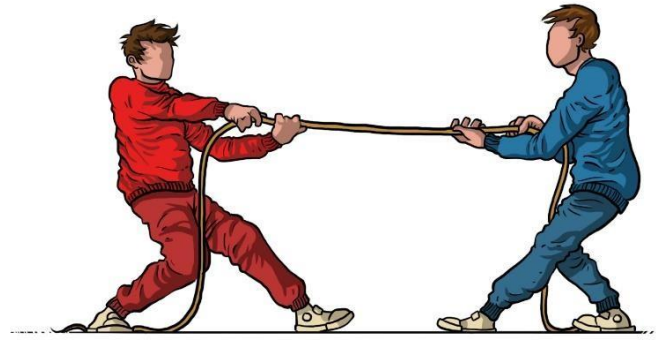


# Magnets

## 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.

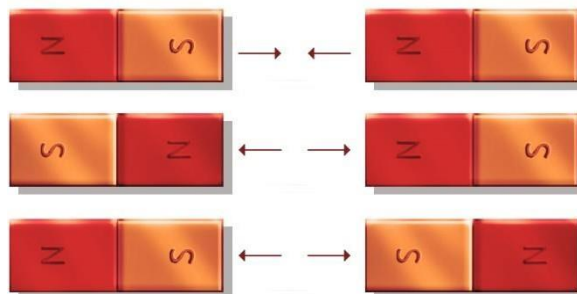
There are also other forces in action causing the car to slow down such as **gravity**.



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...

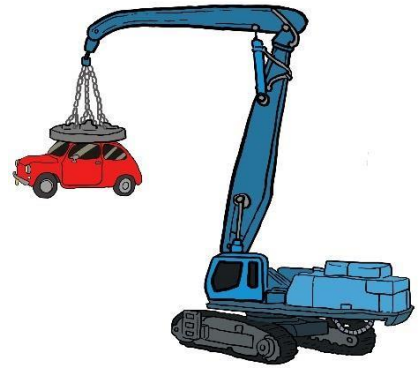
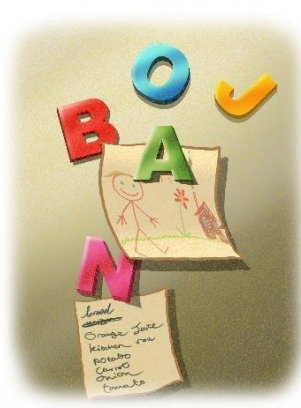


Each side of a magnet is different. Magnets have both North and South poles. **Similar** poles repel each other, such as North with North, whilst **opposite** poles attract, such as North and South.

### Which objects contain magnets?

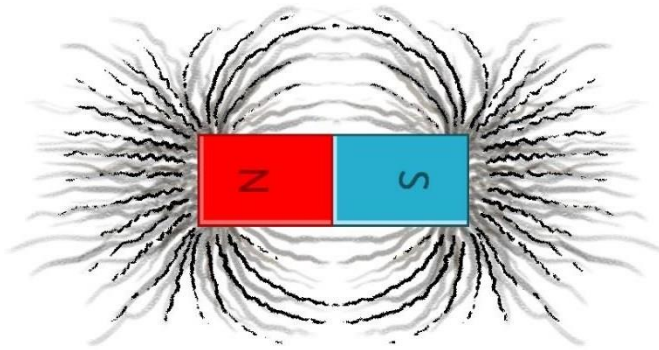
Magnets can be found in many everyday objects. Examples include: toys, **construction** equipment, fridge magnets and doors, clasps on bags and purses.

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



### Are all magnets the same?

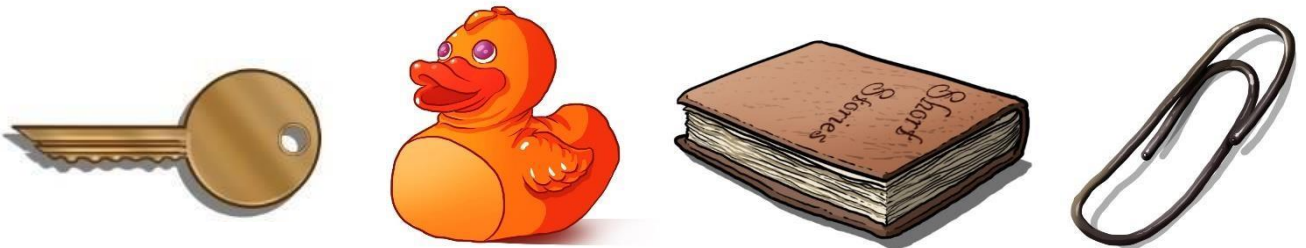
The strength a magnet has, depends on the size of its magnetic field. A magnetic field is **invisible** to the naked eye, but it can be shown in this diagram. Let's take a closer look...



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.

## Magnets – Non-Fiction

### VIPERS

- Q1. Can you give some examples of objects which contain magnets?
- Q2. What do all objects that move need in order to make it move?
- Q3. What are the three forces used to make a toy car move?
- Q3. List the two types of forces that magnets use.
- Q4. Name the two different sides of a magnet.
- Q5. What has to change to make a magnet stronger?
- Q6. What word is used to describe a magnetic field?
- Q7. Magnets attract to other magnets but also attract to magnetic materials. Magnetic materials are always \_\_\_\_\_ ?
- Q8. Give an example of a type of metal that is magnetic.

## Magnets – Non-fiction

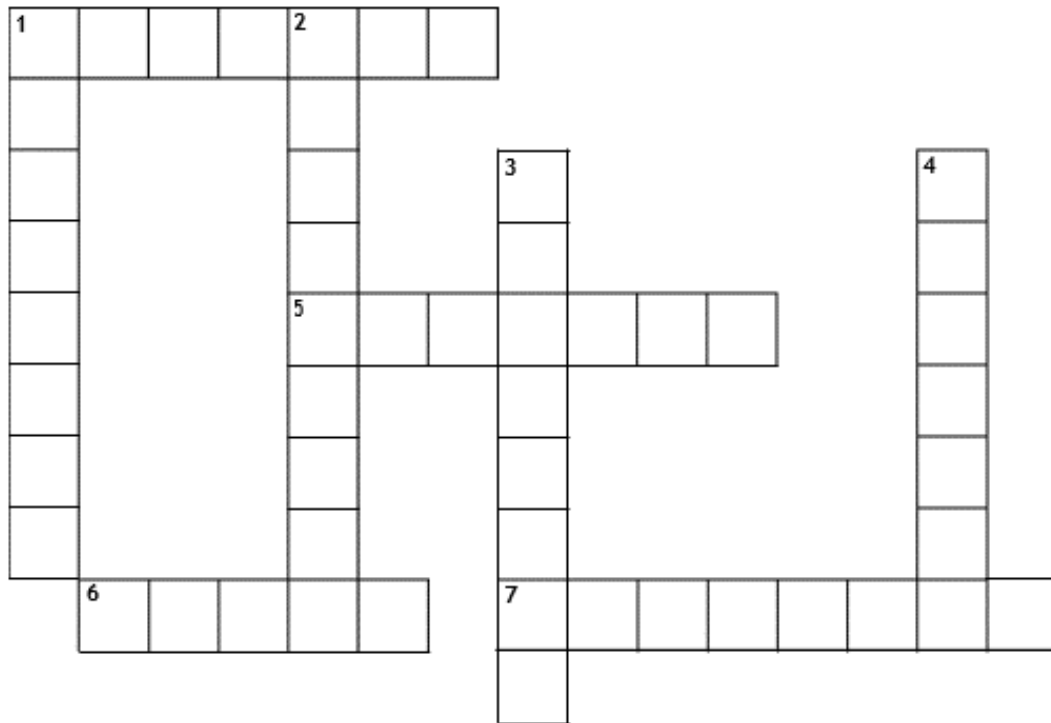
### VIPERS

- Q1. Why do you think the writer uses lots of pictures throughout the text?
- Q2. The writer asks a range of questions throughout the text. Explain why you think this is.
- Q3. Do you think that magnets are useful? Explain your answer
- Q4. The text is organised into clear sections with subheadings. Why do you think this is?

## Magnets – Non-Fiction

### VIPERS

Complete the crossword below. Each of the clues is one of the highlighted words from the text.



#### Across

1. The force of attraction which draws objects towards the earth.
5. A word to describe something which looks the same as something else.
6. To force or push away.
7. A word to describe something which is very different to something else.

#### Down

1. Something which is very large or huge.
2. Something which cannot be seen.
3. The force caused with the rubbing of one surface against another.
4. To have an educated guess.