

- Permanent magnet **E**
- Temporary magnet **B**
- Motor **A**
- Generator **D**
- Core **F**
- Electromagnet **C**

- Turns when electricity is turned on.
- Becomes a magnet near a magnet, then loses its magnetism when moved away.
- Becomes a magnet when electricity moves in wire coils.
- Uses work to make electricity.
- Does not lose its magnetism: lodestone and magnetite are only natural types.
- Center of the electromagnet coils.

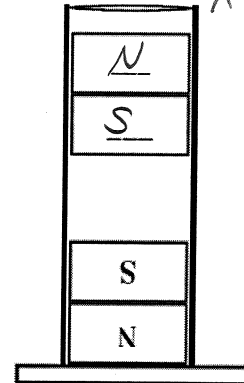
Attract or repel?



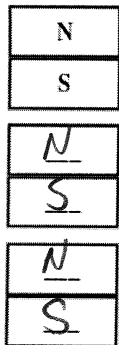
Attract or repel?



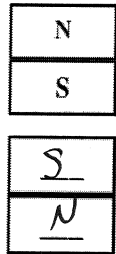
The diagram show magnetic levitation (Maglev). The top bar magnet is suspended (floating) above the bottom magnet while in a graduated cylinder to keep it from falling to the side.



- Two keep the upper magnet levitated, are they attracting or repelling each other?
- Label N and S on the upper magnet.

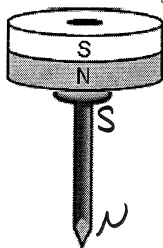


If the three magnets are attracting each other, label N and S on the second magnet.



If the two magnets are repelling each other, label N and S on the second magnet.

- Label the north and south poles of the nail magnet.
- Will the nail stay a magnet when removed from the bar magnet?
- Is the nail a temporary or permanent magnet?



True or false (and why):

"A magnet will pick up any piece of metal."

False
The metal has to be ferrous

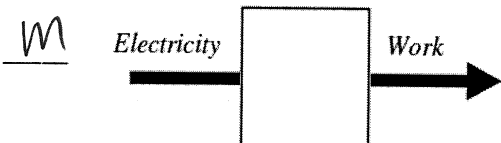
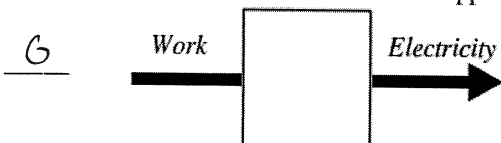
As a magnet gets closer to another magnet, does the magnetic force increase or decrease?

What makes a magnet on the atomic level?

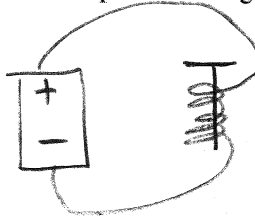
Electrons spinning same direction

Motor, Generator, or Both?

- | | |
|-----------------------------------|---|
| <u>G</u> Creates electricity. | <u>G</u> Used in a hydroelectric dam. |
| <u>B</u> Has loops of wire in it. | <u>M</u> Used in open or close windows in a car. |
| <u>M</u> Creates motion. | <u>M</u> Turns when electricity is applied to it. |
| <u>G</u> Is turned by a force. | |
| <u>G</u> Can make electricity. | |



Draw a simple electromagnet:

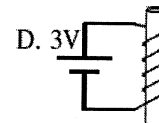
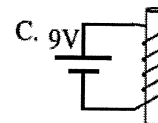
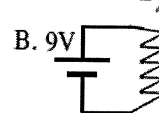
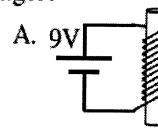


Name three ways you could increase the strength of an electromagnet:

- 1) Iron Core
- 2) More Voltage
- 3) more coils

Which electromagnet is stronger?

- A or B?
B or C?
C or D?
A or C?
A or D?



Which is the strongest of the four? **A**