Concept: Chemistry – Y3/4 Topic: Rocks and Soil

Previously, I have learnt (in chemistry) …

To use all my senses to investigate objects in nature and my environment.

To comment on unknown objects, based on my own exploration.

Rocks
Pebbles
Stone
Strong
Hard

In Y3/4, I am learning…

To compare and group together different kinds of rocks on the basis of their appearance and physical properties (e.g. colour, texture).

To understand how fossils are formed when things that have lived are trapped within rock.

To describe how fossils are formed when they have been trapped in rocks and explain the process (fossilisation).

To recognise that soils are made from rocks and organic matter.

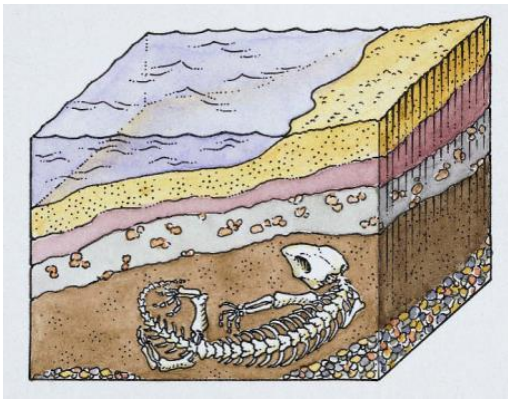
Sedimentary
Igneous
Metamorphic
Rock
Crust

Fossil
Layers
Erosion
Mantel

In the future, I will learn …

The properties of ceramics, polymers and composites

The different properties rock possess and the uses of these.



Tectonic Plates
Molten
Minerals
Weathering

Properties
Composition
Formation

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Concept: Chemistry (Materials and State of Matter) – Y3/4 Topic: Materials

Previously, I have learnt …

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 explore how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

To describe the simple properties of a variety of everyday materials

To distinguish between an object and the material from which it is made

Shape Squashing Bending	Twisting Changes Similarity

Solid Liquid Gas State Melting	Boiling Evaporation Condensation Degrees Celsius

In Y3/4, I am learning…

To identify and group materials together, according to whether they are solids, liquids or gases.

To compare and group materials together, according to whether they are solids, liquids or gases.

To compare and group materials together, according to whether they are solids, liquids or gases, giving scientific reasons.

To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)

To identify the role of evaporation and condensation in the water cycle .

To find a relationship between the rate of evaporation and temperature.

To find a relationship between the rate of evaporation and temperature and suggest how the rate could be altered.

Soluble Soluble Insoluble Reversible	Irreversible Conduct Insulate particles

In the future, I will learn …

To compare and group together everyday materials on the basis of their properties (e.g. hardness, solubility, transparency, conductivity).

To suggest possible ways of testing using existing scientific knowledge the properties of everyday materials so that results are quantifiable and comparable

To define the following terms: solute, soluble, insoluble and solution.

That some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.

To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

How to demonstrate that dissolving, mixing and changes of state are reversible changes.

explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

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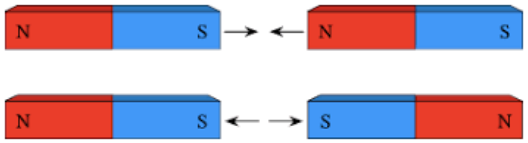
Concept: Physics (Forces and Magnets) – Y3/4 Topic: Forces

Previously, I have learnt …

That some objects float and sink.

To explore magnets and see that some objects are attracted to magnets..

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.



In Y3/4, I am learning…

To compare how things move on different surfaces.

To recognise that some forces need contact between two objects, but magnetic forces can act at a distance.

To observe how magnets attract or repel each other and attract some materials and not others.

To describe magnets as having two poles.

How to predict whether two magnets will attract or repel each other, depending on which poles are facing.

How to group everyday materials on the basis of whether they are attracted to a magnet.

How to compare and group everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.

How to make scientific predictions, using prior knowledge, about unfamiliar materials.

In the future, I will learn

To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.

To explain how air resistance, water resistance and friction acts on objects.

To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

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Wildlife documentary presenter

Wood Plastic Float Sink	Magnet Metal Glass Fabric

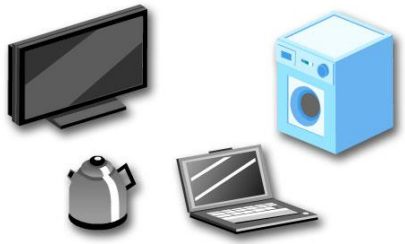
Force Surface Attract Repel	Poles Contact Magnetic field

Gravity Friction Newtons Air resistance	Water resistance Weight Mass Kilograms

Concept: Physics – Y3/4 Topic: Electricity

Previously, I have learnt …

That objects around me use electricity to work.



In Y3/4, I am learning…

- To identify common appliances that run on electricity (e.g. TV and oven).
- To name and identify the basic components of a circuit: wires, cells, bulbs, switches and buzzers.
- To construct a simple electrical circuit, including cells, wires, bulbs, switches and buzzers.
- To explain the role of different electrical components and what would happen if they were altered or not used.
- To 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.
- To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- To recognise recognise some common conductors (copper, aluminium, gold) and insulators (glass, air, plastic, rubber), and associate metals with being good conductors.
- To compare and group materials based on their ability to conduct and insulate electricity.

In the future, I will learn …

- To make observations about the brightness of a lamp or the volume of a buzzer where the number of cells or voltage varies.
- To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- To predict the outcome of tests involving the brightness of bulbs or the loudness of a buzzer where the number of cells or voltage varies.
- To explain and evaluate the impact that cell numbers or voltage has on the brightness of the bulb or loudness of a buzzer.
- To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
- To explain how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
- To use recognised symbols when representing a simple circuit in a diagram (cell, wire, bulb, buzzer, switch).

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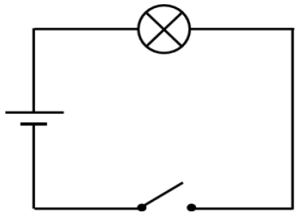
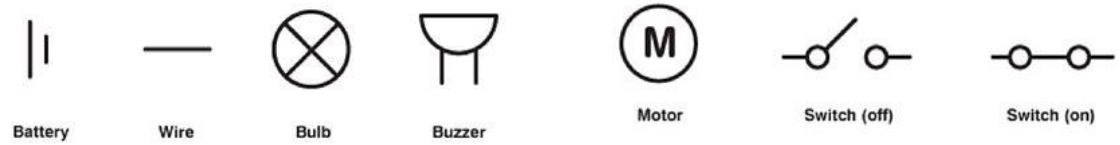




Electricity
Power

Energy
Electricity
Conductor

Circuit
Wire
Buzzer

Insulator
Switch
Cells
Fuse

Battery
Component
Motor
Voltage
Function

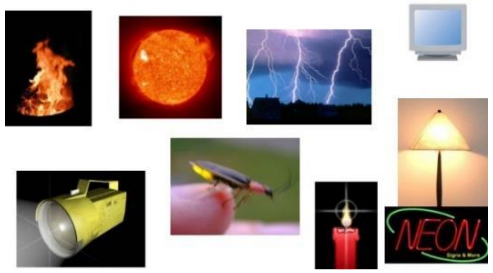
Symbol
Series
Parallel
Current

Concept: Physics – Y3/4 Topic: Light

Previously, I have learnt …

To recognise shadows around me.

That the sun gives off light.



In Y3/4, I am learning…

To recognise that we need light in order to see things and that dark is the absence of light.

That light is reflected from surfaces

To describe the process of reflection using scientific vocabulary.

To recognise that light from the sun can be dangerous and that there are ways to protect your eyes (e.g. sun-glasses, avoid looking at the sun, sun-cream)

To recognise that shadows are formed when the light (from a light source) is blocked by a solid (opaque) object.

To explore and find patterns in the way that the size of shadows can change. I also learnt how to predict and explain why these changes occur, using what I already know.

In the future, I will learn …

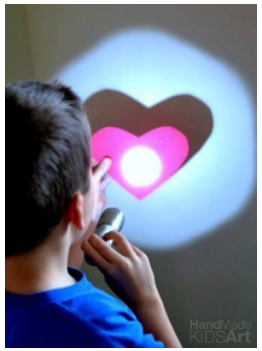
To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.

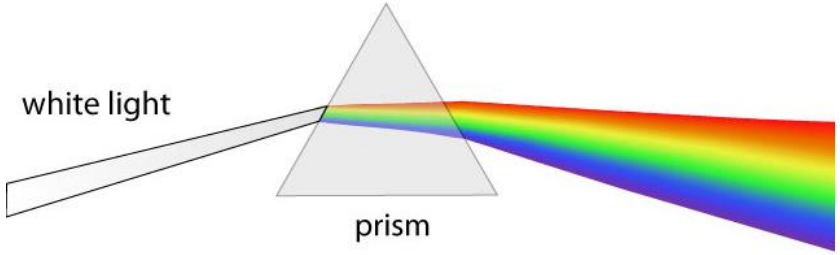
To explain that light comes from sources and that we need light to see things and that darkness is the absence of light.

To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.

To identify different parts of the eye and understand the role they play in helping us see.

To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.





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Sun
Light
Shadow
Darkness

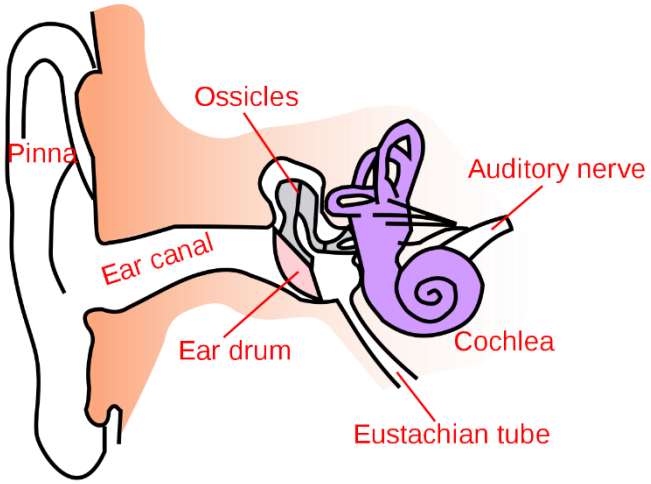
Light	Natural
Reflection	Source
Surface	Mirror
Man-made	Absorb

Light ray	Opaque
Wave	Transparent
Transmit	Transmission
Translucent	Optic Lens

Concept: Physics – Y3/4 Topic: Sound

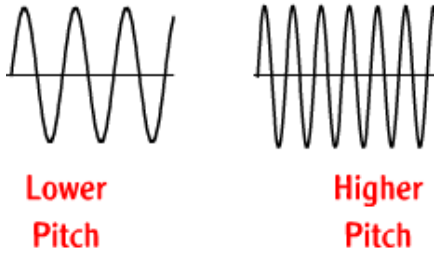
Previously, I have learnt (in different biological concepts) …

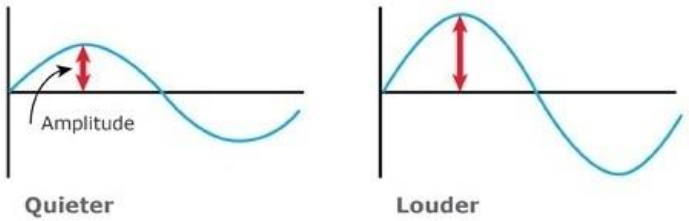
- To explore volume and pitch using musical instruments.
- To explore sounds within my environment
- To explore musical instruments



In Y3/4, I am learning…

- To identify how sounds are made and associate some with vibrations.
- To recognise that vibrations from sounds travel through a medium to the ear.
- To explore (and find patterns) between volume and strength of vibrations.
- To explore how different materials produce different pitch sounds..
- To find patterns (similarities and differences) between pitch and features of the object producing the sound.
- To recognise that sound gets fainter as the distance from the source increases.





In the future, I will learn …

- That the frequency of sound waves is measured in hertz (Hz)
- The auditory range of humans and animals.
- That sound produced by vibrations of objects, in loudspeakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal.

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Sound
Music
Instrument

→

Vibration
Medium
Volume
Amplitude

Pitch
Frequency
strength

→

Hertz
Frequency
Longitudinal
Range
Waves

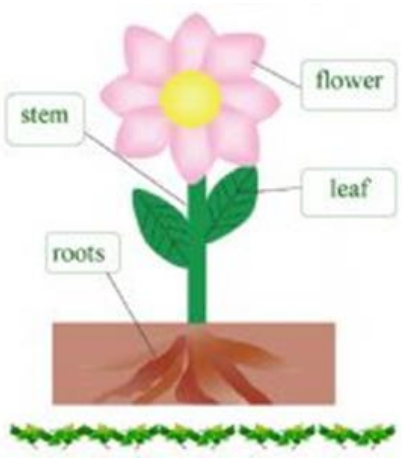
Concept: Biology (Plants) – Y3/4 Topic: Plants

Previously, I have learnt …

To identify and describe the basic structure of common flowering plants, including trees.

To observe and describe how seeds and bulbs grow into mature plants.

To describe how plants need water, light and a suitable temperature to grow and stay healthy.



In Y3/4, I am learning…

To identify the different parts of flowering plants: roots, stem/trunk, leaves and flowers

To describe the functions of the different parts of flowering plants: roots, stem/trunk, leaves and flowers.

To describe how some plants have adapted these different parts for their functioning (e.g., ap roots, bulbs, cactus)

To can explore what a plant needs for life and growth (e.g. air, light, water, nutrients from soil, and room to grow).

To explain how this varies from plant to plant.

To investigate the way in which water is transported within plants (transpiration).

To identify the part that flowers play in the life cycle of flowering plants (including pollination, seed formation and seed dispersal).

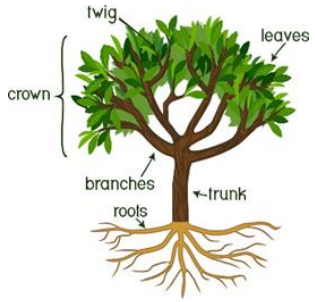
To explain the part that flowers play in the life cycle of flowering plants and understand the importance of this.

In the future, I will learn …

The reactants in, and products of, photosynthesis.

About the dependence of almost all life on Earth on the ability of photosynthetic organisms, such as plants and algae, to use sunlight in photosynthesis to build organic. molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere

The adaptations of leaves for photosynthesis.



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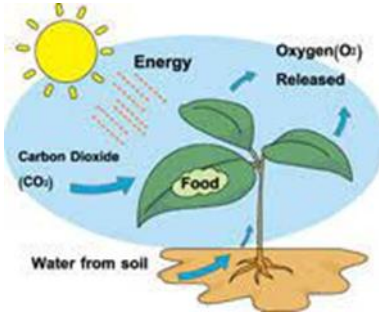
Bulbs
Mature
Temperature
Germinate
Sun

Growth
Reproduce
Insects
Pollen

Veins
Surface
Edge
Nutrients

Seedling
Pollination
Seed formation
transpiration

Photosynthesis
Molecules
Energy
Oxygen
Carbon dioxide



Concept: Biology (Living things and their habitats) – Y3/4 Topic: Life Cycles

Previously, I have learnt …

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

To identify and name a variety of common animals that are carnivores, herbivores and omnivores.

To explore and compare differences between things that are living, dead and things that have never been alive.

To describe how animals obtain their food using the idea of a simple food chain

In Y3/4, I am learning…

That living things can be grouped in a variety of ways.

To use classification keys to help group, identify and name a variety of living things in my local and wider environment (particularly tress and invertebrates.

To recognise that environments can change and that this can sometimes pose dangers to living things (i.e. cutting down trees).

In the future, I will learn …

To identify the different stages to life cycles in plants and animals (plant, mammal, amphibian, insect and bird).

To describe the differences (looking at similarities and differences) in the life cycles of a mammal, an amphibian, an insect and a bird.

To describe the differences (looking at similarities and differences) in the life cycles of a mammal, an amphibian, an insect and a bird.

To evaluate the differences between animal life cycles and give justified reasons for these differences.

To describe the life process of reproduction in some plants (asexual and sexual).

To describe the life process of reproduction in some animals (humans, mammals and amphibians).

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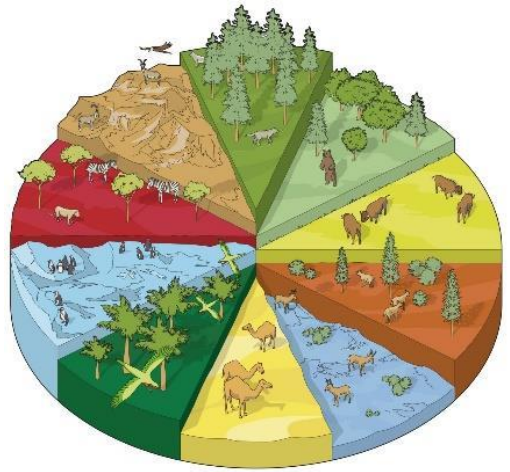
Animal
Human
Live
Habitat
Diet

Environment
Danger
Adaptation

Threat
Classification
Defences

Differences
Life cycle
Mammal
Amphibian

Insect
Bird
Reproduction
Stigma



Concept: Biology (Animals including humans) – Y3/4 Topic: Digestive System

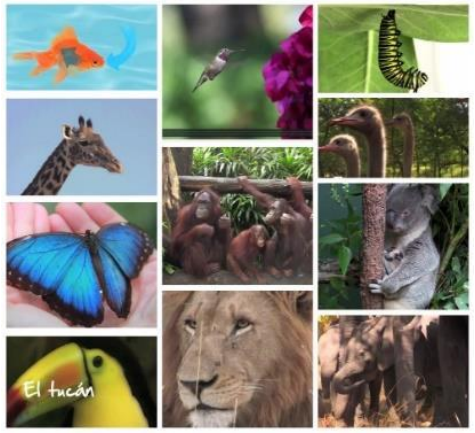
Previously, I have learnt …

To identify that animals, including humans, get nutrition from the foods they eat as they don't produce their own.

To identify different parts of the skeletal and muscular systems.

That humans and some animals have skeletons and muscles for support, protection and movement.

To evaluate the purpose of different features of the skeletal and muscular systems, explaining their importance.



Nutrition	Skeleton
Balanced diet	Contract
Bones	Relax
Muscles	Spine
Invertebrate	Vertebrate

In Y3/4, I am learning…

To identify the basic parts of the digestive system in humans.

To describe the functions of the basic parts of the digestive system.

To evaluate and understand how to keep the different basic parts of the digestive system healthy.

To identify the different types of teeth in humans and their simple functions

To construct and interpret a variety of food chains.

To identify (from food chains) the producers, prey and predators.

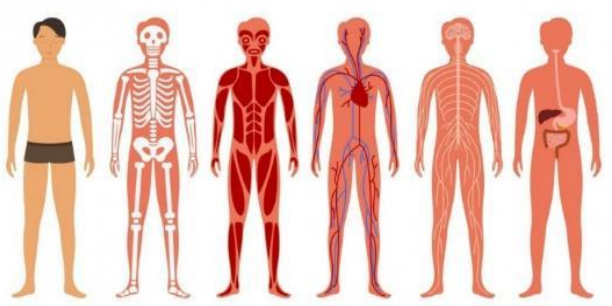
Stomach	Liver
Intestine	Producer
Organs	Predator
Digestion	Prey

In the future, I will learn …

To identify the changes as humans develop to old age

To describe the changes as humans develop to old age.

To explain why these biological changes occur (e.g. women's hips grow wider to prepare for pregnancy)



Puberty
Gestation
Pregnancy
Womb
Growth
Reproduce
Egg
Fertilisation

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Concept: Biology (Animals including humans) – Y3/4 Topic: Skeletal System

Previously, I have learnt …

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).

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

To describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene.

To identify which part of the body is associated with each sense.

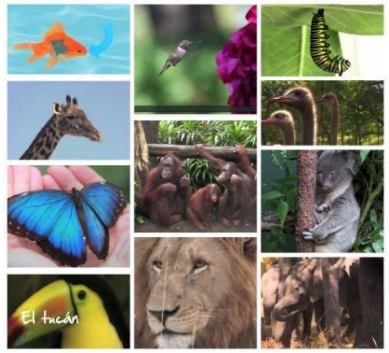
In Y3/4, I am learning…

To identify that animals, including humans, get nutrition from the foods they eat as they don't produce their own.

To identify different parts of the skeletal and muscular systems.

That humans and some animals have skeletons and muscles for support, protection and movement.

To evaluate the purpose of different features of the skeletal and muscular systems, explaining their importance.



In the future, I will learn …

To identify the basic parts of the digestive system in humans.

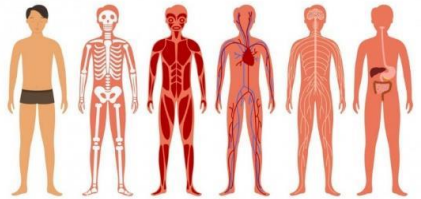
To describe the functions of the basic parts of the digestive system.

To evaluate and understand how to keep the different basic parts of the digestive system healthy.

To identify the different types of teeth in humans and their simple functions

To construct and interpret a variety of food chains.

To identify (from food chains) the producers, prey and predators.



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Adult	Water
Parent	Food
Young	Air
Offspring	Exercise
Hygiene	Environment

Nutrition	Skeleton
Balanced diet	Contract
Bones	Relax
Muscles	Spine
Invertebrate	Vertebrate

Stomach	Liver
Intestine	Producer
Organs	Predator
Digestion	Prey