MAKE
FIZZY LEMONADE

Add some fizz and refreshment to a hot summer day—with chemistry!

What you'll need:

- 2 lemons
- Cold water
- 1 teaspoon baking soda
- 1 teaspoon sugar

- Glass
- Spoon
- Ice (optional)

Note: This recipe makes one serving—or glass—of lemonade. Want more lemonade? Simply multiply the ingredients by the number of servings you'd like.

Activity set-up:

1. Squeeze all of the juice from each lemon into the glass.

2. Add an equal amount of cold water to the lemon juice in your glass. Take a sip. How does it taste?

3. Stir in the baking soda. What happens? How does your mixture taste now?

4. Stir in the sugar. Take a sip. How does it taste? Feeling refreshed? Add ice to cool off even more.

5. It's all about that fizz! Experiment with more or less baking soda to get your preferred level of carbonation.

How does it work?

Why is soda fizzy? And where do those bubbles come from? The answer is carbonation! Carbonation is the process of adding carbon dioxide (CO_2) to a liquid.

In this experiment, you are creating a chemical reaction between an acid—the lemon juice—and a base—the baking soda. The chemical reaction creates carbon dioxide in your liquid and that's what forms the bubbles. Behold the fizz!

This is the same kind of carbonation we find in all fizzy drinks. When it is added under pressure, and kept at cool temperatures, CO_2 gas dissolves easily. As soon as the pressure is released, though, by opening a can or bottle, the gas races to the surface, and the fizz escapes.

Congratulations—you just created a chemical reaction! And now you get to drink it!

Did you know?

Many people will reach for a refreshing glass of lemonade to cool off during a heat wave—and there is some science behind this habit. Lemonade, and other sour drinks that are highly acidic, stimulates our salivary glands, wetting the mouth and providing relief from that parched feeling we associate with being dehydrated. This refreshing, thirst-quenching effect lasts even after you've polished off the glass.

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