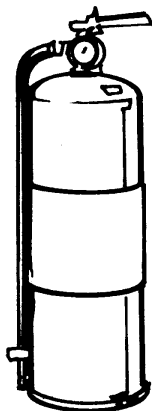


Fire Extinguishers

Making the Connection: A chemical change to matter can be very important for us.



You know that chemical changes are useful in baking, but did you know that chemical changes can also save lives? The same chemical change that causes a cake to rise takes place inside some kinds of fire extinguishers.

Cakes rise because a chemical change takes place between the ingredients. These cake ingredients are usually baking soda and a sour liquid such as buttermilk or lemon juice. When these ingredients combine, a chemical change takes place and produces the gas carbon dioxide. The gas forms bubbles in the batter that cause the cake to rise and become fluffy. Without such a chemical change, the cake would never rise. It would stay flat as a pancake!

Fire extinguishers do not use baking soda and a sour liquid, but they still need a chemical change to create a gas. Different chemicals are kept separate inside the fire extinguisher. Pressing the lever at the top of a fire extinguisher releases the chemicals, and they combine. A chemical change takes place, and a gas forms. The gas makes a bubbly foam that builds up and then shoots out the nozzle. The shooting foam smothers the fire and puts it out quickly and safely.

Chemicals can change over time. Oxygen can combine with them and create a different chemical change. If the chemicals inside a fire extinguisher are left for too long they may not work to make foam. This is why fire extinguishers are inspected at least once a year.

Name _____ Date _____

1. Compare the chemical changes that take place when baking a cake and using a fire extinguisher. How are they alike? How are they different?

2. Use your imagination. What are some other uses for a chemical reaction that produces a bubbly foam?

3. Look through some cake recipes. Which chemical ingredients do you think cause the cake to rise?

4. Why is it important to check fire extinguishers regularly?

Fire Safety

1. Inspect the fire extinguishers in your school. Is there a date that tells you when they were last inspected? Is it less than a year ago? If the date is over a year old, let your teacher know. The extinguisher should be inspected to see that it works properly.
2. Learn more about the fire extinguishers in your school. Find the list of contents and write down the different chemicals that are inside. Research what happens when these chemicals combine. Write and illustrate a report about how your school fire extinguishers work.
3. Write to the local fire department and say that you are interested in how fire extinguishers work. Ask for a demonstration at your school about fire safety and how an extinguisher puts out a fire. Remember, fire extinguishers can be dangerous and should only be used by an adult.