Student activity sheet
Activity 4.6

A dissolving challenge

What kinds of things make carbonated water lose its carbonation?

In the demonstration, your teacher opened a bottle of carbonated water, causing bubbles of carbon dioxide gas to come out of solution. In the last activity you saw that increasing the temperature of carbonated water causes more carbon dioxide gas to come out of solution. In this activity, you will see another way to cause the gas to leave the carbonated water.

Conduct the experiment

Procedure

1. Pour ¼ cup of club soda into a clear plastic cup.
2. Sprinkle a pinch of sugar onto the surface of the soda and observe.
3. Place an M&M in the soda. Watch it closely.
4. Place a pipe cleaner in the soda and observe.

Record your observations

Object	What did you observe?
Sugar	
M&M	
Pipe cleaner	

Watch your teacher make a lemon soda

1. Which ingredient, lemon juice or sugar, causes most of the bubbling? _____

   _____

2. Which causes more gas bubbles to escape from carbonated water: solids or liquids?

   _____

3. Think about the amount of bubbling you saw when you placed sugar, an M&M, and a pipe cleaner in carbonated water. Would you expect as much bubbling if you placed these objects in the lemon soda your teacher made? _____

   Why or why not? _____

Student activity sheet
Activity 4.6

A dissolving challenge (*continued*)

How can you make a lemon soda that keeps as much carbonation as possible?

Make a better lemon soda

As you saw when your teacher made a lemon soda, adding lemon juice and sugar separately and stirring causes a great deal of gas to escape, which leaves you with a "flat" soda. Using the same ingredients your teacher used, find a way to make a lemon soda that keeps as much carbonation as possible.

Lemon soda ingredients

¼ cup club soda
1 teaspoon lemon juice
1 teaspoon sugar

Prove that your lemon soda is better

You saw that placing an object in carbonated water can give you an idea of how much carbonation is left. Develop a test to compare the amount of carbonation left in your lemon soda with the amount left in a soda made like the one in the demonstration.

Write a mini-report about making a fizzy lemon soda

Fold a piece of white construction paper in half, like a greeting card. Then label each page with the following titles.

Page	Title
Outside front cover	How to Make a Fizzy Lemon Soda
Inside left page	The Problem
Inside right page	A Better Way
Outside back cover	Testing for Carbonation

How to Make a Fizzy Lemon Soda

Draw a picture of a fizzy lemon soda as a cover picture for your mini-report.

The Problem

List the problems you observed with the lemon soda your teacher made.

A Better Way

Describe your group's most successful method for making a lemon soda that lost little carbonation as it was being made.

Testing for Carbonation

Describe your test to show that your group's method for making lemon soda is really better than the method your teacher used.