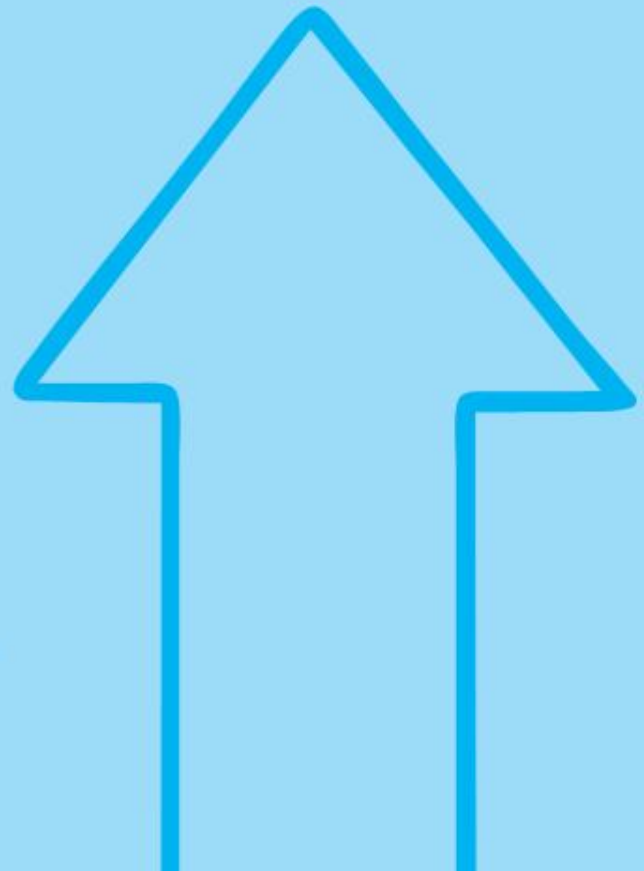
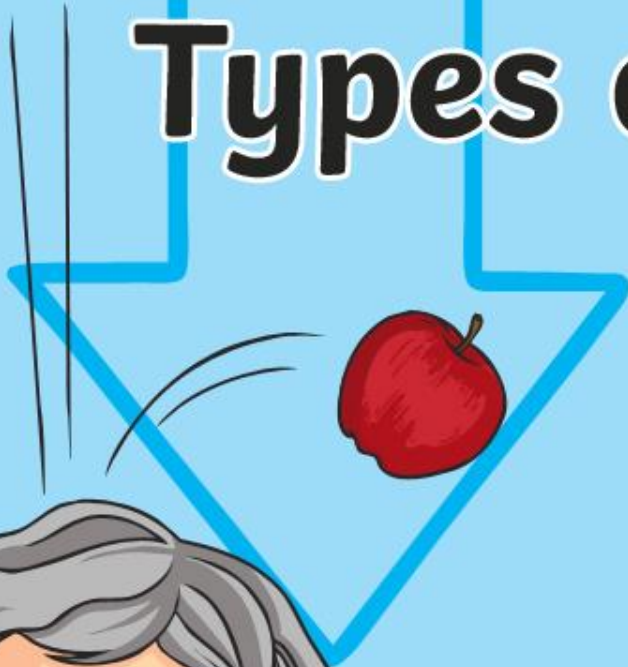


Types of Forces



Forces

Forces are measured in newtons, using a newton meter.

The unit of force is named after Isaac Newton, who first theorised about forces.

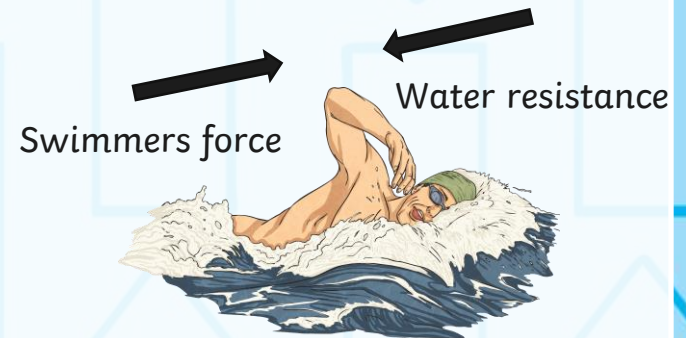
Some examples of forces are...



Contact Forces

Friction, air resistance, water resistance and buoyancy (upthrust) are all examples of contact forces.

A **contact force** occurs when the objects are touching.



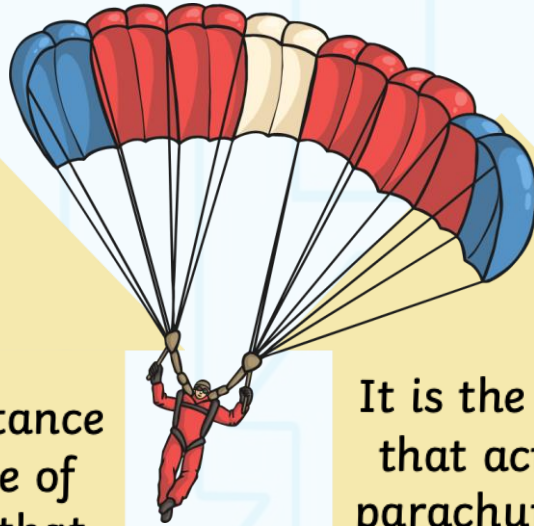
Friction

Friction is a push against a moving object. It happens when there is contact between two materials, like a brake pad on a bicycle tyre.

Friction is the force that stops or slows us when trying to move an object. If the object is already moving, friction is slowing it down.



Air Resistance



Air Resistance is a type of friction that occurs between the air and another material.

It is the force that acts in parachutes so that we don't crash to the ground.

Upthrust is not a type of friction. It is when the gas or liquid below something pushes up more than the gas or liquid above.

Water Resistance

Water resistance is a type of friction that occurs between the water and another material.

Swimmers force



Water resistance

Water resistance pushes against objects, making it hard for them to move through water.

Buoyancy



Buoyancy (upthrust) is the force that pushes an object upwards in a fluid.

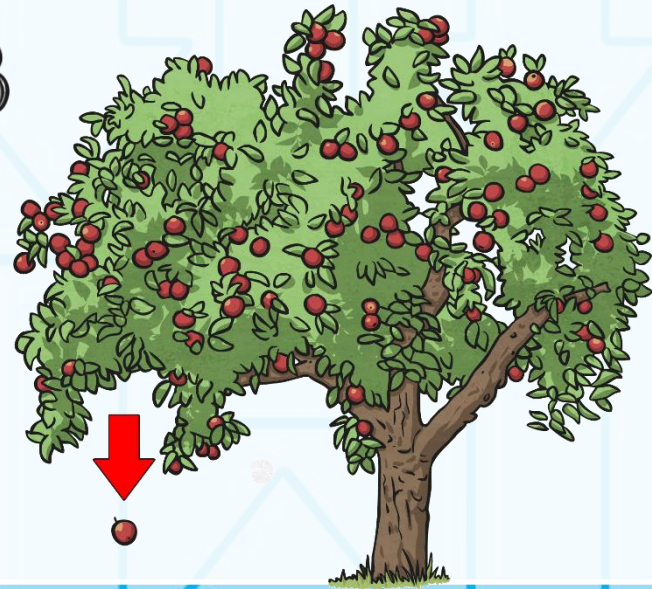
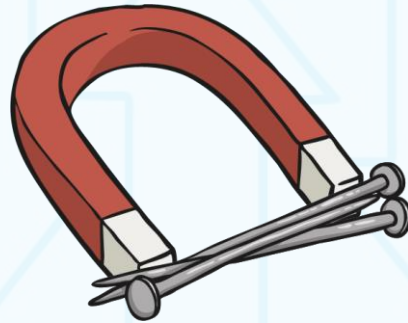
In the water, the weight of an object is pushing down and the upthrust is pushing up. If the weight is equal to or less than the upthrust, the object will float.

If the weight of the object is greater than the upthrust, it will sink.

Non-Contact Forces

Gravity, magnetism and electrical forces, such as electrostatic, are examples of non-contact forces.

A **non-contact force** occurs when the objects are not touching.

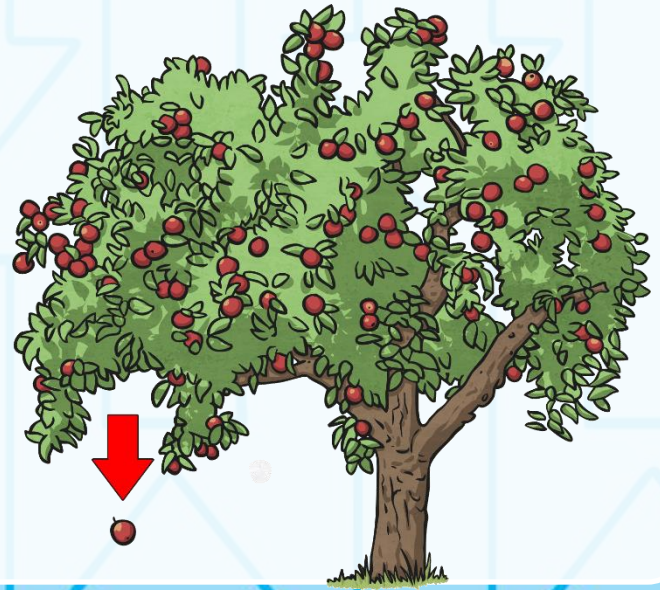


Gravity

Gravity is the force that pulls the Earth and other planets towards the sun. It also keeps us and other objects on the ground.

We can represent gravity with an arrow pointing down towards the Earth.

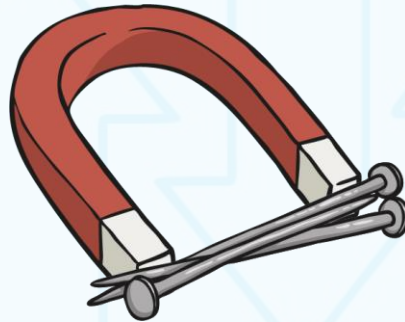
Weight is the pull on the mass of the object by the Earth.



Magnetism

Magnetism is the force that occurs when a magnet pulls a metal object, or another magnet, towards itself.

Examples of magnetic materials include iron, nickel and cobalt.



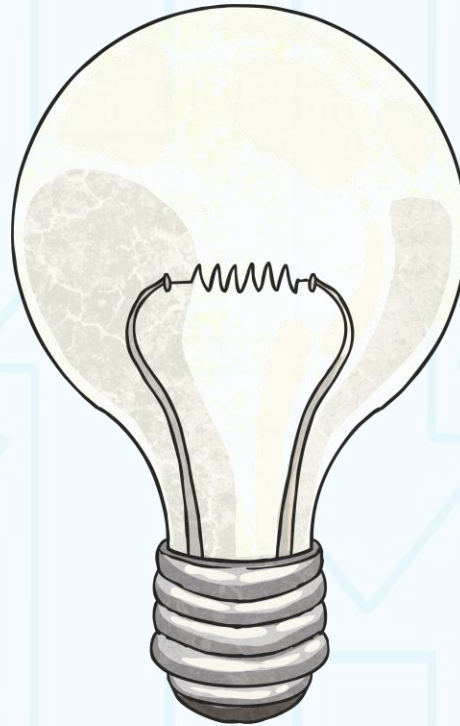
Magnetic materials are always metals but only a few metals are magnetic.

Steel is a mixture of metals. It is magnetic because it contains iron.

Electrical Force

An electric force is exerted between any two objects.

Objects with the same charge, either both positive or negative, will repel each other. Objects with opposite charges, one positive and one negative, will attract each other.



This repulsive or attractive interaction between any two charged bodies is called an electric force.

Examples of electric forces include:

- The charge in a bulb
- Electric circuits
- Electrostatic friction on a balloon after you rub it against clothing
- The electric shock that is felt after touching a door knob.

Activity – Design a poster to show all of the different forces.

For your poster you will need to draw pictures and diagrams and label them. You will also need to give a little bit of information about each force.