



LESSON 4

Lesson Plan Title: Cosmetology – A Chemical Reaction?		Instructor:
Suggested Total Time for Lesson (minutes): 45 minutes (2 days)		
Content Focus - What Will Students Learn? (Content Skill Sets)		
0972.HU.1737.01 Apply techniques to ensure client safety and protection. 0972.HU.1734.05 Select and utilize appropriate Personal Protective Equipment (PPE) for specific tasks		
Materials and Resources- What do you need to assemble and prepare before the lesson?		
Materials: <ul style="list-style-type: none"> • Mentos candies • Liters of cola (diet and regular recommended) • Old clothing/Smock or Big T-shirts • Safety Glasses 		Resources: <ul style="list-style-type: none"> • Mentos Geyser Experiment - Mentos & Coke Experiment (stevespanglerscience.com) • Tracking sheet • Observation sheet • The Pre-Cosmetology and Barbering programs of study are aligned to meet the requirements set forth by the West Virginia State Board of Barbers and Cosmetologists - https://wvbbc.com/About-Us/Laws-Regulations
Lesson Outline: What learning activities will your students do?		
Time	Sequence/Description of Learning Activity	
	<p>Get Started/Explain:</p> <p>HAIRCOLOR. If you have highlights or change the color of your hair in any way, chemistry is being used. From color application through processing, your stylist is monitoring the chemical reactions that are taking place. Depending upon the condition of your hair, your new hair color will process more quickly or slowly – your stylist will consider that when formulating.</p> <p>CHEMICAL RELAXERS. Chemistry is so important, it's even in the name. Relaxers break the millions (yes, millions) of chemical bonds in curly hair to produce the straight result you desire. After the bonds are broken, the neutralizer creates a reaction that rebonds hair into a straight form. This process is so powerful, that once transformed, hair will remain straight until you cut it.</p> <p>ARTIFICIAL NAILS. If you have artificial nails, thank your stylist – and chemistry. The reaction of the nail products create, bind and hold your nails. Initiators, catalysts, monomers, polymerization – all are terms from chemistry. There is a practical application to what you can learn from chemistry! All of this happens to make your nails beautiful and lasting. That's why we love cosmetology. Whatever your interest – it's part of cosmetology. Cosmetologists are scientists. Part of cosmetology school is experimenting, being a scientist. And when you enter a salon, you will conduct experiments daily – and the good news, you'll predict the results because you will create them.</p> <p>If you thought chemistry was exciting – if you loved experimenting until you created a specific result, if you want to learn how you can create through chemistry, then think about cosmetology. You can combine your creativity and your love of science to make your Guests beautiful.</p> <p>Now, It's time to have fun with Chemistry!</p>	

Discover/Engage/Practice:

Our experiment will take place tomorrow. We will use the following materials to conduct the chemical reaction: Mentos candies, liters of cola/pop, safety glasses, old clothing or a big t-shirt. (you may add additional requirements)

Discuss the tracking sheet and observation sheet with the class and all other details of the chemistry experiment for Day 2 of the lesson.

Read over the following directions to the students.

1. Before you get started, you'll need to find a location suitable for the experiment. This activity is probably best done outside in the middle of a field or on a huge lawn where a little bit of mess won't be a big deal.
2. Once you've got your location squared away and your supplies gathered, carefully open the bottle of diet soda. The choice of diet over regular soda is just a preference. Regular soda becomes a sticky mess because it contains sugar, while diet soda uses artificial sweeteners instead of sugar, so it's not as sticky. Later on in the experiment, you'll be invited to compare the geyser power of diet versus regular soda, but for now we'll start with a 2-liter bottle of diet soda.
3. Position the bottle on the ground so that it will not tip over. You might need to put down something flat, like a small piece of wood, to hold it up. You want the bottle to be stable before conducting the experiment.
4. Let's start with seven Mentos for our first attempt. The goal is to drop all seven Mentos into the bottle of soda at the same time, which is trickier than you might think. One method for doing this is to roll a piece of paper into a tube just big enough to hold the loose Mentos, like a roll of coins. You can also use a Baby Soda Bottle to hold the Mentos or a Geyser Tube, which was invented to solve this very problem. Assuming that you're using the paper tube method, you'll want to load the seven Mentos into the tube, cover the bottom of the tube with your finger and position the tube directly over the mouth of the bottle. When you pull your finger out of the way, all seven Mentos should fall into the bottle at the same time.
5. Once your Mentos are lined up and ready to drop, it's time for the fun to begin. Drop the Mentos into the diet soda.
6. Now, it's time to run away. Don't forget to look back at the amazing eruption of soda. You might want to have someone film the reaction for you so you can watch it again.
7. Optional: After you have experimented with one diet soda, try the experiment with different types of soda to see which ones has the most intense reaction.

Check for Understanding/Summarize/Close:

Now, we are going to finish up by filling out the Outcome column on the Tracking Sheet. If you experimented with more than one type of diet soda, rank them in order of which produced the most explosive eruption.

Complete the Observation sheet by drawing what happened. Label the parts of your drawing. Next, write a short (2-3 sentence) summary of what is being shown in your drawing.

Optional Discussion Questions:

1. Describe what happened in the experiment.
2. What could you have done differently?
3. What do you think would have happened if you used a different type of diet soda?
4. What do you think would have happened if you only used half of the pack of Mentos?
5. What do you think would have happened if the soda was flat?

Modifications, Support, and Extensions (for those students with IEP)

Reflection- Did the students learn the content outlined in the lesson focus? Why or why not?