

SAFETY CONSIDERATIONS FOR YOUTH IN STEM ENVIRONMENTS

The University of Washington is committed to providing a safe and healthy learning, research and teaching environment. Below are considerations to help assist you in planning and holding a science, technology, engineering and math (STEM) focused youth program at the University. The goal is to provide a valuable learning experience while ensuring the health and safety of minors, employees and students.

The following considerations are in alignment with federal and state laws and University policies that address workplace restrictions for minors (i.e., youth under the age of 18) and pertain to non-matriculated minor participants of youth programs and individual minor employees, volunteers and interns. For youth aged 16 and 17 in a learning program that meets federal and state criteria, there are some limited exemptions to the restrictions. See the Resource section at bottom for a list of laws, regulations and policies. Your department, college or unit may have additional guidelines for working with minors. Contact your administrator for further details.

SUMMARY OF SAFETY CONSIDERATIONS

DO	AVOID	PROHIBITED
<ul style="list-style-type: none"> • Inform parents or guardians of potential risks of injury. • Orient and train youth on safety procedures. • Closely supervise youth. • Equip youth with proper attire and personal protective equipment (PPE) in labs and shops. • Demonstrate procedures to model proper use and prevent youth from injuring themselves. • Consider alternative materials or activities that can teach the same STEM concepts without health and safety risks. • Report injuries and near misses to EH&S. 	<ul style="list-style-type: none"> • Activities that can pose a physical hazard (examples given in next section) • Use of needles, glass or other sharps • Contact with laboratory animals • Loose clothing and hair in shop and maker space environments • Use of equipment or materials with high rate of injury or health risk 	<ul style="list-style-type: none"> • Exposure to hazardous chemicals, biohazards or radioactive substances (see definitions in following section) • Access to areas requiring hearing protection devices, respirators or hardhats • Access to elevated surfaces above 10 feet • Use of circular saws or guillotine shears • Other activities as outlines in WA State L&I Prohibited Duties



SAFETY CONSIDERATIONS

1) Parent or Guardian Consent for Participation

Many STEM activities contain one or more potential risks for injury. Communicate potential risks to parents or guardians and collect signed Acknowledgement of Risk (AOR) consent forms. An [AOR template](#) for use is available.

2) Initial Safety Orientation

Before the start of work, provide a safety orientation to review to communicate the potential hazards and safety procedures. Review emergency evacuation and emergency response procedures. Document this training.

3) Supervision

Youth must be supervised at all times by a lab manager or other authorized adult. Closely supervise any activity that poses a potential risk of injury. Certain high-risk activities are best safely demonstrated by an employee rather than tried by a youth.

4) Prohibited Environments

Prohibited duties as identified by the federal Office of Labor are listed on the webpage below and include work on elevated surfaces more than 10 feet above the ground, working with power-drive circular saws, band saws and guillotine shears, and work in elevated noise areas, among other prohibited duties. See [WAC 296-125-030](#) for more information.

5) Noisy Environments

Youth are not permitted in areas where hearing protection is required by the University. However, if there are areas where there is occasional high noise, hearing protection such as ear plugs can be provided to youth to minimize noise exposure.

6) Hazardous Materials

Youth may not be exposed to hazardous materials including hazardous chemicals, biohazards such as human blood, or radioactive materials. There are specific youth learner exemptions for youth aged 16 and 17 as part of a vocational education program. The youth learner exemption allows minute use of hazardous materials. Contact EH&S at 206-221-7770 or ehsdept@uw.edu to assist with questions about use of hazardous materials.

- a. Chemicals: Hazardous chemicals are defined as individual chemicals or mixtures that have any one or more of the following characteristics: acute toxicity; skin irritation or corrosion; eye irritation or eye damage; respiratory or skin sensitization; cell mutagenicity or carcinogenicity; reproductive toxicity; specific target organ toxicity; asphyxiant.
- b. Biohazards: Human blood, human cell lines, and potential infectious human source materials; bacteria, rickettsia, fungi, viruses, protozoa, parasites,



prions and select agents; several categories of recombinant or synthetic DNA; certain animal blood and tissues; a research environment at biosafety/animal biosafety level 2 (BSL-2/ABSL-2) or higher which can present a biohazard risk to humans.

- c. Radioactive substances: Ionizing and non-ionizing radiation.

7) Physical Hazards

Close consideration should be given to activities that may present physical hazards. Examples include using motorized equipment, power-driven equipment, and cutting devices. Several activities with physical hazards are prohibited per item number four above. Non-prohibited activities that present physical hazards should be performed by trained supervisors or under close and direct supervision with safety training provided beforehand.

8) Laboratory Attire

When working in a laboratory environment, closed shoes should be worn, and clothing should cover skin on legs and feet. When work is taking place in a lab environment, the following personal protective equipment (PPE) is recommended: laboratory coat, nitrile gloves, and safety goggles.

9) Shops and Maker Space Attire

When working in a shop or maker space, closed shoes should be worn, and clothing should cover skin on legs and feet. Safety glasses should be worn in shops and when there is a potential for eye contact with objects. Loose clothing should be avoided and hair should be tied back.

10) Personal Protective Equipment (PPE)

Laboratory coats or gowns, gloves, and safety goggles should be worn in labs and other environments that may present an exposure potential to clothing, skin or mucous membranes. Youth are not permitted to take part in activities that require respiratory protection, hearing protection, or hard hats.

11) Needles and Other Sharps

Avoid use of needles, glass and other sharps whenever possible. If an injury does occur involving a sharp object, ensure the student washes the wound for 15 minutes with warm water and sudsing soap, and seek medical assistance.

12) Report Injuries and Near Misses

If an injury occurs or if a hazardous condition is identified, report it to EH&S within 24 hours via the [online reporting system](#). Call 911 for emergencies.

13) Animal Research Environments

[Animal use medical screenings \(AUMS\)](#) are required for work in the animal research and care setting. Youth are discouraged from directly handling animals. Laboratory animals contain allergens and inherent diseases that can pose health concerns to minors. If youth have lab animal allergies, they should not be permitted to enter this work environment, as it would require wearing a respirator which is prohibited for minors.

RESOURCES

- [U.S. Department of Labor and Youth](#)
- [WA State Department of Labor and Industries Prohibited Duties for Minors](#)
- [WA State Administrative Code \(WAC\) on prohibited and hazardous employment for all minors](#)
- [University of Washington Administrative Policy Statement 10.9: Visitors and Children in University Laboratories and Shops](#)
- [University of Washington Laboratory Safety Manual](#) (pages 1-9)

CONTACT INFORMATION

- EH&S Research and Occupational Safety, 206.221.7770, ehsdept@uw.edu
- Office for Youth Programs Development and Support, 206.616.5153, uwminors@uw.edu, www.uw.edu/youth