Physics

Do seasons affect habitats?

Substantive Knowledge

There are four seasons, Spring, summer, autumn and winter

Each season is about three months long

In Spring, young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer.

In autumn, the leaves fall off the trees and the amount of time we have in the day becomes less.

Winter has the shortest amount of time during the day and the weather is at its coldest.

In summer the trees are full of green leaves and the weather is at its warmest.

Animals and plants have adapted ways of surviving the changing seasons.

These include hibernating, storing food, fattening up, migration, loss of leaves

Trees can be either evergreen or deciduous.

Evergreen trees keep their green leaves all year round.

Deciduous trees lose their leaves every autumn.

VOCABULARY

Spring - The season when young animals like lambs and chicks are born, the flowers bloom and the weather starts to become warmer

Summer - The season where the trees are full of green leaves and the weather is at its warmest.

Autumn - The season when the leaves fall off the trees and the amount of time we have in the day becomes less.

Winter - The season which has the shortest amount of time during the day and the weather is at its coldest..

Hibernating - When animals spend the winter in a type of long, deep sleep.

Migration - The journey an animal takes to a new home.

Evergreen - Trees that keep their green leaves all year round.

Deciduous -Trees that lose their leaves every autumn

Disciplinary Knowledge

Observe changes across the four seasons.

Observe and describe weather associated with the seasons and how day length varies.

Record data in a simple table.

Use simple keys to identify trees and plants and animals

Make simple comparisons

Link with geography, horticulture curriculum and nature journal botanical drawing.

LONGITUDINAL

Do all trees change in the same way throughout the year? Choose two trees and observe them closely throughout the year. Present the information that you have gathered for the whole school.

Chemistry

How can we describe materials?

Substantive Knowledge

There are many different materials that have different observable properties.

Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics (including glass).

VOCABULARY

Properties - How a material can be described.

Metal - A solid material that is hard and shiny.

Rock - A natural solid material made from minerals which make up the surface of the earth.

Fabric - Cloth or material that is woven or knitted.

Wood - Wood comes from the trunks and branches of trees.

Plastic - Plastic is a man-made material that can change its shape.

Ceramic - Ceramics are often made from clay.

Suitable - Right for the purpose.

Purpose - The reason why something is made or done.

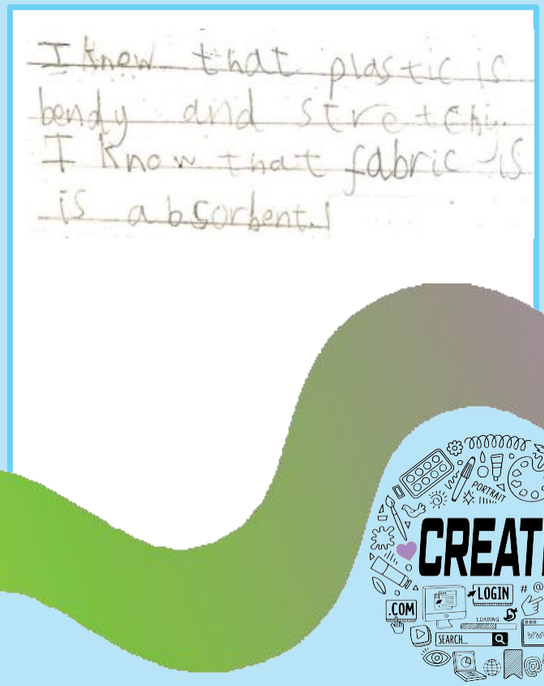
Disciplinary Knowledge

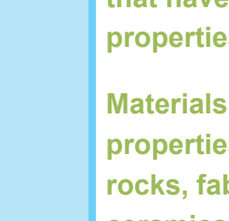
Ask simple questions and recognise that they can be answered in different ways (know what a scientific question is).

Sort and group, identifying my own criteria for sorting

Observe closely using the appropriate sense and label diagrams.

Gather and record data in a simple table to help me answer questions





SCIENTIST STUDY

Standing on the Shoulders of Giants - CHARLES MACKINTOSH

THE JOURNEY OF YOUR RAINCOAT

Biology

How do Plants grow?

Substantive Knowledge

A seed contains a miniature plant that can develop into a fully grown plant.

A bulb has underground vertical shoots which already has modified leaves

Seeds and bulbs need water to grow but most do not need light (germination)

Seeds and bulbs have food stores inside them to help the plant start to grow.

To survive plants, need to get water, light, and avoid being eaten

A seed produces roots to allow water to get into the plant.

A seed produces shoots to produce leaves to collect the sunlight.

A basic plant structure can include leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem.

VOCABULARY

Seed - The small, hard part of a plant from which a new plant grows.

Bulb - A root shaped like an onion that grows into a flower or plant.

Leaves- Usually, flat green parts that grow from a plant stem.

Germination - The growth of a seed into a young plant or seedling.

Roots - The part of a plant that grows downward, holds the plant in place and takes in water from the soil.

Shoots - A plant that comes up above the ground when it is just beginning to grow

Disciplinary Knowledge

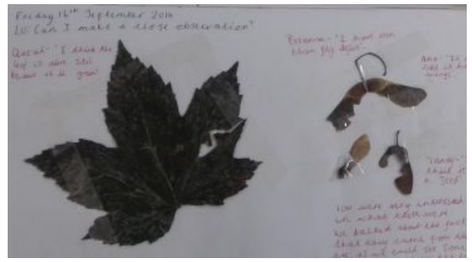
Observe changes over time

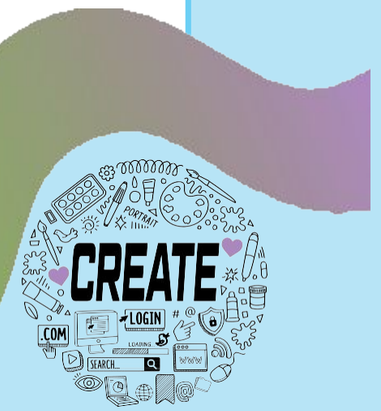
Measure carefully and record data

Record my observations carefully and accurately using photographs, videos, drawings, *labelled diagrams* or in writing.

Identify, classify and compare plants

Make conclusions.





MAKE LINKS

HORTICULTURE CURRICULUM

Botanical drawing

Longitudinal Study

Biology

How do animals survive?

Substantive Knowledge

Animals are groups of organisms that need to consume food to survive.

Food provides energy and the building blocks of growth.

There are many different groups of animals including fish, amphibians, reptiles, birds and mammals. They have different structures, and they eat different types of foods.

The structure of a variety of common animals varies Mammals have hair/fur and give birth to live young, fish can breathe underwater using gills, birds have feathers, beaks and wings. Females lay eggs. Most birds can fly, reptiles are air breathing and have scaly skin and lays eggs, and amphibians have smooth slimy skin and live on land and in water.

Some eat other animals (carnivores), and others only eat vegetables (herbivores), and some like to eat both plants and meat (omnivores)

Common animals that are carnivores include lions, cats, sharks and snakes

Common animals that are herbivores include cows, horses, sheep, elephants and deer

Common animals that are omnivores include humans, bears, monkeys and seagulls

Animals must move to get their food

They will move in different ways to get their food

Animals that eat other animals are called predators

Animals that are eaten by other animals are called prey

Animals feeding relationships can be illustrated in a food chain

The five sense organs are the eyes (for seeing), nose (for smelling), ears (for hearing), tongue (for tasting), and skin (for touching or feeling).

Animals have senses to help them survive

Animals have developed a range of ways to find prey or avoid being eaten

The five sense organs are the eyes (for seeing), nose (for smelling), ears (for hearing), tongue (for tasting), and skin (for touching or feeling).

Animals have senses to help them survive

Animals have developed a range of ways to find prey or avoid being eaten

VOCABULARY

Organisms - A living thing.
Growth - An increase in size.
Energy - ability to do work or to make something move or change in some way.
Fish - An animal that can breathe underwater using gills and has a tail and fins.
Amphibians - Animals that have smooth slimy skin and live on land and in water.
Mammals - Animals that have hair or fur, give birth to live young and feed their young with milk.
Birds - An animal with feathers,beaks and wings. Females lay eggs. Most birds can fly.
Reptiles- An animal that is air breathing, has scaly skin and lays eggs.

Herbivore - An animal that only eats plants.
Omnivore - An animal that eats both plants and meat.
Carnivore - An animal that eats meat.
Predator - An animal that hunts, kills and eats other animals.
Prey- An animal that is hunted and killed by another for food.
Food chain - Describes the order in which living things depend on each other for food.
Senses - The ability to see, hear, smell, touch and taste.

Disciplinary Knowledge

Use simple secondary sources to research animals
Use simple keys to identify and sort
Identify patterns and relationships
Sort data into a table and graph
Investigate and consider variables

HONESTY
ENTHUSIASM
AMBITION
RESPECT
TOGETHERNESS

Biology

Can all animals and plants live everywhere?

Substantive Knowledge

There is variation in all living things

Animals and plants live in a variety of different places called habitats

Animals and plants have adapted to survive in different habitats

Wild plants such as ferns, daisies, nettles and dandelions grow randomly.

Garden plants such as roses, tulips, poppies, daffodils are planted intentionally

Plants have specific adaptations for survival.

To survive they need to get water, light, and avoid being eaten

VOCABULARY

Variation - The differences between living things or habitats.

Habitat - The place in which an animal or plant lives.

Adapted - Changes to an animal or plant to help it survive.

Survive - To live in spite of danger or difficulty.

Avoid - Keep away from something or try to stop something happening.

Wild plant - Plants that live or grow randomly and are not looked after by people.

Garden plant - Plants that are planted on purpose.

Disciplinary Knowledge

Observing closely, using simple equipment
Gathering and recording data to help in answering questions
Asking simple questions and recognising that they can be answered in different ways

HONESTY ENTHUSIASM AMBITION RESPECT TOGETHERNESS