AP Chemistry

Thou Shalt Not Forget

Credit: Dan Reid

**Electrochemistry**

1. Oxidation #’s: H = +1 (except in a hydride when it is -1) O = −2 (except in a peroxide when it is -1).
2. LEO goes GER … Oxidation always occurs at the anode in both a battery and an electrolytic cell.
3. Electrons in a battery flow from anode (−) to cathode (+).
4. Salt bridge: Cations flow to the cathode, and the anions flow to the anode.
5. While a battery is discharged, the cathode gains mass and the anode loses mass.
6. If you reverse a reaction, the sign of Eo cell changes, but if you double a reaction, Eo cell DOES NOT change!!
7. Eo cell = EoRed (GER) - EoRed (LEO) (The other way to calculate Eo cell = EoReduction + EoOxidation ...but that involves reversing one of the reactions and changing the sign for EoRed)
8. The half-reaction with a more (+) EoRed is the reaction that takes place at the cathode...GER.
9. When adding the two half reactions together, the electrons MUST cancel out.
10. ΔGo = −nFEo If ΔGo is (−), then Eocell is (+). Reminder: n = # of electrons transferred
11. If Q increases, then the voltage (Ecell) of the battery goes down.
12. Electroplating/Electrolysis Calculation: $grams=\frac{\left(molar mass of metal\right)\left(amps\right)\left(seconds\right)}{(moles)(F)} $… $g=\frac{(MM)(I)(t)}{nF}$