

# CLIL: Physics



## Magnetism

- 1 SPEAKING** Work in pairs. How many things can you think of that contain magnets? Make a list.
- 2** Read the text about magnetism. Match the paragraph headings with the correct paragraph.
  - 1 North and south poles
  - 2 What do we use magnets for?
  - 3 What is magnetism?
  - 4 Electromagnetism

**A**

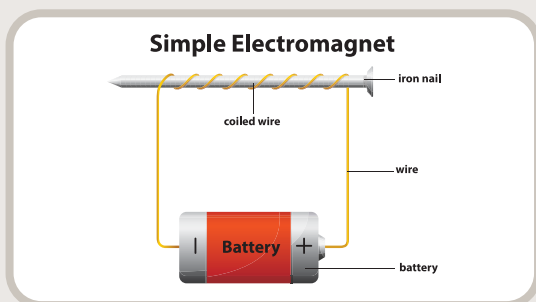
Magnetism is a **force** that exists between two magnets or between a magnet and something made from a magnetic material. This force either attracts objects (pulls them together) or repels them (pushes them apart). All magnetic materials are made of metal, but not all metals are magnetic. **Iron, cobalt** and **nickel** are magnetic, and so are metals that contain them. For instance, **steel** is magnetic because it contains iron.

**B**

Magnets have a north **pole** at one end and a south pole at the other end. These are the points where magnetism is strongest. Opposite poles attract while the same poles repel, so a north pole attracts a south pole but repels another north pole. Magnetism creates this force even when the objects are not touching. In permanent magnets, called bar magnets, magnetism cannot be turned on and off. We also talk about the North and South Poles of the Earth. This is because the Earth acts like a giant magnet – that’s why the **needle** of a compass always points to the North.

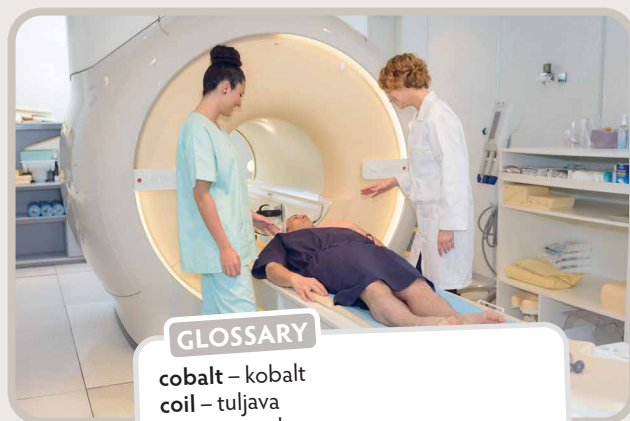
**C**

Electromagnets are made by passing an electric **current** through wire. This creates a magnetic field around the wire, which is made into **coils** to form an electromagnet. It can be made stronger by wrapping the wire around something made from iron or by increasing the electric current. The electromagnetic force can be turned on and off by starting or stopping the flow of electricity.



**D**

Magnets are used in a wide range of equipment. In our homes we find them in objects such as telephones, doorbells and fridge doors. Magnetic strips on the back of credit cards hold information. Recycling centres use huge magnets to separate iron and steel from other types of waste. Magnets have important uses in medical equipment too, for example in MRI (magnetic resonance imaging) scanners which use magnetic fields and radio waves to create images of the inside of our bodies.



### GLOSSARY

**cobalt** – kobalt  
**coil** – tuljava  
**current** – tok  
**force** – sila  
**iron** – železo  
**needle** – igla  
**nickel** – nikelj  
**(north/south) pole** – (severni/južni) pol  
**steel** – jeklo

- 3** Read the text again. Mark the sentences T (true), F (false) or DS (doesn't say). Correct the false ones.
  - 1 You need two magnets for magnetism to exist.
  - 2 There are no types of wood or plastic that are magnetic.
  - 3 A south pole will repel other south poles.
  - 4 Magnetism only exists when two magnetic materials touch.
  - 5 Bar magnets create a stronger force than electromagnets.
  - 6 Compasses work because of the Earth's magnetism.
  - 7 It is possible to turn off an electromagnet.
  - 8 It is not possible to change the amount of force an electromagnet creates.
  - 9 Magnets are not common in household items.
  - 10 People in MRI scanners can feel the force of magnetism.