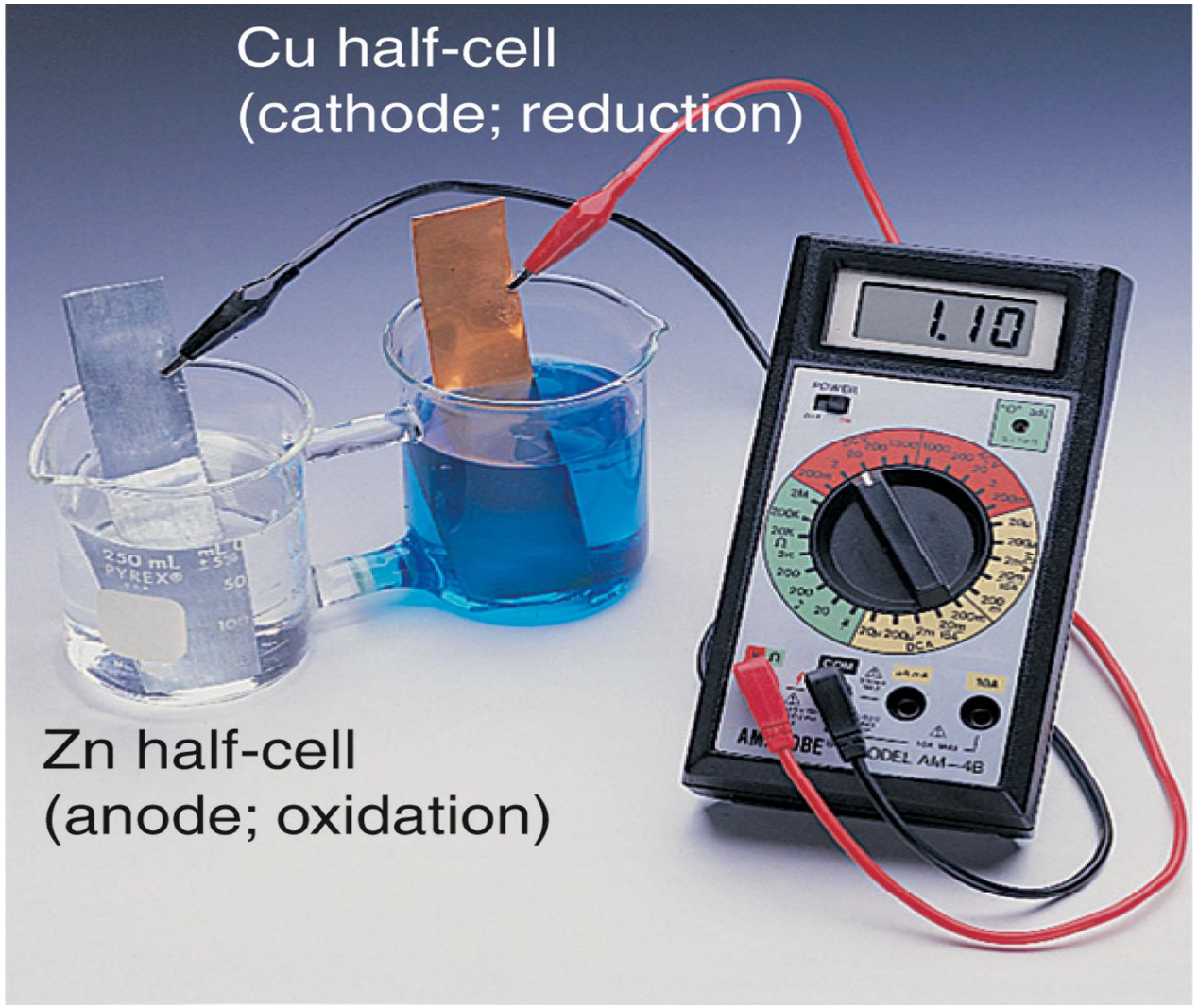
GALVANIC OR VOLTAIC CELL

A Zn-Cu voltaic cell (Daniell cell)

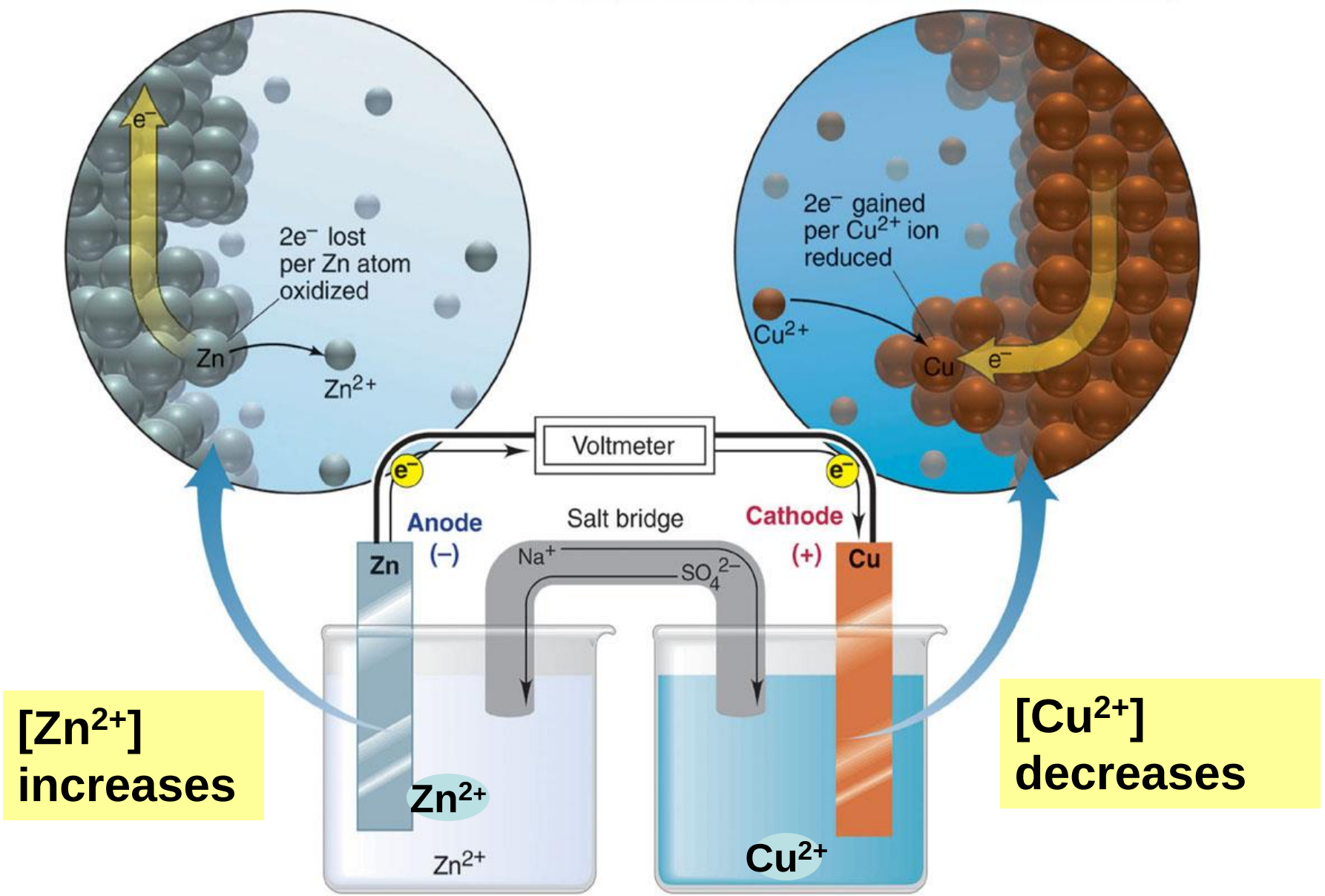


Oxidation half-reaction

$Zn(s) \rightarrow Zn^{2+}(aq) + 2e^-$

Reduction half-reaction

$Cu^{2+}(aq) + 2e^- \rightarrow Cu(s)$



$[Zn^{2+}]$ increases

$[Cu^{2+}]$ decreases

- Zn is oxidized at Zn electrode (anode) to Zn^{2+} and electrons released flow through external circuit to Cu electrode which is the cathode.
- Electrons are accepted by Cu^{2+} which is reduced to Cu.
- The reaction is spontaneous.

Anode (Oxidation) : $Zn(s) \longrightarrow Zn^{2+}(aq) + 2e^-$

Cathode (Reduction) : $Cu^{2+}(aq) + 2e^- \longrightarrow Cu(s)$

Overall reaction: $Zn(s) + Cu^{2+}(aq) \longrightarrow Zn^{2+}(aq) + Cu(s)$

Zinc electrode dissolves

∴ **Mass of Zn electrode ↓**

Cu is deposited at Cu electrode

∴ **Mass of Cu electrode ↑**

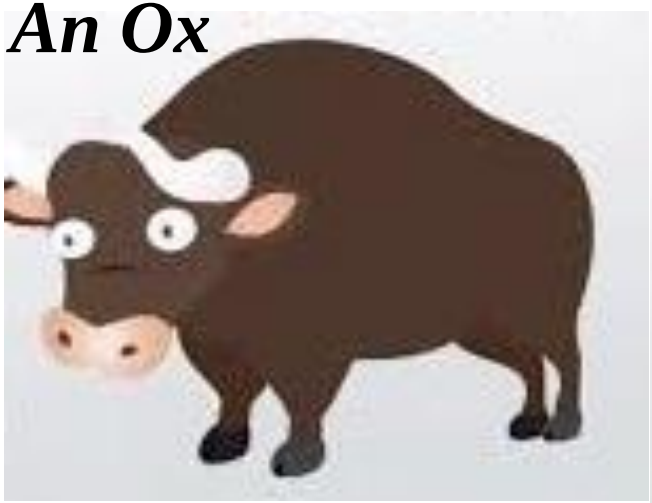
anode ➡ The electrode at which *oxidation* occurs.

cathode ➡ The electrode at which *reduction* occurs.

Remember

Anode- oxidation

An Ox



Reduction At Cathode

Red Cat

In electrochemical cell , Electron flow From anode to Cathode through external circuit ⇒

Fat Cat