# Magnetism through materials

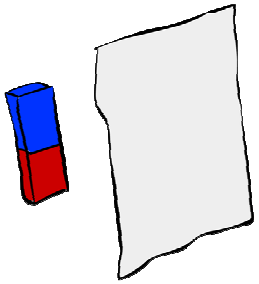
Outstanding Science Year 3 - Forces and magnets - OS3E003

**National Curriculum Statutory Requirements**
**3E2** - notice that some forces need contact between two objects, but magnetic forces can act at a distance; **LKS2W2** - setting up simple practical enquiries, comparative and fair tests; **LKS2W4** - gathering, recording, classifying and presenting data in a variety of ways to help in answering questions; **LKS2W5** - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables;

## Learning Objective

I can investigate how magnetic forces act through different materials.

Me: Teacher:



## Scientific Play

Play with a magnet and a paperclip. Is the paperclip still attracted to the magnet if you place a piece of paper in the way? What about your hand?

## Scientific Question

Which objects or materials prevent a paperclip from being attracted to a magnet?

## You will need:

- A strong magnet
- A magnetic paperclip
- 10 objects to place between the paperclip and the magnet, such as your hand, a piece of paper, an exercise book, your desk top, a cupboard door etc.

## Method

Place the magnet on one side of the object and the paperclip on the other. Does the paperclip fall off? Make a prediction before you measure and record your results in the table. Place a tick or a cross in each box.

Table showing whether a paperclip is attracted to a magnet when different objects are placed in between them

| Name of object | Main material (if known) | Is the paperclip still attracted to the magnet? | |
|---|---|---|---|
| | | Predict | Measure |
| | | | |
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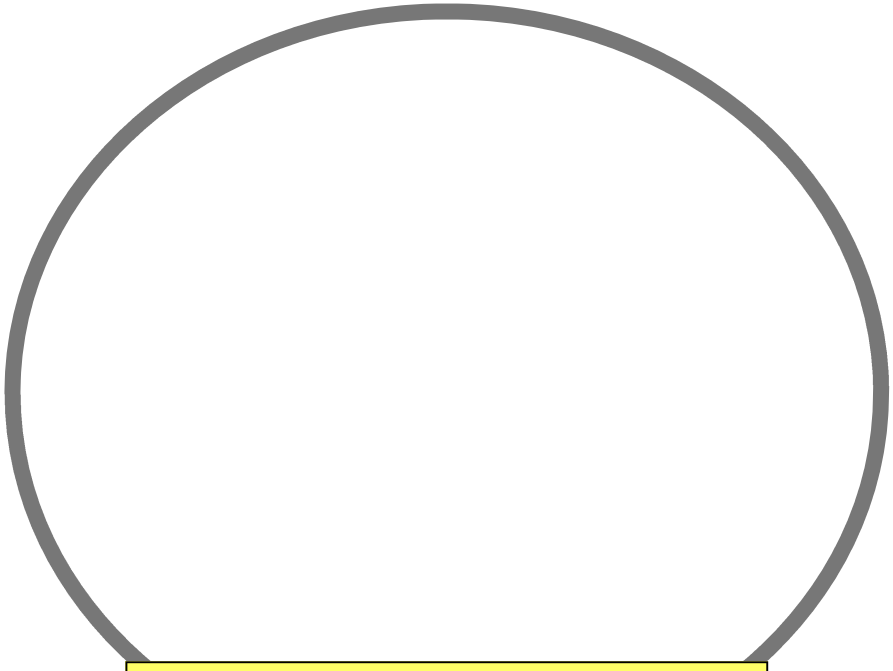
Outstanding Science

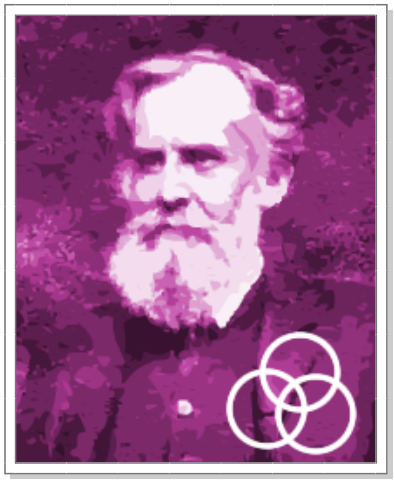
Place the measurements from your table into the Venn diagram. Write the names of your 10 objects in the right place. Top tip: the objects with a tick belong **outside** the set.

Venn diagram showing classroom objects



Objects which prevent a paperclip from being attracted to a magnet when placed between them

**John Venn (1834-1923)**



John Venn was an English professor who worked at the University of Cambridge. He is famous for inventing the Venn diagram. It is used in lots of subjects, including Maths, Science and Philosophy.
The Venn diagram that you have made today contains one set, but some Venn diagrams contain lots of sets inside one another.

**Fair testing**

We are trying to make our test fair.
Which one thing did we change?
What did we keep the same?
Was our test fair? Why?
How can we make our test fairer?

**Results**

How accurate were your predictions?
Which result surprised you the most?
Did you get the same results as the other children in your class? Why?
What do all of the objects inside the set have in common?