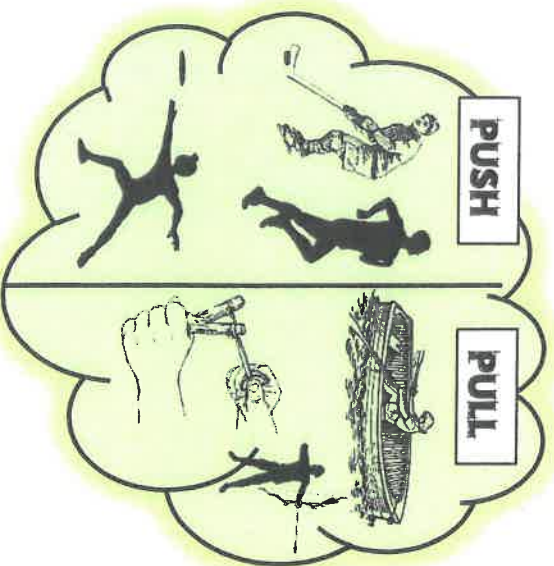


## PUSHING AND PULLING

A force is a push or pull acting on an object as a result of the object's interaction with another object. Forces can make objects stop or start moving.



# FORCES AND MAGNETS

## 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.

Ice-skates on an ice-rink will move for a long time because there is very little friction. The rougher the surfaces, the greater the friction.

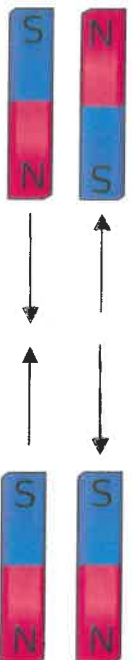


This rubbing of two surfaces can release energy, causing heat. (Try rubbing your hands together!)

## Magnetic Poles

When two magnets are close, they create pushing or pulling forces on one another. These forces are strongest at the ends of the magnets. The two ends of a magnet are known as the north pole (N) and the south pole (S).

The Same poles repel / The opposite poles attract  
If you try to put two magnets together with the same poles pointing towards one another, the magnets will push away from each other. We say they repel each other. Opposite poles attract and are brought together.

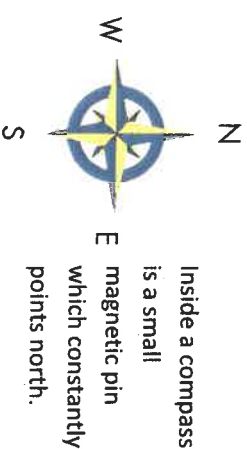
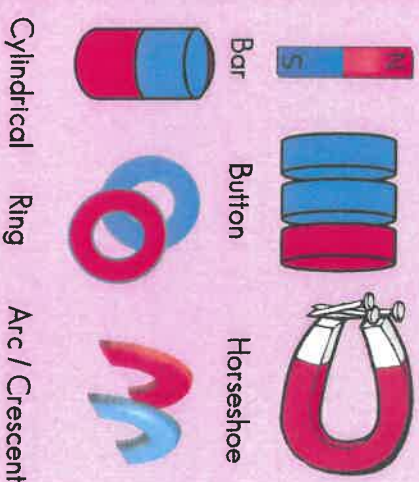


## What is a magnet?

A magnet is a special object which produces an area of magnetic force around itself called a **magnetic field**

If a **metal** object enters this magnetic field, they will be attracted towards the magnet and end up sticking to it. (Non-metallic objects such as wood, plastic or fabric would not be attracted to it.)

Here is a range of different magnets:



Inside a compass is a small magnetic pin which constantly points north.

Earth has a natural magnetic field which means the pin turns to always face north and helping people find their way.

## FUN FACTS ABOUT MAGNETS

- The most powerful magnet in the universe is a star called 'Magnetar'.
- Animals can be affected by magnetic pulls. Birds and turtles navigate by them and sharks are repelled by them!
- Earth's core is said to be filled with iron and nickel (metals which give it a magnetic field).