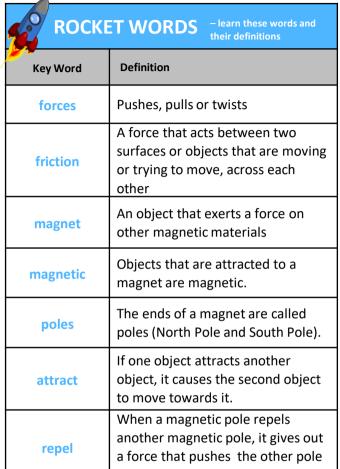
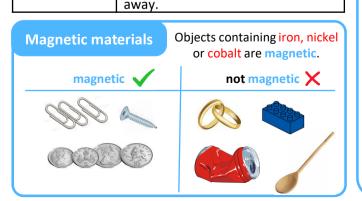


Year 3 – Forces and magnets

Magnets always have two poles – even if you cur them in half!

Some items can be magnetised by stoking a magnet along them in one direction. This can be useful for magnetising things like a screwdriver.







Forces act on all objects all the time.

When an object is not moving, the forces are balanced. Unbalanced forces change the motion of an object. They will make it **speed up** (or start moving), **slow down** (or stop), **change direction** or **change shape**.

Most forces need contact between objects...



Contact makes the player's foot change the direction of the ball.

...but magnetic forces can act at a distance.



For every force in nature, there is an opposite force.

The engine force moves the car **forwards**.



Friction between the road and the tyres slows the car down. **Friction**

Different surfaces create different amounts of friction.



Rough surfaces create lots of friction.

Moving objects slow down quickly on rough surfaces. Roads are rough to help bikes and vehicles grip the road and stop easily.

Smooth surfaces don't create much friction. Moving objects don't slow down much on smooth surfaces. That's why skis move fast on snow and ice.

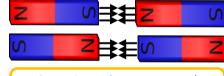


Friction produces heat energy.

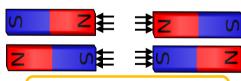


That's why your hands get warm when you rub them together.





Opposite poles attract each other and so will stick together.



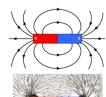
Like poles are not attracted to each other and will repel.

The Earth is a giant

The needle in a compass is a magnet.
A compass always points north-south on Earth.



The area around magnet where there is a magnetic force is called a magnetic field. You can use iron fillings to see the magnetic field around a bar magnet.



magnet because of the large amount of iron-rich molten rocks under its surface.

