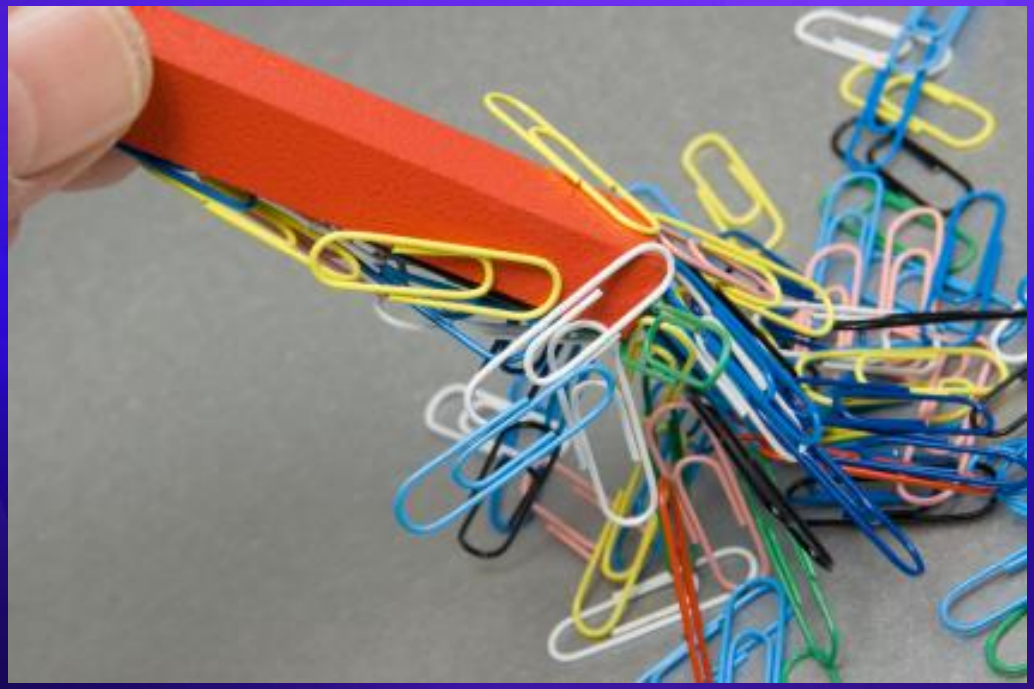
MAGNETISM

CHAPTER 19

19.1 What Is Magnetism?

- Magnets attract iron and similar materials that contain iron. They attract or repel other magnets.

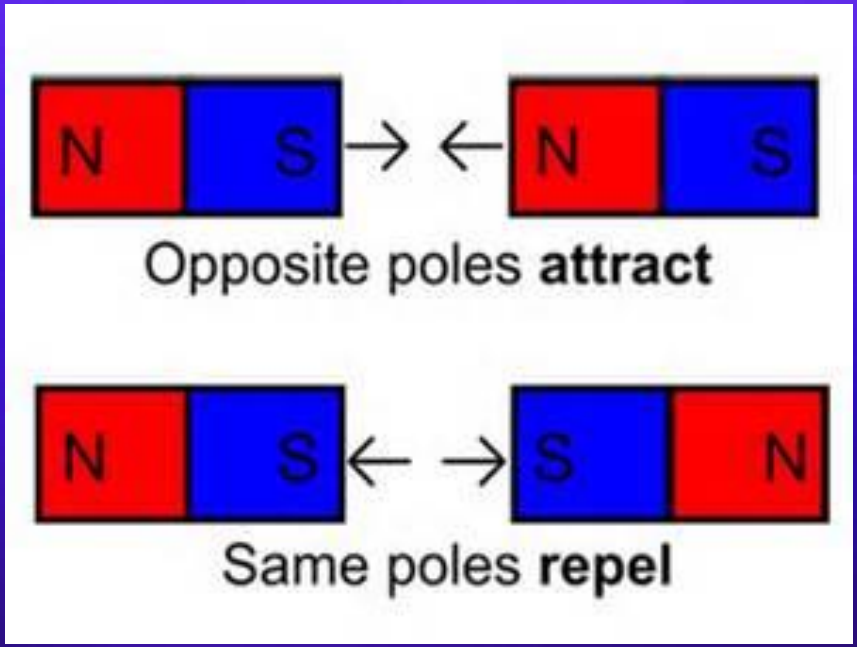


19.1 What Is Magnetism?

- In addition, one part of a magnet will always point north when allowed to swing freely.

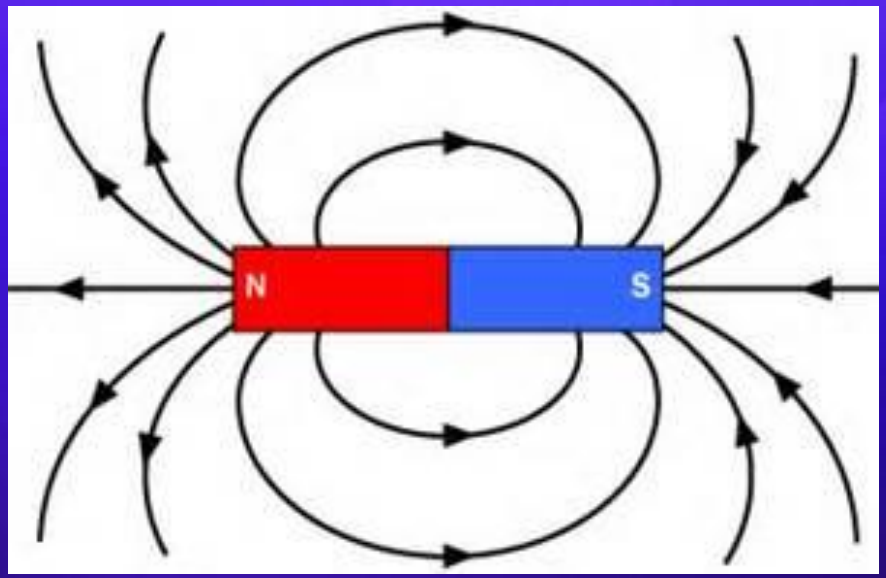
19.1 What Is Magnetism?

- Magnetic poles that are unlike attract each other and magnetic poles that are alike repel each other.



19.1 What Is Magnetism?

- Magnetic field lines spread out from one pole, curve around the magnet, and return to the other pole.

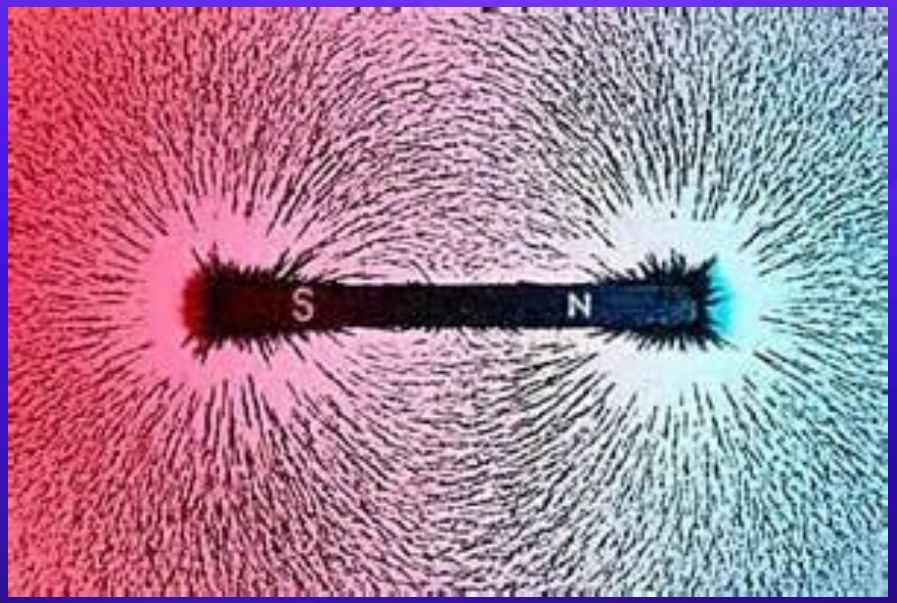


magnet

- Any material that attracts iron and materials that contain iron.

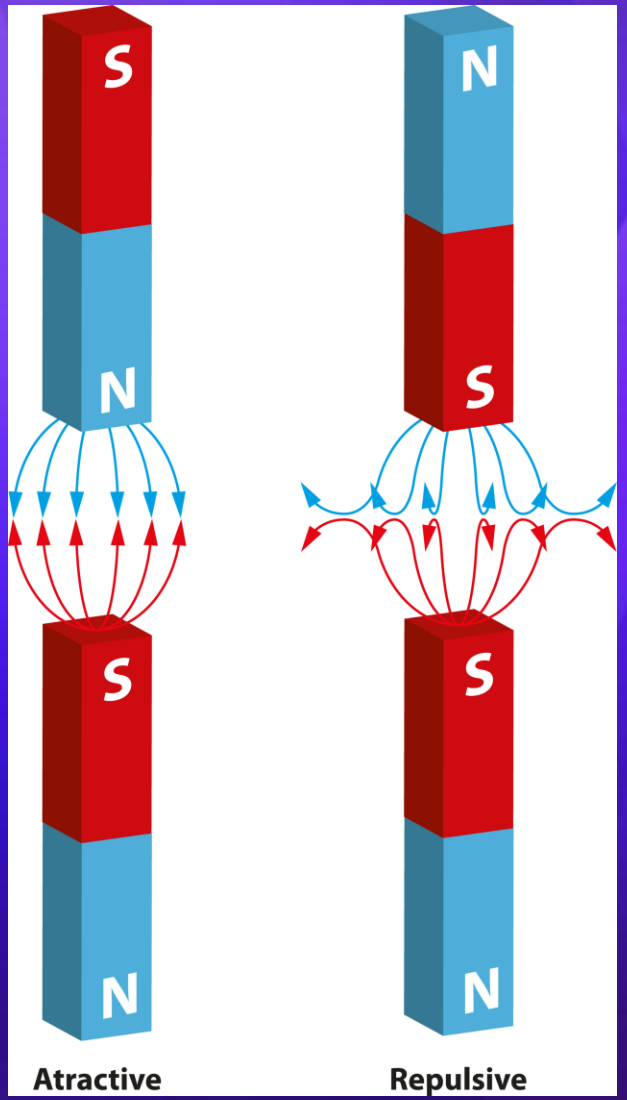
magnetic pole

- The ends of a magnetic object, where the magnetic force is strongest.



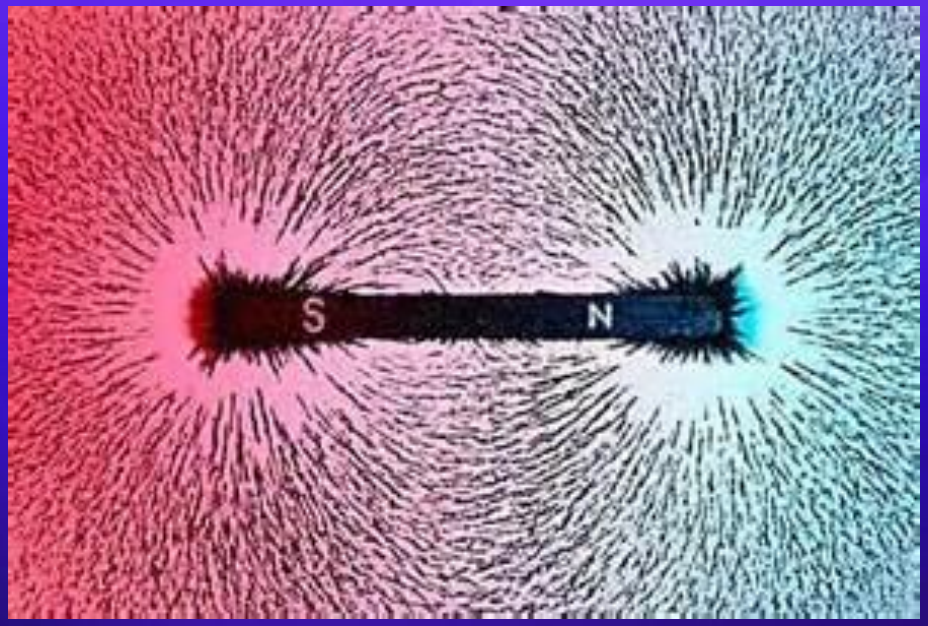
magnetic force

- A force produced when magnetic poles interact.



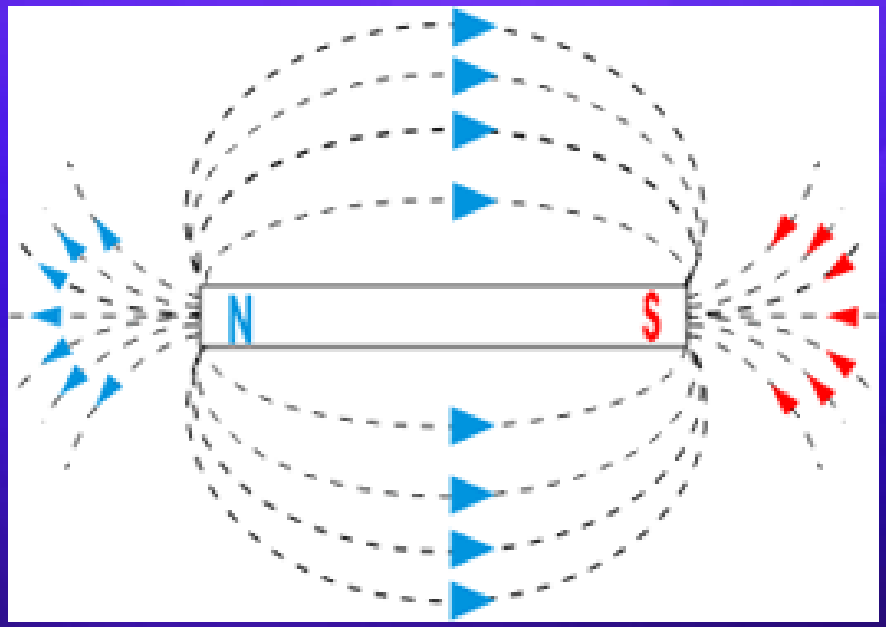
magnetic field

- The region around a magnet where the magnetic force is exerted.



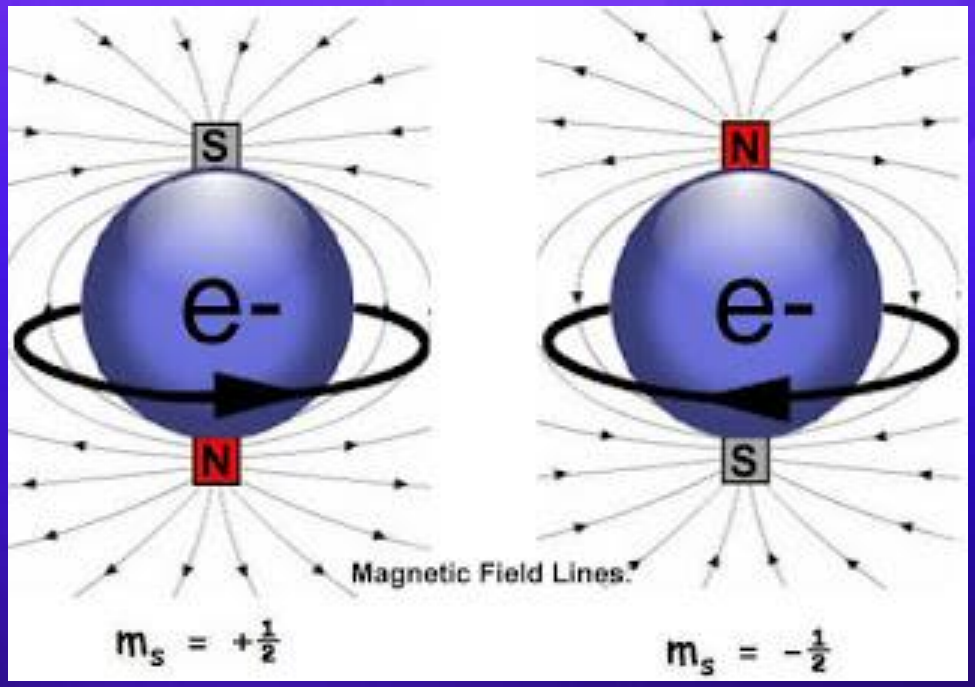
magnetic field lines

Invisible lines that map out the magnetic field around a magnet.



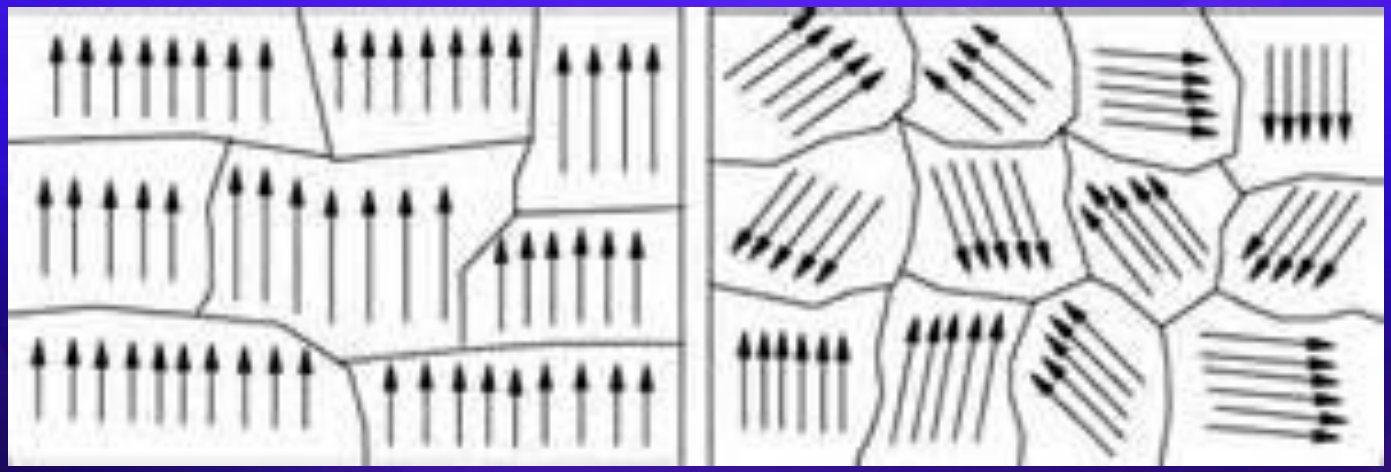
19.2 Inside a Magnet

- A spinning electron produces a magnetic field that makes the electron behave like a tiny magnet in an atom.



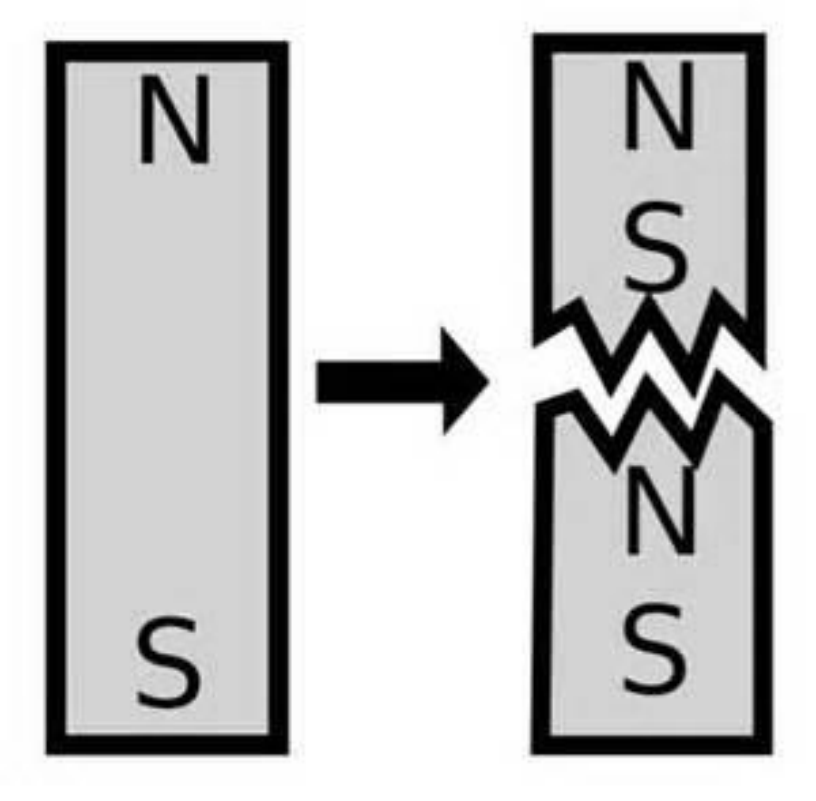
19.2 Inside a Magnet

- In a magnetized material, all or most of the magnetic domains are arranged in the same direction.



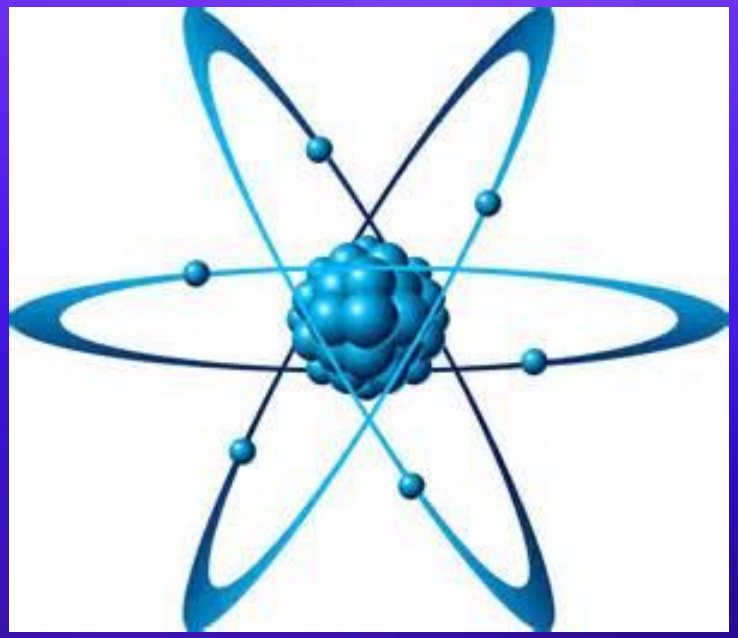
19.2 Inside a Magnet

- Magnets can be made, destroyed, or broken apart.



atom

- The basic particle from which all elements are made.

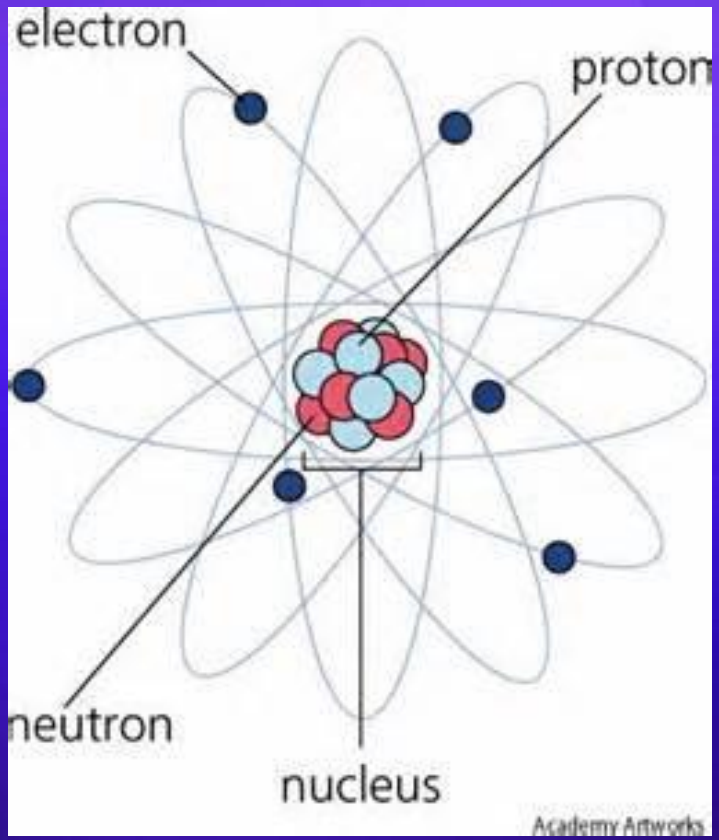


element

- A pure substance that cannot be broken down into other substances by chemical or physical means.

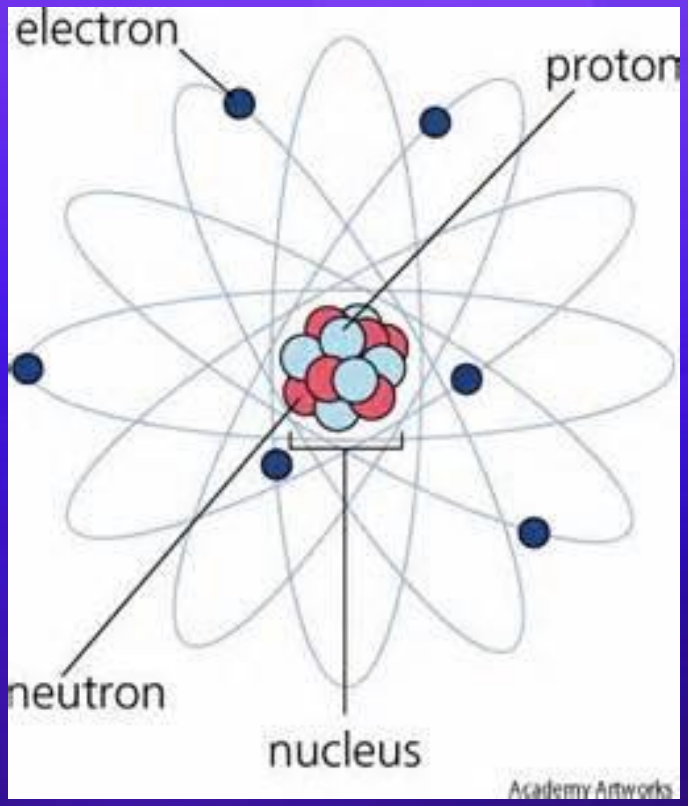
nucleus

- The central core of the atom.



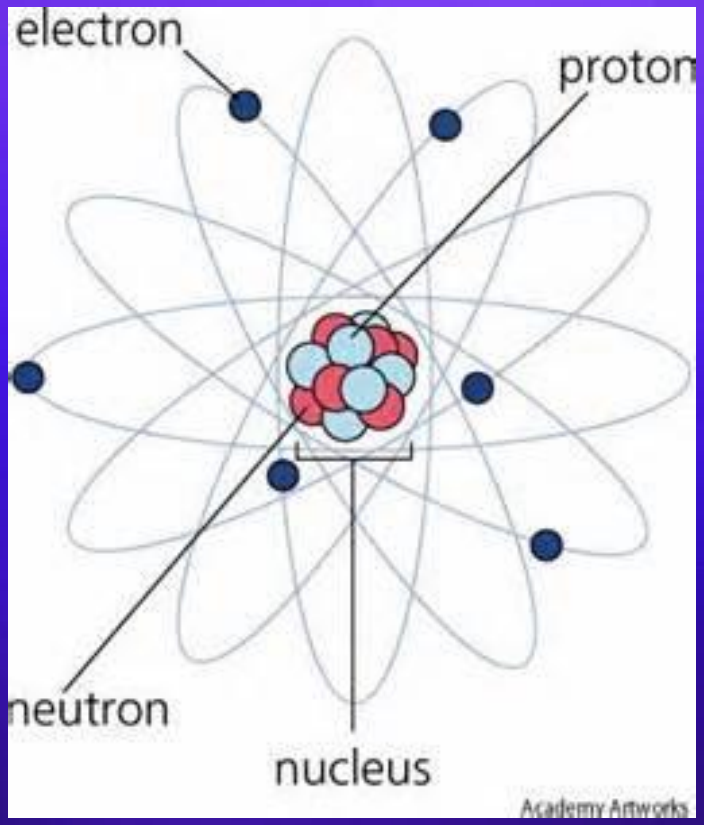
proton

- A positively charged particle that is part of an atom's nucleus.



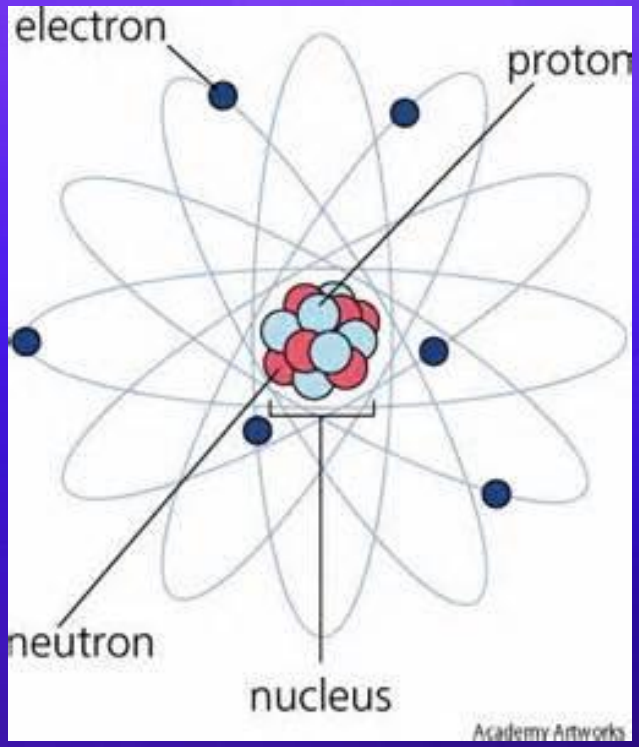
neutron

- A small particle in the nucleus of the atom, with no electrical charge.



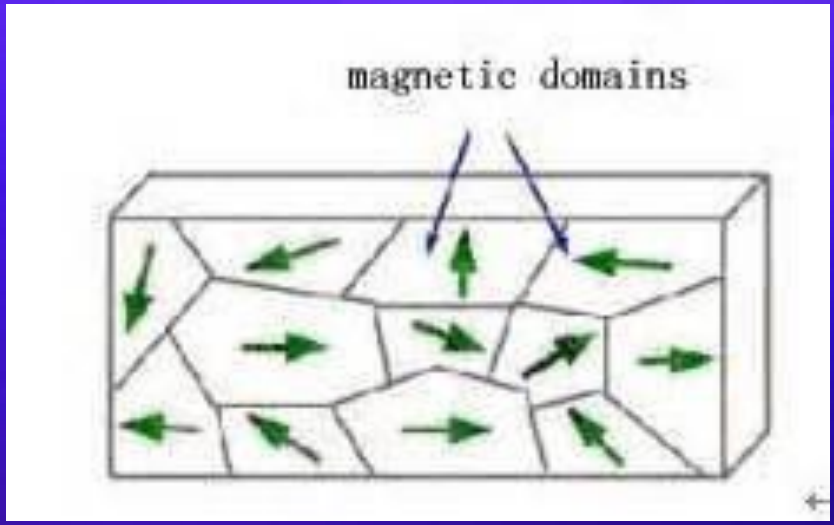
electron

- A negatively charged particle that is found outside the nucleus of an atom.



magnetic domain

- A region in which the magnetic fields of all the atoms are lined up in the same direction.



ferromagnetic material

- A material that is strongly attracted to a magnet, and which can be made into a magnet.

temporary magnet

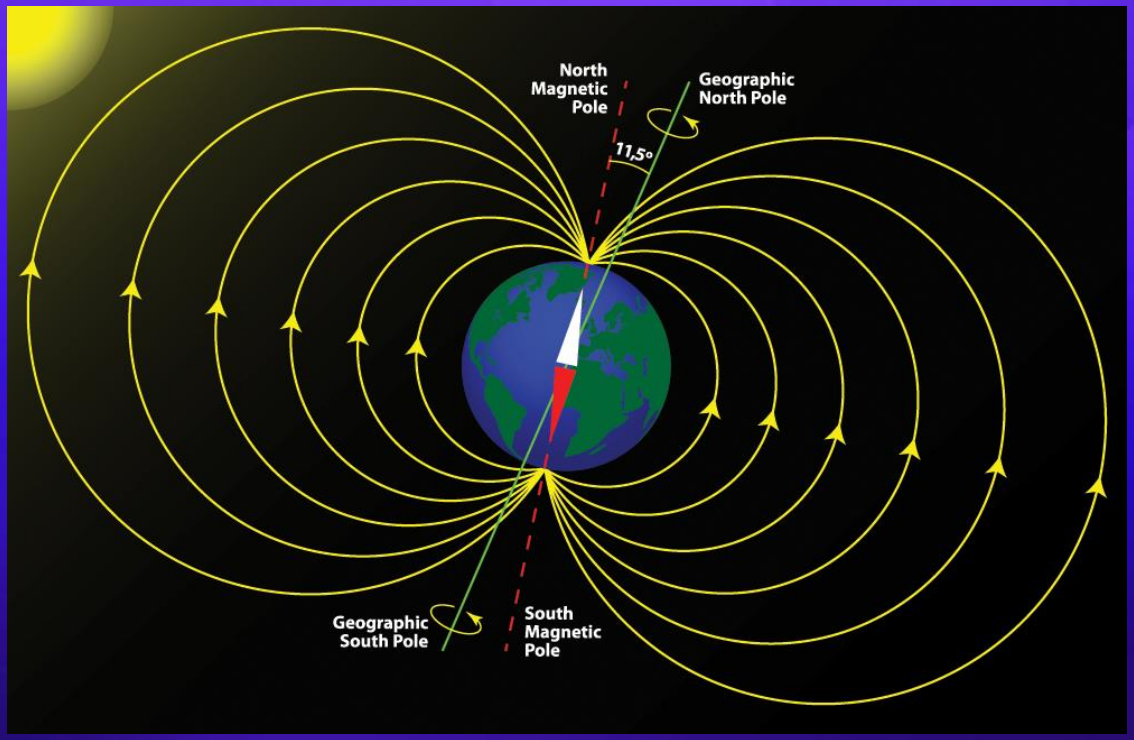
- A magnet made from a material that easily loses its magnetism.

permanent magnet

- A magnet made of material that keeps its magnetism.

19.3 Magnetic Earth

- Just like a bar magnet, Earth has a magnetic field surrounding it and two magnetic poles.



19.3 Magnetic Earth

- Since Earth produces a strong magnetic field, Earth itself can make magnets out of ferromagnetic materials.

19.3 Magnetic Earth

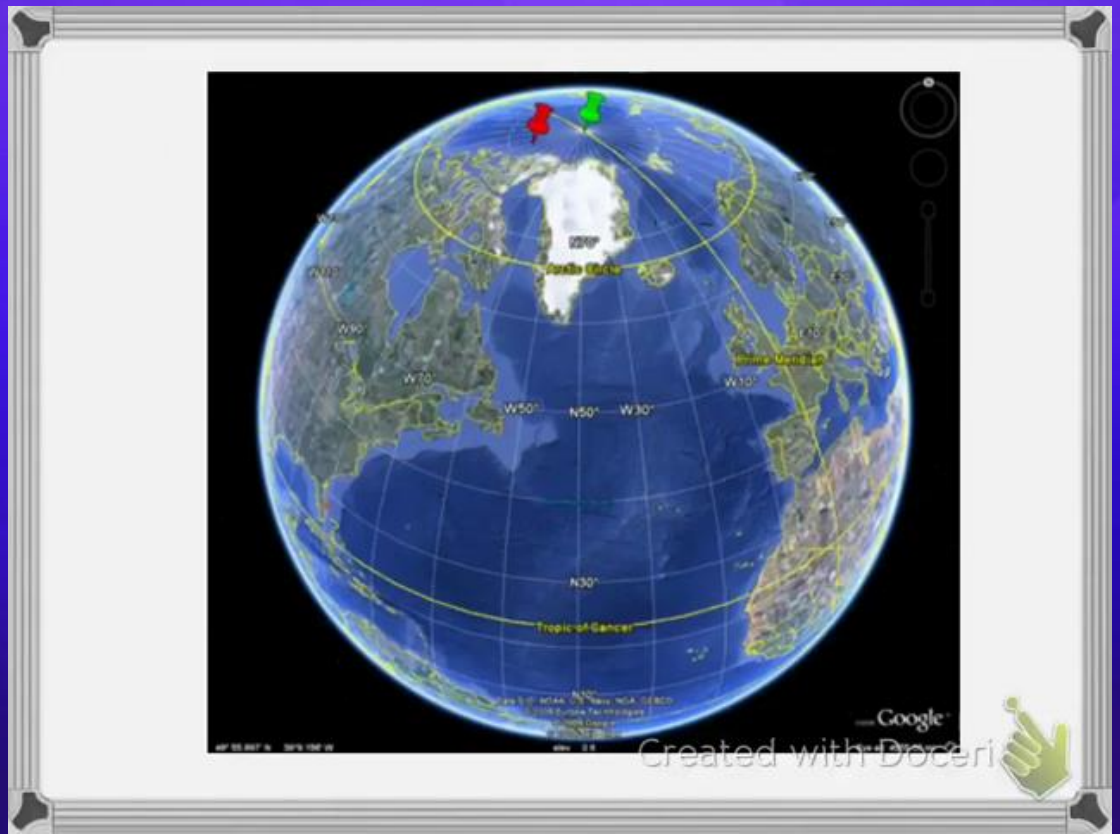
- Earth's magnetic field affects the movements of electrically charged particles in space.

compass

- A device with a magnetized needle that can spin freely.

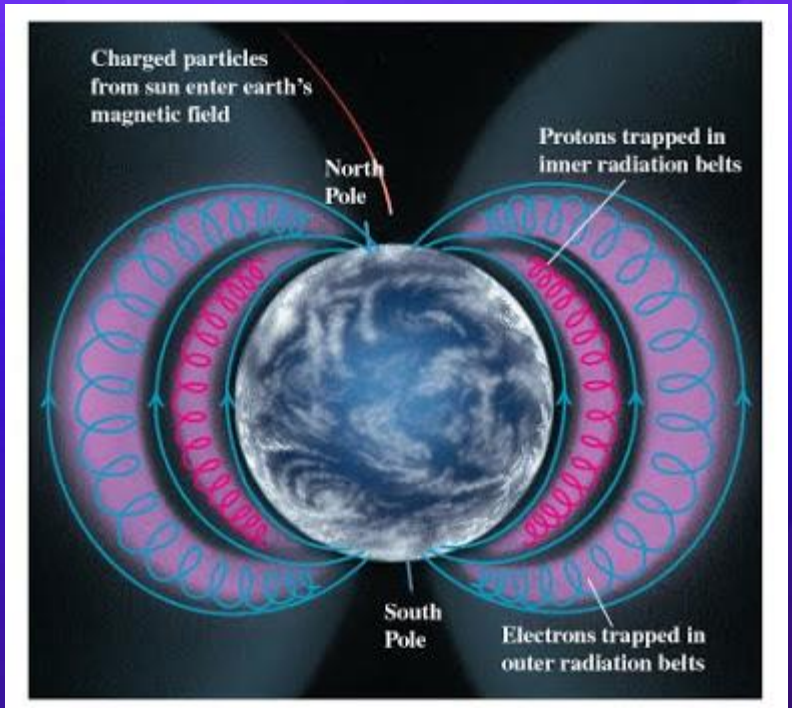
magnetic declination

- The angle between geographic north and the north to which a compass points.



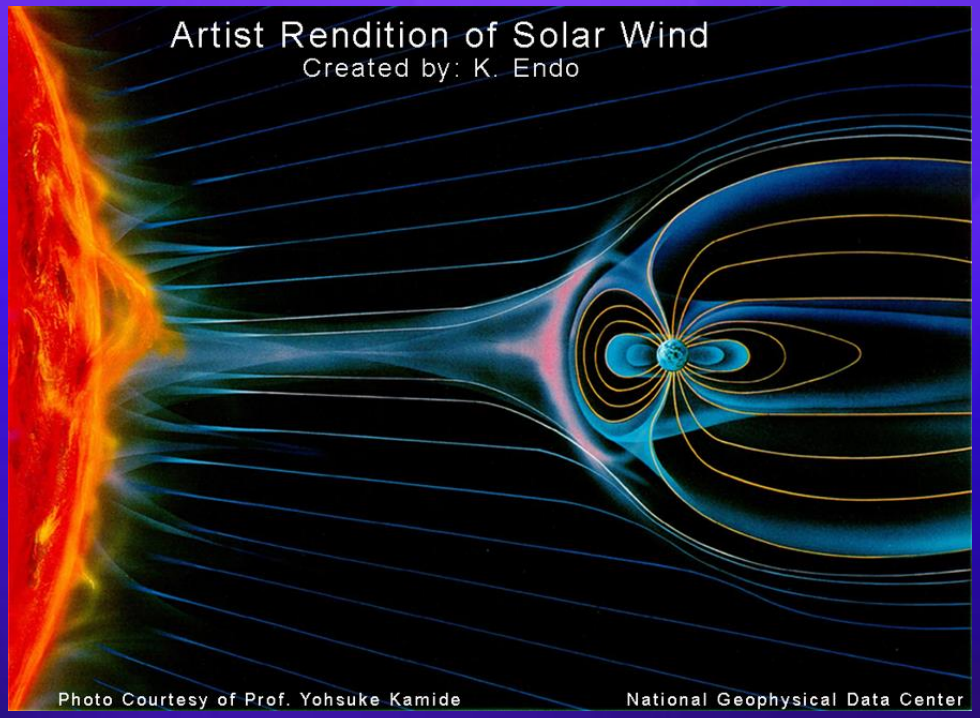
Van Allen belts

- Two doughnut-shaped regions 1,000-25,000 kilometers above Earth that contain electrons and protons traveling at high speed.



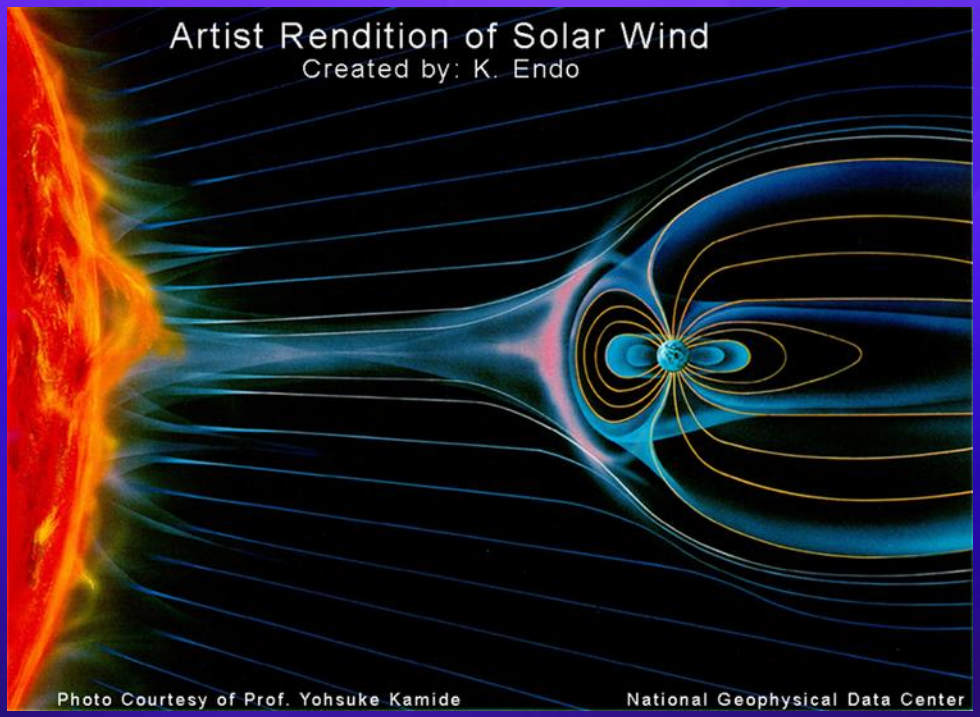
solar wind

- Streams of electrically charged particles flowing at high speeds from the sun.



magnetosphere

- The region of Earth's magnetic field shaped by the solar wind.



aurora

- A GLOWING REGION PRODUCED BY THE INTERACTION OF CHARGED PARTICLES AND ATOMS IN THE ATMOSPHERE.