Oxidation & Reduction

- If an atom gains electrons, it's said to be reduced.

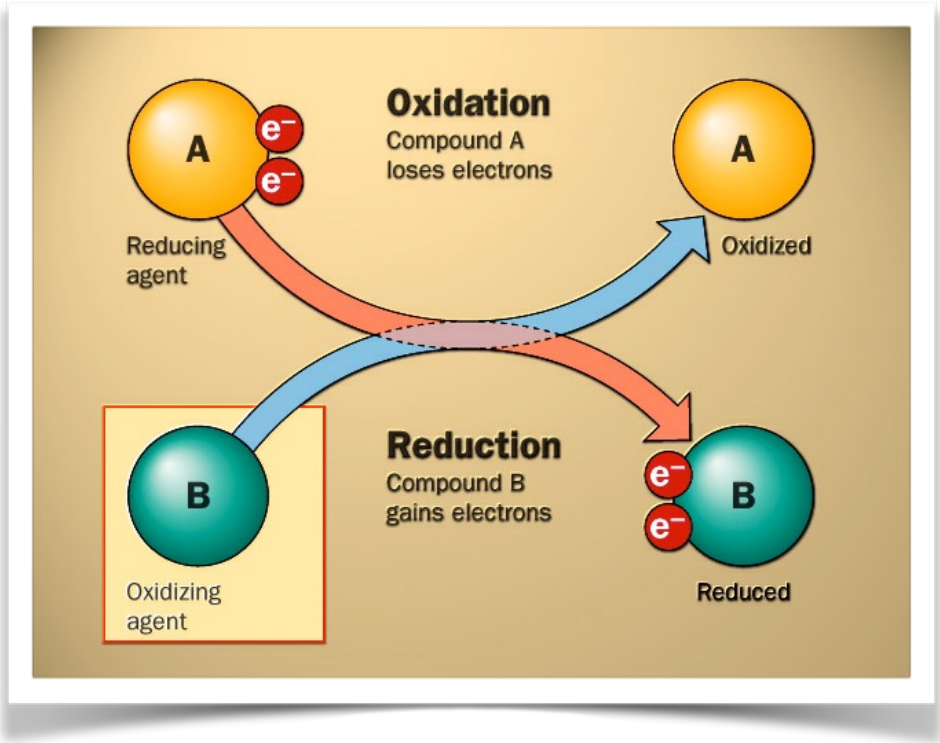
  Example: $Fe^{3+} \rightarrow Fe^{0}$

  $Cl^{0} \rightarrow Cl^{1-}$

- If an atom looses electrons, it's said to be oxidized.

  Example $Fe^{0} \rightarrow Fe^{3+}$

  $Cl^{1-} \rightarrow Cl^{0}$



- Chemical reactions where electrons are transferred from one atom to another are called oxidation-reduction reactions.

  Example: $Fe + HCl \rightarrow FeCl_3 + H_2$

- It can be tricky to figure out which atoms gained or lost electrons in a reaction.
- In the above reaction:
  - Iron was oxidized.
  - Chlorine neither gained nor lost electrons.
  - Hydrogen was reduced.
- To help us explore oxidation-reduction reactions we assign oxidation numbers to each atom in the solution.