

5.4 Safety Checklists

The following checklists were developed from Dr. Ken Roy's 2021 National Science Teaching Association (NSTA) safety blog titled "The Safety Checklist: Navigating to Safer Waters!" (<https://www.nsta.org/blog/safety-checklist-navigating-safer-waters>)

Note: Additional checklists for specific science and T&E courses can be accessed from:

1. The National Institute for Occupational Safety and Health (NIOSH) at <https://www.cdc.gov/niosh/docs/2004-101/default.html>
2. Promoting a Safe School Environment: A Handbook for Pennsylvania Career and Technical Educators (2021). Published by the Pennsylvania Department of Education at <https://www.education.pa.gov/K-12/Career%20and%20Technical%20Education/Resources/Teacher%20Resources/CTESafety/Pages/default.aspx>

General Health and Safety Checklist

Safety Consideration	Yes	No	Comments
1. Does the worksite have a current health and safety program that deals with general health and safety elements, as well as management of potential hazards and resulting risk specific to your worksite?			
2. Is there a safety officer and/or chemical hygiene officer directly responsible for developing and overseeing all components of the health and safety program?			
3. Is there a safety committee or group composed of administrators and employee representatives that meets regularly and reports in writing on its activities to all employees?			
4. Is there a written procedure in place for addressing employee health and safety issues?			
5. Are science T&E instructional spaces secure? (e.g., door is locked when no adult supervisor is in the lab)			
6. Are emergency phone numbers and the plan posted next to a phone?			
7. Are power strips secured off the floor and away from liquids?			
8. Are extension cords only present for immediate use and do not pose trip/fall or electrical hazards?			
9. Are the extension cords disconnected at the end of the workday?			

Personal Protective Equipment Checklist

Safety Consideration	Yes	No	Comments
1. Do employers assess workplace activities to determine if potential hazards and resulting risks require the use of PPE (for example, head, eye, face, hand, or foot protection)?			
2. If potential hazards are identified, are employers selecting and having affected employees use properly fitted PPE suitable for protection from the hazards?			
3. Are protective indirectly vented chemical splash goggles or safety glasses with side shields as appropriate meeting the American National Standards Institute (ANSI)/International Safety Equipment Association (ISEA) Z87.1 D3 standard provided and worn where any potential danger of biological, chemical, or physical hazards exists?			
4. In working environments that have harmful exposures, are employees who need corrective lenses (glasses or contacts) required to wear only approved safety glasses with side shields or protective indirectly vented chemical splash goggles, or use other medically approved PPE?			
5. Are protective gloves, aprons, shields, or other means provided and required where employees could be cut or where there is reasonably anticipated exposure to corrosive liquids, chemicals, blood, or other potentially infectious materials? See 29 Code of Federal Regulations (CFR) 1910.1030(b) for the definition of "other potentially infectious materials."			
6. Are all protective equipment cleaning and sanitizing/disinfecting procedures in place and is equipment maintained in a sanitary condition and ready for use?			
7. Are eyewash and quick drench shower engineering controls within the work areas where employees are exposed to potentially injurious biological, chemical, or physical hazards?			

Flammable and Combustible Materials Checklist

Safety Consideration	Yes	No	Comments
1. Are approved containers and tanks with the correct labels used for the storage and handling of flammable and combustible liquids?			
2. Do storage rooms for flammable and combustible liquids have explosion-proof lights?			
3. Do storage rooms for flammable and combustible liquids have continuous mechanical or gravity ventilation?			
4. Are fire extinguishers selected and provided for the types of materials in areas where they are to be used? For example, • Class A: Ordinary combustible material fires; • Class B: Flammable liquid, gas, or grease fires; • Class C: Energized-electrical equipment fires; and • Class D: Combustible metals.			
5. Are appropriate fire extinguishers mounted within 75 feet of outside areas containing flammable liquids, and within 10 feet of any inside storage areas for such materials?			
6. Are extinguishers free from obstructions or blockage?			
7. Are all extinguishers serviced, maintained, and tagged at intervals not to exceed 1 year?			
8. Are all extinguishers fully charged and in their designated places?			
9. Are accesses to exits unrestricted?			
10. Is a National Fire Protection Association (NFPA) fire diamond posted on the exterior of an entrance door to where hazardous chemicals are stored?			
11. Is the storage clearance from the ceiling 18 inches with sprinklers; 24 inches if no sprinklers are available?			

Walking-Working Surfaces

Safety Consideration	Yes	No	Comments
1. Are all worksites clean, sanitary, and orderly?			
2. Are work surfaces kept dry, or is appropriate means taken to ensure the surfaces are slip-resistant?			
3. Are all spilled hazardous materials or liquids, including blood and other potentially infectious materials, cleaned up immediately and according to proper procedures?			
4. Is all regulated waste, as defined in the OSHA bloodborne pathogens standard (1910.1030), discarded according to federal, state, and local regulations?			
5. Are aisles and passageways kept clear (3-feet minimum)?			
6. Are walkways free of trip/fall and slip/fall hazards?			
7. Are work and storage areas clear of clutter? (e.g., appropriate housekeeping)			

Hand Tools, Power Tools, and Equipment

Safety Consideration	Yes	No	Comments
1. Is hand, power tool, and equipment training required for faculty and staff?			
2. Are hand, power tool, equipment and other safety training updates provided annually for faculty and staff?			
3. Is hand, power tool, and equipment training provided for students?			
4. Are tools secured (locked up) when not in use and under direct adult supervision?			
5. Is broken or inoperable equipment locked out and tagged out?			
6. Are hand and power tools inspected regularly and removed or labeled "out of service" if found to be damaged?			
7. Are tools disconnected from power/electrical breaker shut off and de-energized when not in use, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters?			

8. Are power tool and equipment operators in a clearly defined and marked work zone, keeping all people not involved with the work at a safe distance from the work area?			
9. Are exposed moving parts of power tools and equipment safeguarded using properly working guards provided by the manufacturer? (e.g., belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains, or other reciprocating, rotating, or moving parts of equipment).			
10. Are employees/students who use electric tools/equipment protected by ground-fault circuit interrupters (GFCIs) or an assured equipment-grounding conductor program?			
11. Are employees/students who are using electrical equipment working in a dry area (no water/moisture for electrical shock or slip/fall hazards)?			
12. Are appropriate ventilation and PPE always used as required for that task (eye/face protection, dust mask, ear protection, apron, appropriate types of gloves, etc.)?			

Hazard Communication and Professional Safety Practices

Safety Consideration	Yes	No	Comments
1. Is there an up-to-date inventory of hazardous substances used in the workplace?			
2. Is there a written hazard communication program dealing with Safety Data Sheets (SDS), labeling, and employee training? Online systems also can be used, but a written HazCom plan must also be available for employees.			
3. Is each container for a hazardous substance (i.e., vats, bottles, storage tanks, etc.) labeled with product identity and a hazard warning (communication of the specific health hazards and physical hazards)?			
4. Is there an SDS readily available for each hazardous substance used?			

5. Is there an employee training program for hazardous substances?			
6. Does this program include • a. An explanation of what an SDS is and how to use and obtain one? • b. SDS contents for each hazardous substance or class of substances? • c. An explanation of "Right to Understand?" • d. Identification of where an employee can see the employer's written hazards communication program and where hazardous substances are present in their work areas? • e. The physical and health hazards of substances in the work areas, and specific protective measures to be used? • f. Details of the hazard communication program, including how to use the labeling system and Safety Data Sheets (SDS)?			
7. Are employees trained in the following? • a. How to recognize tasks that might result in occupational exposure; • b. How to use work practices, engineering controls, and PPE and to know their limitations; • c. How to obtain information on the types, selection, proper use, location, removal handling, decontamination, and disposal of PPE; and • d. Whom to contact and what to do in an emergency.			
8. Is spill control equipment (neutralizers, absorbent pads) readily available?			
9. Is shelving secured to walls and chemical containers in good condition (no leaks, rust, etc.)?			

10. Do refrigerators have appropriate signage? (e.g., “Chemicals/biologicals only” or “Food for human consumption only”)			
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Laboratory Standard and Professional Safety Practices

Safety Consideration	Yes	No	Comments
1. Is there an up-to-date chemical hygiene plan (CHP)?			
2. Is there a chemical hygiene officer (CHO) assigned by the school entity?			
3. Are there Standard Operating Procedures listed and followed in the CHP based on legal safety standards and better professional safety practices?			
4. Are there criteria for implementing specific controls?			
5. Are fume hoods free of clutter and stored chemicals, glassware, etc.?			
6. Is there annual testing and certification of fume hoods by a certified inspector?			
7. Is there direct access to safety information and annual safety training requirements?			
8. Are there laboratory operations that require approval of the employer and/or CHO?			
9. Are there provisions for medical consultation and exams? Is there a first-aid kit in the lab? Has the employee been trained on how to use the kit, and what is the school entity’s policy on providing first aid in the event of an emergency?			
10. Is appropriate safety signage in place? (e.g., exit, eyewash, shower, master shutoff, etc.)			
11. Are the eyewash and shower easily accessed?			
12. Are the safety shower and eyewash station accessible within 10 seconds?			