

Science Knowledge Organisers

Autumn 2

Year 2



Hanslope Primary School Science Knowledge Organiser

Year Two – Everyday materials – Changing and testing

How does this link to my previous learning?

- Materials (Year 1)
- Materials- properties and uses (Year 2)

What key vocabulary will I learn:

- **Recycle**- to change rubbish into a material that can be used again
- **Absorbent** -
- **Waterproof** – does not allow water to pass through it
- **Stretch**- to make something longer without ripping
- **Bend**-to force something to curve
- **Twist**- to force or bend something out of shape
- **Squash**- to crush or squeeze something
- **Suitability**- being right for a purpose
- **Man made materials** – materials that have been made by humans
- **Natural materials** -materials that come from plants, animals or the earth



National Curriculum Links:

- Identify and compare the suitability of a variety of everyday materials, for particular uses
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

How does this link to my future learning?

- States of matter (Year 4)
- Properties and change of materials (Year 5)

What will I know by the end of this unit:

- I can describe the changes to some materials by squashing, bending, twisting and stretching.
- I can identify and compare the suitability of a variety of everyday materials for particular uses
- I can begin to describe ways to sort materials
- I can begin to recognise that some changes can be reversed (reversible) and others cannot (non-reversible)
- I know that materials can have useful properties for a given job (including being waterproof, strong, hard, soft, flexible, rigid, light or heavy)

Squashing, Bending, Twisting and Stretching





Year Three – Rocks and Soils

How does this link to my previous learning?

- Mary Anning Scientist study (Year 1)
- Materials (Year 1 and 2)
- Plants (Year 2)

What key vocabulary will I learn:

- **Permeable**-allows liquids to pass through it
- **Impermeable**- does not allow liquid to pass through it
- **Rock**- A hard, solid material that is made of minerals and is found in nature
- **Soil** - The top layer of the ground, in which plants grow; dirt
- **Metamorphic rock**- Rock formed when any type of rock goes through changes caused by extreme heat and pressure (e.g. marble, slate).
- **Igneous rock**- rock formed by the cooling and hardening of hot magma or lava. Formed by volcanoes! (e.g. basalt, granite).
- **Sedimentary rock** - Rock formed when sediment is pressed together over time. Formed over a long period of time (e.g. shale, limestone, sandstone).
- **Fossil**- The remains of a plant or animal that turned to stone over a long period of time. Mostly found in sedimentary rock.
- **Clay soil** - Fine-grained material that is found as soil or rock
- **Sandy soil** - A soil containing more than 85% sand-sized particles
- **Loam soil** – A mixture of sand, silt and clay. Normally best for growing plants
- **Weathering** – Changes to rock, land or buildings as a result of the weather

National Curriculum Links:

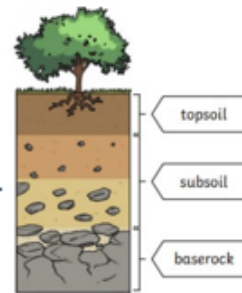
- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock
- Recognise that soils are made from rocks and organic matter.

How does this link to my future learning?

- Evolution and inheritance (Year 6)

What will I know by the end of this unit:

- I can compare and group rocks according to their appearance and simple physical properties
- I can describe in simple terms how fossils are formed
- I can know that soils are made from rocks and organic matter
- I know that there are three types of rock that are formed naturally -igneous, sedimentary and metamorphic
- I know that soil is the top layer of Earth made from a mixture of rocks, organic matter, air and water
- How rocks are affected by weathering over time
- Recognise that soils are made from rocks and organic matter.
- Pupils will identify similarities and differences between different soils.



Natural Rocks			Human-Made Rocks
Igneous	Sedimentary	Metamorphic	
Obsidian	Chalk	Marble	Brick
Granite	Sandstone	Quartzite	Concrete
Basalt	Limestone	Slate	Coade Stone



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Year Four – States of Matter

How does this link to my previous learning?

- Materials (Year 1)
- Everyday materials (Year 2)

What key vocabulary will I learn:

States of matter – There are three states of matter - solids, liquids and gases

Solid- The particles in solids are very close together, meaning solids, such as wood and glass, hold their shape.

Liquid- They can flow and take the shape of its container. Examples of liquids include water and milk.

Gas- The particles in gases are further apart than those in solids or liquids and they are free to move around. A gas fills its container, taking both the shape and the volume of the container. Examples of gases are oxygen and helium.

Evaporation- the process of changing a liquid into a gas.

Condensation - the process of changing a gas into a liquid.

Freezing - the process of changing a liquid into a solid.

Precipitation - is rain, hail, sleet and snow that falls from the clouds.

Water vapour- is water in the form of a gas resulting from heating water or ice.

Degrees Celsius – relating to a temperature scale on which water freezes at zero degrees and boils at one hundred degrees.

Boiling point – Temperature when a liquid turns into a gas.

Melting point - The point at which a substance melts at a certain temperature

National Curriculum Links:

- Compare and group materials together, according to whether they are solids, liquids or gases.
- 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 ($^{\circ}\text{C}$).
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

How does this link to my future learning?

- Properties and change of materials (Year 5)

What will I know by the end of this unit:

- I can classify and describe materials according to whether they are solids, liquids or gases
- I can describe the differences between the properties of different materials.
- I can say how some materials change state when they are heated or cooled
- I know that different substances melt at different temperatures
- I can measure or research the temperature at which a specific material changes state in degrees Centigrade
- I know how evaporation and condensation play a part in the water cycle
- I know how the rate of evaporation in the water cycle is linked to temperature
- I can make predictions about whether changes are reversible or not.
- I know how to separate some simple mixtures e.g. filtering, sieving, evaporation





Year Five – Animals including humans- Development to old age

How does this link to my previous learning?

- Living things and their habitats – lifecycles (Year 2)
- Staying Healthy (Year 2)
- Animals including humans – Skeletons and muscles (Year 3)

What key vocabulary will I know:

Life expectancy – The length of time, on average, that a particular animal is expected to live

Adult- A person who is fully grown or developed

Child- A young human being below the age of puberty.

Adolescent- Also known as teenager, it is the process of developing from a child to an adult.

Foetus - An unborn or unhatched offspring of a mammal, in particular an unborn human more than eight weeks after conception

Mammal- A warm-blooded vertebrate, distinguishable by the possession of hair or fur.

Nutrition- The process of providing or obtaining the food necessary for health and growth

Offspring- A person's child or children/ an animal's young.

Puberty- The process of physical changes through which a child's body matures into and adult.

Reproduction - when an animal or plant produces one or more individuals similar to itself.

Life cycle - the series of changes that an animal or plant passes through from the beginning of its life until its death

Gestation - is the period of time that a mammal carries offspring, or babies, inside the body before giving birth. The length of gestation is different for each type of mammal.

National Curriculum Links:

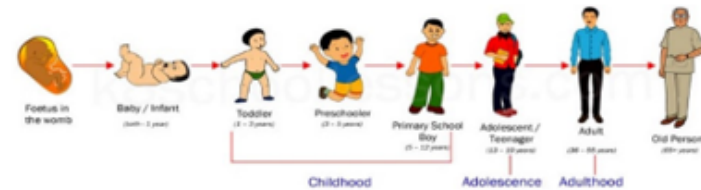
- Describe the changes as humans develop to old age.

How does this link to my future learning?

- Animals including humans - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function (Year 6)

What will I know by the end of this unit:

- I can describe the changes which happen as a human develops to old age (link to RSE/PSHE)
- I can describe physical changes which happen to males and females bodies during puberty
- I can describe how old age can affect the human body
- That there are 6 stages in the human lifecycle.
- That each stage of the lifecycle shows development.
- To understand the different gestation periods of other mammals.
- To understand that the length of time in the womb for humans and other mammals varies considerably.
- To compare different gestation periods to humans and look for patterns in data.



Year 6



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Year Six will be focusing on the skills of working scientifically this term rather than a set topic in science. The skills they are focusing on can be found in the Working Scientifically document