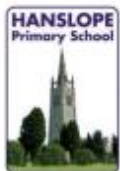


# Science

Knowledge Organisers Spring 1



# Hanslope Primary School

## Science Knowledge Organiser

### Year One – Materials

#### How does this link to my previous learning?

- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter
- I can talk about things in my own environment and know how these might be different from one another

#### What key vocabulary will I learn:

- **Object** – Anything you can see, touch or hold.
- **Material**- What an object is made from.
- **Hard** -not easily broken or bent
- **Soft** – if something is soft, it is easy to cut, fold or change the shape of
- **Stretchy** – can be pulled to make it longer or wider
- **Waterproof**- something that keeps water out
- **Absorbent**- will soak up water quickly

Properties of materials.	
Wood:  Hard, strong	Metal:  Hard, strong, shiny
Plastic:  Strong, shiny, bendy	Water:  Runny, wet, clear
Glass:  Transparent, smooth, brittle	Rock:  Hard, strong, rigid

#### National Curriculum Links:

- distinguish between an object and the material from which it is made
- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- describe the simple physical properties of a variety of everyday materials
- compare and group together a variety of everyday materials on the basis of their simple physical properties

#### How does this link to my future learning?

- Everyday materials – properties and uses, changing and testing (Year 2)
- Properties and change of materials (Year 5)
- States of matter (Year 4)

#### What will I know by the end of this unit:

- I can describe an object including the material it is made from
- I can identify and name a variety of common materials including wood, plastic, glass, metal, water and rock
- I can talk about and describe the properties of different materials
- I can compare materials and sort them into groups, explaining my reason





## Hanslope Primary School Science Knowledge Organiser

### Year Two – Living things and habitats- lifecycles and habitats

#### How does this link to my previous learning?

- Animal Classification (Year 1)

#### What key vocabulary will I learn:

- **Living**- something that is alive like plants or animals
- **Dead** – something that is no longer alive but once was, like dead plants or parts of plants that are no longer attached
- **Never been alive**- something that has never been a living thing like objects made from rocks or plastic
- **Habitat** – The place where an animal or plant lives and provides basic needs like shelter, air, water and food.
- **Environment** – The world around us



#### National Curriculum Links:

- Explore and compare the differences between things that are living, dead, and things that have never been alive
- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other

#### How does this link to my future learning?

- Plants and their lifecycle (Year 3)
- Living things and their habitats (Year 4)
- Living things and their cycles (Year 5)
- Living things and their habitats (Year 6)

#### What will I know by the end of this unit:

- I can explore and compare the differences between things that are living, dead and things which have never been alive
- I can identify that most living things live in habitats to which they are suited and describe how habitats provide for the basic needs of different animals and plants and how they depend on each other.
- I can describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.

Living	Dead	Never Alive



# Hanslope Primary School

## Science Knowledge Organiser

### Year Three – Forces and Magnets

#### How does this link to my previous learning?

- Materials (Yr1)
- Everyday materials – properties and uses (Year 2)

#### What key vocabulary will I learn:

- **Forces** – Pushes or pulls
- **Friction** - the force between 2 moving surfaces.
- **Contact force**- requires contact to happen.
- **Non - contact force**- doesn't require contact.
- **Magnetic force**- magnets electric charge
- **Magnet**- a material or object that produces a magnetic field, it attracts or repels magnetic object
- **Attract**- Attraction is a force that pulls objects together. For example, when a north pole is placed near the south pole of another magnet, the two poles attract (pull together).
- **Repel**- Repulsion is a force that pushes objects away. For example, when a north pole is placed near the north pole of another magnet, the two poles repel (push away from each other).
- **Magnetic materials**- These are attracted to a magnet. Iron and nickel are magnetic metals. Objects that contain them will be attracted to a magnet.
- **Poles**- 2 sides of a magnet where the magnetism is strongest (north/south poles)





#### National Curriculum Links:

- Compare how things move on different surfaces
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance
- Observe how magnets attract or repel each other and attract some materials and not others
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- Describe magnets as having two poles

#### How does this link to my future learning?

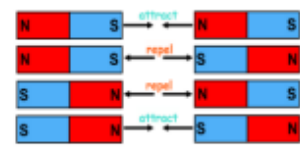
- Properties and change of materials (Yr5)
- Forces (Year 5)

#### What will I know by the end of this unit:

Types of Magnets			
Ring magnet	Horseshoe magnet	Bar magnet	U shaped magnet
			

- I can compare how things move on different surfaces
- I recognise that some forces need contact between 2 objects, but magnetic forces can act at a distance
- I can observe that magnets attract or repel each other and attract some materials but not others
- I can group a variety of everyday materials according to their magnetic properties
- I can describe magnets as having 2 poles
- I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing and associate this with whether or not a lamp lights in a simple series circuit
- I can name some common conductors and insulators and know that metals are good conductors

Poles that are the same repel. Poles that are different attract.





# Hanslope Primary School

## Science Knowledge Organiser

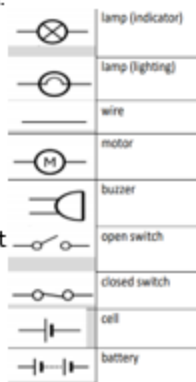
### Year Four - Electricity

#### How does this link to my previous learning?

- Magnets and Forces (Year 3)

#### What key vocabulary will I learn:

- **Electricity** – A form of energy. The flow of an electric current through a material, e.g. from a power source through wires to an appliance
- **Appliance** - A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.
- **Device** - an object that has been invented for a particular purpose
- **Mains** - where the supply of water, electricity, or gas enters a building
- **Plug** - A device with 2 or 3 prongs on the end of an electrical cord.
- **Electrical circuit** - A complete route around which an electric current can flow.
- **Circuit** - A complete route which an electric current can flow around.
- **Cell**- one battery
- **Battery** -portable electrical power storage cell
- **Component** - One part of an electrical circuit.
- **Wire**- thin metal that electricity can pass through
- **Bulb** - A glass ball that lights up inside using electricity.
- **Switch**- component that completes or breaks an electrical circuit
- **Buzzer**- An electrical device that makes a buzzing sound.
- **Motor** - A device that changes electrical energy into movement
- **Conductor** - material that lets electricity pass through it easily
- **Insulator** - material that prevents electricity passing through it



#### National Curriculum Links:

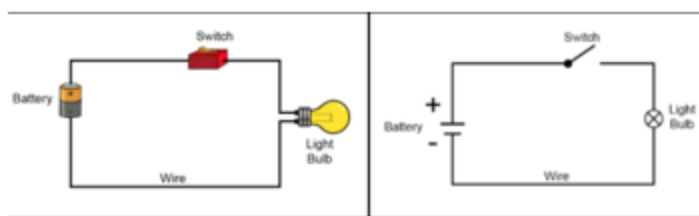
- identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors

#### How does this link to my future learning?

Electricity (Year 6)

#### What will I know by the end of this unit:

- I can name appliances that run on electricity and know which need mains electricity, battery power or either.
- I can make a simple series electrical circuit and name the basic parts of cells, wires, bulbs, switches and buzzers
- 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 use a simple switch in a circuit that opens and close





# Hanslope Primary School

## Science Knowledge Organiser

### Year Five – Properties and change of materials

#### How does this link to my previous learning?

- Materials (Year 1)
- Materials – properties and uses (Year 2)
- States of matter (Year 4)

#### What key vocabulary will I know:

- **Flexible** - an object or material can be bent easily without breaking
- **Evaporation** - The heating of a liquid so that it becomes a gas
- **Absorbent** - To take in or soak up a liquid .
- **Thermal** - relating to or caused by heat or by changes in temperature
- **Conductor** - materials that allow electric charges to move through them. Conductors can also conduct heat.
- **Melting** - to change from a solid to a liquid state through heat or pressure
- **Dissolve** - when a substance is mixed with a liquid and the substance disappears
- **Solution**- is made when one substance dissolves into another
- **Insoluble** - cannot be dissolved, especially in water
- **Solute** - the minor component in a solution
- **Solvent** -The liquid that something dissolves in
- **Particle**- a tiny amount or small piece
- **Mixture**- Two or more materials that can be separated
- **Filtering** - Removing solids from a mixture by passing through paper that only allows liquid through
- **Reversible change**- can be reversed back to its original state

#### National Curriculum Links:

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- 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. include changes associated with burning and the action of acid on bicarbonate of soda.

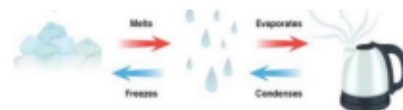
#### How does this link to my future learning?

(KS3)The particulate nature of matter. Atoms, elements and compounds. Pure and impure substances. Chemical reactions. Periodic table. Materials such as carbon, ceramics, polymers and composites.

#### What will I know by the end of this unit:

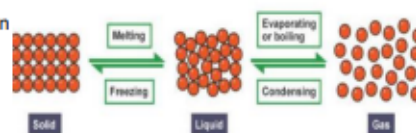
- I can compare and group materials according to their properties inc. hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets

- I can describe the properties of a range of solids including metal



- I can explain the relationship between liquids, solids and gases.

- I can identify a range of contexts in which condensation and evaporation



- I can name some materials that will dissolve in liquid to form a solution

- I can describe how to recover a substance from a solution

- I can use scientific knowledge of solids, liquids and gasses to decide how mixtures could be separated, including through filtering, sieving and evaporating

- I can give scientific reasons based on comparative and fair tests for the uses of everyday materials

- I can demonstrate some changes such as dissolving, mixing or changes in state are reversible

- I can discuss some irreversible changes and explain that some changes result in the formation of new materials



## Hanslope Primary School Science Knowledge Organiser

### Year Six –Animals including humans

#### How does this link to my previous learning?

- Animals including humans (Year 1 ,3,4)
- Staying healthy (Year 2)

#### What key vocabulary will I learn:

- **Circulatory system**- the system responsible for circulating blood through the body, that supplies nutrients and oxygen to the body and removes waste products such as carbon dioxide.
- **Heart** -the organ in your chest that pumps the blood around your body
- **Blood** - A red liquid that moves through blood vessels to different parts of the body.
- **Blood vessels**- part of the circulatory system that carries blood (a vein, artery or capillary).
- **Oxygen** - a colourless gas that plants and animals need to survive
- **Carbon dioxide**- a gas produced by animals and people breathing out
- **Lungs** - two organs inside your chest which fill with air when you breathe in. They oxygenate the blood and remove carbon dioxide from it
- **Nutrients** - Substances that animals and humans need to stay alive, grow and develop.
- **Diet** – The sort of food animals or humans regularly eat
- **Exercise** – Activity that requires physical effort, carried out to sustain or improve health and fitness
- **Drugs** – A medicine or other substance that has an effect on the body
- **Lifestyle** – The way in which a person lives
- **Oxygenated** – blood that contains oxygen

#### National Curriculum Links:

- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- Describe the ways in which nutrients and water are transported within animals, including humans

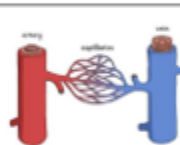
#### How does this link to my future learning?

KS3: Cells and organisation. The skeletal and muscular system. Nutrition and digestion. Gas exchange stems. Reproduction and health.

#### What will I know by the end of this unit:

- I can identify and name the main parts of the circulatory system and describe the functions of the heart, blood vessels and blood
- I recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions (link to RSE / PSHE)
- I can describe the way nutrients and water are transported within animals including humans

#### The Blood Vessels:



Arteries - carry blood away from the heart  
Veins - carry blood to the heart  
Capillaries - deliver blood to muscles

#### The heart

