

## 21 • Electron Transfer Reactions

### ELECTROCHEMICAL CELL WORKSHEET

Consider the reduction potential chart. Find and copy the reduction equations for  $\text{Ag}^+ \rightarrow \text{Ag}^\circ$  and  $\text{Pb}^{2+} \rightarrow \text{Pb}^\circ$ . Be sure to include their reduction potentials (in volts).

1. Which metal ion has the greater reduction potential? \_\_\_\_\_
2. If these two metals (and their solutions) were used to create a galvanic cell, which metal would be the anode? \_\_\_\_\_
3. Write the reaction at the anode: \_\_\_\_\_
4. Write the reaction at the cathode: \_\_\_\_\_
5. What is the overall reaction? \_\_\_\_\_
6. What would be the voltage of the standard electrochemical cell? \_\_\_\_\_
7. Sketch the cell:
  
  
  
  
  
  
  
  
  
  
8. Write the cell notation for the cell: \_\_\_\_\_||\_\_\_\_\_
9. How many moles of electrons are involved in this reaction?  $n =$  \_\_\_\_\_
  
  
10. Find and copy down the Nernst Equation: \_\_\_\_\_
11. If a new cell is set up with the  $[\text{Ag}^+] = 0.50 \text{ M}$  and the  $[\text{Pb}^{2+}] = 2.0 \text{ M}$ , the cell voltage will be \_\_\_\_\_ (greater / less).
12. Use the Nernst equation to calculate the cell voltage with these new concentrations.