



**Teachers Resource sheet**  
**Episode 5**



**Curriculum Strand - Energy & Forces**  
**Strand Unit – Magnetism and Electricity**

**Aims and Objectives:**

To explore how magnets work and how they are used in the world around us, find out what the class already know, and put this to the test using experiments including making a compass.

**Class plan**

Suggestions:

- ✓ Ask warm up questions with the class
- ✓ Watch the video
- ✓ Fill out the first two questions of the investigator's sheet (see resources below)
- ✓ Do experiments in class
- ✓ Complete the investigator's sheet

**Resources contained in this print out:**

- ✓ Curriculum questions explaining magnets
- ✓ Some warm up question suggestions
- ✓ The Science Investigators Magnets episode can be accessed here:  
<https://scienceinvestigators.wordpress.com/about/episodes-and-resource-sheets/>
- ✓ Experiments to do in class (resources and instructions are included)
- ✓ An investigator's sheet for pupils to discuss and fill out for each experiment

**Curriculum Question Suggestions with answers. Explaining:  
Magnets  
Magnetism**

**Question 1**

What is magnetism?

**Answer:**

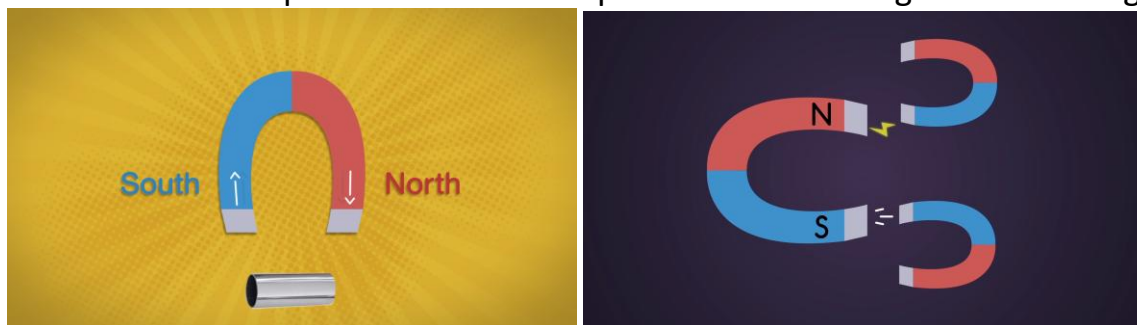
Isn't it amazing how magnets, or magnetic materials, can invisibly pull other magnets towards them? This happens through a *magnetic field*.

**How does this work?**

**The science bit:**

All matter, from a pen to a table, is made of tiny particles called atoms. Atoms have negatively charged electrons that spin around them. Most of the time, the electrons spin in random directions. When the electrons all spin in the same direction, though, they create an invisible force known as magnetism.

Magnetic things can pull steel or iron things towards them. The two ends of a magnet are called the north and south poles. These are the parts where the magnets are strongest.



Around these poles is an area known as a magnetic field. In the magnetic field, other objects can be drawn to the magnet. Things that are made of iron or steel attract a magnet.

**Question 2**

How does a compass work?

**Answer:**

The Earth is a very big magnet. It has an iron core which gives the Earth its own magnetic field, and makes the North and South poles highly magnetic.

A compass contains a magnet which floats, allowing it to respond freely to Earth's magnetic field. The north end of a compass is drawn to align with Earth's magnetic North Pole.

# EXPERIMENTS

The materials for each experiment are listed with the directions below.

To clean up:

- ✓ Kitchen towel (these experiments are not messy, but they use water)

## Experiment 1: Is there iron in your cereal?

**You will need:**

- ✓ Cereal
- ✓ ZipLock bag
- ✓ Water
- ✓ A plastic bowl

**Directions:**

1. Take a handful of cereal and squash it up into dust
2. Put the dust into the bowl
3. Add a little water to make it look like a soup
4. Put a magnet inside and swirl it around
5. When you take it out there should be tiny flecks of iron attached to the magnet

## Experiment 2: Make your own compass

**You will need:**

- ✓ A sewing needle
- ✓ A chopped up cork
- ✓ A lid from a jam jar (or any type of jar)
- ✓ A magnet

**Directions**

1. Fill up the lid with water
2. Then add the cork to water
3. Rub the needle with the magnet

**Top Tip: Stroke the needle in the same direction, rather than back and forth, using steady even strokes, until it is magnetized**

**Result:** When you put the needle on the cork it should point north. Test it by comparing your home made compass by a shop bought one to see if they are facing the same direction

# **INVESTIGATORS SHEET**

**What are we going to do?**

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**What do you think will happen?**

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**What actually happened?**

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**Why do you think this happened?**

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