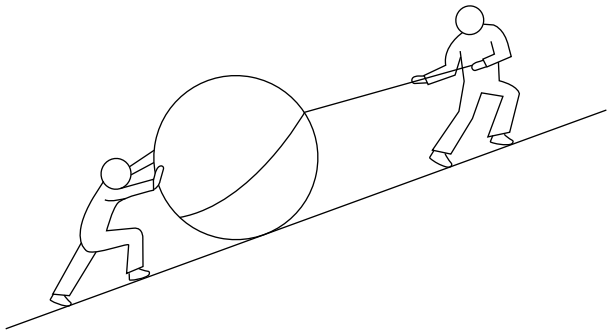
Year 3 - Forces and magents

A force is a push or a pull.

Contact forces are caused by contact between two surfaces.

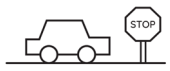
Examples of contact forces are:

- Air resistance.
- Water resistance.
- Friction.

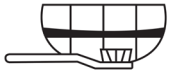


Friction is useful when it:

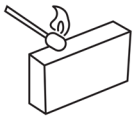
- Helps a car brake or a skier stop.
- Lights a match.
- Rubs out mistakes.
- Slows down a parachute.
- Brushes teeth clean.
- Sands down wood.

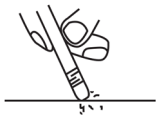


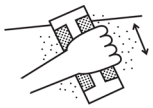
car breaking


brushing your teeth


parachuting


lighting a match

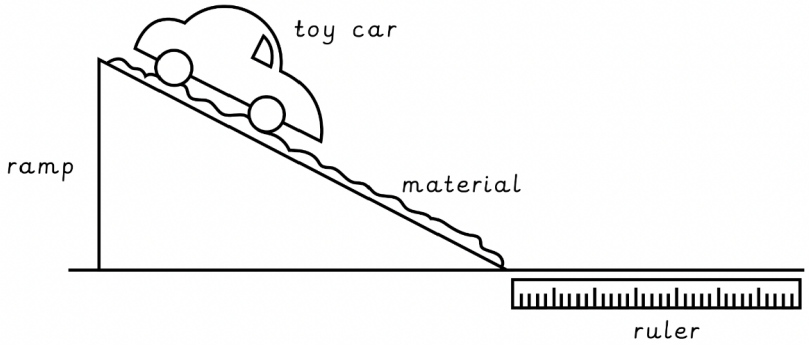

rubbing out


sanding

Friction is a contact force that acts between surfaces that are sliding over one another.

It acts in the opposite direction to motion. It slows down moving objects.

The rougher a surface is the more friction it will produce and the greater a slowing effect it will have.



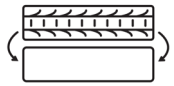
Friction is not useful when it:

- Slows down a racing car.
- Wears down car or bike tyres.
- Erodes coastlines.
- Causes engines and other machines to overheat.


breaking speed records


coastal erosion

engine overheating

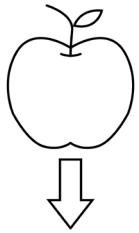

worn tire

Year 3 - Forces and magents

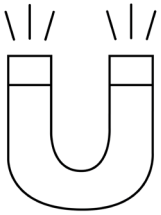
Non-contact forces can act at a distance.

Examples of non-contact forces are:

- Magnetism.
- Gravity.



gravity

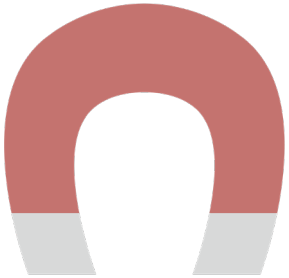


magnetism

There are different types of magnets. They can have different strengths.

bar magnet

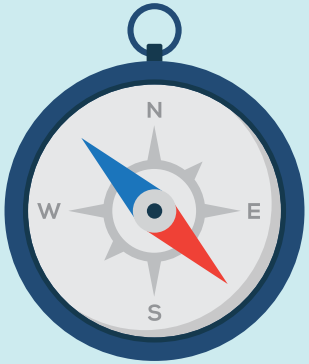
horseshoe magnet



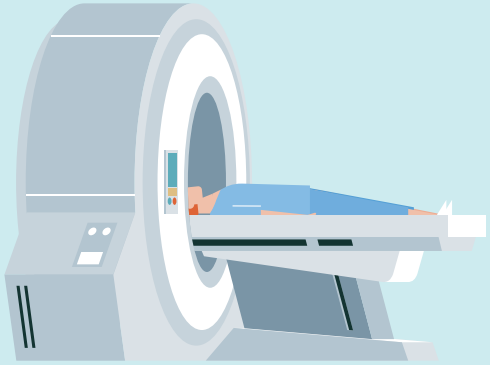
ring magnet

button magnet

Magnets are used in compasses, fridge magnets, toys, jewellery, handbags, furniture, paints and polishes.

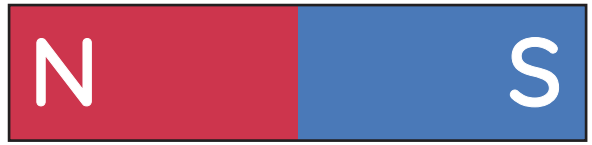


Electromagnets are magnets that can be turned on and off using electricity.



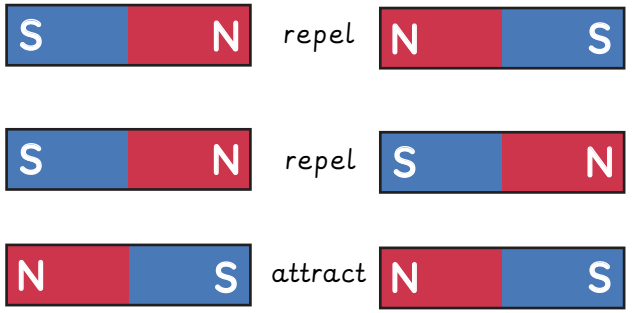
They are used in doorbells, speakers, motors, Maglev trains, MRIs and on cranes.

Magnetism is the non-contact force that comes from a magnet. The space around the magnet where magnetism acts is called the **magnetic field.**



North pole South pole

Magnets have a **North pole** and a **South pole**. The opposite poles of magnets attract and like poles repel.



Magnetic materials are attracted to a magnet. Iron and nickel are magnetic metals. Objects that contain them will be attracted to a magnet.