

Magnetism

- opposite poles attract
- like poles repel

Magnetic Field Lines

- direction of the field lines is the direction that the north pole of a compass will point.
- points to Earth's N pole

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Always 2 = DIPOLE

Electromagnetism

Oersted's Principle of Electromagnetism:

- when an electric current is present in a conductor, a magnetic field is produced near the conductor

The Right Hand Rules (RHR)

RHR #1

- point your thumb in the direction of the current
- your fingers curl in the direction of the magnetic field around the conductor

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current out of the board

mag. field out

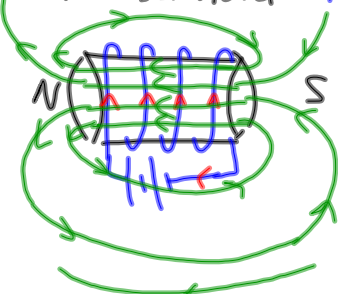
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current into the board

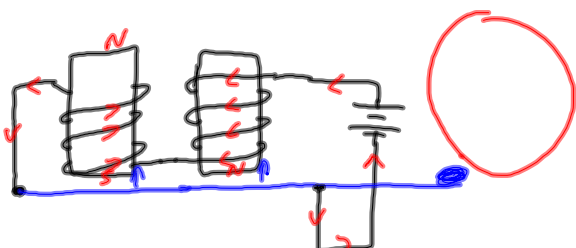
mag. field in

RHR #2: For Solenoids (coil)

- fingers curl in the direction of the current
- thumb points in the direction of the magnetic field inside the solenoid. (it points north)



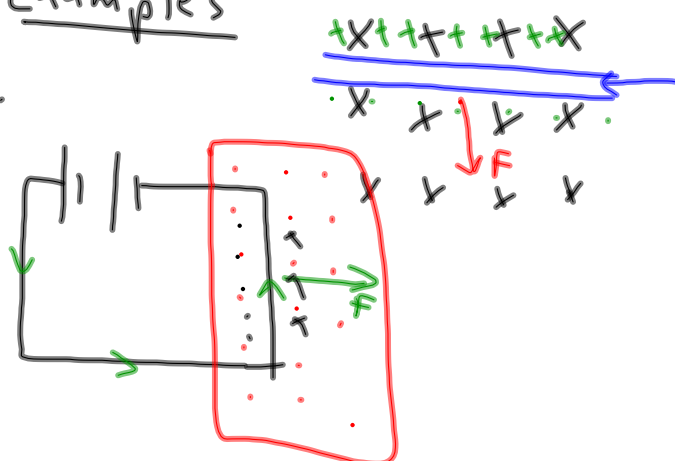
Electric Bell

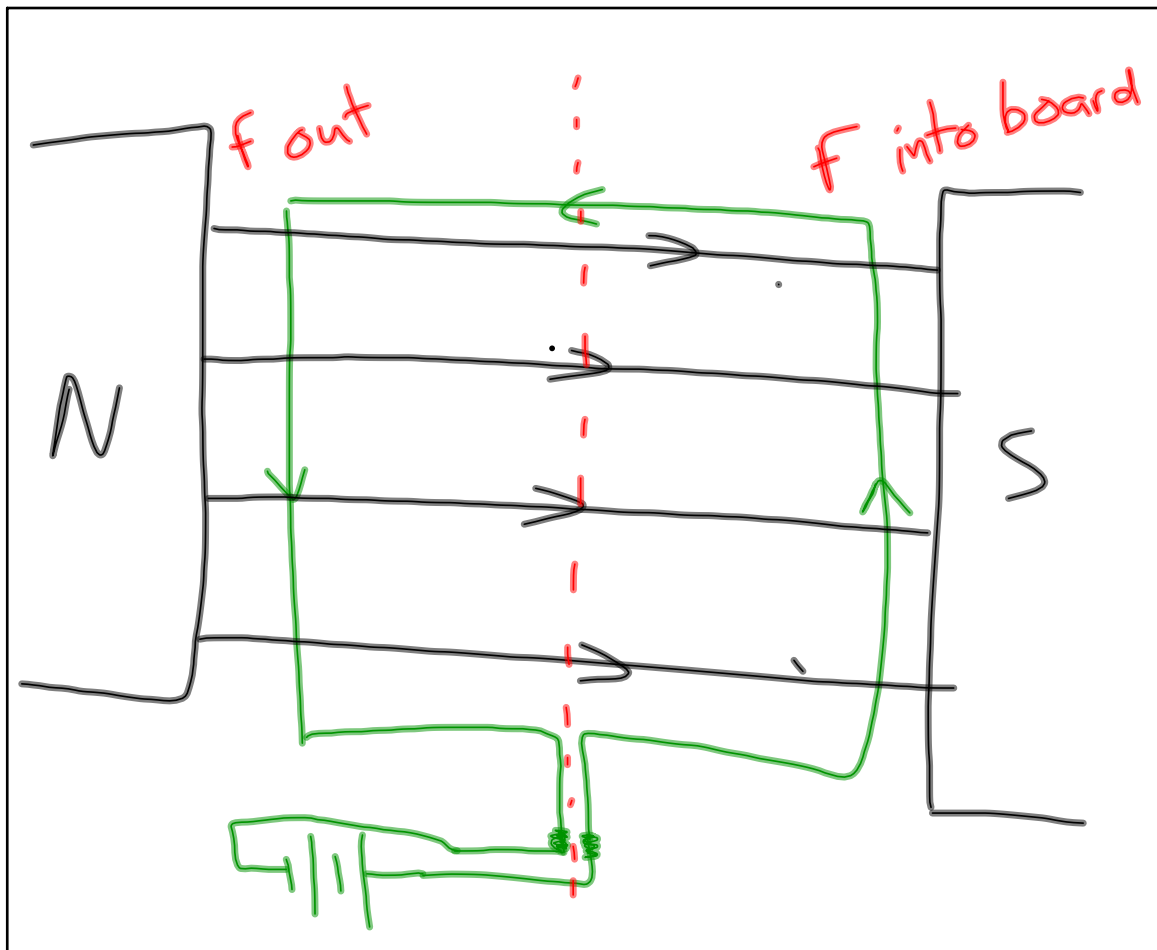
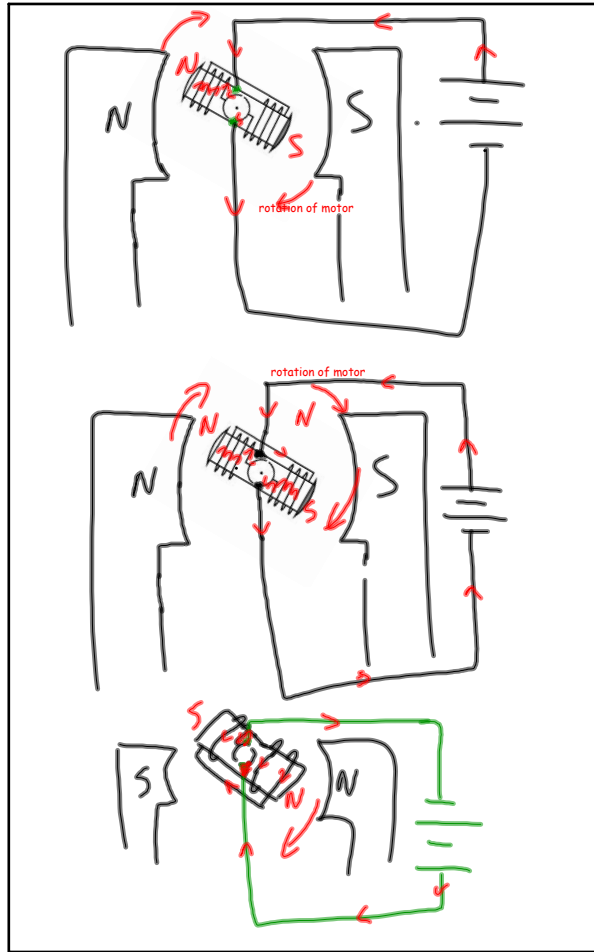


RHR #3: The Motor Principle

- thumb: direction of the current
- fingers: direction of external magnetic field
- palm: direction of the force exerted on the wire

Examples





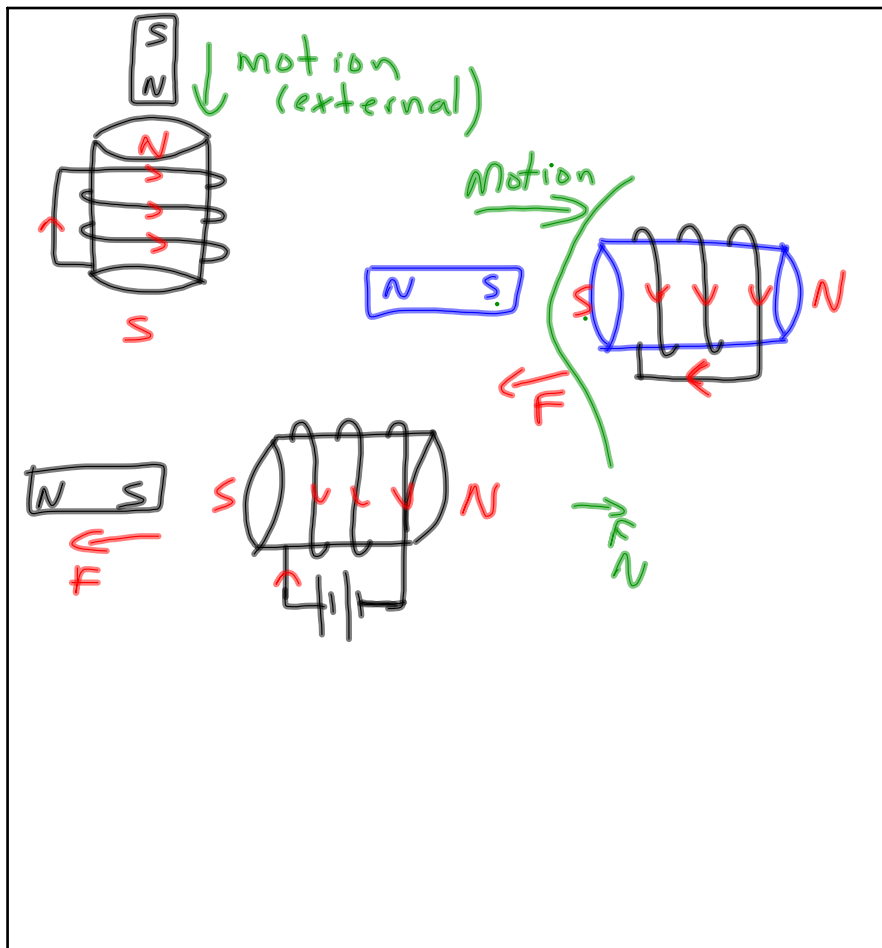
Faraday's Law:

When a magnetic field changes in the vicinity of a conductor, a current will be induced in the conductor.

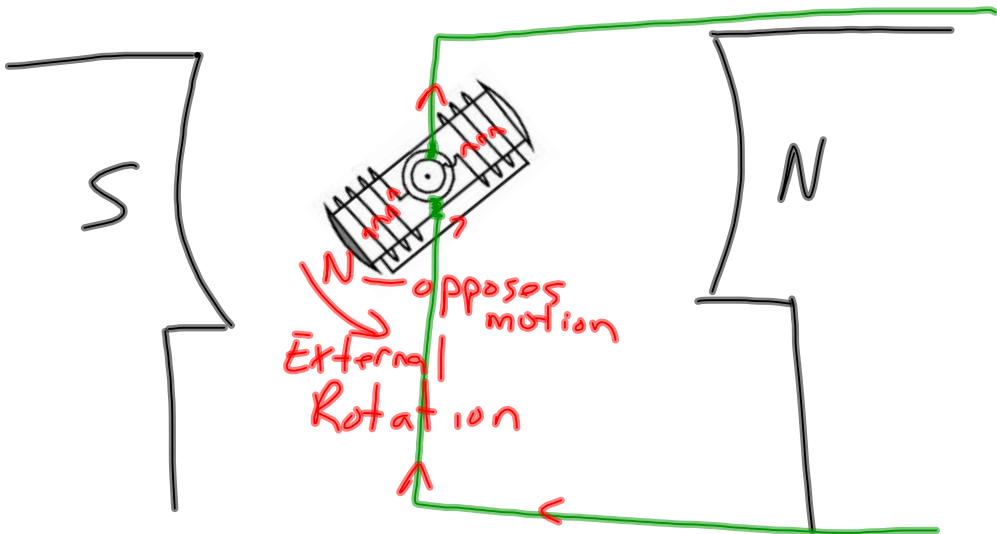
ELECTROMAGNETIC INDUCTION

Lenz's Law

- When a current is induced, it flows in such a way as to produce a magnetic field that opposes the motion of the inducing field.



Generators:



THE END