

Empowerment Activity – Inflate a Balloon

Topic/Theme: Science Careers

Video: Science Careers

<https://www.careergirls.org/video/science-careers/?back=60>

Supplies:

- Balloons
- Vinegar
- Baking soda
- Funnel
- Dry and empty plastic bottle

After watching the video [Science Careers](#), let your students know they will be conducting a science experiment. Give each student a scientific method hand-out or use one as a guide.

Experiment Steps:

1. Add 2 or 3 teaspoons of baking soda to the unfilled balloon.
2. Thoroughly rinse and dry the funnel.
3. Pour 2 or 3 teaspoons of vinegar into the water bottle using the funnel.
4. Attach the balloon to the top of the water bottle, being careful to not let any of the baking soda slip in until you are ready.
5. Quickly tip the vinegar so it mixes in with the baking soda.
6. Watch as your balloon blows up.

Activity Discussion:

- What's happening here is the vinegar, an acid, is creating a chemical reaction with the baking soda, a base. When the two substances mix, you get carbonic acid, which is unstable and decomposes (falls apart) to become carbon dioxide (the gas that's filling the balloon) and water. Since the carbon dioxide is much less dense than the stuff you used to create it, it wants to expand, and the balloon is stretchy enough to allow it to do just that!
- A scientist uses the same method in their work. If you enjoy discoveries and being creative you should consider a science career because your work will impact society and the world.

The Scientific Method

The scientific method is a process for experimentation that is used to explore observations and answer questions.

Ask A Question: How, What, When, Who, Which, Why, or Where?

Do Background Research: What do we already know about this experiment? Do some research to find out what's already been discovered that's related to your experiment.

Construct a Hypothesis: A hypothesis is making a prediction about what will happen. The basic structure for a scientific hypothesis is:

"If _____ (I do this), then _____ (this) _____ will happen. Write one for your experiment.

Test Your Hypothesis: Do an experiment based on your prediction to see whether it was accurate or not. Conduct several experiments and make sure that you only change one factor at a time, this will result in a fair test. Don't forget to record your results for each experiment.

Analyze Your Data and Form a Conclusion: What is the result of your experiment and did it match your hypothesis?

Communicate Your Result: Share your science project with others in a final report and/or display.

