

Unit Essential Question

How do we work safely in a science classroom?

Introduction

Science is about understanding the world around us, and this often involves hands-on activities. In this class students may be doing laboratory activities that include equipment, chemicals, and/or animals that can be dangerous if not handled properly. Safety in the science classroom is the first priority for students, teachers, and parents. To ensure a safe classroom, certain rules must be understood and followed.

In this task, students are presented with a range of "unsafe" but realistic scenarios. Students will work in groups to discuss and decide which science safety rules are violated, and how the situation should be corrected in order to follow all safety rules. As a class, students well then discuss why it is important that specific safety guidelines be followed. For a complete list of safety guidelines, please refer to the *SFUSD Middle School Student Science Safety Contract*.

Objectives

Students will be able to

- Identify all violations of science safety rules in a given scenario.
- Describe how to correct all "unsafe" behaviors in a given scenario.
- Explain how each safety rule is designed to keep everyone safe in the science classroom.

Academic Vocabulary

- safety
- rules
- responsibly
- equipment
- hazard

Language of Instruction

- match
- scenario
- violation



NOTE

Going over safety is an ideal time to introduce academic language. Students will quickly see that more precise use of words will help ensure that the science classroom remains safe at all times.



Timing

This task can be completed in two ways:

- One-class period (45min) each group examines a different scenario, and then presents to the class.
- Two-class periods each group examines the same scenario, and then discusses as a class.

Student Materials

- Each group will need:
 - One set of scenario cards
 - One set of safety rule cards

Teacher Materials

• Slides for each scenario to present to the class during discussion (pictures or images to go along with each scenario will help students as well).

Background

In this task, students are introduced to science classroom safety rules.

- Scientists often use equipment, chemicals, and/or organisms that present potential health hazards.
- To conduct experiments safely, certain rules must be followed and precautions taken.
- The science classroom has additional hazards that need to be addressed so students can do hands-on activities safely.

It is important to check whether your school or district requires that a safety contract be signed by the student, and in some cases by the parents, in order for the student to take part in any lab activities. Check with your department head or district science coordinator for this information.



Safety in the Science Classroom Activity

1. Prepare one set of Scenario cards and one set of Safety Rule cards for each group (4 students). Ideally the two sets of cards should be on different color paper.

*Please note - the following directions assume that you will use the two-day plan for this unit. If you will use the one-day plan then you will need to adjust accordingly.

- 2. Distribute Scenario and Safety rule cards to each group
- 3. Instruct students to read the directions and begin their discussion
- 4. As each group finishes, make note of how many safety rules are correctly identified this will determine how many "points" each group gets after each round. You can let teams at the end know that they needed a certain number of points to pass the "safety inspection". The game aspect is motivational for some students. Don't use this if you think it's not necessary.
- 5. After all the groups are finished, ask the first group finished to share which rules were broken and what should be done to make the scenario safe.
- 6. After the first group presents, invite all other students to respond to the following:
 - a. Does anyone think there may be other rules broken in this scenario?
 - b. Does anyone not agree with one of the broken rules mentioned by this group?
 - c. Why do you think rule "X" is so important?
 - d. How does rule "X" keep us safe in the science classroom?
- 7. Continue the game until all scenarios have been examined and discussed. [Each scenario will take roughly 8min.]
- 8. If you plan to do this in one day:
 - a. Each group should examine a different scenario and present the violations and corrections to the class.
 - b. The class can then share at the end why certain rules you pick out are so important to ensure safety in the science classroom