SCIENCE, TECHNOLOGY, ENGINEERING & MATH



CHEMISTRY 101 (6-8)

KEY CONCEPTS:

- A chemical reaction is the process in which one or more substances (reactants) are converted to one or more different substances (products). Chemical reactions are often irreversible.
- All chemical reactions involve energy. Energy is used to break bonds in reactants, and energy is released when new bonds form.
- Exothermic reactions release energy (usually in the form of heat).
- > Endothermic reactions absorb energy.

Exothermic Vs. Endothermic





LITERACY CONNECTION:

Jules Verne's literary classic <u>Around the World in Eighty Days</u> takes readers on an exciting adventure in a time before travel was as easy as it is now. Don't have the book? Click the title for access to a digital copy.

ACTIVITY: Using CHEMISTRY to INFLATE a BALLOON

Materials: 1 empty water bottle, 1 balloon, 1 funnel, 1/3 cup baking soda, 1 cup vinegar

- 1. Stretch the balloon out, then stretch the opening over the small end of the funnel.
- 2. Pour ~1/3 cup of baking soda into the funnel. **TIP**: Gently shake the balloon around until it all falls into the balloon.
- 3. Rinse off the funnel and use it funnel to pour 1 cup vinegar into the bottle.
- 4. Gently stretch the opening of the balloon over the opening of the bottle. **TIP**: Make sure the balloon hangs down at the side to keep the baking soda from falling in.
- 5. Lift the balloon so that it is completely upright allowing all of the baking soda to fall into the vinegar and watch the balloon inflate.

What is happening? Baking soda + vinegar → chemical reaction that releases carbon dioxide EXPLORE: Try experimenting by adding food coloring or different quantities of vinegar and baking soda to see how the reaction changes. Increase a little at a time to avoid a baking soda/vinegar volcano eruption.

For step-by-step instructions, watch the video at: <u>Balloon Inflation STEM Activity</u> This at-home educational activity is from the Literacy Coalition of Palm Beach County's literacy-based Stories & STEM program. Stories & STEM is made possible with support from Prime Time Palm Beach County, Inc., which receives significant funding from the Children's Services Council of Palm Beach County, Inc.

Having fun? Send pictures or video links of you and your Stories & STEM projects to csharkey@literacypbc.org

