

Science Knowledge Organisers

Spring One



Hanslope Primary School

Science Knowledge Organiser

Year One – Animals including Humans

How does this link to my previous learning?

- Which body part is associated with each sense
- Names of some parts of the body

National Curriculum Links:

- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

How does this link to my future learning?

- Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

What key vocabulary will I learn:

| Key Vocabulary | |
|----------------|---|
| sight | Your eyes let you see all the things around you. |
| hearing | Your ears let you listen to all the things around you. Your brain is able to tell what different sounds are. |
| touch | Your skin gives you the sense of touch. You can tell if something is warm, cold, smooth or rough without even looking at it! |
| taste | Your sense of taste comes from your tongue. You can tell if something tastes bitter or sweet. You might have some tastes you like and some you don't. |
| smell | You smell using your nose. Your nose can tell if things smell nice or not nice. |

What will I know by the end of this unit:

- Sight - Eyes help humans and most animals to see
- Hearing - Ears help humans and most animals to hear
- Smell - Noses help humans and most animals to smell
- Taste - Tongues help humans and most animals to taste
- Touch - Skin helps humans and most animals to feel

Brains helps humans and animals to think.





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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 |
|---|---|---|
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|  |  |  |



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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?

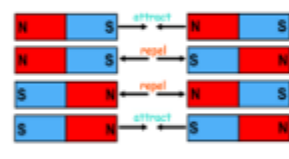
- Properties and change of materials (Yr5)
- Forces (Year 5)

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.





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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

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. including 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

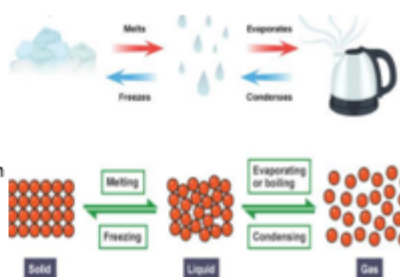
- I can describe how to recover a substance from a solution

- 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





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Year Six - Light

How does this link to my previous learning?

- Light is a form of energy that makes it possible to see.
- Light is given off some objects (for example the Sun). Darkness is the absence of light.
- Light can reflect off surfaces (e.g. mirrors). Light is absorbed by other materials.
- Objects can be labelled as transparent, translucent, or opaque, depending on the amount of light that they let through.
- Shadows are formed when light is blocked by an opaque object.

What key vocabulary will I learn:

-We see things because...

- a.) they are a **light** source, sending light into our eyes, or
- b.) light is **reflected** from a light source off them and into our eyes.

When the light enters our eyes, we see the object!

-E.g. we see the sun because it is a light source, sending light into our eyes.

-However, the moon is not **luminous** (does not produce its own light). We see it because light from the sun reflects off it into our eyes.

- After light reflects off objects, it continues to travel in a straight line, but in a new direction.

-**Opaque** objects let no light through (creating the darkest shadows), **translucent** objects let some light through (creating fainter shadows), **transparent** objects let all light through (no shadow).

National Curriculum Links:

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

What will I know by the end of this unit:

-Light originates from light sources.

-Light sources can be natural (e.g. the sun, the stars) or man-made (e.g. street lamp, Christmas tree lights, glow stick, mobile phone, TV).

-Light travels in a straight line from light sources.

-We can see that light travels in straight lines when we shine a torch in a dark room, or when a ray of light comes through a window.

-When an object passes in front of a ray of light, the light can be blocked, creating a shadow.

-Our eyes have a small window at the front called a **pupil**, through which light can enter. The pupil looks as though it is black because it is dark inside our eyes.

-When it is dark, our pupils go larger, in order to let more light in so that we can see better. In bright lights, our pupils go smaller.

-At the back of our eye is a sensitive sheet of nerves called a **retina**. They can detect light when it comes in through the pupil, and send messages to the brain about what we can see.