

- 1) When a substance is oxidized, its charge (**increases, decreases**). Thus, when a substance is oxidized it (**gains, loses**) electrons.
- 2) When a substance is reduced, its charge (**increases, decreases**). Thus, when a substance is reduced it (**gains, loses**) electrons.
- 3) Label these changes as either oxidation or reduction:
- a) $\text{Cu}^{2+}(\text{aq}) \rightarrow \text{Cu}^0(\text{s})$ _____ c) $\text{Fe}^0(\text{s}) \rightarrow \text{Fe}^{3+}(\text{aq})$ _____
- b) $\text{Cl}_2^0(\text{g}) \rightarrow \text{Cl}^-(\text{aq})$ _____ d) $\text{Cr}^{3+}(\text{aq}) \rightarrow \text{Cr}^{6+}(\text{aq})$ _____
- 4) Put in all charges (oxidation numbers) in the following substances. (*Remember: The charge on pure elements is zero. Also, when H is in a compound, its charge is +1*)
- a) KCl b) FeBr₂ c) HCl d) H₂ e) CoI₃ f) Na g) Cl₂
- 5) Put in all charges (oxidation numbers). Then indicate which substance is being oxidized, which is being reduced, and what their products are. [Remember LEO-GER!]
- a) $\text{Cu}(\text{s}) + 2 \text{AgCl}(\text{aq}) \rightarrow \text{CuCl}_2(\text{aq}) + 2 \text{Ag}(\text{s})$
 Oxidized: _____ Product: _____
 Reduced: _____ Product: _____
- b) $2 \text{Na}(\text{s}) + \text{Br}_2(\text{g}) \rightarrow 2 \text{NaBr}(\text{aq})$
 Oxidized: _____ Product: _____
 Reduced: _____ Product: _____
- c) $\text{F}_2(\text{g}) + 2 \text{LiCl}(\text{aq}) \rightarrow 2 \text{LiF}(\text{aq}) + \text{Cl}_2(\text{g})$
 Oxidized: _____ Product: _____
 Reduced: _____ Product: _____
- 6) Complete the following reactions. Put in all charges (oxidation numbers). Then indicate which substance is being oxidized, which is being reduced, and what their products are. [Remember LEO-GER!]
- a) _____ Zn(s) + _____ CuBr₂(aq) →
 Oxidized: _____ Product: _____
 Reduced: _____ Product: _____
- b) _____ Cl₂(g) + _____ FeI₃(aq) →
 Oxidized: _____ Product: _____
 Reduced: _____ Product: _____
- c) _____ Mg(s) + _____ AlCl₃(aq) →
 Oxidized: _____ Product: _____
 Reduced: _____ Product: _____