

SAFETY TRAINING

This chapter will assist school district personnel and administrators with guidelines on what must be presented in a professional development program and who should receive it. There are several ways that a school district's safety program can be presented. A well-designed professional development safety program should include information on safety equipment, safety facilities, safety procedures, and first aid. Additional requirements may need to be added according to local school district policy and local safety codes.

In addition to professional development on general safety components, teachers and other district employees must receive instruction on the Texas Hazard Communications Act.

TEXAS HAZARD COMMUNICATIONS ACT (HAZCOM)

The Hazard Communications Act of 1985 was passed during the 69th Legislative Session and became law effective January 1, 1986. The law was later revised during the 73rd Legislative Session and became law effective September 1, 1993. Under section 502.009(b) of the Texas Hazard Communications Act, public schools are to develop, implement, and maintain a written hazard communication program.

WHO SHOULD RECEIVE PROFESSIONAL DEVELOPMENT?

Section 502.004 of the Hazard Communications Act defines an “employee” as a person who may be or may have been exposed to hazardous chemicals in the person’s workplace under normal operating conditions or foreseeable emergencies. This includes persons working for this state (school district personnel).

The law requires that all teachers of Prekindergarten through high school and other district personnel must receive training on the Hazards Communications Act prior to working in the area or with the

hazardous materials. Teachers new to the profession must receive safety training before they work with or in the area containing the hazardous chemicals however, district personnel changing assignments only require training on hazardous materials not covered in their initial training and updates. For example, a teacher changing assignments from earth science to chemistry and previously trained on the Hazard Communications Act will require additional training on the hazardous chemicals related to the new teaching assignment.

“Students are not ‘employees’ for the purpose of the Texas Hazard Communications Act, Texas Health and Safety “Code, Sections 502.001-016. Therefore, the Texas Hazard Communications Act is not applicable to students in their capacity as students except for the requirements of Section 502.004(e)(5)(B) that requires that materials safety data sheets must be maintained by the laboratory and made accessible to students.”

July 21, 1993 Texas Attorney General ruling, Opinion Number DM-239

1. A professional development program must include, as appropriate:
 - a. understanding and interpreting labels on hazardous chemicals and Material Safety Data Sheets (MSDS) and the relationship between those two methods of hazard communications;
 - b. safe handling of hazardous chemicals known to be present in the school district personnel's work area and to which the employee may be exposed;
 - c. the proper use of protective equipment and first aid treatment to be used with respect to the hazardous chemicals to which teacher may be exposed;
 - d. general safety instructions on the handling, cleanup procedures, and disposal of hazardous chemicals.
2. Training on hazardous chemicals may be conducted by the categories of the chemicals. The protective equipment and first aid treatment may be accomplished by categories of hazardous chemicals as well.
3. Teachers and other school district personnel must receive additional training when the potential for exposure to hazardous chemicals in the work area increases significantly or when the school district receives new and significant information concerning the hazards of a chemical in the employee's work area.
4. The school district shall provide training to a new or newly assigned teacher, administrator, or other school district personnel before the individual works with or in an area containing a hazardous chemical.
5. The school district shall keep a written hazard communications program and a record of each training session given to school district personnel, including the date, a roster of the employees who attended, the subjects covered in the training session, and the names of the instructors. Those records shall be maintained for at least 5 years by the school district. The Texas Department of Health will have access to those records and may interview teachers during compliance inspections.

HAZCOM GUIDELINES FOR SCHOOL DISTRICTS

The Texas Department of Health recommends the following steps as a guide for the development of a district-wide safety-training program.

1. Create a list of all district personnel that require safety training.
2. Determine the appropriate level of training for different job classifications based on the number and type of chemicals, chemical categories used, and the duration and frequency of use.
3. Designate a person(s) responsible for conducting the safety training.
4. Determine the format of the safety program to include visuals, classroom instruction, hands-on instruction, materials required.
5. Elements of the training program should include but should not be limited to:
 - ☞ Texas Hazard Communications Act—purpose and application,
 - ☞ use, location, and interpretation of Materials Safety Data Sheets (MSDS),
 - ☞ location, health effects, and safe handling of hazardous chemicals present in the work area,
 - ☞ proper use of protective equipment—safety goggles, lab aprons, safety gloves, etc.,
 - ☞ first aid treatment with respect to hazardous chemical exposure,

- ☼ safety instructions on the labeling, handling, cleanup , and disposal of hazardous chemicals,
 - ☼ the employee rights under the Texas Hazard Communications Act.
6. Describe the procedures for training new or newly assigned employees where hazardous chemicals may be found.
 7. Describe the procedures for providing periodic update safety training.
 8. Describe the school district's procedures for responding to responding to an emergency situation involving hazardous chemicals.
 9. Establish a procedure for maintaining records of training sessions that include:
 - ☼ dates of the training sessions
 - ☼ a list of district personnel trained
 - ☼ topics covered in the safety session
 - ☼ name of the instructor(s)
 - ☼ retention of this information for at least 5 years

The school district has the responsibility to obtain an MSDS for each hazardous chemical used in the schools. Copies of the MSDS are to be maintained on each campus readily available to teachers and other district personnel upon request. Generic MSDS that comply with OSHA standards are acceptable in lieu of the manufacturer's MSDS.

For further information on the requirements of a HAZCOM training program, contact:

Texas Department of Health
Hazard Communications Branch
1100 West 49th Street
Austin, Texas 78756
(512) 834-6603

SAFETY TRAINING FOR STUDENTS

The science laboratory is a place of discovery and investigation. One of the first things students discover is that learning in a laboratory is an exciting experience. The laboratory can also be a dangerous place to work if proper safety rules are not established and followed. To prepare students for a successful year in science, the teachers should develop safety rules that incorporate the following safety information.

PERSONAL PROTECTIVE EQUIPMENT

1. Many materials in the laboratory cause eye injury. Protect yourself from possible injury by wearing the splash-proof safety goggles provided in the laboratory. In Texas schools, state law requires that safety goggles be worn in all situations where the possibility of injury to the eye is present. This includes working with chemicals, heating materials, and using certain kinds of equipment.

2. Wear laboratory aprons or coats when working with chemicals or heated substances.
3. Wear protective gloves when handling hazardous chemicals and materials.



PROPER DRESS

1. Wear long-sleeved blouses and shirts. Regular length slacks or denim jeans provide good protection for your legs. Shorts will not protect the legs and are not appropriate when working in a laboratory.
2. Tie back long hair to prevent it from coming into contact with chemicals or an open flame.
3. Wear shoes without open ends. Sandals will not protect the feet from spills or other injuries and should never be worn in a laboratory.
4. Remove or tie back any article of clothing or jewelry that hangs down from the body and might come into contact with chemicals or open flames.
5. Never eat or drink in the laboratory. Never drink from a beaker or other container used in the laboratory.
6. There should never be loud talking or playing in the laboratory.
7. Handle cutting instruments carefully. Never cut materials toward you—use a cutting motion away from yourself.
8. When you have completed the investigation, clean up your work area and return equipment and supplies to their proper place.
9. Wash your hands with soap and warm water after every investigation.
10. Turn off all burners before leaving the laboratory.
11. Know the location and use of all safety equipment (fire extinguishers, eye / wash station, safety shower, fire blankets, chemical spill kits)
12. Never work in the laboratory alone or without permission.
13. Do not enter supply or storage rooms without a teacher present or without the teacher's permission.

GENERAL LABORATORY RULES

1. Read all directions for doing a laboratory investigation before beginning. Be alert in the laboratory and listen for the teacher's directions. Ask questions if you do not understand any part of the investigation.
2. Never perform activities that are not authorized by the teacher.
3. Do not handle equipment without specific permission.
4. Take extra precautions when handling

chemicals. Never pour chemicals or other substances into the sink or trash container. If a chemical spill occurs, notify the teacher immediately.

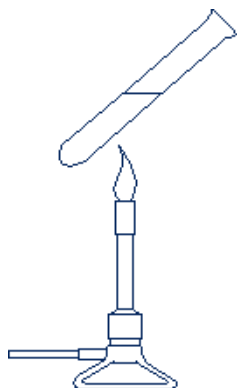
FIRST-AID PROCEDURES

1. Report all accidents to your teacher immediately.
 2. Learn what to do in case of an accident (such as an acid spilling on the body, materials entering the eye, and cuts or burns).
- ☞ When chemicals splash onto the body, rush to the safety shower, pull the handle, and remain in the shower for at least 15 minutes.

- ☼ If materials enter your eye, rush to the eye/face wash station and flush the eyes with a continuous stream of water for at least 15 minutes. Hold your eyelids open with your fingers, or get assistance from your teacher.
 - ☼ Report minor cuts or burns to the teacher, so that he or she can administer first aid in the laboratory.
3. Be aware of the location of the first-aid kit, but allow the teacher to administer first aid to an injured student.
 7. Never heat chemicals in a closed container such as a corked test tube. The expanding gas inside will cause the test tube to explode or turn the stopper into a projectile with considerable force.
 8. Do not pick up a container that has been heated or hand a heated container to someone. Hold the back of your hand near the container and check for heat. If you can feel heat, use a mitten or tongs to pick up the container.

USE FIRE SAFELY

1. Do not use an open flame without first putting on safety goggles.
2. Know how to light and regulate the flame on a burner.
3. Never leave an open flame unattended. When the burner is not being used, turn it off.
4. Keep your area clean and free from clutter.
5. Do not reach across an open flame.
6. Always point the open end of a test tube away from others when heating liquids. Some chemicals can boil out of the test tube violently and unexpectedly when being heated.



USE CHEMICALS SAFELY

1. Never touch, taste, or smell any chemical that you do not know is harmless. Many chemicals are toxic. If you are instructed to smell fumes during an investigation, do so by gently waving your hand over the container so that the fumes are brought to you. Do not bring the container to your nose. Do not inhale the fumes directly from the container, as they may be concentrated and cause you injury.
2. Use only chemicals that are listed in the investigation, and do not substitute other chemicals for the ones listed.
3. Notify the teacher immediately if chemicals have been spilled.
4. Dispose of the chemicals properly as directed by the teacher. Do not pour them into the sink or trash container.
5. Use extra precautions with acids and bases. Always pour acid into water. Do not pour water into acids.
6. Remember to wash any acid or base from your skin immediately and notify the teacher.
7. Use a pipette bulb. Never pipette liquids using your mouth.
8. Read the labels twice before using a chemical.

9. Do not pour extra chemicals back into the original container. This causes contamination of the chemical and may cause incorrect results to occur in future investigations.
 10. Never use the same spatula to remove chemicals from two different containers. Each container should have its own spatula.
 11. When removing a stopper from a bottle, do not lay it on the lab table, but place the stopper between two fingers and hold the bottle so that the label is in the palm of your hand. Both the bottle and the stopper should be held in one hand.
 12. Replace all stoppers and caps on the correct bottles after you have finished using them.
5. Never eat or drink from laboratory glassware.
 6. Clean glassware thoroughly before returning it to storage.

USE ELECTRICAL EQUIPMENT SAFELY

1. Be careful not to shock yourself or another person.
2. Turn off all power sources when setting up circuits or repairing equipment.
3. Do not use metal articles such as rulers, metal pencils or writing pens; do not wear rings, metal watchbands, or bracelets when working with electrical equipment.
4. When disconnecting electrical equipment, pull from the plug and not the wire.
5. Use caution when handling electrical equipment that has been in use. The equipment may be warm or hot from being used.
6. Never connect, disconnect, or operate a piece of electrical equipment with wet hands or while standing on a wet floor.

USE GLASSWARE SAFELY

1. Never force glass tubing into a rubber stopper. Use a lubricant and a turning motion on the glass tubing when inserting it into a rubber stopper or rubber tubing.
2. When heating glassware, use a wire or ceramic screen to protect the glassware from the flame.
3. After cutting glass tubing, always fire polish the ends to remove any sharp edges.
4. Never use broken or chipped glassware. If glassware breaks, notify your teacher and properly dispose of it in a broken glassware container.

OTHER PRECAUTIONS

1. Do not use hair spray, hair mousse, or other flammable hair products during or just before laboratory work where an open flame is used. These products may contain highly flammable chemicals and ignite easily.
2. Synthetic fingernails are also highly flammable and should not be worn in the laboratory.

PROFESSIONAL DEVELOPMENT

Teachers should maintain a record of professional development they have received on safety. Using the Professional Development Profile and working with district administrators, teachers can identify the areas of safety they need to learn more about to provide a safe learning environment for their students. Science coordinators and supervisors can collect this information to provide districtwide staff development for their teachers.

PROFESSIONAL DEVELOPMENT PROFILE

Equipment

Telephone

- ☐ emergency numbers
- ☐ locations
- ☐ portable communications

Fire Extinguishers

- ☐ types and uses
- ☐ location

Public Address System

- ☐ location
- ☐ emergency use

Eye Protection Devices

- ☐ law requirements
- ☐ types of protection
- ☐ purpose
- ☐ sanitation and storage

Fire Blankets

- ☐ purpose
- ☐ location

Spill Control Kit

- ☐ types
- ☐ purpose
- ☐ proper use
- ☐ location
- ☐ disposal

Facilities

Corrosive Materials Cabinet

- ☐ purpose
- ☐ location
- ☐ chemical storage
- ☐ ventilation

Broken Glass Containers

- ☐ purpose
- ☐ location
- ☐ proper disposal

Electrical Safety

- ☐ circuit breaker box
- ☐ electrical outlets
- ☐ extension cords
- ☐ location of outlets
- ☐ hazards

Emergency Showers

- ☐ law requirements
- ☐ location
- ☐ proper use
- ☐ purpose
- ☐ routine tests

Eye / Face Wash Stations

- ☐ law requirements
- ☐ water temperature
- ☐ water pressure
- ☐ types and purpose

Flammable Materials Cabinet

- ☐ purpose
- ☐ location
- ☐ chemical storage

Master Utility Controls

- ☐ purpose
- ☐ types of controls
- ☐ location
- ☐ maintenance
- ☐ security

Chemical Safety (HAZCOM)

- ☐ types of chemicals
- ☐ ventilation
- ☐ shelving
- ☐ chemical storage
- ☐ MSDS

Emergency Exits

- ☐ law requirements

Forced Air Ventilation

- ☐ law requirements
- ☐ purpose
- ☐ uses
- ☐ locations

Safety Signs

- ☐ types
- ☐ purpose
- ☐ locations

Compressed Gas Cylinders

- ☐ types
- ☐ pressure hazards
- ☐ transporting
- ☐ security

Fume Hoods

- ☐ requirements
- ☐ location
- ☐ purpose and use

Emergency Exhaust Fan

- ☐ purpose and use

Procedures

Fire Drill Procedures

- ☐ fire drill rules
- ☐ posting evacuation routes

Safety Contract

- ☐ student contract
- ☐ purpose and use

Emergency Procedures

- ☐ developing procedures
- ☐ what to do in an emergency
- ☐ when and how to call for assistance
- ☐ field investigations

First-Aid Procedures

- ☐ handling cuts, burns, and minor injuries
- ☐ reporting and keeping records
- ☐ when to call for assistance
- ☐ who to call for assistance
- ☐ CPR training
- ☐ abdominal thrust
- ☐ field investigations