

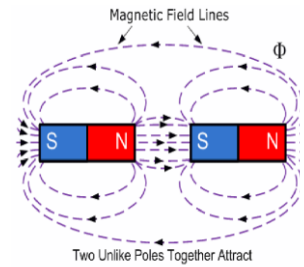
# Week 33 – SCIENCE NOTE PAGE

## Magnetism



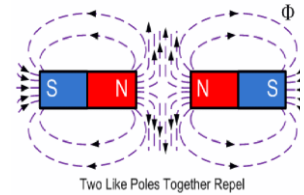
### Bar Magnets

- Bar magnets are magnetized **metal**
- The two ends of the bar are called magnetic **poles**
  - The poles are called: the **north** and the **south** poles
  - Having two poles makes magnets **dipolar**
- **Cool fact: If you cut a bar magnet in half, you do NOT get one “North” piece and one “South” piece... instead, each “half” will become its own “complete” magnet...with their own North and South ends...**



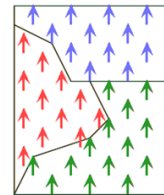
### Opposites Attract, Likes Repel

- The poles of magnets are like electrically charged particles
- **Opposite poles** (North and South) **attract** each other
- **Like poles** (North and North OR South and South) **repel** each other



### Domains

- **Domains** are small regions in which **adjacent** atoms that have **magnetic fields line up** with their magnetic fields oriented in the same direction



### How Are Magnets Made?

- In **ALL** magnets, the DOMAINS are lined up!
- **Permanent Magnets**
  - made in a factory
  - all their magnetic domains are **aligned** in one direction; **magnetic field** is **strong**
  - **Examples: bar magnets, horseshoe magnets, neodymium magnets, refrigerator magnets**
- **Temporary Magnets**
  - behave **LIKE** magnet **only** in presence of a **permanent magnet**
  - **no** magnetic field of their own
  - **Examples: paper clips, nails, metal “junk,” electromagnets**



### Magnetic Fields and Forces

- Magnets exert a **force** on other magnets and on magnetic materials around them.
  - The effect of a magnet on the space around it is known as a **magnetic field**.
  - Magnetic fields are strongest at the **poles**

### Earth as a Magnet

- The Earth acts like a **magnet** – a giant bar magnet
- BUT do we call the poles by the CORRECT name?
  - Explain: The “north” end of a compass magnet points North, right? But wait....it would be attracted to a “south” pole.....so really, the Earth’s “North Pole” is actually a magnetic South pole!

