

Science 9
Unit 2: Chemical Reactions
Worksheet: Laboratory Safety



PART A: GENERAL SAFETY EQUIPMENT

It is important that specific pieces of safety equipment be available in the room where you are conducting activities.

- small fire extinguisher
- fire blanket
- eye wash station
- safety shower
- chemical resistant gloves
- plastic dustpan and brush
- first aid kit
- fume hood
- glass disposal container
- chemical spill kit
- pair of safety tongs
- sharps container

PART B: PERSONAL SAFETY EQUIPMENT

You should also check to see if the following safety equipment is available for your personal use

- safety glasses (goggles)
- lab coat or apron
- disposable gloves

PART C: PRACTICES.

Read the safety rules and practices listed below and then answer the questions that follow.

GENERAL SAFETY

- 1) Always listen to the teacher and obey his or her instructions. Do not run or horse
- 2) Read the instructions for each activity carefully before coming to the lab. Never try anything other than the written laboratory.
- 3) Make sure you know how to use your lab equipment properly before you start an activity.
- 4) Always use appropriate protective equipment, such as a lab coat or protective eye wear. Tell your teacher if you are wearing contact lenses.
- 5) Do not wear loose clothing, sandals, or open-toed shoes
- 6) Do not chew gum or eat or drink anything in the laboratory.
- 7) Know the location and use of all emergency equipment and emergency exits
- 8) If you should discover a fire, notify your teacher immediately. Warn other students to keep away from the area and follow your teacher's directions. If the fire is large, evacuate the room, close the door and pull the fire alarm.
- 9) If your clothing or hair should catch fire, drop to the floor and roll to extinguish the flames. Do Not Run - this can make the fire worse. Yell to catch the attention of others so that they can help extinguish the flames with water or a fire blanket. If you see another student whose clothing or hair has ignited, tell the teacher and get clean water or a fire blanket to help them extinguish the flames.
- 10) After the lab activity, clean off your bench area. Always wash your hands with warm water and soap after the lab
- 11) Report all accidents to the teacher, no matter how small they may seem.

GLASSWARE

- 12) Do not use cracked or chipped glassware and be careful with glass pipettes and other pointed glassware. Dispose of it in a "sharps" bucket or as your teacher directs. Use clean glassware. After using glassware, wash it or put it in an approved place to soak

CHEMICALS

- 13) Know the safety precautions and hazards for all chemicals you are using before you start your lab
- 14) If you come in contact with a solid substance, brush it off immediately. For liquid spills, wash the affected area thoroughly with water. If you get anything in your eyes, do not touch them. Rinse them immediately and continuously for 15 minutes and inform your teacher.
- 15) Hold containers away from your face when pouring liquids.
- 16) Read labels on containers. Never use a chemical from a container that does not have a readable label. Inform your teacher if label cannot be read.
- 17) When in the lab, never put anything in your mouth such as fingers, equipment, hair, pencils, or chemicals that you are working with, even if they are food items.
- 18) Never return a chemical to its original container. Doing this could contaminate the original stock.
- 19) Never put any chemical down the sink or into the garbage without permission.
- 20) Clean up any spills according to your teacher's instructions
- 21) If you are asked to smell a substance, never smell it directly. Hold the container at arm's length and waft fumes toward you
- 22) When diluting a concentrated acid with water, add the acid to the water, not the water to the acid. This prevents sudden overheating of the water.
- 23) Do not enter the chemical storeroom without permission from your teacher
- 24) When getting chemicals for use in an experiment, read the label twice to make sure you have the right chemical at the correct concentration. Read any safety information on the label as well.
- 25) Report any spills of chemicals to the teacher.

HOT PLATES AND OPEN FLAMES

- 26) Handle hot objects carefully. Be especially careful with a hot plate even if it looks as though it has cooled down.
- 27) Never leave a hot plate or open flame unattended. A person may get a serious burn
- 28) Tie long hair back out of the way and do not wear loose clothing or hats with protruding brims.
- 29) If you are not sure whether a piece of equipment or glassware is hot or cold, approach it with the back of your hand so that you can detect any heat before grasping it.

ELECTRICAL EQUIPMENT

- 30) Make sure your hands are dry when touching electrical cords, plugs, or sockets.
- 31) Pull the plug, not the cord, when unplugging electrical equipment
- 32) Report frayed cords and any other damaged equipment to your teacher.
- 33) If any electrical component becomes hot during an activity, disconnect the circuit immediately.

PART A: MULTIPLE CHOICE

1. If you see something in the classroom or laboratory that is dangerous, tell the teacher
 - (A) when you have time
 - (B) at once
 - (C) after class
 - (D) after school

2. Always point a test tube
 - (A) away from you and toward others
 - (B) away from you and others
 - (C) toward you and others
 - (D) toward you and away from others

3. To safely smell a chemical in the lab
 - (A) smell it slowly
 - (B) inhale the fumes directly from the container
 - (C) heat the substance before smelling
 - (D) gently wave the fumes toward your nose using a wafting motion

4. To put out a fire in a person's clothing, use
 - (A) the fire blanket
 - (B) a handy chemical
 - (C) the wind from running
 - (D) the shower

5. Playing (as opposed to working) in the laboratory or bothering another person is
 - (A) always against the rules
 - (B) always okay
 - (C) okay if your partner is working
 - (D) sometimes all right

6. Chemicals, small parts, glassware, and stirring rods are not to be
 - (A) used in the laboratory
 - (B) put in the mouth
 - (C) put on the bench
 - (D) taken from boxes

7. You should know the proper use of safety equipment in the laboratory and
 - (A) Where it is located
 - (B) Use it twice a year
 - (C) Use it once a week
 - (D) Where it is produced

8. When using a hot plate
 - (A) don't leave it unattended
 - (B) reach over it
 - (C) wear loose and baggy clothing
 - (D) all of the above

9. If glassware becomes chipped or broken
 - (A) don't do anything, just keep working
 - (B) throw it in the trash
 - (C) put it up on the counter so that the teacher can dispose of it
 - (D) notify the teacher immediately

10. Keep all work areas
 - (A) clean
 - (B) clear of all unnecessary materials
 - (C) organized
 - (D) all of the above

11. If you injure yourself or others,
 - (A) don't tell anyone
 - (B) tell the teacher immediately
 - (C) wait until the end of the experiment to tell the teacher
 - (D) wait until after class to go to the nurse

12. you come into class with gum or candy
- (A) offer some to the teacher
 - (B) spit it out after the lab is over
 - (C) spit it out before the lab begins
 - (D) wait until the teacher calls on you
13. When mixing acid and water
- (A) pour water into acid
 - (B) let the teacher pour them
 - (C) pour them at the same time
 - (D) pour acid into water


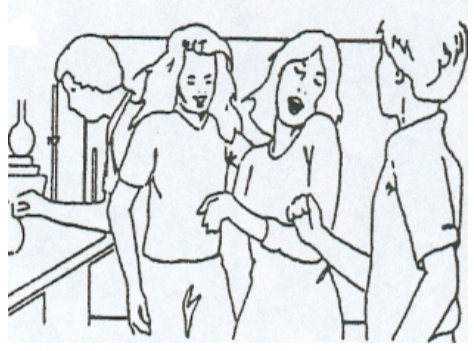
PART B: TRUE AND FALSE

For each of the following statements, decide whether it is true or false. Place your answers on the Scantron (A = True and B= False) .

- 14) Broken or chipped glassware should be disposed of in the sharps container. True / False
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- 15) You can use laboratory equipment to eat and drink food. True / False
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- 16) If the label on a chemical container is not readable or is missing, you are still allowed to use it. True / False
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- 17) Wear safety goggles when using chemicals and hot liquids. True / False
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- 18) When diluting acid, always pour water into acid. True / False
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- 19) You can try new experiments even if they are not in the directions as long as you are curious about science. True / False
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- 20) Tie back long hair when using chemicals or open flames. True / False
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- 21) If you spill any material, quickly clean it up with a cloth before the teacher can see that you spilled it. True / False
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- 22) When you have finished an experiment, leave your work area clean and return all equipment and materials to designated areas. True / False
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2. What is wrong in the following pictures? Identify **two** problems with each picture.

[4]

<p>(A)</p>  <p>(i)</p> <hr/> <hr/> <p>(ii)</p> <hr/> <hr/> <hr/>	<p>(B)</p>  <p>(i)</p> <hr/> <hr/> <p>(ii)</p> <hr/> <hr/> <hr/>
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3. On the back of your answer sheet, make a map of the lab and identify the location of the following:

- 1) Fire extinguisher
- 2) Eye wash
- 3) Shower
- 4) Fire blanket
- 5) Broken glass container
- 6) Spill kit
- 7) Fume hood
- 8) First aid Kit