

Learning Target: I will be able to understand the differences between magnets and electromagnets, how they work, and their applications.



### Magnets vs. Electromagnets Interactive Activity

**Part 1: Key Concepts – Write whether the following definitions are electromagnets or permanent magnets.**

1. \_\_\_\_\_: Objects that produce a magnetic field without needing electricity.

Examples: fridge magnets, bar magnets.

2. \_\_\_\_\_: Magnets created when electric current flows through a wire coil. They can be turned on and off. Examples: doorbells, cranes in scrapyards.

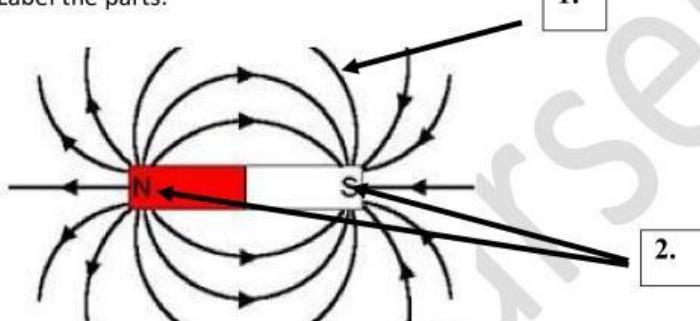
### **Part 2: Label the Diagrams**

Below are two diagrams. Use the word bank to label each part.

**Word Bank: (Magnetic Field, Wire Coil, Iron Core, Electric Current, Poles)**

#### **Diagram 1: Permanent Magnet**

Label the parts:

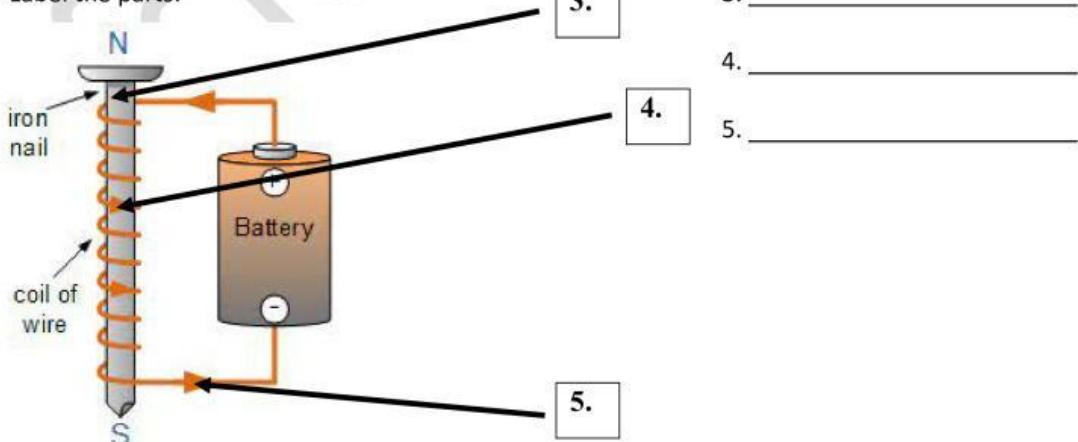


1. \_\_\_\_\_

2. \_\_\_\_\_

#### **Diagram 2: Electromagnet**

Label the parts:

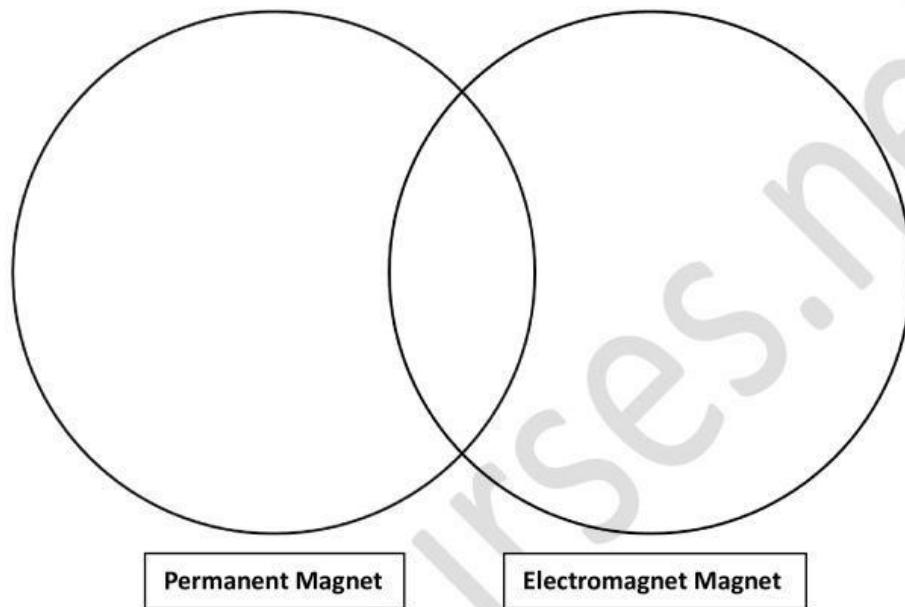


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### Part 3: Compare and Contrast

Complete the Venn Diagram below to compare permanent magnets and electromagnets. You can drag and drop or write the answers/numbers of answers in the diagram. Use the following features:

1. Requires electricity
2. Magnetic field is always present
3. Can be turned on and off
4. Has poles
5. Used in everyday applications



### Part 4: Multiple-Choice Questions

1. Which of the following statements is true about electromagnets?
  - A. They are always magnetic.
  - B. They require electricity to work.
  - C. They cannot be turned off.
  - D. They repel all materials.
2. What happens when you increase the number of wire coils around an iron nail in an electromagnet?
  - A. The magnetic field gets weaker.
  - B. The magnetic field gets stronger.
  - C. The magnetic field disappears.
  - D. The nail heats up but doesn't change the magnetic field.
3. Which is an example of a permanent magnet?
  - A. A nail connected to a battery
  - B. A fridge magnet
  - C. A doorbell
  - D. An electric motor

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**Part 5: Applications in Real Life**

Write one example of how each is used in daily life:

1. Permanent Magnet: \_\_\_\_\_

\_\_\_\_\_

2. Electromagnet: \_\_\_\_\_

\_\_\_\_\_

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