

Lab 59: Water as a Solvent

Key Words: *Salinity, Solvent*

Getting Started:



1. Both of the containers above contain water, but only one of them would quench your thirst. What do you think is different about them?

2. Read the introduction and Challenge to Activity 59, “Water as a Solvent,” in your Student Book.

Procedure:

1. Read Procedure Steps 1-8 in your Student Book.
2. Watch the LABsent video (found here: <https://vimeo.com/152305878>). Record your observations in the table provided. The video will mix the following liquids and solids.

Mixing Liquids and Solids		
Cup	Liquid	Solid
1	15 drops of water	2 level scoops of sodium chloride
2	15 drops of ethanol	2 level scoops of sodium chloride
3	15 drops of mineral oil	2 level scoops of sodium chloride
4	None	2 level scoops of sodium chloride
5	15 drops of water	2 level scoops of calcium chloride
6	15 drops of ethanol	2 level scoops of calcium chloride
7	15 drops of mineral oil	2 level scoops of calcium chloride
8	None	2 level scoops of calcium chloride

Data Table for Observations

Cup No.	Liquid Contents	Observations of Liquid	Observations of Liquid and Solid Mixed Together	Amount of Solid Dissolved in Liquid
1	water			
2	ethanol			
3	mineral oil			
4	no liquid			
5	water			
6	ethanol			
7	mineral oil			
8	no liquid			

Name _____ Date _____ Block _____

Follow-Up:

1. Can you tell how well a solid will dissolve in a solvent based on what the solvent looks like?

2. Look at Student Sheet 50.2, "Scientific Careers in Weather." Look at the skills for the scientific career that you chose to focus on and mark those that you have mastered.

Analysis Questions:

1. A liquid that has a solid dissolved in it is called a **solvent** (SOL-vent). In this investigation:

- a. What are the solvents?
- b. In which solvent did the solids dissolve the most?

2. All water on the earth contains some dissolved materials, usually salts. Ocean water is about 3.5% salt, with sodium chloride (table salt) being the most common dissolved salt. Calcium chloride is also found on earth's surface. Would you expect to find calcium chloride in ocean water? Explain.

3. Water is sometimes called the universal solvent. Explain what you think this statement means. Support your answer with evidence from this activity.

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4. Do you think most of the water on the earth is saltwater or freshwater? Why?
