

Lab Safety Worksheet

Laboratory classes offer students hands-on experience engaging with course concepts and exploring scientific methods. Unlike what you would expect of a standard classroom, laboratory environments present their own unique challenges and opportunities.

In these materials, you'll find a series of 6 scenarios depicting behaviors that could occur in a school laboratory setting.

Consider using these scenarios as learning opportunities to help your students understand appropriate and inappropriate lab behaviors and techniques. Possible applications include:

In-Class Review/Formal Assessment

Provide students with a copy of the worksheet. Each scenario is accompanied by 2 questions. Assign the questions to students as an in-class review or as a formative assessment after you've concluded your instruction on laboratory safety.

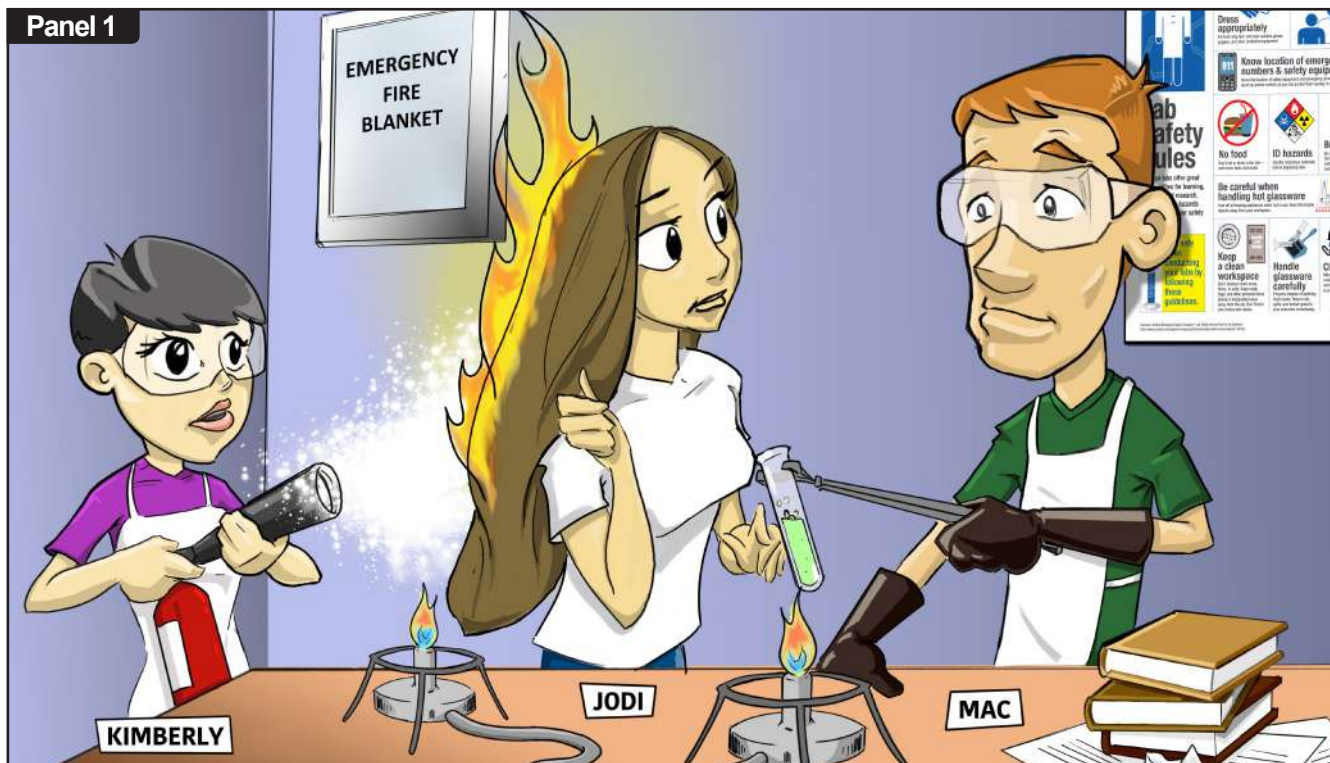
Instructor-Led Discussion

Use a projector to display each scenario and provide students with a list of the accompanying questions. Give the students a few moments to examine the illustration and then work through the questions in small groups. Bring the whole class back together for a brief discussion of each illustration.



Student-Led Discussion

Divide your class into 6 groups. Assign a scenario to each group. Ask the students to discuss inappropriate laboratory behaviors depicted in their scenario. Each group then discusses with the rest of the class the behaviors/activities depicted in their scenario.



1. List 2 unsafe activities depicted in this illustration and explain how they should be altered to make them safe.
2. What piece of safety equipment should be used to put out the fire?



1. How should Rick correct his technique?
2. Are these students behaving appropriately? If not, what should they be doing differently?

Panel 3



1. Compare Evelyn's technique with Kwan's technique.
2. Whose technique is the correct one?

Panel 4



1. Identify 3 unsafe activities shown here.
2. Explain alternate procedures for each activity you identify.



1. Describe Jarvis' error. Who in this scenario is performing a correct procedure?
2. Identify 2 unsafe activities shown here.



1. What is unsafe about Ernie's behavior?
2. Why is Lydia's behavior appropriate? Why is it important in a laboratory setting?

Lab Safety Worksheet

Answer Key

Panel 1

List 2 unsafe activities depicted in this illustration and explain how they should be altered to make them safe.

Jodi's hair should be tied back, and she should be wearing safety goggles. She should not lean over a lit burner. Mac is pointing the test tube toward another person; instead, he should point the heated test tube away from himself and all classmates. Kimberly is discharging the fire extinguisher when she should have used the emergency blanket to put out the fire in Jodi's hair.

The instructor should be the one discharging the fire extinguisher, as they are usually trained and know how to use them.

What piece of safety equipment should be used to put out the fire?

The emergency blanket should be used to extinguish fires on people.

Panel 2

How should Rick correct his technique?

Rick should use the wafting technique—use his hand to direct fumes from a chemical toward his nose—rather than inhaling directly.

Are these students behaving appropriately? If not, what should they be doing differently?

No. Sarah appears to be mixing unknown and unlabeled chemicals. This is dangerous and should never take place. Sarah should make sure she knows exactly what chemicals she is mixing. Andrew should not be eating in the lab. Eating, drinking, chewing gum, and applying cosmetics are not acceptable lab behaviors. Also, materials made with laboratory glassware could potentially be contaminated with toxic chemicals and should not be consumed.

Panel 3

Compare Evelyn's technique with Kwan's technique.

Evelyn is pipetting to transfer liquids between containers whose contents are known. Kwan is mouth pipetting the contents between containers.

Whose technique is the correct one?

Evelyn is pipetting correctly and transferring between containers whose contents are known. Mouth pipetting is not allowed, as chemicals could be accidentally ingested.

Panel 4

Identify 3 unsafe activities shown here.

- Students are playing around.
- Dissection instruments aren't being used for their intended purpose.
- Food and drink are in the lab.
- The test tube and test tube rack are being stored on the laboratory bench.
- Students aren't wearing protective equipment.
- The aisles and walkways aren't clear of obstructions.

Explain alternate procedures for each activity you identify.

- Students should behave responsibly.
- Dissection equipment should be used for intended purposes only.
- Food and drink should be kept out of the lab.
- Students should store test tubes and the test tube rack where they belong.
- Students should wear Personal Protective Equipment.
- Aisles and walkways should be kept clear of obstructions.

Panel 5

Describe Jarvis' error. Who in this scenario is performing a correct procedure?

Jarvis is picking up broken laboratory glassware with his bare hands. Instead, he should be using a broom and dustpan similar to the one that Meredith is using. Glass should also be placed in the glass disposal bin and not in the regular waste disposal container.

Identify 2 unsafe activities shown here.

Flips-flops should not be worn in a laboratory. Closed toed shoes are appropriate. Broken glass should be placed in the proper, labeled bin for disposal. Eating, drinking, chewing gum, and applying cosmetics should not be done in the laboratory.

Panel 6

What is unsafe about Ernie's behavior?

No materials should be taken from the lab for any reason. Ernie could damage the equipment. Additionally, some materials are hazardous and require special disposal procedures.

Why is Lydia's behavior appropriate? Why is it important in a laboratory setting?

Lydia is making sure that her glassware is not cracked, chipped, or otherwise broken before she uses it for her experiment. This step prevents breakage, unnecessary cleanup, and exposure to heated substances.