



higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA



Tshwane South
TVET College

"achieve the future"

SUBJECT: FOUNDATIONAL MATHS

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

4.2.1 Magnetism

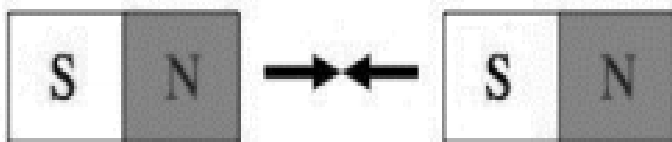
A bit of historic background. Read before the discussion.

About 2 500 years ago the ancient Greeks picked up “lodestones” (naturally magnetised pieces of iron ore) and because they found these lodestones in a part of Greece called Magnesia, the lodestones were later called magnets. These magnets were able to attract some other metals and when they suspended them, they all would turn toward the North Pole and in this way, the first compasses were made. But what is magnetism?

Definition of Magnetism

A force that is produced by the motion of electric charge, which results in attractive and repulsive forces between objects.

❖ In Module 3.1.1.2 magnetic force was explained as a force that works over a distance.



Opposite poles of magnets attract each other.

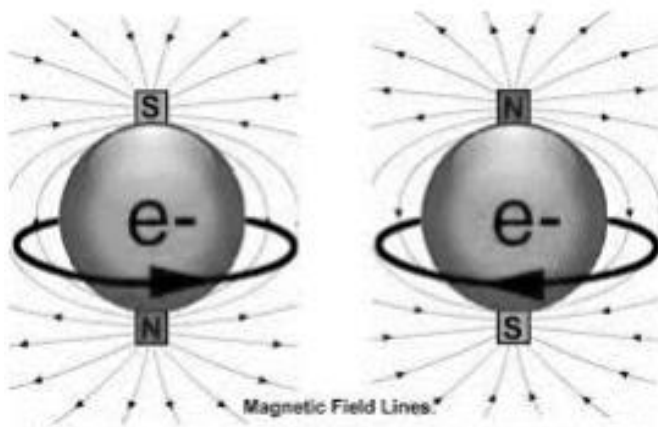


Like poles of magnets will repel each other. The image below shows two pieces of metal. The one on the left is not a magnet. The one on the right is a magnet.



Non-magnet left and magnet right

In the non-magnet, the atoms are distributed at random. In the magnet, all the atoms are lined up. This produces a north pole and a south pole.



Spinning electrons produce a magnetic field

The sketch above shows that spinning electrons inside the atoms produce magnetic fields around them. If all the atoms are lined up, the magnetic fields of the spinning electrons combine and produce a magnet with a north pole and a south pole.