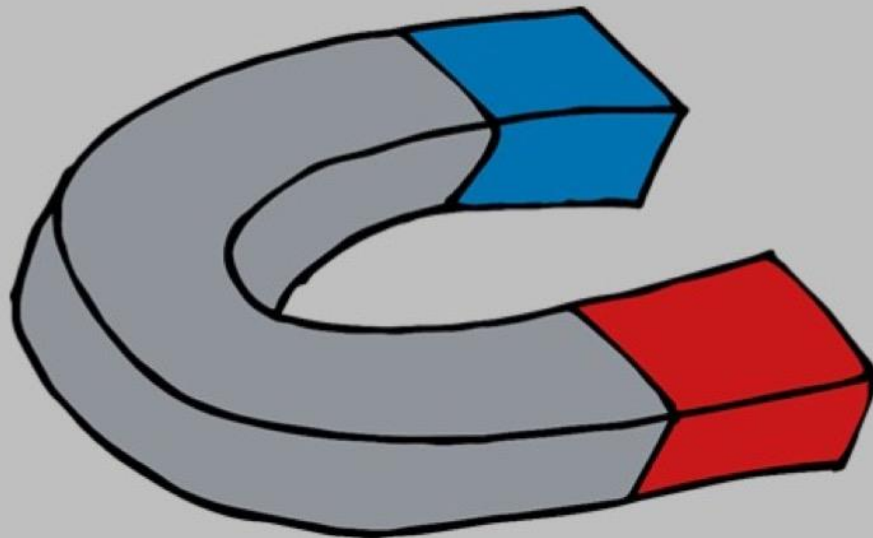


Magnets and Electricity

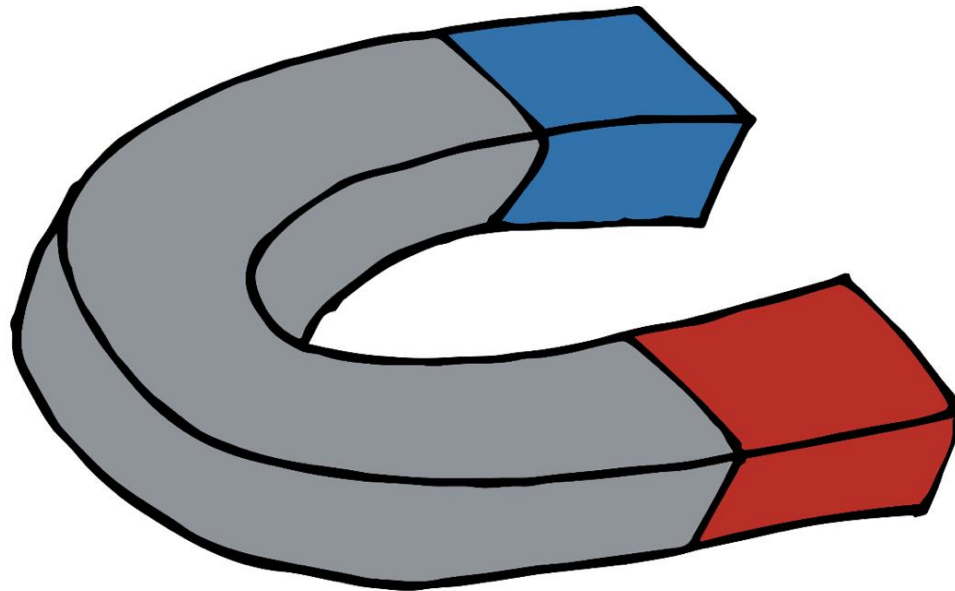


Day 1: Magnets & Electricity

Review the information in the following slides about magnetism. You may take notes in your science journal, but it is not required. 😊

What is a Magnet?

Magnet: a metal that can push or pull on iron, nickel, or cobalt.



What is a Magnet?

Magnets can be found naturally on earth or they can be man-made.

NATURAL

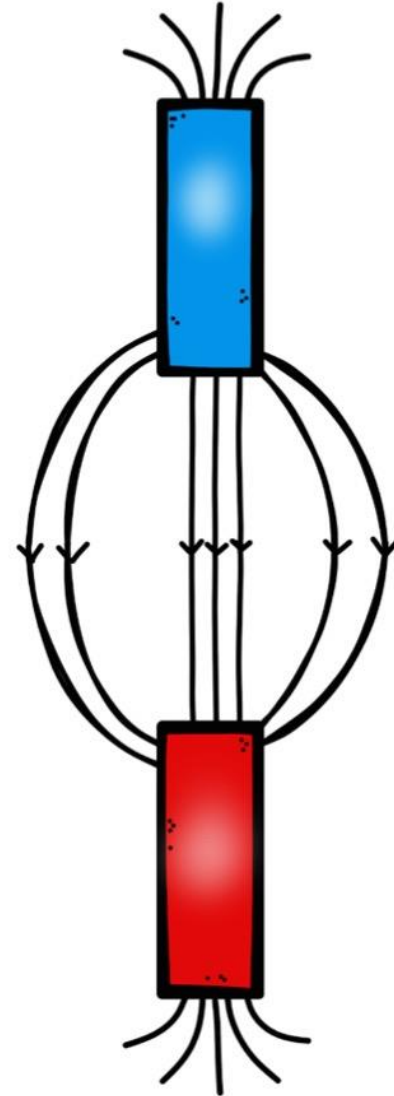


MAN-MADE

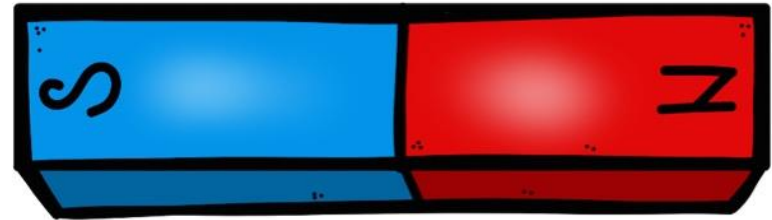
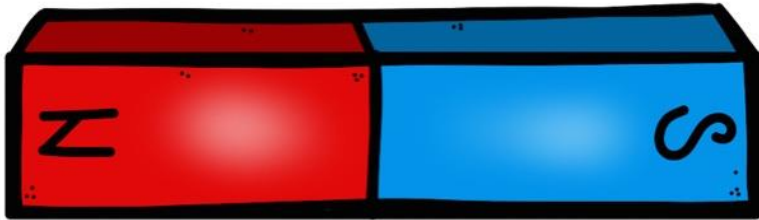


Magnetic Poles

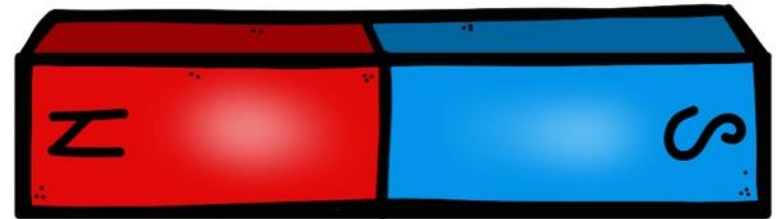
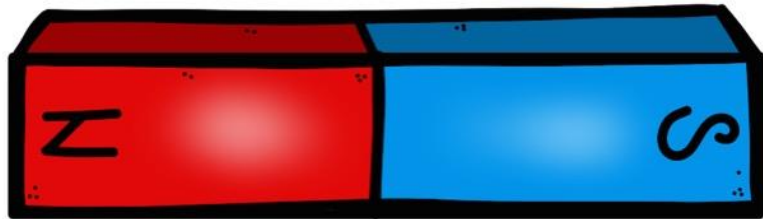
- If the north poles of two magnets are close, they will repel, or push apart.
- If the north pole and south pole are positioned together, they will attract, or pull together.



Like CHARGES REPEL

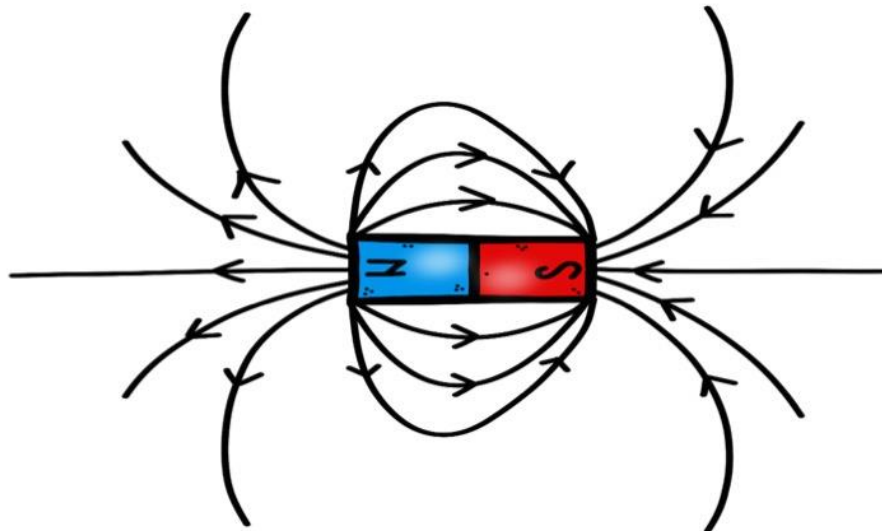


UNLike CHARGES ATTRACT



Magnetic Field

- Magnetic Field – the area around a magnet where it can push or pull on iron, nickel, or cobalt.
 - This is found all around the magnet, but it is strongest at the poles.

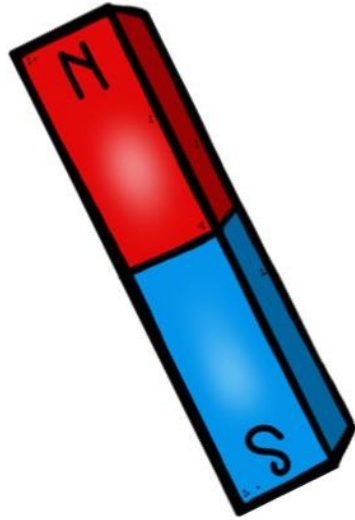


Magnets

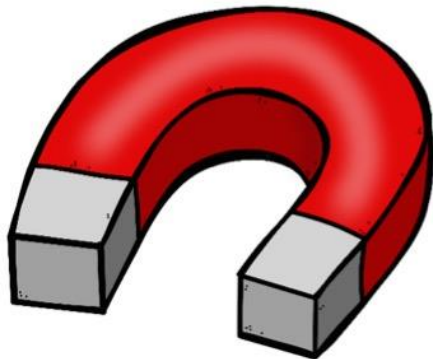
- Magnetic attraction is a physical property
 - Objects that contain nickel, iron, or cobalt are attracted to magnets.
 - A magnet can push or pull on objects even if something is between the magnet and the object.
 - Example: Your refrigerator



When You Work with Magnets



- Be careful not to drop a magnet.
 - Jarring a magnet can demagnetize it
- Do not rub two magnets together.
 - This will also demagnetize them
- Wash your hands after touching iron filings



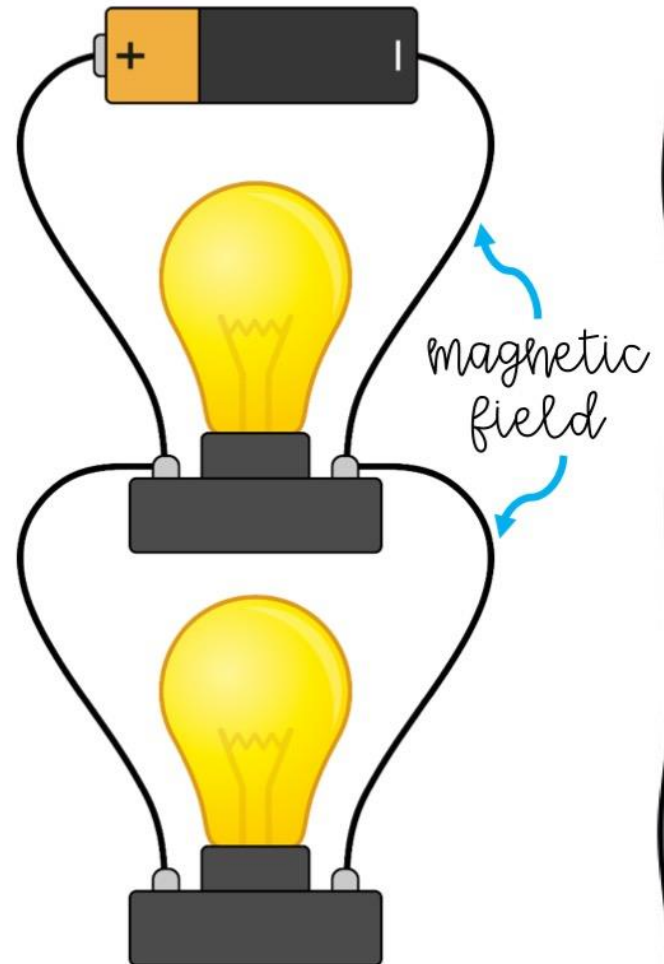
Day 2: Magnets & Electricity

Review the information in the following slides about electricity and magnetism.

You may take notes in your science journal, but it is not required. 😊

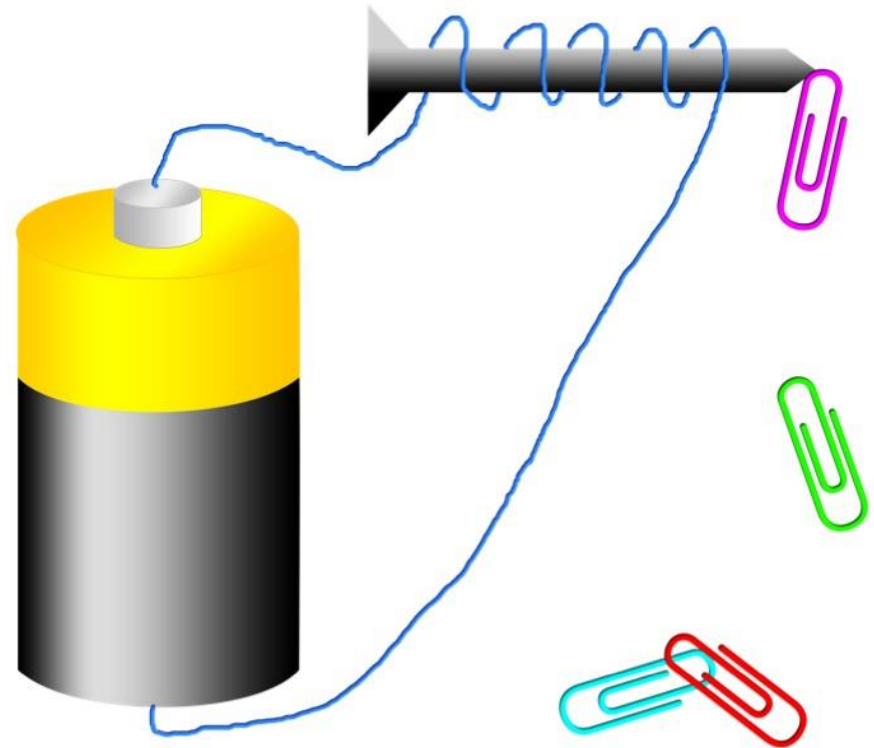
Electricity and Magnetism

- Electricity and magnetism are connected to one another.
 - When a current runs through a wire, it produces a very small *magnetic field*.
 - How do you think that you can make this magnetic field stronger?



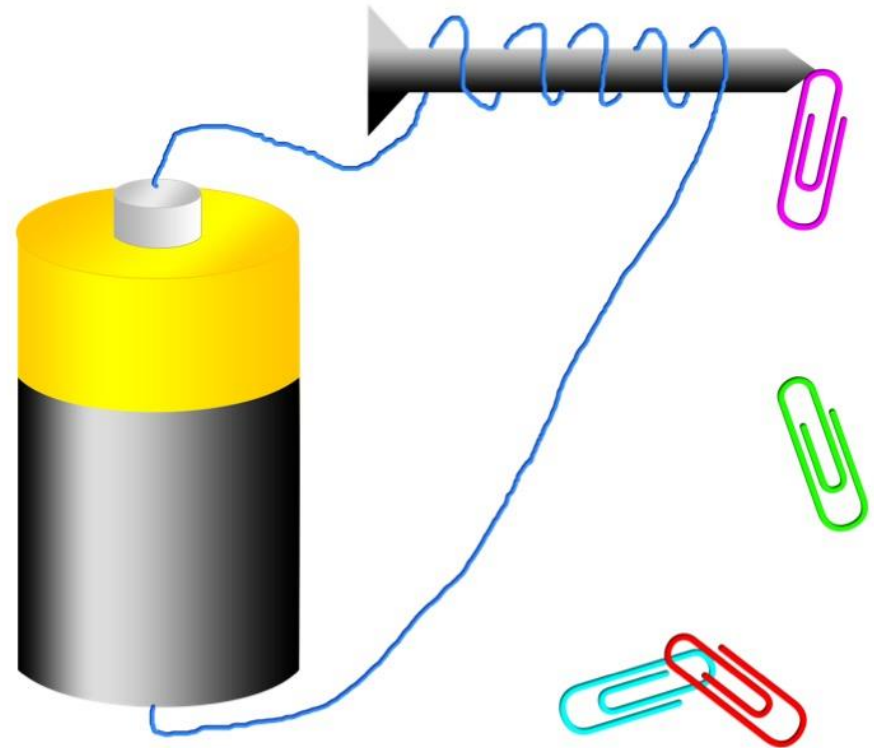
Electromagnets

- You can use electric current to turn a piece of metal like a nail into a magnet!



Electromagnets

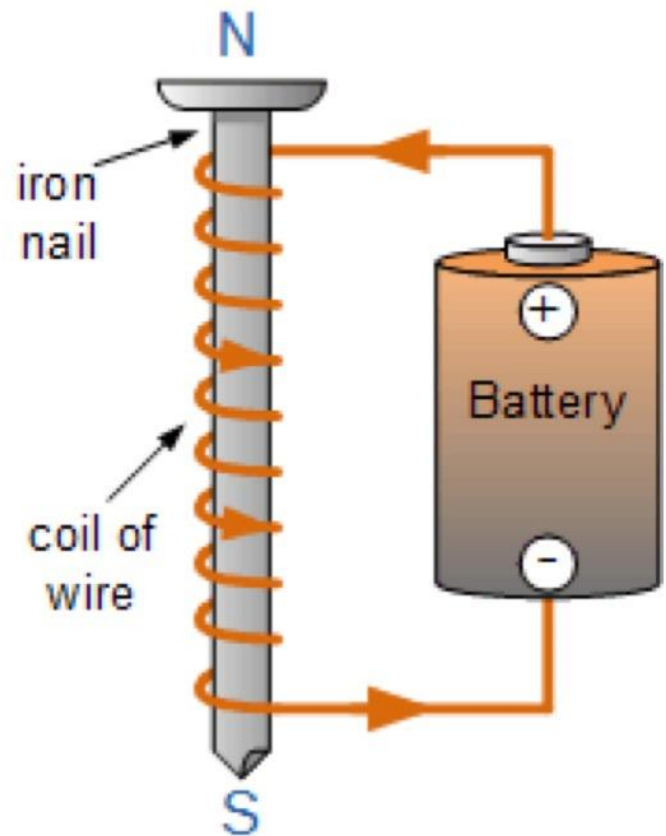
- An **electromagnet** is a magnet made by winding a wire with a current around an iron bar
 - The more coils it has, the stronger the magnet.



Think About It!

How can you turn an electromagnet on and off?

How can you make the electromagnet weaker or stronger?



Electromagnets Are Found In...



Doorbells



Speakers



Computers

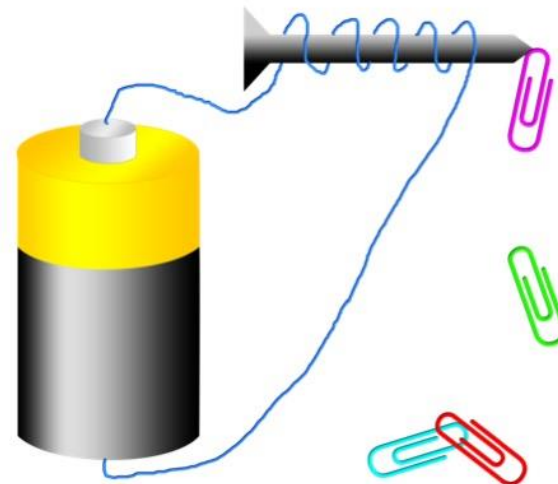
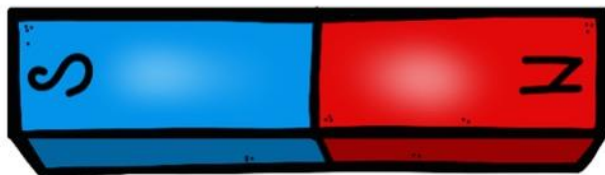
Electromagnets

- Some cranes have electromagnets that can pick up heavy loads of iron or steel.
 - When the operator turns the electromagnet off, the load drops to the ground!



Bar Magnet and Electromagnets

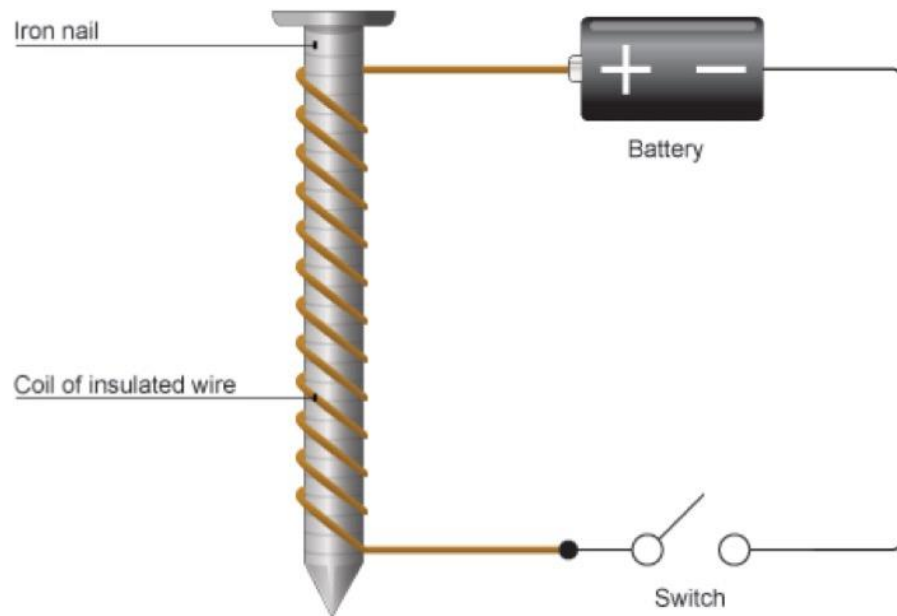
- They both have a north and south pole
- The magnetic field is strongest at the north and south pole.
- They both attract iron, cobalt, and nickel.



If a magnet and
electromagnet are so
similar, what is the benefit
of an electromagnet?

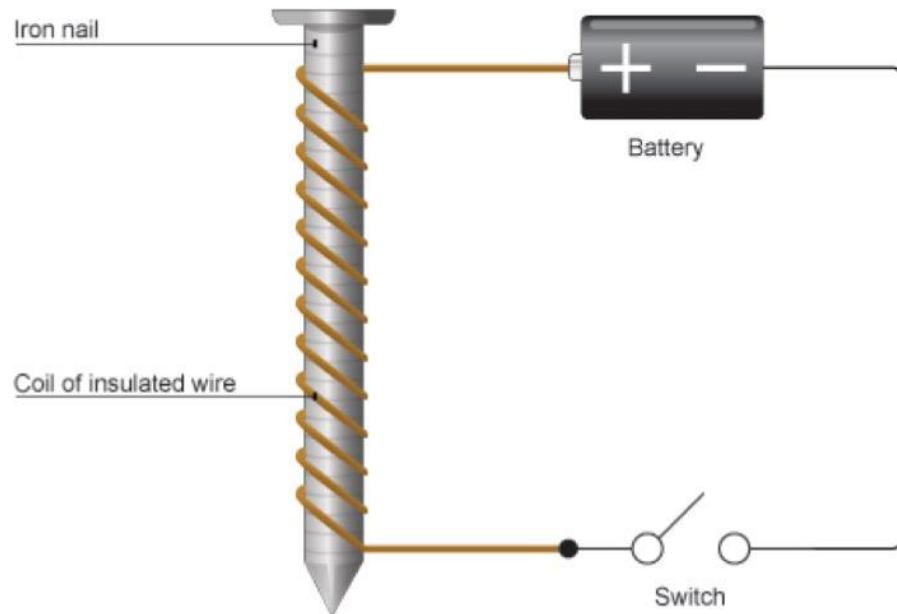
Advantages of Electromagnets

They can be turned on and off. *How?*



Advantages of Electromagnets

They can be made stronger or weaker. *How?*



Advantages of Electromagnets

You can switch the poles. *How?*

