Chem 32.1

Bellwork:

1) Redox reactions are a transfer of _____
2) How can you determine what was oxidized and what was reduced?

Plan:

Review: difference between oxidation and reduction

Video: Crash Course Chemistry: electrochemistry https://www.youtube.com/watch?v=IV4IUsholjg

Video: rechargeable batteries https://www.youtube.com/watch?v=9OVtk6G2TnQ

Article: Lithium ion batteries
https://batteryuniversity.com/learn/archive/is_lithium_ion_the_ideal_battery

Khan academy: identifying the anode and cathode

Individual practice: identifying anode and cathode based on the scenario

HW: Ch 16 exercises: #11

Chem 32.3

Virtual Lab http://web.mst.edu/~gbert/Electro/Electrochem.html

Complete virtual lab

Level 0

Part 1: Select electrodes of your choice on either side and solutions of your choice on either side. Record your set-up on your data sheet and click "measure cell voltage"

- Was there any voltage in your initial experiment? Make a hypothesis as to why this is the case.
- How do you get any voltage at all? Experiment and describe how you made it work. (share in class)

Part 2: Set up a working cell with a silver electrode on the left and a lead electrode on the right.

- Measure the voltage and record your results
- What happens if you switch the silver and lead electrodes to the opposite sides (switching the solutions as well)?

- Click the link in the upper left hand corner for “standard potentials.” How are these potentials related to the voltage you measured for this setup?
- Propose how you could calculate the voltage without the meter. Try a different combination of electrodes and solutions to check your hypothesis.

Level 1:

- Record the set-up you are given and calculate/measure the voltage
- What happens when you change the concentration? How is concentration related to voltage?

Level 2:

- Record the set-up you are given and calculate the voltage (note: the meter doesn’t work this time)

Level 3:

- Construct the cell so you achieve the desired voltage. Record your cell and the voltage you achieved

Level 5: Enrichment (required for honors)

- Put the metals in order of activity (hint: the most active metal is the one that has the most negative standard reduction potential)