



SCIENCE

Year 1

Year 1 – Animals, Including Humans (Unit 1)

What I know and can explain

- I can name different parts of the human body
- I know and can locate parts of the human body on myself / on a diagram
- I can draw and label the basic parts of the human body.
- I know which part of the body is associated with each of the 5 senses
- I can compare similarities and differences of different humans based on their appearance

Useful Vocabulary

Head

Eyes

Mouth

Ears

Nose

Arm

Hand

Knee

Leg

Toes

Senses

Taste

Smell

Hear

Touch

Sight

Year 1 – Animals, Including Humans (Unit 2)

What I know and can explain

- I know that animals can be classified into 5 groups.
- I can Identify the names of common animals
- I can Identify the similarities and differences between some common animals by looking at their body parts.
- I can Identify and name a variety of common animals that are carnivores, omnivores and herbivores

Useful Vocabulary

Fish
Amphibians
Reptiles
Birds
Mammals
Carnivore
Omnivore
Herbivore
Difference
Similarities
Meat
Plants
Nutrition

Year 1 – Plants

What I know and can explain

- I am able to identify what a plant is
- I can identify the characteristics of a flowering plant
- I can select plants from a selection of pictures or real objects
- I am able to label the basic parts of a plant
- I know that plants grow from seeds or bulbs
- I am able to name a variety of plants that grow wildly
- I can name a variety of common plants that we can eat
- I can name common garden plants
- I can identify and name deciduous and evergreen trees
- I can compare plants by looking at their features
- I am able to sort plants based on their features

Useful Vocabulary

Plant
Tree
Deciduous
Evergreen
Flower
Roots
Stem
Leaf
Seed
Vegetable
Sort
Group

Year 1 – Materials

What I know and can explain

- I can identify different materials and some objects which are made from that material
- I can describe the simple physical properties of different materials
- I can name objects and name the material from which they are made
- I can sort materials based on their properties
- I can investigate which material would be best to make an umbrella
- I can investigate which materials are waterproof, light and strong
- I can name everyday materials including wood, plastic, glass, metal, water and rock.

Useful Vocabulary

Material

Wood

Metal

Plastic

Glass

Rubber

Rock

Fabric

Paper

Brick

Hard

Soft

Rough

Smooth

Fragile

Strong

Heavy

Light

Year 1 – Seasonal Changes

What I know and can explain

- Name the 4 seasons
- I can observe changes across the four seasons
- I can observe and describe the signs of the seasons
- I can identify and describe natural and human events that happen in each season
- I can identify, sort and group signs of each season
- I can observe and record signs of each season
- I can name common types of weather for each season
- I can identify suitable clothing and accessories for each season
- I can observe and describe how day length changes across the seasons

Useful Vocabulary

Spring
Autumn
Summer
Winter
Season
Growth
Sun
Warm
Cold
Shorter
Longer
Sunlight
Burn



SCIENCE

Year 2

Year 2 – Animals Including Humans

What I know and can explain

- Humans and other animals need food, water and air to survive
- I can explain the diet of herbivores, carnivores and omnivores
- I can identify the offspring of key animals
- I know that animals, including humans have offspring which grow into adults
- I know that the mother provides nutrients
- I can explain what happens to our bodies when humans exercise
- I can explain why it is important to exercise
- I know it is important to eat a healthy balanced diet and can describe the 5 main food groups
- I can explain why it is important to have good hygiene
- I can explain how to keep myself clean

Useful Vocabulary

Human
Herbivores
Carnivores
Omnivores
Survive
Diet
Water
Food
Air
Same
Different
Offspring
Grow
Reproduce
Life-cycle
Exercise
Hygiene

Year 2 – Living Things and Their Habitats

What I know and can explain

- I can explain the difference between things that are living, dead and never been alive
- I know that living things live in habitats
- I can name different habitats and the plants and animals that live there
- I know that habitats provide living things with what they need to survive
- I know that a microhabitat is a small habitat
- I can find plants and animals in microhabitats
- I can use a simple food chain to show how animals get their food

Useful Vocabulary

Living
Alive
Dead
Movement
Growth
Respiration
Excretion
Nutrition
Habitat
Live
Microhabitat
Conditions
Woodlice
Omnivore
Herbivore
Carnivore

Year 2 - Plants

What I know and can explain

- Fruits, vegetables and herbs are plants which we can eat
- Fruits grow on trees, bushes or plants
- Vegetables grow on plants or underground
- Seeds grow into new plants
- Some seeds grow inside fruit
- I can observe and compare different seeds
- Plants needs water, sunlight and warmth to grow
- A life cycle shows the different stages of life
- A sunflower plant starts life as a seed
- A sunflower seed grows into a seedling
- The plant grows a flower
- The flower grows seeds

Useful Vocabulary

Plant
Living
Stem
Leaf
Flower
Roots
Seed
Bulb
Grow
Sort
Group
Fruit
Vegetable
Consume
Edible

Year 2 – Materials

What I know and can explain

- I can identify and compare different materials and describe how they can be used
- I can investigate observable qualities different materials (e.g. rough/smooth, hard/soft)
- I know that we can change the shape of some objects by squashing, bending, twisting and stretching

Useful Vocabulary

Material

Wood

Metal

Plastic

Glass

Rock

Fabric

Pape

Brick

Hard

Soft

Rough

Bumpy

Smooth

Fragile

Strong

Stretch

Squash

Bend

Twist



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Year 3

Year 3 – Rocks, Soils and Fossils

What I know and can explain

- I can describe what a rock is
- I can compare and group rocks based on what I can see and feel (hardness, colour, texture, appearance)
- I know that soils are made from rocks and organic matter
- I can explain how fossils are formed
- I know that fossils are preserved remains or traces of dead organisms
- I know that fossils are usually found in layers of rock

Useful Vocabulary

Igneous

Sedimentary

Metamorphic

Permeable

Impermeable

Durable

Granite

Chalk

Limestone

Marble

Pumice

Man-made

Naturally occurring

Soil

Fossilisation

Organisms

Minerals

Year 3 – Forces and Magnets

What I know and can explain

- I know that a force is a push or a pull that can make something move
- I know that forces can make objects start or stop moving
- I can compare how things move on different surfaces
- I know that magnets can attract or repel each other
- I know that magnets attract some materials but not all
- I know that all magnets have two poles: a north and a south pole

Useful Vocabulary

Force

Push

Pull

Magnet

North pole

South pole

Attract

Repel

Friction

Smooth

Rough

Surface

Steel

Cobalt

Metal

Year 3 - Animal Including Humans: Skeletons and Nutrition

What I know and can explain

- I know that humans and some other animals have skeletons and muscles for support, protection and movement
- I know that animals that have a backbone are called vertebrates
- I know that animals without a backbone are called invertebrates
- I know that some invertebrates have an exoskeleton to protect their body
- I know that without our skeleton, we would not be able to stand or move.
- I know that the bones in the central part of your body are; the skull, the ribs, your spine and pelvis.
- I know that your skeleton helps protect important organs in your body such as your lungs, your heart and your brain.
- I know that your ribs protect your heart and lungs.
- I know that your skull protects your brain.
- I know that bones cannot move on their own. They need muscles to move.
- I know that your muscles contract and relax to pull your bones into different positions
- I know that we should eat a balanced diet in order to grow and stay healthy.
- I know that foods belong in 5 main groups: carbohydrates, protein, fruit and vegetables, dairy, fats
- I know that we need to drink water each day to stay healthy

Useful Vocabulary

Carbohydrates

Protein

Fruit

Vegetables

Fats

Balanced diet

Bones

Carnivore

Herbivore

Omnivore

Vertebrate

Invertebrate

Exoskeleton

Skull

Ribs

Spine

Muscles

Year 3 – Plants

What I know and can explain

- I know the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow)
- I know the flower is brightly coloured to attract birds and insects.
- I know the stem holds the plant up.
- I know the root absorbs water and nutrients from the soil and anchor the plant to the soil.
- I know the leaf uses sunlight so the plant can make its own food.
- I know the stem helps transport water and nutrients from the roots to the rest of the plant.
- I know the parts of a flower and their function (Petal, anther, filament, stigma, style, ovary)
- I know pollination is when pollen from the anther is transferred to the stigma
- I know pollination can happen when wind carries pollen from one plant to another.
- I know some insects are pollinators
- I know after pollination, seeds are formed
- I know that seed can be dispersed in a variety of ways e.g. via wind, water, animals and explosion
- Seeds can grow into new plants when they have the right conditions.

Useful Vocabulary

Plant
Living
Seed
Water
Sunlight
Warmth
Nutrients
Air
Flower
Roots
Stem
Leaf
Transport
Flower
Petal
Pollen
Pollination
Pollinator
Dispersed
Explosion

Year 3 – Light

What I know and can explain

- I can explain that we are able to see using our sense of sight.
- I can explain that we need light in order to see.
- I can explain that light travels in straight lines.
- I can explain that darkness is the absence of light and that we cannot see in darkness.
- I can give examples of light sources.
- I can explain that we can see objects because light is reflected from them into our eyes.
- I can explain that some materials reflect light better than others.
- I can explain that light from the Sun can be dangerous for our eyes and skin.
- I can explain that opaque objects block light.
- I can explain that transparent objects allow light to pass through and usually do not make strong shadows.
- I can explain that translucent objects allow some light to pass through, producing partial or blurred shadows.
- I can explain that shadows can change in size and shape depending on the distance of the light source.

Useful Vocabulary

Light
Light source
Opaque
Translucent
Transparent
Emit
Shadows
Ultra violet (UV)
Reflection
Reflects
Luminous
Man-made
Natural
Absence
Reflective
Reflect
Surface
Travel
Straight lines



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Year 4

Year 4 – Electricity

What I know and can explain

- I can identify common appliances that run on electricity
- I know that mains electricity is dangerous and must be used safely, and that batteries are safer for simple circuits
- I know that electrical energy can create heat, light, sound and movement
- I construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- I understand that electricity needs a closed loop to complete a circuit and power an appliance
- I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- I can recognise some common conductors and insulators, and associate metals with being good conductors.
- I can introduce a switch to my circuit and understand that a break in the circuit will stop the flow of electricity.
- I can explain which materials are good conductors of electricity, and which are not.

Useful Vocabulary

Mains

Battery

Solar

Appliances

Electricity

Electrical circuit

Cell

Bulb

Buzzer

Crocodile clip

Danger

Electricity

Switch

Battery

Appliance

Wire

Year 4 – Animals Including Humans

What I know and can explain

- I can name the different types of teeth found in humans (*canines, molars, premolars, incisors*)
- I know why our teeth are different shapes and understand that they have different functions
- I can use my knowledge of an animal's diet to identify which teeth belong to which animal
- I can compare the teeth of a herbivore, omnivore and a carnivore and consider why they are different
- Know the basic parts of the digestive system: mouth, teeth, saliva, oesophagus (gullet), stomach, small intestine, large intestine, rectum, anus
- I understand the simple functions of the basic parts of the digestive system
- I can interpret a variety of food chains.
- I understand what producers, predators and prey are
- I can identify the producer, prey and predators in a simple food chain.
- I know the impact that a break in the food chain may have

Useful Vocabulary

Incisor
Canine
premolar
Molar
Omnivore
Carnivore
Herbivore
Tooth decay
Enamel
Acid
digestive system
Mouth
Teeth
Saliva
Oesophagu
Stomach
Small intestine
Large intestine
Rectum
Producer
Predator
Prey

Year 4 - Living Things and Their Habitat

What I know and can explain

- I can name the seven life processes: Movement, Reproduction, Sensitivity, Nutrition, Excretion, Respiration, Growth (MRS NERG)
- I can explain each process in both plants and animals and understand that something that does not fulfil a criteria is not alive
- I can decide if an object is living or non-living using my knowledge of the seven life processes
- I can explore and name a variety of living things in my local environment
- I can name some local habitats and name a variety of living things that I would expect to see living there
- I can use a classification key to identify animals
- I can create a classification key
- I can identify objects/living things through the simple use of yes/no questions
- I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment
- *I can explain that environments can change and that this can be dangerous for living things*
- *I can give examples of human activities that cause environmental change and describe how these can affect living things (e.g. Deforestation, pollution, creating energy)*

Useful Vocabulary

Movement
Respiration
Sensitivity
Nutrition
Excretion
Reproduction
Growth
Sort
Group
Criteria
Characteristics
Habitat
Vertebrate
Invertebrate
Skeleton
Environment

Year 4 – Sound

What I know and can explain

- I know that sound is caused by vibrations travelling through a medium (air, water, or solids)
- I know that vibrations from sounds travel through a medium to the ear
- I know that sounds get fainter as the distance from the sound source increases
- I can explain that volume is linked to the strength of vibrations
- I can explain that pitch is linked to how fast vibrations move
- I can investigate and find patterns between the pitch of a sound and the features of the object that produced it
- I can investigate and find patterns between the volume of a sound and the strength of vibrations
- I can make predictions about pitch and volume based on changes to vibrations

Useful Vocabulary

Sound
Vibrations
Listen
Pitch
Volume
Decibel
Hear
Loud
Quiet
Silent
Source
Energy
Vibration
High
Low
Insulator



SCIENCE

Year 5

Year 5 – Properties and changes of materials: how do materials change?

What I know and can explain

- I can classify materials into solids, liquids, and gases
- I can describe the properties of different materials using scientific vocabulary.
- I can explain what a thermal insulator is.
- I can describe what happens when a magnet attracts another material.
- I can describe what happens when a magnet repels another material.
- I know that the Earth has a magnetic field with a magnetic north and south pole.
- I know that when materials dissolve in a liquid, they form a solution.
- I can identify the best method to separate a soluble solid from a liquid.
- I can separate larger solids from smaller solids using sieving or filtering.
- I know that a reversible change is when a material can be returned to its original form.
- I know that an irreversible change is when a material cannot be returned to its original form.
- I can plan and carry out simple tests to compare the properties of materials.
- I can observe and describe how materials change when heated, cooled, or mixed.

Useful Vocabulary

State of matter

Properties

Particles

Condensation

Melting

Freezing

Magnetic

Conductive

Thermal insulator

Thermometer

Degrees Celsius

Soluble

Insoluble

Dissolve

Saturated

Solution

Evaporation

Year 5 – Earth and Space

What I know and can explain

- I know the Sun is a star at the centre of the solar system
- I know that the Earth, Moon, and Sun are approximately spherical in shape
- I know that there are 8 planets in the solar system, each of which orbits the Sun
- I know that the Earth orbits the Sun, taking 365 ¼ days to complete one orbit
- I know that the Moon is a natural satellite of the Earth
- I can describe how the Moon appears to change shape over about 29 days
- I know that “waxing” means we see more of the Moon, and “waning” means we see less
- I know that the Moon’s gravity pulls on the oceans, causing tides
- I can explain that day and night happen because the Earth rotates
- I can explain that the Sun appears to move across the sky because of the Earth’s rotation
- I can explain that different sides of the Earth face the Sun as it rotates
- I know that the northern and southern hemispheres have opposite seasons
- I know that at the equator, seasons change very little, and the further from the equator, the bigger the seasonal difference.
- I can explain that the Earth is tilted on its axis, so at different times of the year, the northern hemisphere leans towards the Sun (summer) or away from the Sun (winter).

Useful Vocabulary

Spherical

Astronomical

Axis

Rotation

Leap year

Orbit

Satellite

Mars

Venus

Jupiter

Neptune

Earth

Mercury

Saturn

Uranus

Northern Hemisphere

Southern Hemisphere

Lunar

Crescent

Waning

Waxing

Year 5 - Forces

What I know and can explain

- I know a force is a push or a pull
- I can identify whether a force is a contact force (e.g., friction, water resistance) or a non-contact force (e.g., gravity)
- I know that gravity is a non-contact force that pulls objects towards the Earth
- I can explain that all objects fall at the same rate under gravity, but very light objects, such as feathers, may be affected by air resistance
- I know that friction is a force created when two surfaces rub together
- I can explain that lubricants, such as oil, reduce friction
- I know that air resistance is a type of friction between an object and the air
- I know that water resistance is a type of friction in water
- I can explain that air resistance and water resistance slow moving objects down
- I can explain how changing the amount of force applied affects how objects move
- I know that a mechanism is a device that allows a smaller force to have a greater effect
- I can explain how pulleys work: a pulley can have one or more wheels, and the more wheels a pulley has, the easier it is to lift a load
- I know that gears are wheels with teeth that slot together so that when one gear turns, the other turns too
- I can explain that levers help you lift a heavy load with a smaller amount of force

Useful Vocabulary

mass
gravity
gravitational pull
weight
Isaac Newton
friction
lubricants
Newton metre
Newtons
resistance
air resistance
drag
streamlined
water resistance
up thrust
float
buoyancy
mechanism
pulley
pivot.

Year 5 – Living Things and their Habitats

What I know and can explain

- There are seven things that all living things do, we call these life processes.
- I can give an example of how a plant or animal uses each life process.
- Animals are grouped in to 5 different categories: **mammals, amphibians, birds, fish and reptiles.**
- Reproduction is the process in which living things create offspring.
- Mammal offspring grow inside a womb.
- Usually adult reptiles do not look after their babies.
- Fish and most amphibians lay eggs in water.
- Most plants have male and female parts.
- The flower's main job is to create new seeds to grow new plants.
- I can name human life stages
- I can explain differences and similarities between different life cycles e.g. Butterfly and frog
- I can explain the Life cycle of a strawberry plant
- I know that seeds can be dispersed in a number of ways e.g. wind, water, explosion, animals
- Pollination is when pollen from the anther is transferred to the stigma of another flower of the same species

Useful Vocabulary

fertilisation
pollination
pollen
Stamen
Anther
Filament
Stigma
Style
Ovary
Seed dispersal
Reproduction
Movement
Respiration
Sensitivity growth
Excretion
Nutrition
Life process
Offspring
Gestation
Foetus

Year 5 – Animals Including Humans

What I know and can explain

- I know the different stages of the life cycle of a human being
- In order to create a baby, two parents are needed - A male sex cell (sperm) fertilises the female sex cell (egg).
- Only women have a womb where the fertilised egg will develop and grow.
- I know at least some things that toddlers can do which babies cannot do.
- To know that in Year 5, we are currently in the child stage
- Puberty is the process of a child's body maturing into an adult body.
- When you are a teenager, you go through puberty. I can name some changes we go through as teenagers
- I understand that when we get older, our bodies do not work as well as they used to and can name some examples of this

Useful Vocabulary

baby
toddler
child
teenager
adult
senior
change
develop
learn
womb
foetus
gestation period
sperm and egg
fertilisation
puberty
moods
spots
sweat.



SCIENCE

Year 6

Year 6 – Evolution and Inheritance

What I know and can explain

- I know that animals produce off spring which are like themselves. Some traits are inherited and some are unique to the offspring.
- I know that variation describes the differences between a parent and their offspring.
- I can identify the advantageous adaptations which make it possible for an animal or plant to survive in its environment.
- I know that advantageous adaptations are more likely to be inherited
- I can explain evolution as the process by which living things change over many generations as a result of variation and natural selection.
- I know that evolution is how all life on Earth adapts and changes to suit its environment over time.
- I know that animals which are best adapted to their environment are more likely to survive and those who are not are most likely to become extinct.
- I know that Darwin's theory of evolution changed the way in which Victorian society viewed life.
- I know that fossils are the preserved remains or traces of a dead organism.
- I know that fossils provide information about living things that lived on Earth millions of years ago.
- I can explain that fossils are formed when remains of living things are preserved in rock.

Useful Vocabulary

Offspring

Inheritance

Reproduce

Characteristics

Variation

Cross-breed

Trait

Adaptation

Environment

Inherited

Advantageous

Disadvantageous

Year 6 – Living things and their habitats

What I know and can explain

- Understand how living things are classified into groups using observable characteristics.
- Animals can be sorted into these groups according to their features
- I know that animals can be classified into vertebrates and invertebrates.
Know that plants can be classified into groups according to different criteria e.g. flowering / non-flowering
- I know that microorganisms are living things.
- I can use classification keys to identify plants and animals
- I can classify living things into major groups, including animals, plants, and micro-organisms.
- I know that micro-organisms are living things that are too small to be seen with the naked eye.
- I can give examples of micro-organisms (for example, bacteria and fungi).
- I know that yeast respires and that it is a living thing
- I know that some micro-organisms are useful (for example, yeast in baking or bacteria in digestion).
- I know that some micro-organisms can be harmful and cause illness.

Useful Vocabulary

Classification key

Species

Characteristics

Features

Branching

Seed dispersal

Flowering / Non-flowering

Vascular / Non-vascular

Microorganisms

Microbe

Microscope

Inflate

Respiration

Bacteria

Fungi

Yeast

Mould

Year 6 - Electricity

What I know and can explain

- I can explain that a circuit must be complete for a current to flow and for components to work.
- I can use recognised symbols to draw and interpret simple electrical circuits.
- I can explain how the number of components in a circuit affects the brightness of a bulb.
- I can explain the effect of changing the resistance in a circuit, for example by adding buzzers or motors.
- I can explain how the number and voltage of cells in a circuit affects the brightness of a bulb.

Useful Vocabulary

Volt
Voltage
Circuit
Insulator
Current
Battery
Bulb
Motor
Conductor
Component
Series
Circuit symbol

Year 6 – Light

What I know and can explain

- I can explain that light travels from a light source in a straight line.
- I can explain that opaque objects block all light.
- I can explain that transparent objects allow light to pass through.
- I can explain that translucent objects allow some light through but scatter it.
- I can explain how the shape of a shadow is the same as the object that blocks the light.
- I can explain how the length of a shadow changes when the angle of the light source changes.
- I can explain how the size of a shadow changes when the distance between the object and the light source changes.
- I can name the main parts of the eye and describe what each part does.
- I can explain that all objects reflect light.
- I can complete a diagram to show how light travels and allows us to see an object.
- I can explain that smooth, shiny surfaces reflect more light.
- I can describe what happens when light is refracted.
- I can give examples of objects which refract light in a useful way.
- I can explain that light can be split into the seven colours of the spectrum using a prism.

Useful Vocabulary

Block
Opaque
Light source
Absorb
Natural
Artificial
Translucent
Transparent
Retina
Optic nerve
Eyelid
Eyelash
Pupil
Iris
Sclera
Cornea
Lens
Focus point

Year 6 – Animals including humans

What I know and can explain

- I can name the key parts of the circulatory system.
- I can explain that the heart is a muscle that pumps blood around the body.
- I can explain where the heart is located in the body.
- I can explain what a pulse is and measure it in beats per minute.
- I can explain how different types of exercise affect my pulse and record this in a graph.
- I can identify the main food groups and explain why we need a balanced diet.
- I can describe the main components of blood and their basic functions.
- I can explain some ways our actions can be harmful to our bodies, for example smoking or unhealthy eating.

Useful Vocabulary

Heart
Veins
Arteries
Blood
Lungs
Oxygen
Oxygenated
Deoxygenated
Aorta
Ventricle
Exercise
Pulse
Medicine
Smoking
Alcohol
Excessive