Concept: Chemistry (Materials and State of Matter) – Y5/6 Topic: Materials

Previously, I have learnt …

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.

Solid Liquid Gas State Melting	Boiling Evaporation Condensation Degrees Celsius

In Y5/6, I am learning…

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.

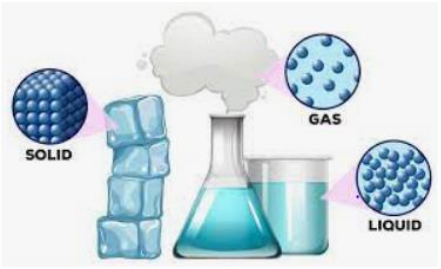
Soluble Soluble Insoluble Reversible	Irreversible Conduct Insulate particles

In the future, I will learn …

The properties of different states of matter, in terms of the particle model.

Simple techniques for separating materials.

The order or metals and carbon in the reactivity series.



Atoms
Elements
Equations
Unreactive
Neutralises

My Future

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Biochemist
Anthropologist
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Weatherman
Designer

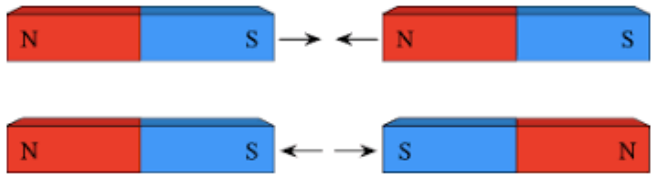
Concept: Physics (Forces and Magnets) – Y5/6 Topic: Forces

Previously, I have learnt …

- 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 Y5/6, I am learning…

- 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.



In the future, I will learn

- How forces are related to deforming objects.
- That forces are measured in newtons.
- About non-contact forces acting at a distance on Earth and in space.
- That forces between magnets and forces are due to static electricity.

My Future

- Scientist
- Doctor
- Dentist
- Nurse
- Archaeologist
- Engineer
- Teacher
- Astronaut
- Chemist
- Biochemist
- Anthropologist
- Wildlife documentary presenter

Force Surface Attract Repel	Poles Contact Magnetic field	→	Gravity Friction Newtons Air resistance	Water resistance Weight Mass Kilograms	→	Friction Air resistance Stretching Squashing

Concept: Physics (Seasonal change and Earth and Space) – Y5/6 Topic: Earth and Space

Previously, I have learnt …

- To observe changes across the four seasons.
- To observe and describe the weather associated with the four seasons.
- To observe and describe how day length varies within seasons.

In Y5/6, I am learning…

- To identify the different parts of the solar system.
- To describe the movement of the Earth and other planets relative to the sun in the solar system.
- To describe the movement of the moon in relation to the Earth.
- To describe the sun, Earth and moon as approximately spherical bodies.
- To use the idea that Earth's rotation and movement in relation to the sun to explain the 'apparent' movement of the sun across the sky.

In the future, I will learn …

- The equation: weight = mass x gravitational field strength (g) and that on Earth, g=10 N/kg
- That the sun is a star.
- The lifecycle of a star.
- To understand the seasons and the Earth's tilt and the day length at different times of the year, in different hemispheres.

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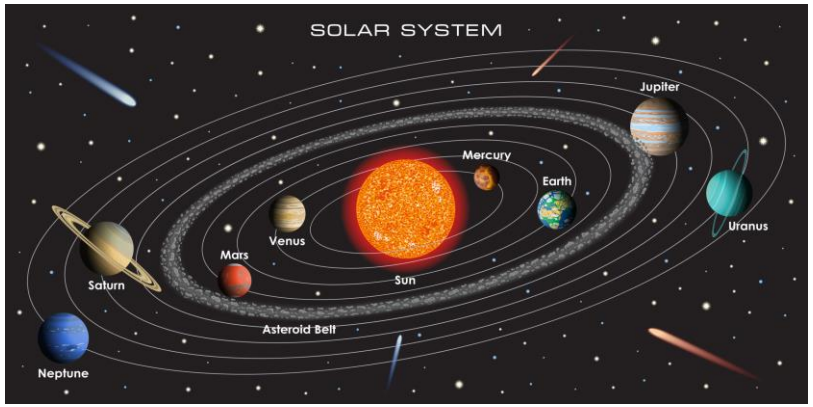
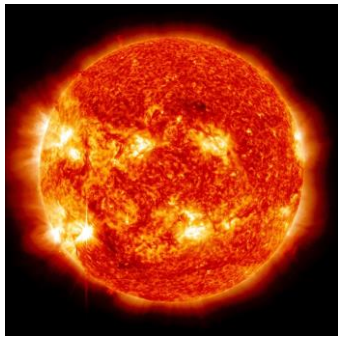
Winter	Day
Spring	Night
Summer	Light
Autumn	Dark

Earth	Orbit
Sun	Rotation
Moon	Axis
Planets	Gravity
Solar system	Spherical

Hemispheres
Tilt
Variation
Gravitational field
Red giant





Concept: Physics – Y5/6 Topic: Electricity

Previously, I have learnt …

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 Y5/6, I am learning…

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).

In the future, I will learn …

That electric current is measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge.

The differences in resistance between conducting and insulating components .

That separation of positive or negative charges when objects are rubbed together results in a transfer of electrons, forces between charged objects

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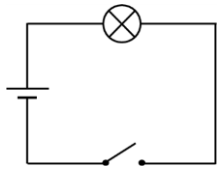
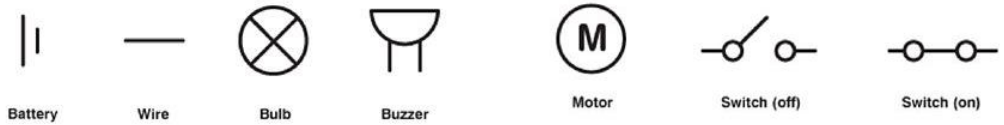




Energy Electricity Conductor Insulator Switch	Circuit Wire Buzzer Cells Fuse

→

Battery Component Motor Voltage Function	Symbol Series Parallel Current

→

Positive
Negative
Charges
Resistance
Electrons
Amperes

Concept: Physics – Y5/6 Topic: Light

Previously, I have learnt …

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 Y5/6, I am learning…

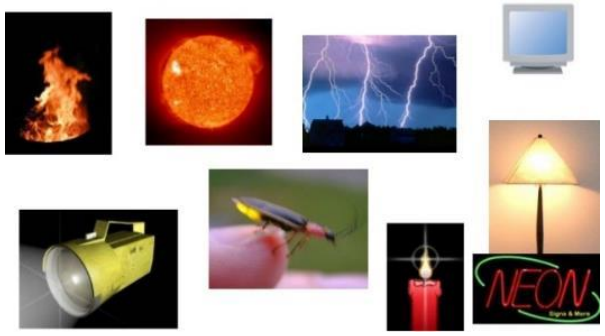
To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.

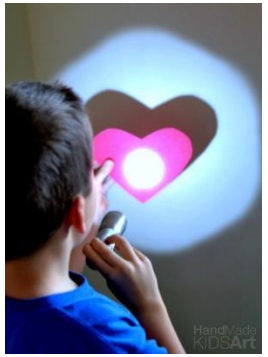
To explain that light comes from sources and that we need light to see things and that darkness is the absence of light.

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.



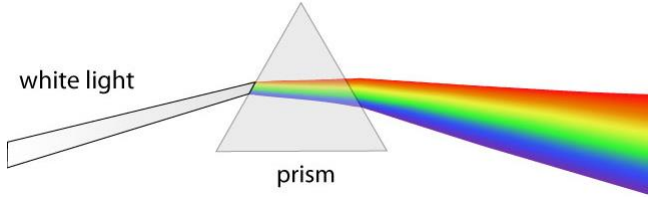


In the future, I will learn …

The similarities and differences between light waves and waves in matter

The transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface

The colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection



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Light	Natural
Reflection	Source
Surface	Mirror
Man-made	Absorb

Light ray	Opaque
Wave	Transparent
Transmit	Transmission
Translucent	Optic Lense

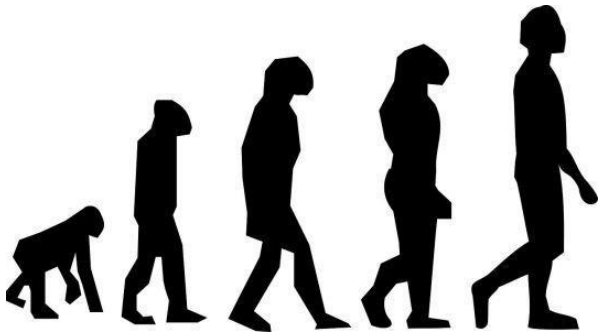
Speed
Transmission
Diffuse
Scatter
Spectrum
Vaccum

Concept: Biology – Y5/6 Topic: Evolution and Inheritance

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

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

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



In Y5/6, I am learning…

To recognise that living things have changed over time (e.g. peppered moth)

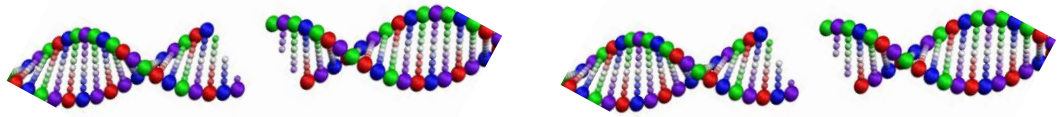
To understand that fossils provide information about living things from millions of years ago

To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents (inheritance and environmental influences).

To suggest how specific examples of animals and plant have adapted to suit their environment.

To identify how animals and plants are adapted to suit their environment in different ways and that this may lead to evolution.

To explain how and why animals and plants have adapted to suit their environment.



In the future, I will learn …

Heredity as the process by which genetic information is transmitted from one generation to the next.

That variation between individuals within a species being continuous or discontinuous, to include measurement and graphical representation of variation.

That variation between species and between individuals of the same species meaning some organisms compete more successfully, which can drive natural selection.

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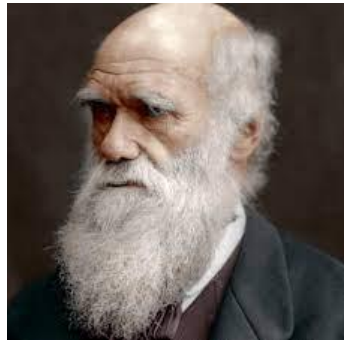

Classified
Adaptation
Environment
Change

→

Adaptation
Natural Selection
Inheritance
Offspring

Evolution
Reproduction
Environmental

→

Genes
Alleles
Variation
Clone
Variation

Concept: Biology (Living things and their habitats) – Y5/6 Topic: Life Cycles

Previously, I have learnt …

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 Y5/6, I am learning…

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).

In the future, I will learn …

To compare difference living things and classify them into groups using given similarities and characteristics.

To describe how living things are classified into broad groups according to observable characteristics (microorganisms, plants and animals).

To describe how living things are classified into broad groups according their similarities and differences (microorganisms, plants and animals).

To give reasons for classifying plants and animals based on specific characteristics.

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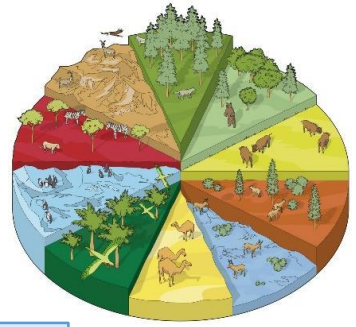

Environment Danger Adaptation	Threat Classification Defences

Differences Life cycle Mammal Amphibian	Insect Bird Reproduction Stigma

Classification
Characteristics
Micro-organisms
Reproduction
Fungi
Bacteria
Virus

Concept: Biology (Living things and their habitats) – Y5/6 Topic: Classification

Previously, I have learnt …

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.

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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).

In Y5/6, I am learning…

To compare difference living things and classify them into groups using given similarities and characteristics.

To describe how living things are classified into broad groups according to observable characteristics (microorganisms, plants and animals).

To describe how living things are classified into broad groups according their similarities and differences (microorganisms, plants and animals).

To give reasons for classifying plants and animals based on specific characteristics.

In the future, I will learn …

The reactants and products of photosynthesis.

The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops.

The importance of plant reproduction through insect pollination in human food security.

How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.

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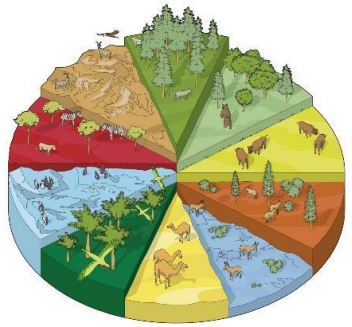


Differences Life cycle Mammal Amphibian	Insect Bird Reproduction Stigma

→

Classification
Characteristics
Micro-organisms
Reproduction
Fungi
Bacteria
Virus

→

Organism
Reproduction
Pollination
Micro-organisms

Concept: Biology (Animals including humans) – Y5/6

Topic: Human life cycle

Previously, I have learnt …

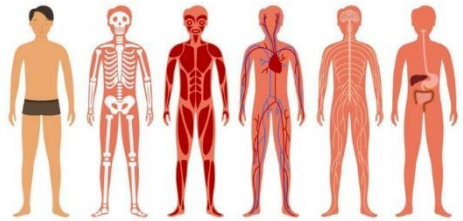
- To identify the basic parts of the digestive system in humans.
- To describe the functions of the basic parts of the digestive system.
- To evaluate and understand how to keep the different basic parts of the digestive system healthy.
- To identify the different types of teeth in humans and their simple functions
- To construct and interpret a variety of food chains.
- To identify (from food chains) the producers, prey and predators.

In Y5/6, I am learning…

- 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)

In the future, I will learn …

- To identify and name the main parts of the human circulatory system (cardiovascular and respiratory).
- To describe the functions of the heart, blood vessels and blood.
- To explain the importance of a healthy lifestyle and understand a few ways of achieving this.
- To recognise the impact of diet, exercise, drugs and lifestyle (e.g. sedentary lifestyle, smoking, alcohol and drug consumption – including caffeine) on the way their bodies function.
- To explain the impact of an unhealthy lifestyle on human bodily function.
- To describe the ways in which nutrients and water are transported within animals, including humans.



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Stomach	Liver
Intestine	Producer
Organs	Predator
Digestion	Prey

Puberty
Gestation
Pregnancy
Womb
Growth
Reproduce
Egg
Fertilisation

Circulatory System	Lungs
Veins	Heart
Arteries	Blood vessels
Capillaries	Oxygen

Concept: Biology (Animals including humans) – Y5/6 Topic: Circulatory System

Previously, I have learnt …

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

In Y5/6, I am learning…

To identify and name the main parts of the human circulatory system (cardiovascular and respiratory).

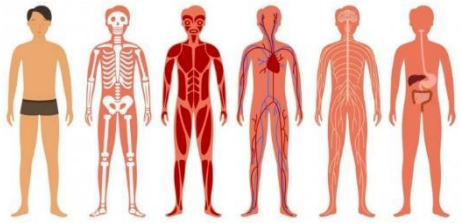
To describe the functions of the heart, blood vessels and blood.

To explain the importance of a healthy lifestyle and understand a few ways of achieving this.

To recognise the impact of diet, exercise, drugs and lifestyle (e.g. sedentary lifestyle, smoking, alcohol and drug consumption – including caffeine) on the way their bodies function.

To explain the impact of an unhealthy lifestyle on human bodily function.

To describe the ways in which nutrients and water are transported within animals, including humans.



Circulatory System Veins Arteries Capillaries	Lungs Heart Blood vessels Oxygen

In the future, I will learn …

The effects of recreational drugs (including substance misuse) on behaviour, health and life processes.

The structure and functions of the gas exchange system in humans, including adaptations to function

The mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume

The impact of exercise, asthma and smoking on the human gas exchange system

Gaseous exchange
Recreational
Alveoli
Diaphragm
Inhalation

My Future

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