

## Introduction to Physical Science

### Objective 2

#### **PRACTICE SET: Identifying Improper Laboratory Practices**

The following story describes the behavior of 5th period students in Mr. Higginbotham's class. In each of the numbered statements below, an unsafe laboratory technique is exhibited by the students. On a separate sheet of paper, rewrite each numbered statement to illustrate proper laboratory technique.

As fifth period begins, students start filtering into the science laboratory, excited about the scheduled experiment. The instructor gives detailed directions for conducting the experiment, emphasizing points to be observed for safety. The students set about their tasks. (1) Bob has piled his books and papers on his work bench where he is going to be working with a burner and acids. (2) Nancy is pouring acid into a beaker, but has nothing to protect her clothing. (3) As Henry pours his acid a little splashes into his face, dangerously close to his eyes. (4) Tommy takes the stopper out of the bottle of acid and lays it on the table. (5) Don and Sally are working together on a procedure that calls for heating a substance in a test tube. Sally holds the tube with the lower end in the flame of the burner. The open end is pointed directly at her lab partner. (6) Jane is wearing a particularly attractive blouse with large puffy sleeves. As she reaches for a reagent, her arm passes over her burner. Oh, oh! Her sleeve is on fire! (7) Jerry didn't quite finish his lunch before the bell rang, so half a sandwich is lying on his work bench. He takes bites from it as he works on his experiment and is drinking water from a beaker. (8) Sam has been transferring dry chemicals a pinch at a time using his fingers. Now he's rubbing his eye with his finger. (9) As Tammy reaches for a chemical, her beautiful, dangling bracelets hang on the bottle of acid that is on her workbench and turn it over. The acid spills and runs off the bench onto Dave's foot. He is wearing flip-flops. (10) The procedure calls for dilute acid. Jeanette measures the required amount of acid into a beaker, then pours in the specified quantity of water. (11) Rob forgot which chemicals he put in his beakers, so he picks one up and sticks it under his nose in hopes of remembering. (12) Having finished early, Donna decides to do a little experimenting on her own by mixing a few things together to see what will happen. (13) Rushing to put things away, Larry grabs the cord to the hot plate and jerks the plug from the wall socket. The bell rings, ending another fun period in science lab.

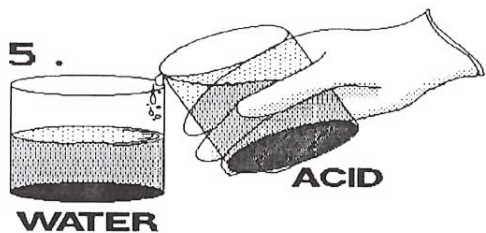
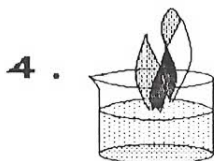
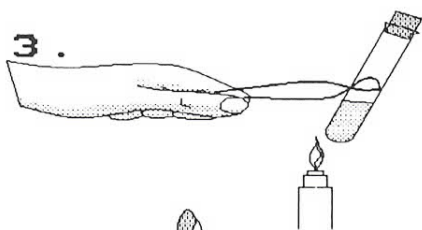
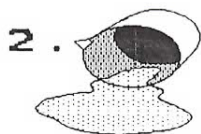
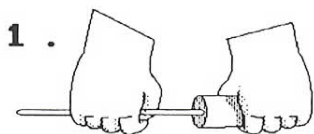
### WHAT SAFETY RULES SHOULD YOU FOLLOW IN THE LABORATORY?

#### In This Activity You Will:

1. Review laboratory safety procedures and the reasons for these procedures.
2. Describe first aid procedures for various laboratory-induced injuries.
3. Locate and describe the use of safety equipment in the classroom.

#### PART A

In the space to the right of each of the illustrations below, state the safety rule or rules that should be followed.



## **PART B**

Give a reason for each of the following safety rules.

6. Why is it a safety procedure to tie back long hair in the lab?
7. Why should students never eat or drink in the lab?
8. Why should spills be reported and cleaned up immediately?
9. Why should you wash your hands after every lab session?
10. Why is rough play in the laboratory dangerous?
11. When would the wearing of safety goggles be proper procedure?
12. Why would you never transfer liquids in a pipette by sucking with the mouth?
13. Why should you point test tubes that are being heated away from yourself and other students?
14. Why do you pour acids and bases into water and not vice-versa?
15. Why do you use the wafting technique to smell chemicals?

## **PART C**

Describe each of these safety procedures as they pertain to your classroom:

16. Describe the route you would take to exit from this room in the event of a fire.

17. Describe the operation of the fire extinguisher located in your classroom.
18. Describe the use of a fire blanket.
19. Describe the use of the eyewash station.

**PART D**

Describe the first aid you would use in each of the following circumstances.

20. Chemical in the eye
21. Acid burn on your arm
22. Thermal burn to your finger
23. Cut from glassware
24. Clothing on fire