

LESSON CLUSTER 5

Explaining Dissolving

Activity 5.1: Where Did The Sugar Go?

- I. Look at a tea bag and some grains of sugar with a magnifying glass. Draw how they look below.



TEA BAG



GRAINS OF SUGAR

- a. Does the tea bag have holes in it? _____
- b. Are the holes in the tea bag big enough for a grain of sugar to get through? (If you aren't sure, try it and see! Put some sugar in the tea bag and shake it. Does any come out?)

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- c. Do you think the holes in the tea bag are big enough for **molecules** of sugar to get through? Explain your answer.

2. Put half a spoonful of sugar in the tea bag. Drape it over the rim of the cup. Add just enough water to reach the bottom of the tea bag.



a) What do you see happening underneath the tea bag? (You can draw on the picture on the previous page to illustrate your answer if you want.)

b) Taste the water. What do you taste?

c) Why can't you see the sugar anymore?

d) How do you think the sugar got out of the tea bag?

Now look back at your text. See how your explanation compares with the one there!

e) If you let this cup stand overnight, would the sugar rise to the top, settle to the bottom, or spread evenly throughout the water?

Talk about molecules to explain your answer.

Activity 5.2: Dissolving, Fast and Slow

1. Fill two cups with the same amount of water and put half a spoonful of salt in each. Can you think of a way to make the salt dissolve faster in one cup than in the other? How? (Don't try it yet.)

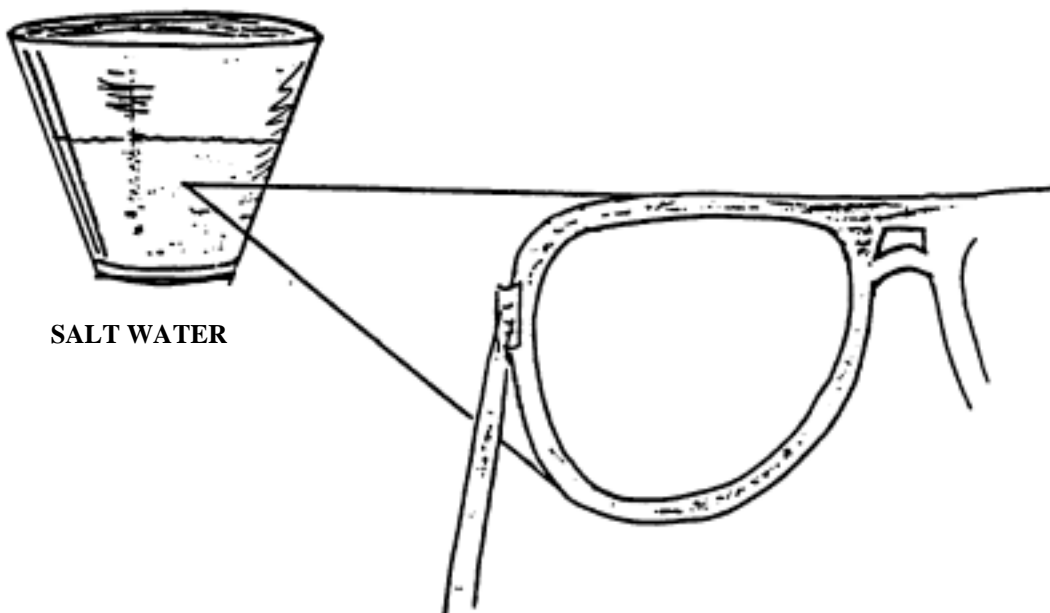
2. Try your method on one of the cups (Cup A) while you leave the other cup (Cup B) alone. How long did it take you to make the salt in Cup A dissolve?
_____ minutes.

Are there still salt grains in the other cup? _____

If you answered yes, then you did it! You made the salt dissolve faster in one cup!

3. You can't see the salt in your cup anymore. Does that mean it is gone? How could you tell that it is still there?

4. Draw a picture to show how the salt solution would look through "magic eyeglasses" that showed the molecules.



5. Why did your method dissolve the salt faster? Remember, your explanation should include something about substances and something about molecules.

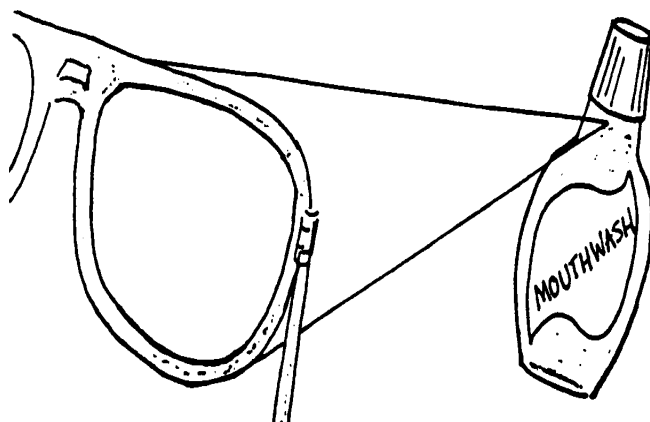
6. Can you dissolve salt and sugar in the same water? Try it and see! Use the space below to draw a “magic eyeglasses” picture of the molecules in a solution of salt and sugar in water.

7. The salt is still there in your salt water solution, but the salt grains have been broken up into molecules. Can you think of a way to get the solid salt back? Describe your idea below.

Check with your teacher to see if you can try your method.

Question Set 5.3: Cluster Review

1. The label on my mouthwash says it contains “water, glycerin, benzoic acid, polysorbate 80, FD&C Blue No. 1,” and several other substances. Imagine how the molecules of those substances might be shaped, and draw a picture of what my mouthwash might look like through “magic eyeglasses.”



2. I dissolved some sugar in water. One of my friends said that the dissolved sugar had just disappeared. Another friend said that the sugar melted, then became part of the water. What would you say?

3. Compare your explanation of how you got the salt to dissolve faster in Activity 5.2, Question Number 5 with the explanation in the science book. Can you make your explanation better? Try rewriting your explanation in the spaces below.

Try explaining why your method got the salt to dissolve faster. Use the parts of an explanation that you have learned about.

4. What are the most important things you learned from this lesson cluster?
Use the space below to summarize some of the most important ideas in this lesson cluster.
