will float (rest on the surface or liquid) on water	Know how… • Scientists will be able to identify and explore different natural processes.
Vocabulary	Natural processes Melting Sound Transparent Light Magnet Float Vibration	
Enrichment & wider development	Experiments in class	

Year 1

<table>
<tr><th colspan="3">Year 1 Autumn 1</th></tr>
<tr><td colspan="3">Milestone LO: To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock, in order to distinguish between an object and the material from which it is made. (Within this step, children will also learn to observe closely and to identify.)

Big Question: why is a window made from glass?</td></tr>
<tr><td>Concepts</td><td>Substantive Knowledge</td><td>Disciplinary Knowledge</td></tr>
<tr><td>Chemistry (materials)</td><td>Know that…
A material is a substance (a thing that something is made from). Everything is made of materials. When we want to make something, we need to choose the most suitable material for the job.
Wood comes from trees.
Wood is used to make things like furniture (tables, cabinets etc.)
Plastic is made from natural materials. Plastic can be made in different shapes, thicknesses and colours.
Often, plastic is used to make water bottles, carrier bags and some toys).
Glass is made from sand.
It is used to make things like windows, glasses and marbles.
Metal is a material that comes from the Earth. There are different types of metals.
Metal is used to make coins, keys, cutlery etc.
Water is a liquid.
It is used to keep plants, animals and humans alive and healthy. It is also used for cleaning and in food preparation.
Rock is a material that comes from the Earth. There are different types of rock.
You can find rocks at the beach and in some gardens.
An object is an item that is made out of a material (for example: marble is made out of glass).</td><td>Know how…
Scientists can learn about materials by observing (looking closely with their eyes). Scientists make observations, based on the things they notice.
Scientists identify materials by using their observations to decide and name the material from which an object is made.</td></tr>
<tr><td>Vocabulary</td><td colspan="2">Material
Wood
Plastic
Glass
Metal
Rock
Observe
Identify
Classify
Data
Record
Test</td></tr>
<tr><td>Enrichment & wider development</td><td colspan="2">People from industries who work with materials to come in and walk about working with them.</td></tr>
</table>

Year 1 Autumn 2

Milestone LO: To describe the simple physical properties of a variety of everyday materials. To compare and group together a variety of everyday materials on the basis of their simple physical properties. (Within this step, children continue to observe closely and identify materials. They will also learn to classify materials and perform a very simple test, in order to gather and record data.)

Big Question: I wonder what material would be best to make an effective umbrella?

Concepts	Substantive Knowledge	Disciplinary Knowledge
Chemistry (materials)	Know that… • A material is a substance (a thing that something is made from). Everything is made of materials. When we want to make something, we need to choose the most suitable material for the job. (revisiting from Autumn 1) • Properties describe the features of a material and they determine how suitable the material is for a given purpose (job). • Wood comes from trees. (revisiting from Autumn 1) • Wood is used to make things like furniture (tables, cabinets etc.) (revisiting from Autumn 1) • Wood is hard, strong and long-lasting. • Plastic is made from natural materials. Plastic can be made in different shapes, thicknesses and colours. (revisiting from Autumn 1) • Often, plastic is used to make water bottles, carrier bags and some toys). (revisiting from Autumn 1) • Plastic is tough, smooth and flexible. It can be made into different shapes. It can be transparent, translucent or opaque (see vocabulary box). • Glass is made from sand. (revisiting from Autumn 1) • It is used to make things like windows, glasses and marbles. (revisiting from Autumn 1) • Glass is hard, breakable (fragile) and normally transparent. • Metal is a material that comes from the Earth. There are different types of metals. (revisiting from Autumn 1) • Metal is used to make coins, keys, cutlery etc. (revisiting from Autumn 1) • Metal is strong, shiny and hard • Water is a liquid. (revisiting from Autumn 1) • It is used to keep plants, animals and humans alive and healthy. It is also used for cleaning and in food preparation. (revisiting from Autumn 1) • Rock is a material that comes from the Earth. There are different types of rock. (revisiting from Autumn 1) • You can find rocks at the beach and in some gardens. (revisiting from Autumn 1) • Rock is hard, strong and tough. • An object is an item that is made out of a material (for example: marble is made out of glass). (revisiting from Autumn 1) • Similar means not the same, but has some of the same properties. • Different means not the same.	Know how… • Scientists can learn about materials by observing (looking closely with their eyes). Scientists make observations, based on the things they notice. (revisiting from Autumn 1) • Scientists identify materials by using their observations to decide and name the material from which an object is made. (revisiting from Autumn 1) • Scientists can identify materials and classify them by sorting them into groups or categories. • Scientists can perform simple tests in order to gather and record data to help them answer questions.
Vocabulary	Strong Hard	

	Rigid Tough Smooth Flexible Malleable Transparent Translucent Opaque shiny Breakable Fragile Observe Identify Classify Data Record Test
Enrichment & wider development	People from industries who work with materials to come in and talk about working with them.

Year 1 Spring 1		
Milestone LO: To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). (Within this step, the children will practise identifying and classifying). Big Question: Do all mammals live on land? Investigate and prove it!		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (Animals, including humans)	Know that… • Animals are living things that can think, move for themselves, breathe, reproduce (have young) and excrete waste. Humans (people) are animals. Animals are all different. (revisited from year r) • Animals can be categorised based on their characteristics. • All mammals have hair, have lungs to breathe air, mothers give birth to live young and they are warm blooded (animals that maintain a constant body temperature). • fish are animals that live underwater, have scales, fins, no legs, lay soft eggs and gills (to help them breathe underwater). • amphibians are happy on land or water. They lay eggs near or in water. Amphibians are born in water with gills and they develop lungs which means they can breathe air and live on land. Most have four legs and some have no legs. • Reptiles have dry scaly skin, most lay eggs but some give birth to live young, have lungs to breathe air and are cold blooded (animals whose body temperature varies with that of the environment). • Birds have a backbone, no teeth, a sharp beak, have two wings (but not all can fly), have two legs, have feathers, they lay eggs and are warm blooded. • Similar means not the same, but has some of the same properties. (revisiting from autumn) • Different means not the same. (revisiting from autumn) • Examples of mammals are elephants, dogs, cats, giraffes etc. (a whale is a mammal this may be a misconception because they live under water) • Examples of fish are sharks, goldfish, and salmon. • Examples of amphibians are frogs, toads and salamanders. • Examples of reptiles are lizards, crocodiles, bearded dragons and turtles (which can be a misconception due to them living underwater) • Examples of birds are parrots, pigeons, owls, and chickens.	Know how… • Scientists can identify different types of animals and classify them by sorting them into groups or categories. (revisiting from autumn) • Scientists can compare the structures of animals. • Scientists can raise their own questions.
Vocabulary	Scales Lungs Gills Mammals Fish Amphibians Reptiles Birds Warm blooded	

	Cold blooded
Enrichment & wider development	Visit to the aquarium

Year 1 Spring 2		
Milestone LO: To identify and name a variety of common animals that are carnivores, herbivores and omnivores. To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Within this step, the children will practise identifying and classifying). Big Question: Which senses does a carnivore use to help it catch its prey?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (Animals, including humans)	Know that… • Animals are living things that can think, move for themselves, breathe, reproduce (have young) and excrete waste. Humans (people) are animals. Animals are all different. (revisiting from spring 1) • We can classify animals based on what they eat. • A carnivore is an animal that only eats meat. For example, barn owls eat mice. • A herbivore is an animal that only eat plants (including fruits and vegetables). For example, rabbits eat fruit and vegetables. • An omnivore is animal that eats both meat and plants. For example, hedgehogs eat both plants and small animals like worms. • Carnivores uses senses such as sight, smell and hearing to help them catch their prey. • Plants are living things, but unlike animals, they can't move on their own. • We can name and label different parts of our bodies. For example, head, hair, eyes, nose, teeth, mouth, shoulders, elbow, hand, thumb, fingers, leg, knee, foot, and toes. • our senses allow us to observe and understand the world around us. There are five ways we can do this (taste, touch, hear, sight and smell). • We use the nose to smell. • We use the tongue to taste. • We use our eyes for sight. • We use our fingers for touch. • We use our ears to hear. • If humans have sense that doesn't work well there are things that can help them eg. Wearing glasses or hearing aids.	Know how… • Scientists can identify different types of animals and classify them by sorting them into groups or categories. (Revisiting from Autumn and spring 1) • Scientists ask questions and answer them in different ways (e.g. by observing, testing, reading and collecting information from different sources).
Vocabulary	Carnivore Omnivore Herbivore Hear Smell Touch Taste Sight Meat Plant Prey Predator	

Enrichment & wider development	

Year 1 Summer 1

Milestone LO: To observe changes across the 4 seasons. To observe and describe weather associated with the seasons and how day length varies. (Within this step, the children will practise observing, using their senses).

Big Question: I wonder why it's light outside at bedtime!

Concepts	Substantive Knowledge	Disciplinary Knowledge
Physics (Seasons)	Know that… • There are four seasons across the year, the year is split into four parts. (Spring, Summer, Autumn, Winter). Each of these seasons has typical weather patterns and a change in daylight hours, depending of the Earth's position in relation to the sun (revisiting from year r). • In the United Kingdom and other countries there are four seasons in a year. • Weather is • A year is 365 days eg. time between turning 4 and 5. • The weather changes through the different seasons. • Spring is from March to May (revisiting from year r). • Summer is from June to August (revisiting from year r). • Autumn is from September to November (revisiting from year r). • Winter is from December to February. (revisiting from year r). • In spring the cold weather gradually rises to the warmth of summer. Spring is when plants begin to grow and flowers bloom. Baby animals are often born in spring time. (revisiting from year r). • The weather in spring is often rainy to help the plants to grow. There are rainy and sunny spells in spring, there are often rainbows. (revisiting from year r). • Summer is when the weather is generally at its warmest and driest but it can still rain. The longest break from school in the summer time. Most people spend a lot more time outside in summer. (revisiting from year r). • Autumn is when the leaves change colour and the weather gets colder. (revisiting from year r). • Winter is when all the leaves fall off the trees and the weather is colder. In winter you may see snow. (revisiting from year r). • There are 24hrs in a day, this is the same in all seasons however in summer there are more hours of daylight because the sun rises earlier and sets later. In winter there are less hours of daylight because the sun rises later and sets earlier.	Know how… • Scientists can learn about seasons by observing (looking closely with their eyes). Scientists make observations, based on the things they notice. (revisiting from Autumn) • Scientists can suggest answers to questions using their observations and ideas.
Vocabulary	Winter Summer Spring Autumn Seasons Daylight Weather	

Enrichment & wider development	Nature trail

Year 1 Summer 2		
Milestone LO: To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. To identify and describe the basic structure of a variety of common flowering plants, including trees. (Within this step, the children will use their observational skills, including being introduced to using simple equipment. They will continue to practise identifying and classifying). Big Question: Do all trees lose their leaves in winter?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (Plants)	Know that… • Plants are living things, but unlike animals, they can't move on their own. Plants are important. There are lots of different types of plants, like trees and grass. They grow all over the world. Some grow flowers and others grow fruit. • Wild plants, such as weeds, grow without someone choosing to plant them there, whereas garden plants have been planted deliberately. • A tree is tall, woody plant that have a stem called a trunk. • Evergreen trees are trees that stay green all year around. • Deciduous trees have leaves that change colour and eventually fall off, with the seasons. In Autumn deciduous trees leaves turn orange and brown. In winter the leaves fall off the trees and then in spring the leaves grow back green. • Plants have different parts that all have different functions. • Some plants have flowers or fruits that grow. • The stem of a plant holds the flower up and transports water from the roots. • The leaves of a plant catch sunlight which the flower turns into food. • The roots of a plant grow out of the bottom of a bulb or seed. The roots are under the soil. They suck up water and hold the plant still.	Know how… • Scientists can identify different types of plants and classify them by sorting them into groups or categories. (Revisiting from Autumn and spring) • Scientists can learn about plants by observing (looking closely with their eyes). Scientists make observations, based on the things they notice. (revisiting from Autumn) • Scientists can perform simple tests in order to gather and record data to help them answer questions. (revisiting from Autumn 1) • Scientists will sometimes use equipment to help them find out more about the world around them. For example, magnifying glasses to observe things more closely.
Vocabulary	Observation Tree Evergreen Deciduous Plants Stem Flower Fruits Leaves Roots Bulb Seed Soil	
Enrichment & wider development	Nature trail to identify different plants.	

Year 2

Year 2 Autumn 1		
Milestone LO: To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Big Question: Can I change the shape of a football?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Chemistry (materials)	Know that… • A material is a substance (a thing that something is made from). Everything is made of materials. When we want to make something, we need to choose the most suitable material for the job. (revisiting from year 1) • Suitability means having the properties which are right for a specific purpose. • Certain materials are more suitable to make objects for particular uses. • Wood comes from trees. (revisiting from year 1) • Wood is used to make things like furniture (tables, cabinets etc.) (revisiting from year 1) • Plastic is made from natural materials. Plastic can be made in different shapes, thicknesses and colours. (revisiting from year 1) • Often, plastic is used to make water bottles, carrier bags and some toys). (revisiting from year 1) • Glass is made from sand. (revisiting from year 1) • It is used to make things like windows, glasses and marbles. (revisiting from year 1) • Metal is a material that comes from the Earth. There are different types of metals. (revisiting from year 1) • Metal is used to make coins, keys, cutlery etc. (revisiting from year 1) • Rock is a material that comes from the Earth. There are different types of rock. (revisiting from year 1) • You can find rocks at the beach and in some gardens. (revisiting from year 1) • Bricks are made from clay (a soft, sticky earth that can be moulded when wet) • Bricks are used in building of walls, buildings and flooring. • Paper is made from wood/ tree bark. • Paper is used for writing/ drawing on, it is used for books and is used sometimes for packaging. • Cardboard is made from paper. • Cardboard is used for boxes to store things, and for packaging (eg. cereal boxes etc). • Shapes of solid objects made from some materials (plastic, wood, metal, paper, cardboard) can be changed by squashing, bending, twisting and stretching (pulling or pushing the object with a force). • Things made from soft materials can be squashed. • Paperclips are made from metal that can be bent into different shapes. • Fabrics and balloons can be easily twisted. • Some materials such as plastic can be stretched and become longer for example like a spring.	Know how… • Scientists can learn about materials by observing (looking closely with their eyes). Scientists make observations, based on the things they notice. (revisiting from year 1) • Scientists can identify materials and classify them by sorting them into groups or categories. (revisiting from year 1) • Scientists can perform simple tests in order to gather and record data to help them answer questions. (revisiting from year 1)

Vocabulary	Material Wood Plastic Glass Metal Rock Cardboard Paper Brick Observe Identify Classify Data Record Test Squashing Bending Twisting Stretching
Enrichment & wider development	Exploring materials in class.

Year 2 Autumn 2		
Milestone LO: To find out about and describe the basic needs of animals, including humans, for survival (water, food and air). To notice that animals, including humans, have offspring which grow into adults. Big Question: What changes can happen as an animal grows?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (animal survival)	Know that… • The basic needs of animals to live. • All animals need food and water to survive (stay alive). • All animals with lungs (to breathe in air) need air to live but animals with gills don't need air to live (they can breathe underwater). • Animals are living things that can think, move for themselves, breathe, reproduce (have young) and excrete waste. Humans (people) are animals. Animals are all different. (revisiting from year 1) • All animals including humans have offspring (the young/children of a person or animal) • Know that some animals give birth to live children (mammals) and some animals lay eggs (birds, fish, reptiles etc) • A caterpillar is the offspring of a butterfly. • A chick is the offspring of a chicken. • A tadpole is the offspring of a frog. • A foal is the off-spring of a horse. • A baby is the offspring of a human. • That offspring will grow into adults. They get older and changes happen. For example, egg-chick-chicken, spawn-tadpole-frog, lamb-sheep. • They will get taller or bigger, grow hair etc.	Know how… • Scientists can identify animals and classify them by sorting them into groups or categories. (revisiting from year 1) • Scientist can make observations (watch closely with their eyes) and ask questions (revisiting from year 1).
Vocabulary	Animals Offspring Survive Lungs Living	
Enrichment & wider development	Visits from animals or visit to a farm.	

Year 2 Spring 1		
Milestone LO: To explore and compare the differences between things that are living, dead, and things that have never been alive. To 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. Big Question: Is a deciduous tree dead in winter?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (animal survival)	Know that… • There is a difference between living, dead and things that have never been alive. • All living things have certain characteristics that are essential to keep them alive and healthy. • Living things are alive. They all react to their surroundings, grow, reproduce (have young), feed and get rid of waste. • Living things can move on their own using their energy (misconception- may be that plants can't move but they move their leaves to get the sunlight) • These contrast (are different) to dead things such as fallen leaves. • Dead things are something that was originally alive or have fallen off something that was alive. • These also contrast (are different) to things that have never been alive for example a pencil, table, lamppost etc. • Anything that does not grow, reproduce, need food or air to survive has never been alive. • All living things need energy and they get this energy from food. • That animals obtain (get) their food from plants or other animals. • As humans we eat both plants (fruits and vegetables) and other animals to keep us alive. • A food chain shows how energy is passed through plants and animals. • All food chains include a producer. This is ability to produce their own food, usually plants because they make their food from sunlight, water and air. • The plant will then be eaten by a living creature. In the food chain this creature is called a consumer. • A herbivore is a consumer that only eats plants eg a caterpillar. (revisiting from year 1) • Some consumers in a food chain also eat other creatures. • An omnivore eats both plants and animals. For example a bird. (revisiting from year 1) • Consumers that only eat other creatures are called carnivores. They are found at the top of the food chain, and called predators (an animal that hunts and eats other animals). • A carnivore is an animal that mostly eats other animals. (revisiting from year 1) • An example food chain may be a plant (producer)-a caterpillar (a herbivore) consumer -a bird (a omnivore consumer) - a fox (a carnivore consumer) . Energy is passed through the food chain. • If something is taken away from the food chain then the consumer after that animal will find it hard to hunt for food. • Humans are part of a food chain too. We are at the top of the food chain as there aren't many animals that want to eat us. • Food chains always start with a producer and end with a carnivore.	Know how… • Scientists can identify animals and classify them by sorting them into groups or categories. (revisiting from year 1 and Autumn 2) • Scientists ask questions and answer them in different ways (e.g. by observing, testing, reading and collecting information from different sources). (revisiting from year 1) • Scientists will use simple scientific language to answer questions.

	• Food chains can be longer than just producer, herbivore, omnivore and carnivore. Some carnivores eat other and omnivores can eat each other. • Prey is the name for an animal who is eaten and hunted by another animal.	
Vocabulary	Carnivore Omnivore Herbivore Consumer Producer Energy Predators Prey	
Enrichment & wider development	Visits from animals or visit to a farm.	

Year 2 Spring 2		
Milestone LO: To 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. To identify and name a variety of plants and animals in their habitats, including microhabitats. Big Question: Would a polar bear survive in the dessert? Why or why not?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (habitats)	Know that… • Living things are alive. They all react to their surroundings, grow, reproduce (have young), feed and get rid of waste. (revisit from spring 1) • Living things can move on their own using their energy (misconception- may be that plants can't move but they move their leaves to get the sunlight) (revisit from spring 1) • A habitat is a place where an animal or plant lives. It provides them with water, food, shelter and air to help them survive. • Some animals require different conditions to live in compared to others. Each habitat has different conditions such as amount of light, the temperature and the amount of moisture. • Animals are adapted (they have features that help them survive in that habitat) to their habitat. For example, elephants live in a hot habitat so they have large ears that they can flap to keep themselves cool whereas a polar bear that lives in a cold climate has lots of fur to keep warm. • A plant can provide food and shelter for an animal. • There are 8 different types of habitat (polar habitat, ocean habitat, rainforest habitat, woodland habitat, desert habitat, urban habitat, coastal habitat and pond habitat). • A polar habitat is cold, windy and covered in frozen snow and ice. Polar bears survive here because of their thick fur. • An ocean habitat is large and wet. • A woodland habitat is green and shady. Lots of animals and plants live here. Eg. squirrels, hedgehogs, birds etc. because they eat the plants that grow and they live in the trees. • A rainforest habitat is found in tropical (hot and humid) countries. They are hot and wet because it rains most days. • A desert habitat is dry and often sandy. They are hot during the day and cold at night. Some plants and animals are able to live here eg. camels because they have water stores for when it is hot. • An urban habitat are towns and cities. They are often noisy and busy. An animal that can survive here is a fox because not only do they eat slugs, and worms they also eat from our bins. • A coastal habitat is a place where land meets the ocean. This can be rocky cliff edges, sandy beaches or rock pools. Animals like crabs live here because they can walk sideways to get through the rocks and they can breathe both air and underwater. • A pond habitat is home to animals and plants like frogs and water lilies. • A micro-habitat is a very small habitat for example a stone, log or leaf is a habitat for a woodlouse.	Know how… • Scientist can make observations of microhabitats (watch closely with their eyes) and ask questions. (revisit from Autumn 2 and year 1) • Scientists can identify animals and classify them by sorting them into groups or categories. (revisiting from year 1, autumn 2 and spring 1) • Scientists should raise and answer questions about local environments to identify and study habitats. • Scientist should compare and contrast different groups they have identified.

Vocabulary	Habitat Living Micro-habitat Conditions Ocean Polar Rainforest Woodland Desert Urban Coastal Pond
Enrichment & wider development	Observe habitats on the nature trail and the surrounding school grounds. Woodland and pond habitats on the nature trail.

Year 2 Summer 1		
Milestone LO: To observe and describe how seeds and bulbs grow into mature plants. To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Big Question: How does a plant make food?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (making new plans)	Know that… • Plants are living things, but unlike animals, they can't move on their own. Plants are important. There are lots of different types of plants, like trees and grass. They grow all over the world. Some grow flowers and others grow fruit. (revisiting from year 1 and year R) • That plants grow form seeds (it's the beginning of a plant with some food stored in it to help it grow) and bulbs (underground bud or stem of a seed plant at its resting stage) • With the correct conditions a seed will soak up water and a tiny plant bursts out of its shell. This is germination (the process by which seeds begin to grow into plants) • Roots grow downwards into the soil and they keep the plant firmly in the ground and pull water and nutrients up into the seed that is in the soil. • The nutrients the plant gets then allows it to grow a stem out of the soil. The plant can then grow leaves. • Every part of a plant has a different job to do. • The job of the leaves is use water, sunlight and a gas (carbon dioxide) to make food for the plant. • The roots job is to collect water from the soil to take up into the plant. • Sometimes a plant will start from a seed and then grow a bulb which stores energy underground and helps them plant grow back every year. • Plants need water, light and a suitable temperature to grow. • Plants need water for the roots to be able to take it in to help the plant grow. • Plants need light for the leaves to take in to make food from. • Plants need a suitable temperature for the plant to be able to turn the light into food effectively.	Know how… • Scientists can perform simple tests in order to gather and record data to help them answer questions. (revisiting from year 1) • Scientists can learn about plants by observing (looking closely with their eyes). Scientists make observations, based on the things they notice. (revisiting from Year 1) • Scientists will raise questions and answer questions based on observations they have made (revisiting from year 1).
Vocabulary	Germination Roots Stem Nutrients Seed Bulb Light Leaves	
Enrichment & wider development	Planting their own plants	

Year 2 Summer 2		
Milestone LO: To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Big Question: How can we look after our bodies?		
Concepts	Substantive Knowledge	Disciplinary Knowledge
Biology (keeping our bodies healthy)	Know that… • We are humans and that we need to fuel our bodies and keep healthy. • Healthy means we are looking after our bodies to feel happy and strong. • To keep healthy we need to exercise, eat well, drink plenty of water and be hygienic. • Exercise is movement which makes your heart beat faster and your body move. Being physically active. • Exercise is important for us to keep healthy bodies. • Exercise has a positive effect on your heart, lungs, and body. Exercise helps us build strong bones and helps us to have energy. • There are different types of food groups, some are better for our bodies than others. (carbohydrates, fruits and vegetables, dairy products and meats) • Fruit and vegetables are important for keeping our bodies healthy. Some foods have lots of sugar which are not always good for our bodies so we need to make sure we are not eating too much of these foods. • Carbohydrates give us energy. For example, potatoes, bread and pasta. • Dairy products are foods made from using milk. For example, cheese, yoghurt, and ice cream. • Hygiene is how we keep our bodies clean. For example, washing our hands, having a bath/shower, brushing our teeth etc. • Hygiene is important to keep ourselves healthy. Otherwise if we do not take care of our hygiene we can become unwell and poorly.	Know how… • Scientists will raise questions and answer questions (revisiting from year 1 and summer 1). • Scientists can identify and classify ideas by sorting them into groups or categories. (revisiting from year 1, autumn 2 and spring 1)
Vocabulary	Healthy Exercise Hygienic Carbohydrates Dairy Fruit Vegetables Meat	
Enrichment & wider development	Visit from a health professional.	