Name: _____ Period: _____ Date: _____

Lab Safety Lab Activity 2 - Teacher Edition

SODA CANNONS

Introduction:

Wearing the proper personal protective equipment is important. In this lab we will learn how goggles, lab aprons, and gloves can protect you from chemicals.

Learning objectives:

By the end of this lesson students will be able to:

- Describe the importance of wearing goggles and aprons in the lab.
- Outline the first aid procedures for chemicals coming into contact with skin and eyes in the lab.
- Correctly use chemical wash stations and the eye wash stations.

Pre lab prep for teacher will involve setting up the materials as follows:

Materials:

- Test tubes
- Test tube holders
- Test tube racks
- Test tube brushes
- Rubber stoppers for each test tube
- Kleenex tissue or toilet paper
- Baking Soda
- Household vinegar
- spoons/spatulas
- Pipettes
- Beakers

Teacher Preparation:

1. Prepare the materials for each lab table. Each student should have their own test tube.
2. Place a target at the front of the lab to have a spot for the students to aim their baking soda cannons.

Instructional Preparation:

1. Check students are wearing closed toed shoes.
2. Students with long hair must have it tied back neatly and out of the way.
3. Check all students are wearing their goggles, lab apron and gloves.

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- Remind them not to remove any of these until the lab is completed, cleaned up, and they have been instructed to do so by the teacher. (You may have to remind students to keep goggles over their eyes.)

4. Remind students not to collect any lab equipment or begin until they are instructed to do so.
5. Once students are at their work bench have them read the lab procedures completely. (Use this as an opportunity to emphasize that you should read all the procedures before you begin any lab.)
6. The students will complete the lab as follows:

Safety

1. Ensure you and your partner correctly have:
   - closed toed shoes
   - long hair tied back neatly and out of the way.
   - safety goggles, lab apron and gloves on.

   Note: Do not remove any of these until your lab is completed, cleaned up, and you are instructed to do so by your teacher!

2. Read all the instructions and do not pick up any lab equipment or begin until you are instructed to do so!

Procedure:

Step 1:	**Step 2:**	**Step 3:**
Pour two droppers full of vinegar into a test tube.	Lie a Kleenex flat on your table. Separate it out the Kleenex so that there is only one layer or ply.	Use a spatula or plastic spoon to place half a spoonful of baking soda in the middle of the Kleenex.

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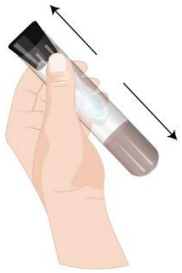
Step 4:	**Step 5:**	**Step 6:**
		
Pull up the sides of the Kleenex and twist to enclose the baking soda.	Place the baking soda-filled Kleenex into the test tube and seal it loosely with a rubber stopper. Make sure the Kleenex filled baking soda is placed just above the vinegar (do not let it touch the vinegar).	When it is your turn, aim your test tube at the target and shake the test tube with the rubber stopper on. Do NOT begin shaking your test tube until you have it aimed at the target!

Post-Lab Questions:

1. Circle the three most important lab safety procedures for this lab below:

A. **Read instructions or lab procedures first**
B. **Put on lab safety goggles, apron and gloves**
C. Clean up lab messes
D. No eating in the lab
E. Wear close toed shoes
F. Have hair pulled back
G. **Make sure you know where the eye wash station is.**
H. Make sure you waft chemicals
I. Keep lab organized

2. Describe what had to happen for the baking soda canon to explode.

The baking soda had to make contact with the vinegar (via the shaking of the test tube).

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3. List 3 things you should do if someone gets chemicals on their skin, clothing or in their eyes.

a) **Remove any clothing that may be wet from chemicals.**

b) **Rinse the affected area with water at the wash station continuously for 15 minutes.**

c) **If pain persists, rash or allergic reaction occurs visit the school nurse with a copy of the MSDS.**

4. What kind of gas is created when you mix the baking soda and vinegar?

Carbon Dioxide gas

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