Field Report

Lingley Labs Inc.

Rate of Dissolving Pre-Lab:

Purpose

This lab will help you identify factors that affect the rate at which substances dissolve.

Hypothesis

1.Does the temperature of the solvent (water) affect the rate of dissolving?

2. Does the size of the solute (sugar) affect the rate of dissolving?

3. Does stirring the mixture affect the rate of dissolving?

Key Terms: Define and give examples for each.

Solute:

Solvent:

Surface Area:

Dissolve:

A _____ dissolves in a _____ to form a _____.

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Rate of Dissolving Pre-Lab:

Using the Particle Theory of Matter, draw how sugar and water particles interact when sugar is dissolved in water.

		
Sugar is added to water.	**Sugar is mixed with water.**	**Sugar is dissolved**

Water Particles:

Sugar Particles:

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3. Does stirring the mixture affect the rate of dissolving?

Materials:

- Hot and Cold Water
- Sugar Cube
- Sugar Packet
- Stir Rod
- Plastic Cups
- Thermometer

Procedure:

Part A: Temperature

1. Pour 200 mL of tap water into one cup and 200 mL of hot water into a second cup. Label each cup. Record the temperature of each cup.
2. Add one sugar cube to each cup and stir both at the same speed. Record how long it takes for each to dissolve.

Part B: Surface Area

1. Pour 200 mL of tap water into two labeled cups.
2. Add one sugar cube to one cub and sugar packet to the other cup.
3. Stir both mixtures at the same speed until dissolved. Record how long it takes for each to dissolve.

Part c: Stirring

1. Put equal amounts of tap water in two separate labeled cups and add one sugar cube to each cup
2. Stir one cup quickly and one cup slowly. Record how long it takes for each to dissolve.

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Part A: How Does Temperature Affect the Rate of Dissolving

Beaker	Temperature of Solvent	Rate of Dissolving	Observations
1 Cool			
2 Warm			

Part B: How Does Surface Area Affect the Rate of Dissolving

Beaker	Size of Solvent	Rate of Dissolving	Observations
1	Small Particles (Sugar Package)		
2	Large Particles (Sugar Cube)		

Part C: How Does Stirring the Mixture Affect the Rate of Dissolving

Beaker	Stirring the Mixture	Rate of Dissolving	Observations
1	Yes		
2	No		

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Analysis:

1. List three factors that affect how quickly a solute dissolves in a solvent.

2. Which factor(s) cause the rate of dissolving to increase?

3. When testing the effect of particle size on dissolving, what other variables need to be controlled?

4. When testing the effect of stirring on dissolving, how did you control other variables?

5. Use the Particle Theory of Matter to explain how each of the factors (temperature, size, stirring) affects dissolving. Include a sketch in your answer.

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Conclusion:

(Answer your hypothesis questions – were you correct? Incorrect? Why? Why not?)

Sources:

(Where did you get your information from? Ex: textbook, internet, teacher)

1.

2.

3.