

Autumn Term Year 4 Science Overview

States of Matter

Key facts

- Solids will not change their shape on their own.
- Liquids change shape to fit the container they are in.
- Gases expand to fill the container they are in.
- Solids, liquids and gases are made up of particles which take up space.
- Liquids can be poured.
- Some objects change state when heated or cooled.

Prior Knowledge

Children will have investigated different types of materials in previous years but will not have classified them as solids, liquids or gases. They will have observed changes of state (Such as ice melting or water evaporating) and the physical properties of solids, liquids and gases.

Key Vocabulary

Solid
Liquid
Gas
States of matter
Particles

Condensing
Evaporating

Solidifying
Freezing
Melting

Brief summary/ overview

Children will explore how solids, liquids and gases are different states of matter. They will investigate the physical properties of different materials and use their knowledge to sort and classify into appropriate groups. They will observe changes of state, making predictions and drawing conclusions of the scientific processes observed. They will apply their knowledge to the water cycle, explaining how water evaporates and precipitates.

Resources

Examples of solids, liquids and gases.
Ice cube trays
Measuring cylinders
Thermometers
Different shaped containers
Vinegar and bicarbonate soda
Non-fiction texts about the water cycle

Cross curricular links/visits

English: Report writing, including predictions and conclusions.
Maths: Use venn diagrams, tables, keys and line graphs to record and present information. Measuring accurately using different units of measurement.

Spring Term Year 4 Science Overview

Electricity

Key facts

- Electricity can be used through mains connections or battery powered.
- A circuit needs a power source, such as a cell, in order to work.
- A circuit needs to be complete, with no breaks, in order to power anything it is connected to.
- A switch can be used to safely open or close a circuit, switching off anything it is connected to.
- Some materials conduct electricity more than others, therefore allowing electricity to pass through.
- Other materials do not conduct electricity at all.

Prior Knowledge

Children will have prior practical experience with electrical appliances and devices outside of school. They may have an understanding of simple circuits and how to keep themselves safe when working with electricity.

Key Vocabulary

Electricity
Circuit
Switch
Battery
Plug
Mains
Appliance
Device
Wire
Crocodile clip

Bulb
Buzzer
Connection
Power
Cell

Brief summary/ overview

Children will explore how to create a simple series circuit. They will investigate how electricity travels and the effect of a switch or break in a circuit. They will use this knowledge to make predictions about the effectiveness of circuits. The children will explore different materials which allow electricity to travel through them. They will understand how to use electricity safely when working with electrical appliances in their everyday life.

Resources

Wires
Batteries/Cells
Crocodile clips
Bulbs
Buzzer
Switch
Motor
Examples of conductors and insulators

Cross curricular links/visits

English: Report writing, including predictions and conclusions. Presenting factual information in a variety of ways.
Computing: Navigating the internet to research and learn about electricity. Present information digitally.
Maths: Use venn diagrams and tables to record and present information.

Spring 2 Term Year 4 Science Overview

Key facts

- A normal adult mouth has 32 teeth.
- Teeth have different functions.
- Animals can be classified as herbivores, omnivores and carnivores.
- The digestive system allows our body to absorb important nutrients.
- An unhealthy lifestyle can impact our digestive system and our teeth in negative ways.
- Animals are known as consumers because they get their energy by eating other things.
- Plants are producers because they generate their own energy.

Resources

Models and examples of teeth and digestive system
Fabric to imitate the digestive system

Animals including Humans

Brief summary/ overview

Children will learn about their digestive system and its basic functions. They will explore different types of teeth, their uses and role in the digestive system.

The children will also investigate food chains, defining and identifying producers, consumers, prey and predators. They will discuss the impact that humans have on food chains of the natural world.

Prior Knowledge

Children will have prior knowledge of simple food chains, understanding the role of predators and prey. They may have prior knowledge of the digestive system or teeth, linked to their learning about healthy eating in Year 3.

Key Vocabulary

Incisor
Molar
Canine
Jaw
Digestion
Chew
Digestive system
Nutrition
Saliva
Oesophagus

Stomach
Small intestine
Large intestine
Rectum
Anus
Faeces
Food chain
Producer
Predator

Cross curricular links/visits

English: Report writing, including predictions and conclusions.
Maths: Use flow diagrams to explain scientific processes.
Computing: Present our findings digitally.

Summer 1 Term Year 4 Science Overview

Sound

Key facts

- Sounds can be created when something vibrates.
- Sound waves travel through the air to our ears.
- Higher pitch sounds have a tighter sound wave than lower pitch sounds.
- Loud sounds have a larger sound wave than quieter sounds.
- Sounds get fainter if they are further away.
- Sound waves can be blocked or made fainter when an object prevents it from reaching your ears.
- More energy makes a louder sound (Hitting a drum harder)

Resources

Tuning forks
Instruments
Cups and string
Bells
Rice, sand

Prior Knowledge

In KS1, children will have investigated the sounds created by instruments and their own voice. They will understand that they can make sounds louder or quieter by changing the way it is produced. Some children may be aware that sound travels in waves.

Key Vocabulary

Sound	Transmit
Noise	Source
Loud	Sound waves
Quiet	Medium
Silent	
Vibrations	

Brief summary/ overview

Children will explore how sounds are made, recognising that it is caused by vibrations and sound waves travelling to their ears. They will investigate how pitch and volume can be affected by the shape, material and size of its source. Children will draw conclusions about how distance and environment can make sounds appear fainter.

Cross curricular links/visits

English:
Computing: Recording sounds being made.
Maths: Timing and measuring distances between sounds.
Music: Children will explore creating sounds of different pitch or volume.

Summer 2 Term Year 4 Science Overview

Key facts

- Environments change over time, impacting on living things.
- Creatures can be grouped based on their physical characteristics (Such as arachnids, birds, insects)
- Habitats are selected to suit the needs of the species that lives there.
- Animals adapt to their habitats.
- Different animals are more suited to different environments and habitats (Eg. Camels vs Polar bears.)

Living things and their Habitats

Brief summary/ overview

Children will investigate the living things in their local area and the wider environment. They will group and classify living things based on their physical characteristics and choice of habitat. They will create their own classification keys and branching databases in order to sort to a given criteria. The children will also look at the impact of human and physical processes upon the environment.

Prior Knowledge

Children will have investigated living things and their habitats during their Forest School sessions and throughout their experiences both inside and outside of school. Children will be able to name some examples of native creatures or plants.

Key Vocabulary

'Never been alive'

Habitat

Branching database

Environment

Adapt

Climate

Greenhouse

Threat

Change

Local

Resources

Clipboards
Petri dishes
Magnifying glasses
Examples of classification keys or branching databases
Binoculars

Cross curricular links/visits

English:
Computing:
Maths:
Music: