

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

Directions: Visit the website above and complete the experiments outlined at each level. Write your answers to the numbered questions and email to amutsaers@aznsa.com

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"

- 1) Was there any voltage in your initial experiment? Make a hypothesis as to why this is the case.
- 2) 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.

- 3) Measure the voltage and record your results
- 4) What happens if you switch the silver and lead electrodes to the opposite sides (switching the solutions as well)?
- 5) 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?
- 6) Propose how you could calculate the voltage without the meter. Try a different combination of electrodes and solutions to check your hypothesis.

Level 1:

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

Level 2:

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

Level 3:

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

Level 5: Enrichment (required for honors)

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