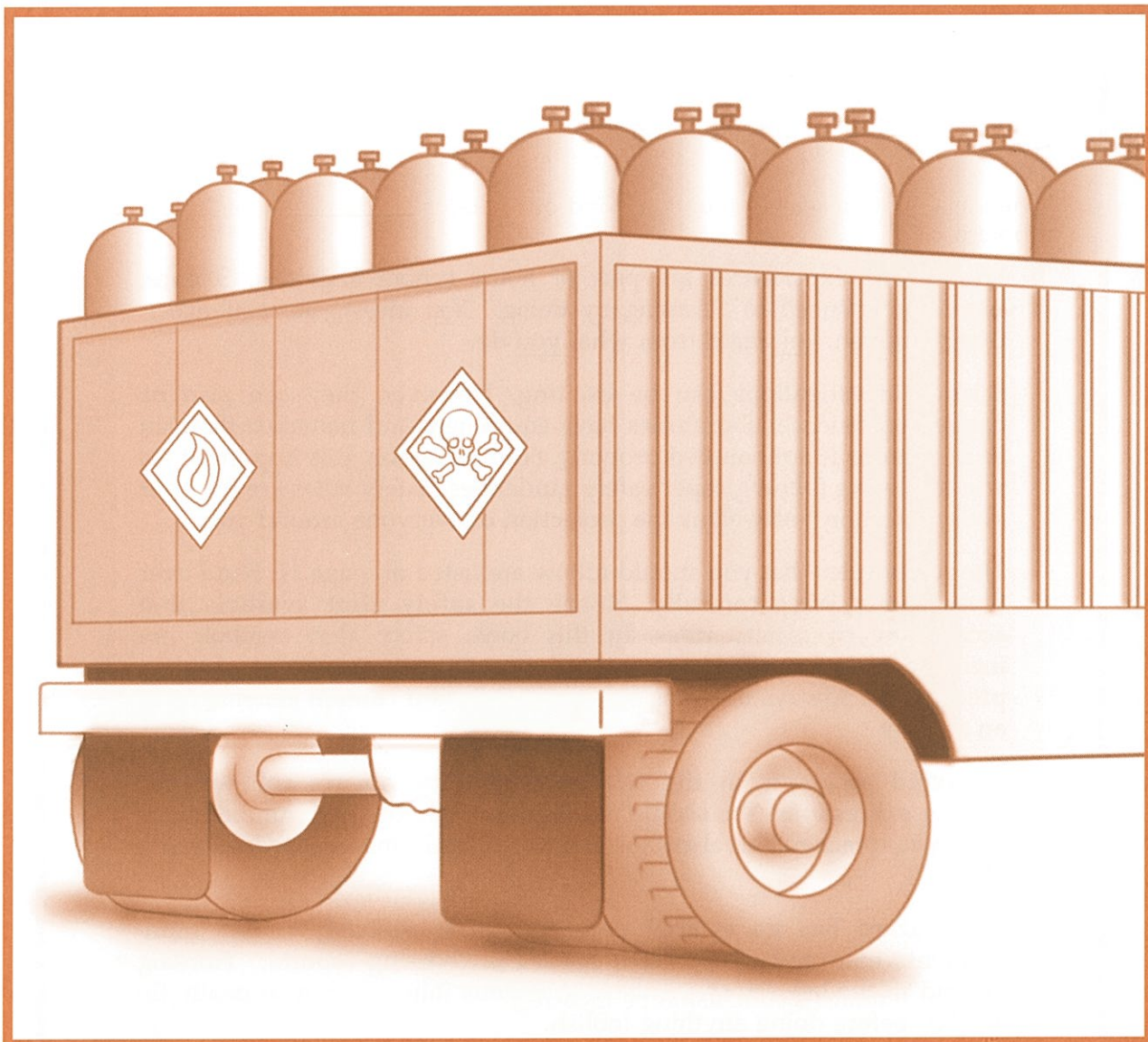


## How are experiments done safely?



### KEY TERMS

**safety alert symbols:** signs that warn of hazards or dangers

**caustic:** able to burn and irritate the skin

# LESSON | How are experiments 3 | done safely?

“Hands-on” experiences are part of many school activities. Science, especially, is suited to “learning by doing.” You investigate; you make things happen; you learn from what you do.

Science investigations can be exciting. However, they can also be dangerous. Science laboratories have equipment and materials that can be dangerous if not handled properly. For this reason, it is important for you to always follow proper safety guidelines. Safety rules are for your own protection—as well as the protection of everyone around you.

The safety rules that you should follow are listed on page 17. Read over these safety rules carefully. Notice the **safety alert symbols** that accompany the safety rules. In this book, safety alert symbols are included at the beginning of some activities to make you aware of safety precautions. Always note any safety symbols and caution statements in an activity.

To avoid accidents in the science laboratory, always follow your teacher’s directions. You should not perform activities without directions from your teacher. You also should never work in the science laboratory alone.

One hazard has no symbol even though it probably causes more accidents than any others. That hazard is “horsing around.” Horsing around in the laboratory can lead to serious injury—or even death. So **THINK** before doing anything foolish.

## SAFETY ALERT SYMBOLS

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**CLOTHING PROTECTION** • A lab coat protects clothing from stains.  
• Always confine loose clothing.



**EYE SAFETY** • Always wear safety goggles. • If anything gets in your eyes, flush them with plenty of water. • Be sure you know how to use the emergency wash system in the laboratory.



**FIRE SAFETY** • Never get closer to an open flame than is necessary.  
• Never reach across an open flame. • Confine loose clothing. • Tie back loose hair. • Know the location of the fire-extinguisher and fire blanket.  
• Turn off gas valves when not in use. • Use proper procedures when lighting any burner.



**POISON** • Never touch, taste, or smell any unknown substance. Wait for your teacher's instruction.



**CAUSTIC SUBSTANCES** • Some chemicals can irritate and burn the skin. If a chemical spills on your skin, flush it with plenty of water. Notify your teacher without delay.



**HEATING SAFETY** • Handle hot objects with tongs or insulated gloves.  
• Put hot objects on a special lab surface or on a heat-resistant pad; never directly on a desk or table top.



**SHARP OBJECTS** • Handle sharp objects carefully. • Never point a sharp object at yourself—or anyone else. • Cut in the direction away from your body.



**TOXIC VAPORS** • Some vapors (gases) can injure the skin, eyes, and lungs. Never inhale vapors directly. • Use your hand to "wave" a small amount of vapor towards your nose.



**GLASSWARE SAFETY** • Never use broken or chipped glassware. • Never pick up broken glass with your bare hands.



**CLEAN UP** • Wash your hands thoroughly after any laboratory activity.



**ELECTRICAL SAFETY** • Never use an electrical appliance near water or on a wet surface. • Do not use wires if the wire covering seems worn. • Never handle electrical equipment with wet hands.



**DISPOSAL** • Discard all materials properly according to your teacher's directions.

## PUTTING SAFETY RULES TO USE

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Answer the following questions in complete sentences.

1. Jean has long hair. What should she do before working near an open flame. \_\_\_\_\_  
\_\_\_\_\_
2. A glass tube has broken. How should you pick up the pieces? \_\_\_\_\_  
\_\_\_\_\_
3. Why should you always wear safety goggles during every lab activity? \_\_\_\_\_  
\_\_\_\_\_
4. What else should you wear? Why? \_\_\_\_\_  
\_\_\_\_\_
5. A chemical spills on your hand. You are pretty sure that it is harmless. But you are not certain. What should you do? \_\_\_\_\_

## IDENTIFYING SAFETY ALERT SYMBOLS

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Six safety alert symbols are shown below. Match them with their meanings. Write the correct letter next to each description.



a.



b.



c.



d.



e.



f.

- |       |                      |       |                        |
|-------|----------------------|-------|------------------------|
| _____ | 1. electrical safety | _____ | 4. clothing protection |
| _____ | 2. fire safety       | _____ | 5. sharp objects       |
| _____ | 3. heating safety    | _____ | 6. glassware safety    |

## REACHING OUT

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In the box at the right, design a NO HORNSING AROUND symbol. Either draw it or describe it, or both. Perhaps you can think up more than one.