Dancing Raisins

Amount of time Demo takes: 5 minutes

Try this at home!

Lesson's Big Ideas

- Raisins are denser than the liquid in the soda, so initially they sink to the bottom of the glass.
- The carbonated soft drink releases carbon dioxide bubbles. When these bubbles stick to the the surface of the rough raisins, the raisins are lifted because of an increase in buoyancy.
- When the raisin reaches the surface, the bubbles pop, and the carbon dioxide escapes into the air causing the raisin to sink. The process continues until most of the carbon dioxide has escaped and the soda is flat.

Materials

- 12-pack of Sprite or 7-UP cans
- Tall clear plastic or glass cups
- Large resealable container of raisins
- Strainer (to pull out raisins)
- Waste Bucket

SAFETY! - Safe Demo

Background Information

- Carbonated beverages are prepared by putting the beverage into a can under high pressure of carbon dioxide gas. This high pressure causes the carbon dioxide gas to dissolve in the liquid. When you open a can of soda, the noise you hear is produced by the carbon dioxide gas as it rushes out of the can. When the can is opened, the decreased pressure allows some of the carbon dioxide gas dissolved in the liquid to escape. This is what makes the bubbles in a soft drink.

Setup Instructions

1. Set out supplies and make paper towel available for possible spills

Instructional Procedure

1. Fill a glass about ⅓ to ½ full with soda
2. Point out the bubbles coming from the bottom of the glass
3. Drop 4-5 Raisins into the glass.

Tips & Tricks

- When doing this demo on a roadshow event. It is recommended to use the discarded sprite from the LN2 explosions.

Assessment Questions

- Why do we call soda flat? What changed to make it flat?
    - The carbonation is CO2 that is dissolved into the liquid. CO2 has a natural tendency to leave liquid. We see this as the CO2 bubbles to the top of the drink and leaves as a gas.

Careers & Real-World Applications

- This demonstration comes down to buoyancy. There are many applications of this from submarines to life preservers.
- **Careers:**
    - Dynamics & Controls Engineer
    - Naval or Marine Engineer
    - Pipeline Engineer

Clean Up

- Dump flat soda down the drain
- Wash out glasses and make sure all supplies aren't sticky
- Throw out used raisins and make sure leftover raisins are eaten or stored in an airtight container

References

- https://indianapublicmedia.org/amomentofscience/fizz-flat-science-soda-pop/
- http://scifun.chem.wisc.edu/HomeExpts/dancingraisins.htm

Related Next Generation Science Standards

- K-5
    - 2-PS1 Matter and Its Interactions
    - 5-PS1 Matter and Its Interactions

- 6-8
    - MS-PS1 Matter and Its Interactions