MATERIALS

KEEPING COOL

Thermal Insulators - Do not let heat travel through easily such as fabrics, wood and plastics. Can keep heat in or out.

Thermal Conductors - Lets heat travel easily through such as metals.

When things get hot, atoms start to vibrate. Heat produces energy. This could cause them to change state!

Separating Materials

SIEVING - A way to separate two solids of different sizes (e.g. flour and raisins).
FILTRATION - A mixture of liquids and solids which haven't dissolved can be filtered using paper with tiny holes (e.g. sand and water).
EVAPORATION - A solid dissolved in a liquid (solution) can be heated. Liquid evaporates and leaves behind the solid (e.g. salt and water solution).
MAGNETISM - Metal attracts to the magnet, leaving behind the other solid (e.g. paper clips and matchsticks).

Reversible and Irreversible Changes

The following cycle is one which is *reversible*. (They can be changed back or reversed by adding heat or by cooling down).

Ice (melts into water) > Water (evaporates into steam)>
Steam (condenses into water) > Water (freezes into ice) >

The following examples are ones which are irreversible. (They can NOT be changed or reversed by adding heat or cooling down).

cooking an egg 

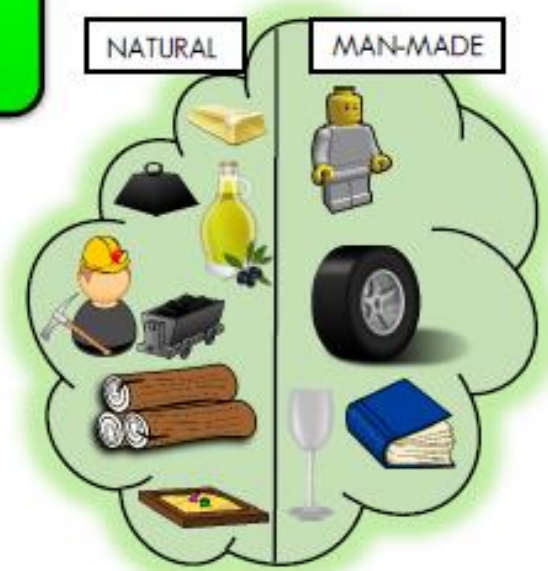
burning wood 

An electrical conductor lets electricity pass through. They are often metals but it also includes water.

An electrical insulator does not let electricity pass through.

Three states of matter:

SOLID: particles close together / vibrate around a fixed position
LIQUID: particles close but randomly arranged / move around
GAS: particles far apart and randomly arranged / move around



DISSOLVING

Dissolving is when the particles of solids mix with particles of liquids, often appearing like it has disappeared but it has dissolved in the liquid to make a transparent solution (e.g. mixing sugar into water). It does not always need heat to occur. If a material does not dissolve it is *insolubale*. If it does, it is *soluble*.

MELT ING

Involves only solids which change into a liquid due to heat. They stay as the same material (e.g. ice to water).

FORCES

Gravity

Gravity is a force that holds things to Earth's surface and prevents things from floating off into the atmosphere. It ensures that unsupported objects to fall back down to Earth.


It is said that the famous scientist Isaac Newton was sitting under a tree when an apple fell on his head. He identified it was a force pulling the object down. We now measure gravity in Newtons (N) because of this.


There is gravity on the moon but it is much less than on Earth, so during the moon landings of 1969, astronauts could jump higher for longer due to the weaker pull of gravity.

Friction

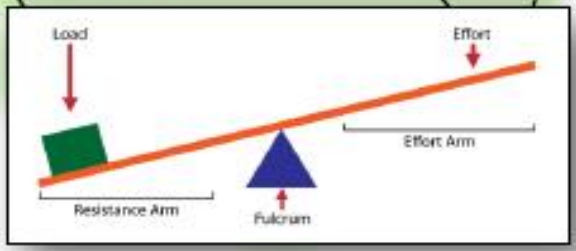
When objects are pushed or pulled, an opposing force can be felt. This opposite force is called 'friction'. Friction causes things to slow down or stop. The grip on our shoes stops us slipping. Therefore, friction is great. An ice-skate on an ice-rink will move for a long time because there is very little friction. The rougher the surfaces, the greater the friction. This rubbing of two surfaces can release energy, causing heat. (Try rubbing your hands together!)


Water Resistance

Water resistance is a type of *friction* which can slow things down in the water. Water acts upon objects making them harder to pass through. A fish has a *streamlined* body shape to help it swim through water more easily. *Upthrust* is the name of the force which keeps things afloat in water. When gravity is greater than upthrust, the object sinks. When the two are the same, the object floats.


LEVERS

A way to lift heavy weights using the least amount of effort. The longer the lever, the easier it is to lift. The fulcrum is where the lever pivots in order to lift the heavy load.



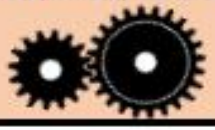
PULLEYS

Used like levers to lift loads with less effort but for longer distances. Rope is passed through a pulley which is attached to an anchor point and returned back to the ground to be pulled.

Air Resistance

Air resistance (sometimes referred to as drag) acts against gravity on falling or moving objects. It's what you feel on your hair when riding fast on a bike or it's what fills a parachute to help slow you down when falling from the sky. . Object such as aeroplanes reduce air resistance because of their streamlined shape.

GEARS - Used to transmit power from one part of a machine to another. Connected gears can increase speed, increase force or cause a change in direction. When joined (in mesh) the direction of rotation of the driven gear is the opposite of the drive gear.



Year 5 Autumn 2

Maths

In maths, children will learn to identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. They will know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. They will establish whether a number up to 100 is prime and recall prime numbers up to 19. They will learn to recognise and use square and cube numbers and the notation for squared (^{2}) and cubed (^{3}) as well as solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. They will learn to multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. They will learn to measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. They will learn to calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes. They will continue to do the 99 club weekly.

English

In English, children will develop their persuasive writing skills by writing a persuasive letter to the local residents of Emerson Valley to persuade them to recycle their rubbish. They will continue to practise their narrative writing skills and explore the genre of suspense writing.

In **reading,** the children will continue to use Accelerated Reader. In Guided reading, the children will be exploring a variety of text types starting with Remembrance poetry and information texts about recycling. The children will develop their VIPERS skills (vocabulary, infer, predict, explain, retrieve, and summarise).

Music

In music, children will continue to learn about Beethoven and then learn how to play the African drums.

PE

PE for Year 5 will take place on a **Monday & Friday.** Please send your children to school in their PE kits with a spare pair of shoes. Children will be taking part in a variety of PE challenges this half term (including the 20in20 Pledge challenges as well as the Sports Partnership challenges)!

Computing

In computing, the children will continue to develop their skills in coding where they will use these skills to design a game. They will then move on to learning all about databases!

PSHE/ Wellbeing

In **PSHE, the children will** be learning how to celebrate and embrace difference. They will also be celebrating Anti-bullying week on the week commencing **16th November.** In their wellbeing lessons, the children will learn the 5 ways to wellbeing (connect, keep learning, take notice, give and be active)!

RE

In Re, the children will explore the unit of Christianity and learn the true meaning of Christmas for Christians.