Chemical Foundations Lab #2
Electric Solutions

Purpose: The purpose of this lab is to identify compounds that contain ions.

Introduction: Some compounds contain ions. We can test for this condition by dissolving a compound in water. If the compound contains ions, the ions will be dispersed throughout the water and free to move. The movement of the ions in a solution enables them to conduct a current. In this lab you will use a conductivity probe to determine which compounds conduct electricity and therefore contains ions.

Prelab Questions: (Answer these questions in complete sentences in your lab notebook)

1. What does it mean if the conductivity probe shows that the solution does conduct an electric current?
2. In the procedure there is one beaker that has nothing but water in it. All of the other beakers have something added to the water. Why is it important to have one beaker with nothing added to it?

Data Table: Read through the laboratory procedure and construct a data table to record your observations.

Materials

Conductivity probe	Plastic spoons	Water	Potassium nitrate	Sugar
Beakers or cups	Graduated cylinder	Sodium Chloride	HCl (0.10 M)	Vinegar

Procedure

1. Half fill 6 beakers or cups with water.
2. Add the following to each cup
   - Cup 1: nothing
   - Cup 2: spoonful of sugar
   - Cup 3: spoonful of sodium chloride
   - Cup 4: spoonful of potassium nitrate
   - Cup 5: 10 mL of 0.10 M HCl
   - Cup 6: 10 mL of vinegar
3. Use the conductivity probe to test for the conductivity of each solution. Record your findings in the data table.
4. For the solutions that showed conductivity, pour a small amount (1 or 2 mL) of each solution into separate cups. Add water to each cup until it is almost filled.
5. Use the conductivity probe to test for the conductivity of each of these dilute solutions. Record your findings in the data table.

Post Lab Analysis (Answer these questions in complete sentences in your lab notebook)

1. How are the compounds that caused an electric current similar to one another?
2. Is it true that the reason a compound did not cause conductivity is because the substance did not dissolve in water. Explain your answer with observations from the lab.
3. Explain what happened when you added water to the solutions that originally showed electric conductivity.
4. How could we tell if a compound consisted of ions if it does not dissolve in water?

Conclusion: Write a one sentence conclusion that refers back to your stated purpose.