

Science Knowledge Organiser- Year 3 Rocks and Fossils

Soils

The property of soils is affected by the:

- type of rock
- size of rock pieces
- amount of organic matter in it.

Peat



- water-logged
- contains partially decomposed plant material
- soft and easily compressed

Sandy soil



- light and dry
- lots of air gaps so water drains through quickly

Chalky soil



- stony and water drains through quickly
- found in areas with lots of chalk

Clay soil



- very sticky when wet
- a heavy soil
- water does not drain through it quickly

Significant scientists

Mary Anning (1799-1847)



Mary Anning was an English palaeontologist and fossil collector. She became known around the world for important finds she made in Jurassic fossil beds in Dorset.

Holly Betts

PhD student, University of Bristol

Holly is a palaeobiologist. She is researching whether fossils are best for establishing a timescale for recent and ancient episodes in our evolutionary history.

Fossil formation

Fossils were formed millions of years ago.

- 1 Plants and animals died and sank to the seabed.
- 2 The soft parts decayed away leaving the hard parts.
- 3 The hard parts were covered and squashed by many layers of sand and other materials.
- 4 The animal/plant matter dissolves and is replaced by minerals, leaving a replica of the original bone called a fossil.

Animal fossil



Plant fossil



Types of rocks

Sedimentary

sandstone



limestone



chalk



Chalk is used for drawing because it is crumbly and soft.

Metamorphic

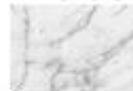
quartzite



slate



marble



Marble is good for gravestones because it does not rub away.

Igneous

basalt



pumice



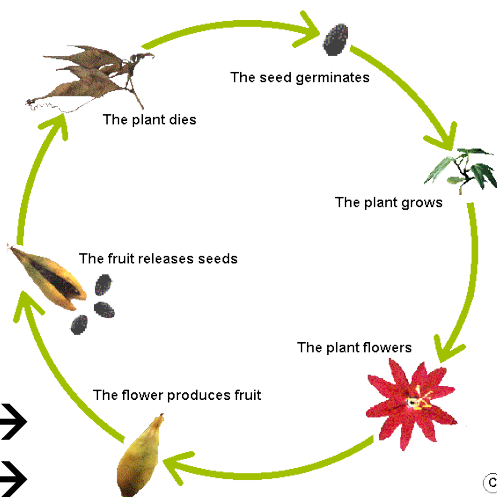
granite



Granite is good for worktops because it is hard and does not absorb water.

Science Knowledge Organiser- Year 3 Plants

Plant life cycle



Methods of seed dispersal



What do different plants need to grow?

- Air, water, sunlight, nutrients from the soil, room to grow, suitable temperature
- The amount of each of these may vary depending on the type of plant. For example, cacti need less water than other plants.

Significant scientists

Joseph Dalton Hooker
(1817-1911)



Joseph Hooker was a doctor and travelled to many places. He was a plant collector and botanist and brought many plants back to the UK. Joseph was interested in finding out why plants grow in the locations they do.

The functions of the different parts of a plant



- The petals on a flower are usually bright - this is to attract bees and other insects so that they can collect pollen to make seeds.
- The seeds are then able to grow to make new plants. This is called germination.
- Leaves use carbon dioxide and sunlight to make food for the plant.
- The stem carries water and other nutrients from the roots to the rest of the plant. Leaves use this water to make food.
- The stem also helps to keep the plant upright so that the sunlight can reach it easier.
- The roots help to 'anchor' the plant in the soil. They also absorb water and nutrients from the soil for the stem to carry to the rest of the plant.

Science Knowledge Organiser- Year 3 Animals including humans

Animals need to eat food to get the nutrients they need.

What type of foods should we eat to stay healthy?



Significant scientist

Wilhelm Conrad Rontgen
(1845-1923)



Wilhelm Rontgen was a German physicist who discovered X-rays in 1895. He was awarded many honours and won the Nobel Prize for physics in 1901.

Fun Facts

The human skeleton is made up of more than 200 bones.

Foods have different nutritional values which the body needs to stay healthy.

One piece of food contains different types of nutrition.

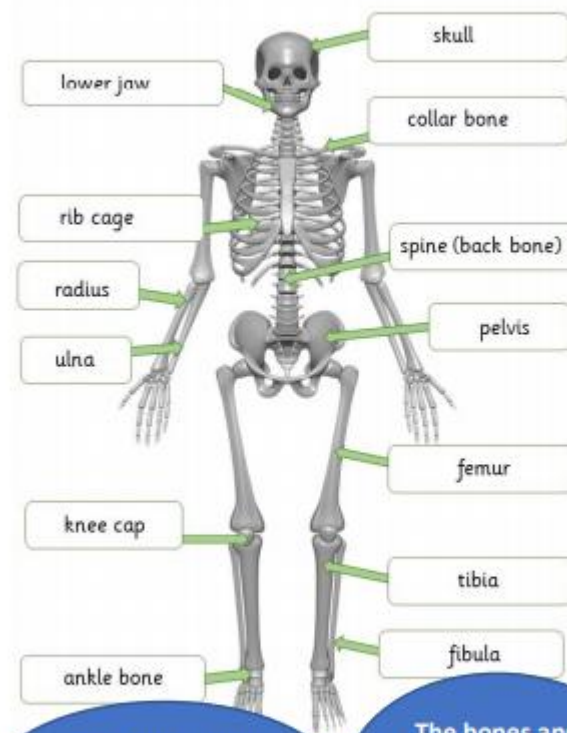
Whilst plants can make their own food, humans have to eat in order to survive.

Name different food groups such as carbohydrates (including sugars), proteins, vitamins, minerals, fibre & fat.

Humans and some animals have skeletons and muscles which help them to move and provide protection and support.

Skeletons

1. Protect our organs
2. Help us to move
3. Support our bodies



The bones in our legs support us and help us stand.

The bones and muscles in our legs help us move.

Science Knowledge Organiser- Year 3 Light

We see objects because our eyes can sense light. Objects are easier to see if there is more light.

Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective.

Dark is the absence of light. We cannot see anything in complete darkness.

Some objects, for example the sun, light bulbs and candles are sources of light.

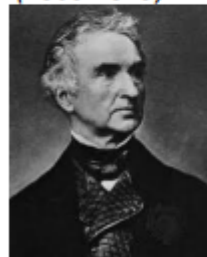
Sunlight

- The light from the sun can be dangerous.
- It can damage our eyes.
- We must never look directly at the sun.
- We can protect our eyes by wearing sunglasses or sunhats in bright sunlight.



Significant scientist

Justus von Liebig
(1803-1873)



Justus von Liebig was a German chemist. In 1835 he developed a process for applying a thin layer of metallic silver to one side of a pane of clear glass. This technique was soon adapted and improved, allowing for the mass production of mirrors.

Reflecting light

Shiny surfaces reflect light very well.



Shadows



Shadows are formed when an opaque object blocks the light.

The child is blocking the sun's light.

We can change the size of the shadow by changing the position of the:

- light source
- object
- surface where the shadow is being made.



Matt surfaces don't reflect light very well.



Why do we need light?

We need light to see things.



If it's completely dark then there is no light.

The more light there is, the easier it is to see objects.



Science Knowledge Organiser- Year 3 Forces and Magnets

Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water or the air and water may be moving over a stationary object.

A force causes an object to start moving, stop moving, speed up, slow down or change direction.

Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall.

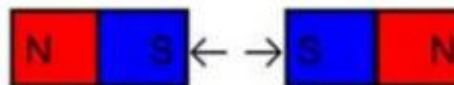
Pulleys, levers and gears are all mechanisms, also known as simple machines.

A pulley is a simple machine that can be used to change the direction of a force, and can also be used to reduce the force required to lift a load

Magnets have two poles



Opposite poles attract



Same poles repel

Types of magnets:

Bar



Ring



Button



Horseshoe



A magnet attracts magnetic materials.

These metals are magnetic:

iron nails



nickel



50p coins contain nickel

stainless steel



steel



Significant scientist

Michael Faraday
(1791-1867)



Michael Faraday was an English scientist. In 1831, he discovered electromagnetic induction. This was a very important discovery for the future of science and technology.

Objects moving on surfaces:



Ice skates have a sharp blade. This helps them move better on ice.

It is much harder to walk on ice in trainers.

A bowling green is closely mown so the grass is short and the balls roll easily.

