



SODA SCIENCE:

FIZZY FUN AT HOME

LET'S EMBARK ON A FIZZY ADVENTURE TO CONCOCT YOUR OWN SPECTACULAR SODA!

Calling all junior scientists and their grown-up assistants! Today, we'll embark on a fizzy adventure to explore the science behind soda and create our own bubbly concoctions.

STEAM CONNECTION

- Science (Chemical reaction)
- Art (Creativity)
- Engineering (Design & creation)
- Math (Measurements)

Objectives

- Participants will learn about the history of soda.
- Participants will learn about the science behind carbonation.
- Participants will create flavored syrup and mix carbonated water to make soda.

Materials

- Baking soda
- Vinegar
- 1 cup (225g) granulated sugar
- ½ cup (118ml) water
- ½ cup (118ml) fresh fruit juice (your child's choice)
- Saucepan
- Spoon
- Measuring cup
- Ice (optional)
- Paper towels (for spills)
- Large table or surface area

For the soda:

- Carbonated water
- Spoon
- Clear plastic cup



Vocabulary

1. **Carbonation:** The process of adding carbon dioxide gas to a liquid, creating bubbles.
2. **Chemical reaction:** The interaction between two or more substances that produce new substances with different properties.
3. **Solution:** A mixture where one substance (solute) dissolves in another (solvent). In this case, CO₂ gas dissolves in the syrup.
4. **Soluble:** A substance that can dissolve in another substance to form a solution. (CO₂ is soluble in water)

LET'S GET FIZZY!

Introduction (5 minutes):

- Begin by asking scholars if they know what soda is and where it comes from. Briefly discuss the history of soda, mentioning that it was initially created as a medicine.
- Explain that soda is made by adding carbon dioxide (CO₂) gas to water. CO₂ gas gives soda its bubbles and makes it taste fizzy.

The Science Behind Carbonation (10 minutes)

- Conduct a simple experiment to demonstrate the science behind carbonation.
 - Fill a clear plastic cup with water.
 - Add a spoonful of **baking soda** to the cup.
 - Slowly pour **vinegar** into the cup until it starts to fizz.
- Explain that the fizzing is caused by the reaction between the baking soda and vinegar, which produces CO₂ gas.

Make your Own Syrup (20 minutes):

Adult supervision is required.

- Help your child measure the sugar, water, and juice in the saucepan.
- Heat the mixture over medium heat, stirring constantly, until it boils. Reduce heat and simmer for 10 minutes or until slightly thickened.
- Remove from heat and let the syrup cool completely.

Create your own Fizzy Drink

- Pour a spoonful of your flavored syrup (or desired amount) into their cups.
- Carefully pour some carbonated water into the cup, stopping before it reaches the rim.
- Gently stir the mixture with a spoon and observe the fizzing!
- Encourage scholar to describe the taste and appearance of their fizzy drinks.

Reflection Questions

1. What happened when we mixed baking soda and vinegar in the demonstration?
2. Why do you think the mixture started to fizz?
3. How does this reaction relate to bubbles in soda?
4. What flavor did you choose for your syrup? Why?
5. How did the sugar and fruit juice affect the taste of your final drink?
6. Can you think of other flavor combinations you'd like to try next time?