



higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA



SUBJECT: FOUNDATIONAL SCIENCE

LEVEL: PLP

MODULE/CHAPTER NO: MODULE 3

**UNIT 4.2 ELECTRICITY AND
MAGNETISM**

UNIT 4.2 ELECTRICITY AND MAGNETISM

After completing this topic, you will be able to:

1. Define magnetism
2. Distinguish between the three different types of magnets
3. Know the properties of magnets
4. Identify the similarities between electricity and magnetism

UNIT 4.2 ELECTRICITY AND MAGNETISM

Different types of magnets

Permanent magnets

Definition of a Permanent Magnet

A magnet that keeps its magnetic properties.

Permanent magnets are usually made from “hard” metal alloys (metals that have been mixed together) such as alnico (aluminum, nickel and cobalt) and ferrite (iron ore mixed with different metals) that we don’t hear about often. But we see permanent magnets quite often, for instance fridge magnets.



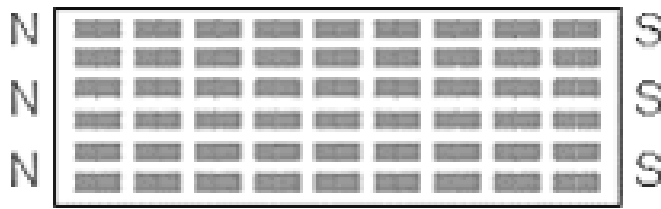
Temporary magnets

Definition of a Temporary Magnet

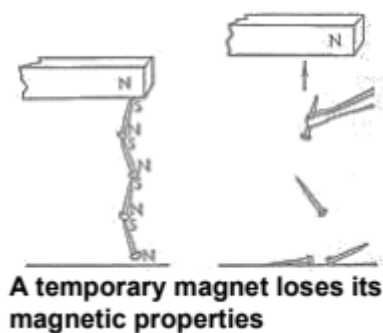
A temporary magnet is a magnet that stays magnetized for only a short time.

Soft metals can easily be magnetized when they come close to a permanent magnet. The reason is that the

permanent magnet will arrange the atoms inside the soft metal so that their magnetic fields all face the same way:



When the temporary magnet is taken away from the permanent magnet, it will stay magnetised for a short time and then lose its magnetic properties because the atoms will return to their old positions again.

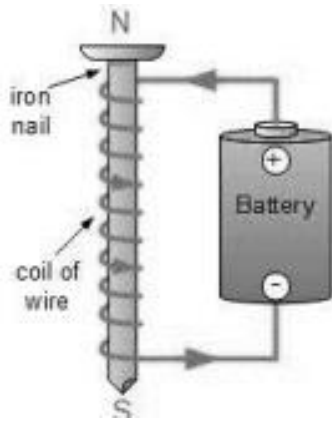


Electromagnets

Electromagnets are also temporary magnets.

Definition of a Electromagnet

A piece soft metal surrounded by a coil of wire through which an electric current is passed to magnetize the metal inside. It is only a magnet while the electricity is switched on.



An easy to make electromagnet

When the electrical circuit is closed, the nail will act as a magnet but when the circuit is open, the nail will no longer be a magnet.
