

Science Knowledge Organisers

Autumn Two



Hanslope Primary School

Science Knowledge Organiser

Year One/ Two – Seasons

How does this link to my previous learning?

- Understand the effect of changing seasons on the natural world around them (EYFS)
- Explore the natural world around them (EYFS)

What key vocabulary will I learn:

Season- The way the year is divided according to its weather

Sunrise- The time when the sun comes up

Sunset – The time when the sun goes down

Weather – What the sky and the air outside are like, such as cold and cloudy

Spring- The season where trees, plants and flowers start to bud and bloom

Summer – The warmest season of the year

Autumn – The season when leaves change colour and fall off the trees.

Winter- The coldest season of the year

Rain Gauge – equipment which measures how much rain has fallen

Hibernate – when an animal goes into a long, deep sleep to survive the winter months

National Curriculum Links:

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

How does this link to my future learning?

- Earth and space (Year 5)
- Weather and seasons (Year 1 geography link)

What will I know by the end of this unit:

- The United Kingdom has four seasons: Spring, Summer, Autumn and Winter
- In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer.
- The seasons have an effect on landscapes, plant and animal life
- I can observe changes across the four seasons
- I can observe and describe weather associated with the seasons and how day length varies
- I can describe what happens to trees throughout the seasons
- I understand how humans adapt their behaviour and clothing to survive the different seasons
- I can record the weather using a weather diary
- I can study images, using these to suggest which season it is
- I can understand and describe how changing weather influences the behaviour of animals





Hanslope Primary School

Science Knowledge Organiser

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:

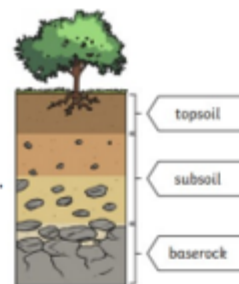
- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock
- Recognise that soils are made from rocks and organic matter.

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	Cobble Stone



Hanslope Primary School

Science Knowledge Organiser

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:

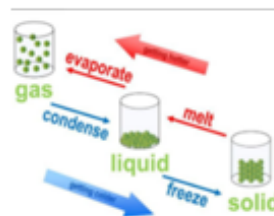
- Compare and group materials together, according to whether they are solids, liquids or gases.
- Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).
- Identify the part played by evaporation and 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





Hanslope Primary School

Science Knowledge Organiser

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 an 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:

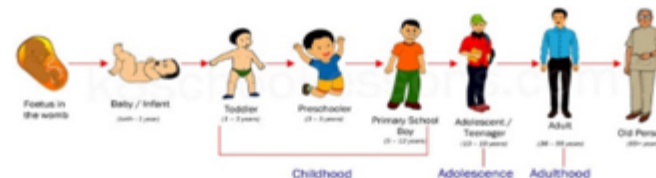
- Describe the changes as humans develop to old age.

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.





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

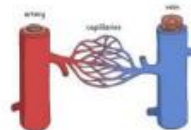
How does this link to my future learning?

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

