MiSP Solubility Worksheet #1 L3

Name _____ Date _____

DISSOLVING RATE

Over the next few days you will be learning about solubility, the ability of a substance to dissolve in a liquid. You will begin by exploring the factors that affect the ability of sugar to dissolve in water. You will also test different liquids for their ability to dissolve sugar.

Sugar does not immediately dissolve in water. Your teacher placed 1 gram (g) of sugar in a beaker containing 200 milliliters (ml) of water.

How long has the sugar been in the water? _____

Is the sugar completely dissolved? _____

If the sugar is completely dissolved, how long did it take? _____

Factors That Affect the Dissolving Rate of Sugar

Which of the following will be the most effective in increasing the dissolving rate of sugar in water?

- heating the water
- adding more water to the beaker
- stirring the water

Your group will be assigned one of the factors (variables) listed below to test. Do not add your sugar to the water until you are given a signal to do so.

Heat:

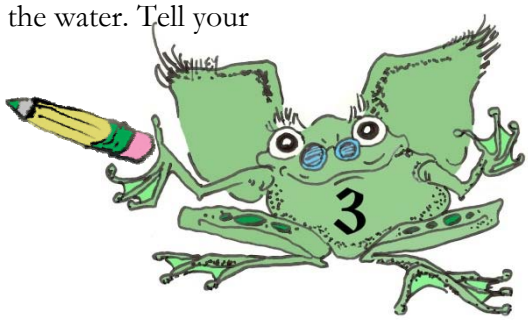
You will be given a beaker with 200 ml of hot water and a container with 1 gram of sugar.

When given the signal, add the sugar to the water. Do not shake or stir the water. Tell your instructor when all of the sugar has dissolved.

Volume:

You will be given a beaker with 400 ml room temperature water and a container with 1 gram of sugar.

When given the signal, add the sugar to the water. Do not shake or stir the water. Tell your instructor when all of the sugar has dissolved.



Stir:

You will be given a beaker with 200 ml of room temperature water, a container with 1 gram of sugar, and a stirring rod.

When given the signal, add the sugar to the water and begin stirring. Stop every 30 seconds to see if the sugar is dissolved. When the sugar is totally dissolved, tell your instructor.

Result:

Which method caused the greatest increase in the rate at which sugar dissolved in water? Check one.

- ☐ using hot water
- ☐ increasing the volume of the water
- ☐ stirring the water

Explain this result.

_____

_____

_____

_____

_____

Effect of Different Solvents

In the experiment above we used water as a solvent. Can sugar dissolve in other liquids? If so, in which solvent does sugar dissolve most quickly?

We will test water, alcohol, and mineral oil, and we will stir all of the solvents. In which solvent do you think sugar will dissolve most quickly? _____ Explain your choice.

_____

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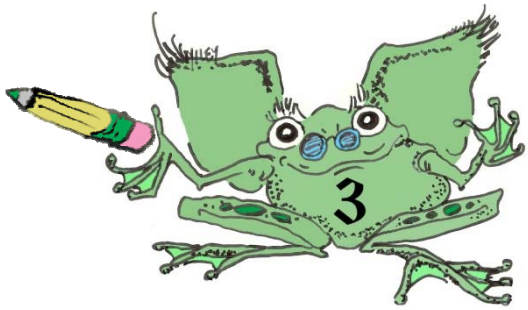
Your group will be assigned one of the solvents (variables) to test. Do not add your sugar to the solvent until you are given a signal to do so.

Water:



You will be given a beaker with 200 ml of room temperature water, a container with 1 gram of sugar, and a stirring rod.

When given the signal, add the sugar to the water and begin stirring. Stop every 30 seconds to see if the sugar is dissolved. When the sugar is totally dissolved, tell your instructor.

Alcohol:

You will be given a beaker with 200 ml of room temperature alcohol, a container with 1 gram of sugar, and a stirring rod.

When given the signal, add the sugar to the alcohol and begin stirring. Stop every 30 seconds to see if the sugar is dissolved. When the sugar is totally dissolved, tell your instructor.

Mineral Oil:

You will be given a beaker with 200 ml of room temperature mineral oil, a container with 1 gram of sugar, and a stirring rod.

When given the signal, add the sugar to the mineral oil and begin stirring. Stop every 30 seconds to see if the sugar is dissolved. When the sugar is totally dissolved, tell your instructor.

Result:

Which solvent dissolved the sugar most quickly? Check one.

- ☐ water
- ☐ alcohol
- ☐ mineral oil

Explain your finding.

_____

_____

_____

_____

Question of the Day:

What is the quickest way to dissolve sugar in water? Can sugar dissolve in all solvents?