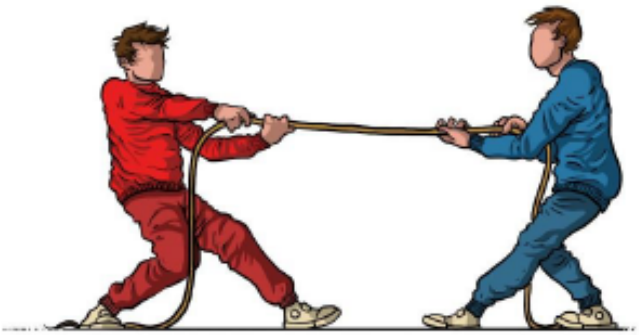
Magnets

Forces in Action

There are many different types of forces in action all around us every day. From a tiny marble to a gigantic crane, everything that moves needs a force acting on it to make it move. Forces act upon many different objects causing them to start, stop, speed-up, slow down and change direction. A force is needed to make an object move in these ways and can be seen as a range of pushes or pulls.



Think...

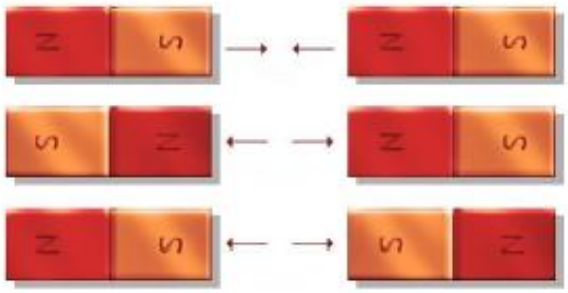
Think about the forces in action when making a toy car move. Firstly, your hand is pushing it across the floor. The floor is also rough and bumpy and so is causing friction to happen which eventually slows it down.

There are also other forces in action causing the car to slow down such as gravity.

At first, the push action is larger which makes the car move forward. In the end, the force of the friction is greater, causing the car to come to a complete stop.

Forces and Magnets

One type of force which could be acting on the toy car is magnetism. Magnets attract (pull) and repel (push) objects through magnetism. Let's take a closer look...



Each side of a magnet is different. Magnets have both North and South poles. Similar poles repel each other, such as North with North, whilst opposite poles attract, such as North and South.

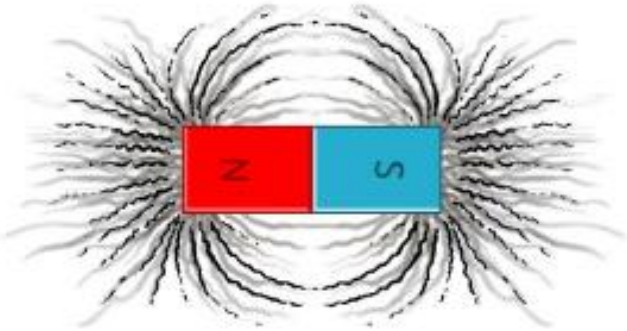
Which objects contain magnets?

Magnets can be found in many everyday objects. Examples include: toys, construction equipment, fridge magnets and doors, clasps on bags and purses.

Can you think of any other objects which might contain magnets?

Are all magnets the same?

The strength a magnet has, depends on the size of its magnetic field. A magnetic field is invisible to the naked eye, but it can be shown in this diagram. Let's take a closer look...



If we put iron filings around the magnet then the magnetic field can clearly be seen.

Which materials attract to magnets?

Magnets can attract to other magnets but they can also attract to objects which contain different magnetic materials. Look at the following objects. Can you predict which of these you think will be attracted to the magnet?

The paper clip and the key will attract to the magnet. Magnetic materials are always metal but not every metal is magnetic. Iron is a metal which is magnetic, so any metal object containing iron attracts to a magnet. Steel contains iron, so the paperclip will also attract to the magnet. Plastic objects will not attract because they are not magnetic.

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