Basic Concepts of Electrochemical Cells

Chemical Change $\rightarrow$ Electric Current

**Anode**

- Zn metal
- Zn$^2+$ ions

**Cathode**

- Cu$^{2+}$ ions
- Cu metal

With time, Cu plates out onto Zn metal strip, and Zn strip "disappears."

- Zn is oxidized and is the reducing agent: $\text{Zn(s)} \rightarrow \text{Zn}^{2+}(aq) + 2e^-$
- Cu$^{2+}$ is reduced and is the oxidizing agent: $\text{Cu}^{2+}(aq) + 2e^- \rightarrow \text{Cu(s)}$

Electrons are transferred from Zn to Cu$^{2+}$, but there is no useful electric current.

Electrochemical cell

- Electrons move from anode to cathode in the wire. Anions & cations move thru the salt bridge.

A group of such cells is called a battery.

This is accomplished in a Galvanic or Voltaic cell.
Anode, site of oxidation, negative
Cathode, site of reduction, positive