

Pre-Activity Questions

1. Refer back to your Lesson 1 notes for the definitions for “saturated” and “unsaturated” and reprint the definitions below

Saturated -

Unsaturated -

2. Why do you think substances dissolve in the first place?
3. How does a substance dissolve? You may include a picture to help illustrate your explanation.

4. A. Do you think salt and sugar will dissolve the same way in water? (highlight)

Yes, dissolves the same

No, dissolves differently

- B. Why do you think they dissolve similarly/differently?

Salt vs. Sugar Dissolving in Water

In this activity, you will investigate whether there is any difference between how table salt and table sugar dissolve in water. You are welcome to do this activity at home, or you may use the data and pictures I have taken from running this experiment.

Materials

1. Table Salt
2. Table Sugar
3. Cups/glasses
4. Measuring teaspoon
5. Mixing spoon
6. Water

Procedure

1. Measure approximately 1 cup of water and pour in a cup/glass.
2. Add 1 teaspoon of salt to the cup of water and stir with mixing spoon.
3. Make observations of the resultant solution.
4. Continue adding 1 teaspoon at a time of salt, mix, and record your observations.
5. Continue adding salt until no more salt is dissolving.
6. Repeat this process with a fresh cup of water and with adding sugar. Make sure the cup of water is approximately the same amount of water you had started with in the first run with the salt.

Example Data Tables: (you can add more rows as needed)

Salt	Observation
1 teaspoon	
2 teaspoon	
3 teaspoon	
4 teaspoon	
5 teaspoon	
6 teaspoon	
7 teaspoon	
8 teaspoon	
9 teaspoon	

Sugar	Observation
1 teaspoon	
2 teaspoon	
3 teaspoon	
4 teaspoon	
5 teaspoon	
6 teaspoon	
7 teaspoon	
8 teaspoon	
9 teaspoon	

Post-Lab Questions

1. A. Did salt and sugar dissolve the same way in water? (highlight)

Yes, dissolved the same

No, dissolved differently

- B. If they dissolved differently, what were the differences?

2. How do these observations compare to your predictions made before the activity?

3. What do you think makes different substances dissolve differently in water?

4. The chemical formulas for salt and sugar are shown below. What do these formulas make you think about when thinking about how these substances dissolve the way they do?

Salt: NaCl

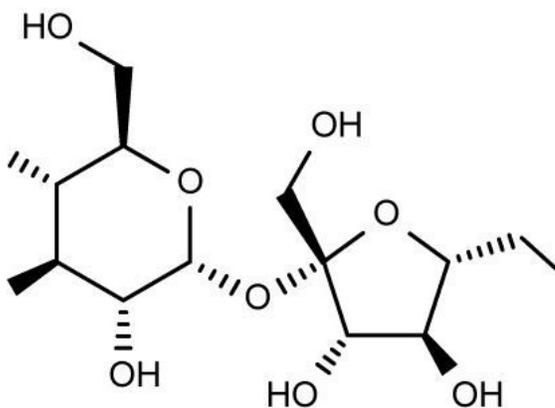
Sugar: C₁₂H₂₂O₁₁

5. The structural formulas for salt and sugar are drawn below. What do these formulas make you think about when thinking about how these substances dissolve the way they do?

Salt: NaCl



Sugar: $\text{C}_{12}\text{H}_{22}\text{O}_{11}$



6. Sugar has hydrogen bonding intermolecular forces present and is considered very polar. Water also has hydrogen bonding forces and is considered very polar. How does this change what you think in terms of how certain substances dissolve?