

Cycle A

KS1 Science Autumn 1 Ourselves (Animals inc humans)	
Previous learning	
In EYFS pupils have learnt to identify the different body parts e.g. stomach, elbow, face etc. Pupils have some knowledge of the senses and how they interact with each other. Pupils have learnt how to stay healthy e.g. by eating healthy foods. This will need to be further developed to include hygiene, diet, exercise etc.	
Substantive Knowledge in Science	Disciplinary knowledge in Science
Humans have five senses: sight, touch, taste, hearing, and smell. Ears are used for hearing, eyes are used to see, the nose is used to smell, the tongue is used to taste and skin gives the sense of touch. It is important that humans eat the right amounts of different foods to stay healthy.	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.
Lesson 1	Body Parts
	To identify, name, draw and label the basic parts of the human body
Lesson 2	Facial Features
	To name the parts of the human body that I can see.
Lesson 3	Investigation - How well does our hearing work in different conditions?
	To make simple predictions. To understand that we hear sounds with our ears and that hearing is one of our senses.
Lesson 4	Identifying and classifying using sight and touch
	To identify the differences between fruit and vegetables using our senses to classify them. To classify foods using a Venn diagram.
Lesson 5	Taste testing foods
	To understand why a balanced diet is important for humans. To describe the taste and smell of different foods.
Lesson 6	Investigation - How do our senses work together?
	To link the correct part of the human body to each sense.
Vocabulary	
hearing, sight, smell, taste, touch, leg, arm, elbow, head, ear, nose, back	

KS1 Science Autumn 2 Animals inc humans	
Previous learning	
In EYFS, the children learnt that different body parts are used for different things, such as the eyes are used to see. The children learnt that animals grow and change over time This project teaches children about the structure of animals, including fish, amphibians, reptiles, birds, mammals and invertebrates. They identify and describe their common structures, diets, and how animals should be cared for.	
Substantive Knowledge in Science	Disciplinary knowledge in Science
Different animal groups have some common body parts and structures, such as eyes and a mouth, and some different body parts, such as fins or wings. Living things need to be cared for in order for them to survive. They need water, food, warmth and shelter. Carnivores eat other animals (meat), herbivores eat plants and omnivores eat other animals and plants.	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.
Lesson 1	Identifying and grouping animal parts
	To recap the names of the six main animal groups using structures and body parts.
Lesson 2	Sorting and pattern seeking
	To sort data in different ways.
Lesson 3	Our pets
	To classify pets into one of the six animal groups.
Lesson 4	Carnivore, herbivore, omnivore
	To identify and name a variety of common animals that are carnivores, herbivores and omnivores.
Lesson 5	Observation and comparison
	To compare the features of earthworms to another animal.
Lesson 6	Investigate
	To investigate the senses an earthworm has.
Vocabulary	
hearing, sight, smell, taste, touch fish, amphibian, reptile, bird and mammal	

**KS1
Science
Spring 1
Materials**

Previous learning

In EYFS, pupils learned that different materials that can be used for different things. We talked about the similarities and differences in relation to places, objects, materials and living things. Pupils also learnt that some materials are magnetic and some materials are non-magnetic.

During this chemistry based unit, we will be introduced to a range of basic materials and their properties. We will learn to name and identify a variety of materials and begin to explain that these materials can be made into many different objects. We will then progress and learn to distinguish between an object and the material from which it is made. We will investigate the properties of materials and begin to recognise that a material's properties define its use.

Substantive Knowledge in Science

A material is what an object is made from.

Materials are all around us, such as in the home, garden, school and park.

Everyday materials include wood, plastic, glass, metal, water, rock, brick, paper and fabric.

Materials are important because we use them to make everyday objects for example, plastic is light and stiff. It can be used for a water bottle.

Disciplinary knowledge in Science

Ask simple questions and recognise that they can be answered in different ways.

Observe closely, using simple equipment.

Perform simple tests.

Identify and classify.

Use their observations and ideas to suggest answers to questions.

Gather and record data to help in answering questions.

Lesson 1

Object and materials

- To be able to identify a variety of common materials

Lesson 2

Everyday materials

- To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.

Lesson 3

Properties of everyday materials

- To describe the simple physical properties of a variety of everyday materials.

Lesson 4

Testing materials

- To identify and test of materials

Lesson 5

Compare and group materials

- To compare and group together a variety of everyday materials on the basis of their simple physical properties.

Lesson 6

Investigation

- To investigate the best material for bunting.

Vocabulary

stretchy or stiff
rough or smooth
opaque or transparent

bendy or rigid
waterproof or not waterproof

Year 1
Science
Spring 2
Seasonal Changes

Previous learning

In EYFS, the children talked about some natural features that they see and feel during different seasons, including different weather.

This project teaches children about the seasons, seasonal changes and typical seasonal weather and events. Children begin to learn about the science of day and night and recognise that the seasons have varying day lengths in the UK.

Substantive Knowledge in Science	Disciplinary knowledge in Science
There are four seasons: spring, summer, autumn and winter. The local environment is a habitat for living things and can change during the seasons. Trees that lose their leaves in the autumn are called deciduous trees. Examples include oak, beech and rowan. Trees that shed old leaves and grow new leaves all year round are called evergreen trees. Examples include holly and pine.	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.

Lesson 1	Experiencing the season
	To observe trees, plants and animals and to 'feel' the weather.
Lesson 2	Deciduous and evergreen trees
	To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.
Lesson 3	Seasonal changes in deciduous trees
	To label seasons and put them in chronological and cyclical order.
Lesson 4	Seasonal changes in animals
	To understand how seasonal change affects animals.
Lesson 5	What is the weather?
	To observe and reiterate the causes and consequences of this weather.
Lesson 6	How does the seasons affect day length
	To observe and describe weather associated with the seasons and how day length varies.

Vocabulary

evergreen, deciduous, seasons, change, hibernate, autumn, winter, spring, summer

KS1 Science Summer 1 Plant Parts		
Previous learning		
In EYFS, the children learnt that plants and trees are living things, and that living things change over time. This project teaches children about wild and garden plants by exploring the local environment. They identify and describe the basic parts of plants and observe how they change over time.		
Substantive Knowledge in Science		Disciplinary knowledge in Science
In winter, many plants and trees are dormant and have buds on their branches. In spring, leaves and blossom appear on trees and smaller plants begin to grow and flower. The basic plant parts include root, stem, leaf, flower, petal, fruit, seed and bulb. Trees have a woody stem called a trunk.		Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.
Lesson 1	Seasonal changes in plants	
	To recall some similarities and differences between the seasons and the way the seasons change.	
Lesson 2	Plant parts and diagrams	
	To identify and describe the basic structure of a variety of common flowering plants, including trees.	
Lesson 3	Seeds and bulbs	
	To understand where new plants come from and the importance of plants.	
Lesson 4	Investigating leaves	
	To observe leaves and record my observations.	
Lesson 5	Change over time	
	To make comparisons about how a plant has changed over time.	
Lesson 6	Recording and identifying	
	To use evidence to identify a tree or plant.	
Vocabulary		
evergreen, deciduous, oak, beech, holly pine, mature		

**KS1
Science
Summer 2
Habitats**

Previous learning

In Spring 2, the children learnt that the local environment is a habitat for living things and can change during the seasons.

This project teaches children about habitats and what a habitat needs to provide. They explore local habitats to identify and name living things and begin to understand how they depend on one another for food and shelter.

Substantive Knowledge in Science

Living things are those that are alive. Dead things are those that were once living but are no longer. Some things have never been alive.

Living things carry out the seven life processes: moving, breathing, using their senses, feeding, getting rid of waste, having offspring and growing.

All living things live in a habitat to which they are suited and it must provide everything they need to survive.

Local habitats include parks, woodland and gardens.

Disciplinary knowledge in Science

Ask simple questions and recognise that they can be answered in different ways.

Observe closely, using simple equipment.

Perform simple tests.

Identify and classify.

Use their observations and ideas to suggest answers to questions.

Gather and record data to help in answering questions.

Lesson 1

Living and non-living things

- To sort the things into those that are living and those that are non-living.

Lesson 2

Identifying plants and animals in a habitat

- To identify and name a variety of plants and animals in their habitats, including microhabitats.

Lesson 3

Why do these animals live in this habitat?

- To understand why animals live in certain habitats.

Lesson 4

Creating food chains

- 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.

Lesson 5

Animal adaptations

- To understand how animals become adapted to their habitat.

Lesson 6

Investigation

- To use information about animals, plants, food sources, water sources, and places of shelter to name a mystery habitat.

Vocabulary

beaches, rainforests, deserts, oceans, microhabitat, living, alive, dead, near-alive

Cycle B

KS1 Science Autumn 1 Ourselves	
Previous learning	
Last year pupils learnt that ears are used for hearing, eyes are used to see, the nose is used to smell, the tongue is used to taste and skin gives the sense of touch. They learnt that animals and plants are living things, and plants change over time. This project teaches children about the basic needs of humans for survival, including the importance of exercise, nutrition and good hygiene. They learn how human offspring grow and change over time into adulthood.	
Substantive Knowledge in Science	Disciplinary knowledge in Science
Human offspring go through different stages as they grow to become adults. These include baby, toddler, child, teenager, adult and elderly. A healthy lifestyle includes exercise, good personal hygiene, good quality sleep and a balanced diet. Germes are microorganisms that can cause illness in humans. Washing hands with soap and clean running water helps humans avoid getting ill and spreading germs to others.	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.
Lesson 1	Human life cycle
	To describe the stages of human development (baby, toddler, child, teenager, adult and elderly).
Lesson 2	Nutrition
	To discuss what we need to stay healthy
Lesson 3	Exercise
	To understand the importance of regular exercise for the heart and lungs.
Lesson 4	Animals
	To find out about and describe the basic needs of animals for survival (water, food and air).
Lesson 5	Good hygiene routines
	To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
Lesson 6	Investigation
	To investigate and observe how easily germs can spread from person to person.
Vocabulary	
offspring, baby, toddler, child, teenager, adult, elderly,	

KS1
Science
Autumn 2
Animals inc humans

Previous learning

In Cycle A, the children learnt that ears are used for hearing, eyes are used to see, the nose is used to smell, the tongue is used to taste and skin gives the sense of touch. Children learnt that there are a variety of common animals that are carnivores, herbivores and omnivores.

This project teaches children about growth in animals by exploring the life cycles of some familiar animals. They build on learning about the survival of humans by identifying the basic needs of animals for survival, including food, water, air and shelter.

Substantive Knowledge in Science

Invertebrates are animals without a backbone. Invertebrates include worms, molluscs, crustaceans, insects, arachnids and myriapods.

Microhabitats are small habitats within a larger habitat. Examples of microhabitats are rock pools, ponds, hedgerows and under logs.

Animals need water, food, air and shelter to survive. Their habitat must provide all these things.

All food chains start with a plant, followed by animals that either eat the plant or other animals.

Disciplinary knowledge in Science

Ask simple questions and recognise that they can be answered in different ways.

Observe closely, using simple equipment.

Perform simple tests.

Identify and classify.

Use their observations and ideas to suggest answers to questions.

Gather and record data to help in answering questions.

Lesson 1

Habitats

- To identify habitats that are suited for living things, describing how different habitats provide the basic needs of different kinds of animals

Lesson 2

Introducing invertebrates

- To identify and name a variety of invertebrates.

Lesson 3

Microhabitats and food chains.

- To understand and identify a range of microhabitats.

Lesson 4

Animal needs

- To find out about and describe the basic needs of animals, including humans, for survival (water, food and air).

Lesson 5

Life process of reproduction

- To describe the basic life cycles of some familiar animals (egg, caterpillar, pupa, butterfly; egg, chick, chicken; spawn, tadpole, froglet, frog).

Lesson 6

Insect life cycles

- To describe the life cycle of an insect.

Vocabulary

fish, amphibians, reptiles, birds, invertebrates, mammals, adult, arachnid, backbone, crustacean, egg, embryo, hatching, insect, metamorphosis, microhabitat, mollusc, myriapod, offspring, pupa, reproduction, worm

KS1 Science Spring 1 Materials	
Previous learning	
Last year, the children learnt that materials have different properties. In EYFS, children learnt that some materials are magnetic and some materials are non-magnetic. This project teaches children about the uses of everyday materials and how materials' properties make them suitable or unsuitable for specific purposes. They begin to explore how materials can be changed.	
Substantive Knowledge in Science	Disciplinary knowledge in Science
Some objects and materials can be changed by squashing, bending, twisting, stretching, heating, cooling, mixing and being left to decay. A material's physical properties make it suitable for particular purposes, such as glass for windows and brick for building walls. Many materials are used for more than one purpose, such as metal for cutlery and cars. Recycling is making old, used materials into new objects.	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.
Lesson 1	Exploring everyday materials
	To observe everyday materials in and around my school.
Lesson 2	Bending, stretching, twisting and squashing
	To test materials and understand that they can be shaped in different ways.
Lesson 3	Linking properties to uses
	To identify and compare the suitability of a variety of everyday materials.
Lesson 4	Testing paper
	To notice patterns and relationships in their data and explain what they have done and found out using simple scientific language.
Lesson 5	The problem with materials
	To understand recycling and the problem with materials.
Lesson 6	Investigation
	To use different methods for testing the properties of materials and record my data.
Vocabulary	
window, brick, cutlery, cars, purpose, absorbent twist, squash, rigid, push, pull, flexible, stretch, twist, squash, bend	

**KS1
Science
Spring 2
Weather**

Previous learning

In EYFS, the children talked about some natural features that they see and feel during different seasons, including different weather.

This project teaches children about the seasons, seasonal changes and typical seasonal weather and events. They learn about measuring the weather and the role of a meteorologist.

Substantive Knowledge in Science

The weather can change daily and some weather types are more common in certain seasons, such as snow in winter.

Some ways to stay safe include staying safe in strong sunlight (sun cream, sun hat and sunglasses).

Temperature is the measure of how hot or cold something is.

A weather forecast predicts the weather.

Disciplinary knowledge in Science

Ask simple questions and recognise that they can be answered in different ways.

Observe closely, using simple equipment.

Perform simple tests.

Identify and classify.

Use their observations and ideas to suggest answers to questions.

Gather and record data to help in answering questions.

Lesson 1

UV light

- To know about safe and unsafe exposure to the sun.

Lesson 2

Measuring and recording the wind

- To observe the windsock and measure the wind over a maximum of five consecutive days.

Lesson 3

Measuring and recording temperature

- To observe, measure and record the temperature twice a day over three separate days.

Lesson 4

Measuring precipitation

- To observe, measure and record rainfall using a rain gauge scale in millimetres.

Lesson 5

Results

- To answer the questions and record learning about measuring wind, temperature and precipitation.

Lesson 6

Weather forecast

- To use information from scientific results and knowledge to create a weather forecast.

Vocabulary

temperature, thermometer, wind direction, force, rainfall

KS1 Science Summer 1 Plants	
Previous learning	
In Cycle A, the children learnt that plants are living things. Common plants include the daisy, daffodil and grass. Trees are large, woody plants and are either evergreen or deciduous. All living things (plants and animals) change over time as they grow and mature. This project teaches children about the growth of plants from seeds and bulbs. They observe the growth of plants firsthand, recording changes over time and identifying what plants need to grow and stay healthy.	
Substantive Knowledge in Science	Disciplinary knowledge in Science
A habitat is a place where a living thing lives. A microhabitat is a very small habitat. Germination is the development of a plant from a seed. Plants need water, light and a suitable temperature to grow and stay healthy. Without any one of these things, they will die. Plants grow from seeds and bulbs. Seeds and bulbs need water and warmth to start growing (germinate). As the plant grows bigger, it develops leaves and flowers.	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.
Lesson 1	Plants and their parts
	To know that objects, materials and living things can be looked at, compared and grouped according to their features.
Lesson 2	Exploring seasonal plants
	To identify and name a variety of plants and animals in their habitats, including microhabitats.
Lesson 3	Germination investigation
	To observe and describe how seeds and bulbs grow into mature plants.
Lesson 4	What do plants need to grow?
	To investigate what plants need to grow and be healthy.
Lesson 5	Unusual plants
	To use research to find out about the needs of plants.
Lesson 6	Investigation
	To use a range of methods (tables, charts, diagrams and Venn diagrams) to gather and record simple data with some accuracy.
Vocabulary	
warmth, germinate, leaves, flowers, branch, bulb, dormant flower bud, flowering plant, leaf, stem	

KS1 Science Summer 2 Habitats		
Previous learning		
Substantive Knowledge in Science		Disciplinary knowledge in Science
Many animals behave differently in different seasons in the United Kingdom. These different behaviours are linked to their life cycles, with spring often being the time for new offspring. Humans impact the physical environment in many ways: overpopulation, pollution, burning fossil fuels, and deforestation. Reusing, recycling, shopping locally and walking to school help support our habitats and environment.		Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.
Lesson 1	Seasonal changes	
	To explore how an animal behaves in each season.	
Lesson 2	Human impacts	
	To discuss positive steps we can take to support our local habitats.	
Lesson 3	School grounds	
	To plan and make their improvement to the school grounds to support local habitats.	
Lesson 4	Habitat improvement	
	To understand how their habitat improvement will be constructed and how they will work safely.	
Lesson 5	Sustainable materials	
	To compare the suitability of a range of everyday materials for particular uses, including wood, metal, plastic, glass, brick, rock, paper and cardboard.	
Lesson 6	Evaluate quality and impact	
	To evaluate the quality and impact of their habitat improvement.	
Vocabulary		
Earth, environment, landfill, natural resource, non-recyclable, pollution, recyclable, recycling, reduce, reuse, rubbish sustainability		