

መረጃዎችን በፍጥነት ለማግኘት የዩቲዩብ ፣ የቴሌግራም ፣ የፌስቡክ እና የትዌተር ገጻችንን ሰብስቦራይብ ያድርጉ!

You Tube: <https://www.youtube.com/watch?v=TWkBGoEYCNQ>

Telegram : <https://t.me/wwwAddisAbabaeducationbureau>

Twitter : <https://twitter.com/aacaebc>

Facebook : <https://www.facebook.com/aacityeducationcommunication>

እንራራቅ ፣ እንታጠብ እንዲሁም እንጨበጥ

**PHYSICS GRADE
8 UNIT 8**

ADDIS ABABA EDUCATION BUREAU

UNIT 8

ELECTRICITY AND MAGNETISM

Part -1 Magnetism

- ❖ A **magnet** is a piece of iron that attract substances like iron , steel , and nickel at a distance.



Magnetic attraction

- ❖ The word '**magnet**' comes from the name '**magnesia**'

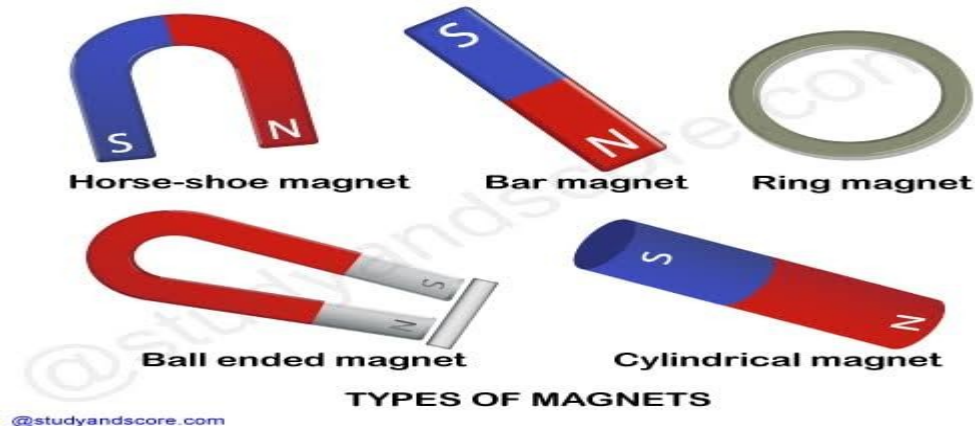
- ❖ **Magnesia** was an ancient city in middle east , where the first magnet was discovered . This magnet was in a form of stone and it was called lode stone . Meaning leading stone.
- ❖ **Lode stone** is a naturally found magnet.
- ❖ Magnet can be natural or artificial.

Natural magnet

- ❖ Natural magnet is occurring naturally . A lode stone is naturally occurring magnet.

Artificial magnets

- ❖ Artificial magnets are magnets that are produced by people. They are usually made of iron and alloys of iron such as steel.
- ❖ Artificial magnets have different shapes such as



Magnetic and non magnetic substances

❖ Materials are classified in to two : as magnetic and non magnetic materials .
(substances).

1. Magnetic substances:

❖ Substances that can be attracted by a magnet are called magnetic substances .

Example: iron , steel , nickel , and cobalt

2. Non magnetic substances :

❖ Non magnetic substances are substances which cannot be attracted by magnet.

Example : rubber , paper , wood , plastic , copper , aluminum , gold and glass etc...

- ❖ All metals are not attracted by a magnet.

Magnetic poles

- ❖ Magnetic poles are the two ends of a magnet. Where the attractive force are strong.
- ❖ If a magnet is suspended from a thin thread , it always points in the same direction to ward the geographic north-south direction.
- ❖ The end of magnet that points north is called the north pole(in short N – pole)
- ❖ The end of magnet that points south is called south pole (in short S-pole)

Breaking a magnet

- ❖ If you break a **bar-magnet in to two pieces** then , the north and the south poles will not be separated . But each piece will become a full magnet having **north and south** poles.
- ❖ It is **impossible** to separate magnetic poles.

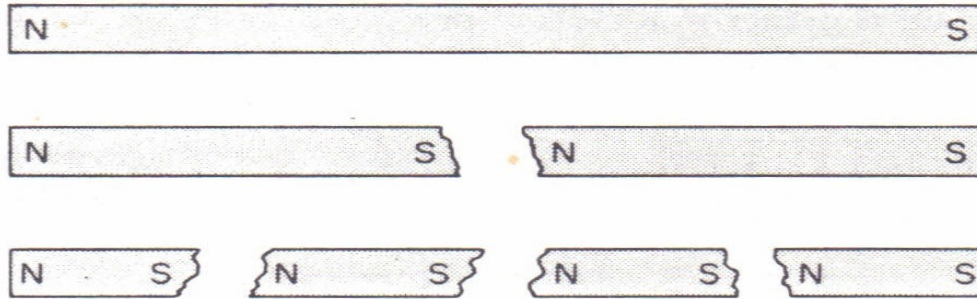
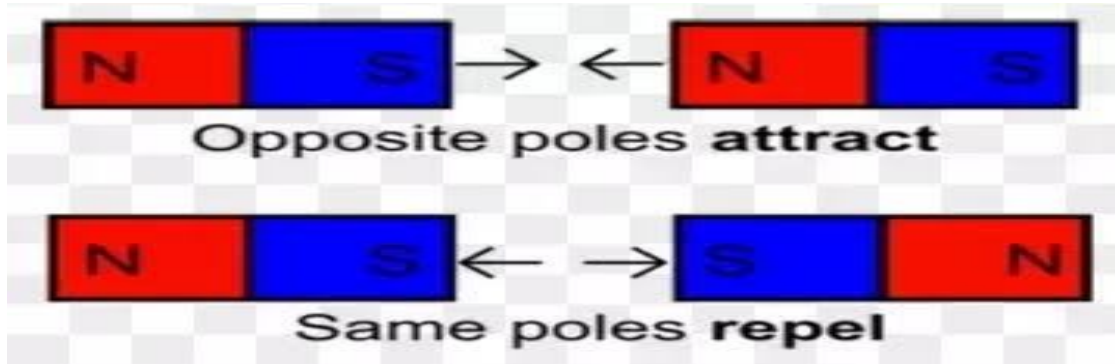


Fig. 31.13. Effect of breaking a bar magnet

The law of magnetism

- ❖ Magnetic poles exert forces on the other magnetic poles.
- ❖ The law of magnetism states that unlike poles attract each other and like poles repel each other.



Magnetization

The process of making a magnet by stroking or other methods is called magnetization.



Properties of magnets

The following are some basic properties of any magnet:

1. A magnet **attracts piece** of **iron and steel** .
2. If a magnet is suspended freely, it always comes to rest with its ends pointing in a **north-south direction**.
3. A magnet has two poles
4. No matter what it is shape or its size may be the two poles **always exist in pairs**.

A compass

- ❖ A compass is a small suspended magnet . Used to show the **geographic northern direction**.



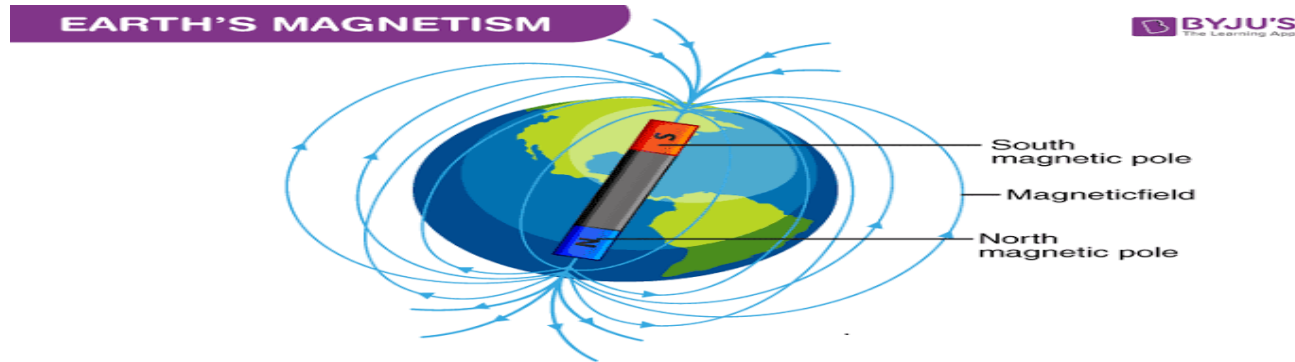
compass

- ❖ A compass **helps** people in traveling on **sea , land and air** .because it always points in the northern direction.

- ❖ Navigators and pilots make use of a compass to find their direction in their journey.

Earth's magnetism

- ❖ Scientists assume that a big magnet exists inside the earth.
- ❖ Its north pole is found in the geographic south pole and its south pole is at the geographic north pole.



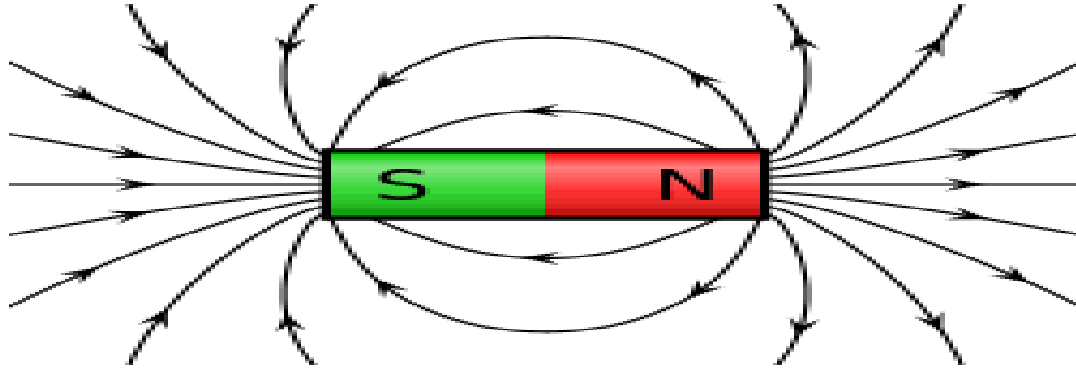
- ❖ A suspended magnet or a compass always points in the **geographic north** , because of the magnetic **property** of the earth.
- ❖ The earth's magnetic south pole attracts the **north pole** of a compass or suspended bar magnet.

magnetic field

- ❖ **Magnetic field** is a region where a magnetic pole would experience a force or exerts a force.

magnetic lines force

- ❖ Magnetic lines of force are imaginary lines which continuously represent the direction of magnetic field.



properties of magnetic lines of force

1. The magnetic lines of force of a bar magnet always emanate from the north pole and following a curved path enter to the south pole. Then they reach back the north pole moving inside the magnet from south pole to the north pole of the magnet. Thus they are closed lines.
2. Magnetic lines of force never cross each other.
3. Near the magnetic poles , where the magnetic force is stronger, the lines of force are closer. Going away from the magnetic force decreases and the lines become spares

Use of Magnets

- ❖ Magnets have different applications (uses). Some of these uses are :
 - Magnets in compasses are used to indicate directions on seas , oceans , air and ground.
 - They are used for lifting up iron or steel to higher places.
 - They are used in the construction of electric bells , motors , radio , generators etc...
 - They are used to separate magnetic substances like iron from mixtures of different non magnetic materials.

summary of daily lesson

- ✓ Magnet
- ✓ Classification of magnet
- ✓ Magnetic and non magnetic substances
- ✓ Breaking magnet
- ✓ The law magnetism
- ✓ Properties of magnets
- ✓ Compass
- ✓ Earth's magnetism
- ✓ Use of magnet