



Safety Recommendations

This document is produced by the Oklahoma Department of Career and Technology Education (ODCT) – STEM division as a reference document to aid instructors and administrators with making the educational environment a safety and engaging place to learn. It is a document that is not all inclusive and instructors and administrators are encouraged to reference current risk assessment, manufacturers and school safety requirement for equipment and safety issues. Oklahoma Careertech instructors are expected to comply with all local fire and safety rules and regulations.

Appropriate Lab Attire

- Wear shoes that adequately cover the whole foot; low-heeled shoes with non-slip soles are preferable. Do not wear sandals. Open-toed shoes, open-backed shoes, or high-heeled shoes in the laboratory and/or shop.
- Avoid wearing shirts exposing the torso, shorts, or short skirts; long pants that completely cover the legs are preferable.
- Secure long hair, jewelry, and loose clothing (especially loose long sleeves, neck ties, or scarves).
- Always wear appropriate eye protection (i.e. Z87.1 safety glasses) in the laboratory/shop area.
- Wear a full-length, long-sleeved laboratory coat, lab/shop apron, or appropriate safety attire for machinery being operated.

Proper Storage of Chemicals, Supplies or Cleaning Materials

- Keep chemical storage area off limits to all students.
- No unlabeled substance should be present in the laboratory at any time.
- Ensure that all storage areas have doors with locks.
- Secure shelving to the wall or floor.
- Store chemicals inside a closeable cabinet or on a sturdy shelf with a front-edge lip to prevent accidents and chemical spills; a $\frac{3}{4}$ inch front edge lip is recommended.
- Store acids in a dedicated acid cabinet. Follow all recommended storage protocols from manufacturer and SDS sheets.
- Store highly toxic chemicals in a dedicated, lockable poison cabinet that has been labeled with a highly visible sign.
- Store volatile and odoriferous chemicals in a ventilated cabinet.

- Store flammables in an approved flammable liquid storage cabinet.
- Store water sensitive chemicals in a watertight cabinet in a cool and dry location segregated from all other chemicals in the laboratory.
- There should be a yearly purging of outdated, dangerous, or unnecessary substances.
- Chemical waste should be stored and disposed of properly.
- Chemicals transferred into a secondary container should be labeled with chemical, strength, and precautions.

Proper Ventilation for Program Type

- Maintain a safe learning environment by ensuring that the classroom, storage/preparatory and laboratory/shop area is properly and adequately ventilated.
- Laboratory chemical hood should follow the manufacturers or builders' recommendations.
- Instructional areas should be equipped with appropriate heating and cooling ventilation.
- Machinery should be equipped with an adequate dust and debris exhaust system.

Power Recommendations

- All classrooms need to have emergency disconnection of power and gas supplies. There should be emergency stop buttons in key areas of work. Those should be **highly visible** to instructors and students.
- There should be sufficient electrical outlets placed to eliminate the need for extension cords.
- Outlets should be equipped with Ground-Fault Interrupters (GFIs)
- All electrical cords should be in safe condition.

Fire Extinguisher

- Recommended for classroom or laboratory/shop areas- Fire Extinguisher, Dry Chemical, ABC
- Monthly inspection of extinguisher.
- Extinguisher is not blocked by equipment, coats or other objects that could interfere with access in an emergency.
- Extinguisher nozzle or other parts are not obstructed.
- Extinguisher pin and tamper seal (if present) are intact.
- Extinguisher has no dents, leaks, rust, chemical deposits, and other signs of abuse/wear.
- If the extinguisher is damaged or needs recharging, get it replaced **immediately**.

Fire Blanket

- Woolen blanket with dimensions that are based on the risk assessment recommendations.

Safety Test

- Students are required to pass a safety test with 100% accuracy specific to the program, including tests for specific pieces of equipment, which must be kept on file for the duration of the program.

- Safety tests should be maintained on file for the duration of the program.
- Safety should be taught and practiced in instructional activities.

Eye Protection

- Eye protection must be worn when around chemicals, power equipment or other environments that would mandate eye protection. Refer to latest risk assessment for recommendations.
- Lenses of safety eye wear must be kept clean and sanitized. Restricted vision due to dirty lenses is sometimes a contributing factor to accidents.
- Eye protection devices that are shared should be disinfected between uses.
- Note: prescription or non-prescription eyeglasses are **not** considered adequate eye protection.

Proper Signage

- International safety symbols should be used to denote areas of chemicals in the classroom, storage room, and laboratory or shop area.
- Safety signage should be in place before program begins.
- Green is typically used for eye wash stations.
- Red is typically used for fire extinguishers.

Posting of Eye Protection Areas

- The entrance to all shops, laboratories or other areas that require eye protection should be posted with a sign indicating the requirements.
- Machines, equipment or process areas and laboratories requiring operators to wear specific eye and face protection should be posted with warning signs.
- Visitors must wear eye protection in all areas as indicated. Extra eye protection should always be available to lend to visitors.

Adequate Space to Ensure Safe Instruction

- Refer to current risk assessment to determine adequate space for specific program.
- Keep work area neat, clean, and free of any unnecessary objects.
- Do not block the sink drains with debris.
- Inspect all equipment for damage (cracks, defects, etc.) prior to use; do not use damaged equipment.
- Place chemical waste in appropriately labeled waste containers.
- Properly dispose of broken glassware and other sharp objects immediately in designated containers.

Safety Data Sheets (SDS)

- Clearly marked, centrally located, and easily accessible location known to all school staff and emergency personnel.
- Contains all chemicals found in the room where located.

Rocket/Drone Safety

- Check and obtain permits in advance (state and/or local) for flying model rockets or drones.
- Activities involving the firing of rockets or flying of drones must follow Federal Aviation Agency (FAA) regulations, state, and local rules of regulations.

References:

- Refer to all manufacturer and school safety regulations and requirements.
- Current Risk Assessment