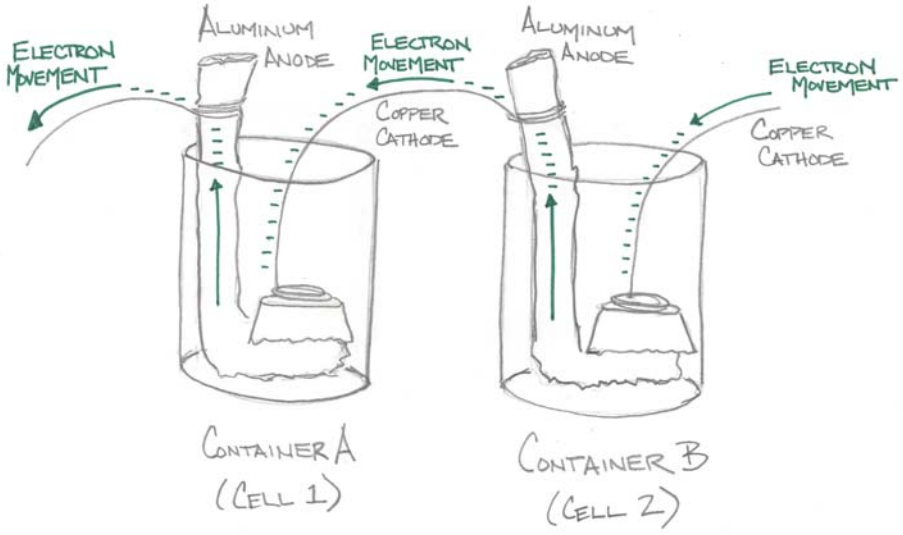
Team Name: _____ **Date:** _____

Two-Cell Battery Worksheet Answers

1. In the space below, draw a sketch of your two-cell battery circuit. Label each cell of the battery, the aluminum anode and copper cathode in each cell, and the direction that electrons move in the circuit.



2. Complete the following chart using information from all the teams in your class.

Below are some examples; other solutions can be used.

Solution #	Electrolyte	Concentration	DC Ammeter Reading
1	Water/Vinegar	5mL / 100mL solution of vinegar	-0.06 A
2	Water/Vinegar	25mL / 100mL solution of vinegar	-0.11 A
3	Water/Lemon Juice	5mL / 100mL solution of lemon juice	0.06 A
4	Water/Lemon Juice	15mL / 100mL solution of lemon juice	0.03 A

3. Which solution produced the lowest current? Why?

   15mL / 100mL solution of lemon juice

   This answer depends on which electrolytes you use and on their concentration. In this case, the lemon juice produced the lowest current because it had the lowest concentration of electrolytes.

4. Which solution produced the highest current? Why?

   25mL / 100mL solution of vinegar

   This answer depends on which electrolytes you use and on their concentration. In this case, the vinegar solution produced the highest current because it had the highest concentration of electrolytes.

5. Which solution made the best battery?

In this case, the Water/Vinegar solution made the best battery because it had the highest concentration of electrolytes. However, if the electrolyte concentrations are the same in each solution, the best battery will be made by the substance that can completely ionize (dissociate into ions) in water. In this case, a water/salt solution (strong electrolyte) will produce the highest current, followed by water/vinegar (weak electrolyte), and then water/citrus juice (weak electrolyte).

Note: All ionic compounds are strong electrolytes. Some acids and bases are strong electrolytes; many others are weak. Most other molecules are non-electrolytes.