

NSTA MINIMUM SAFETY GUIDELINES FOR PRESENTERS AND WORKSHOP LEADERS

PREAMBLE

The National Science Teachers Association, an organization of science education professionals dedicated to the stimulation, improvement, and coordination of science teaching and learning, supports scientific safety at all levels. Presenters, workshop leaders, contestants, and authors at NSTA-sponsored activities serve as role models for other science educators. As role models, these individuals must develop, encourage, and display good safety habits at all times. A good safety role model promotes positive safety in actions, words, behavior, and deeds. Science safety is an integral part of science education and serves as a preparation for life. Accordingly, NSTA encourages teachers to offer meaningful and safe science experiences both inside and outside the classroom. NSTA requires that all presentations, workshops, and related science-education activities, be conducted in accordance with recognized safety procedures and good common sense. The intent of the safety guidelines that follow is to promote safe science practices at all NSTA-sponsored activities.

ALL PRESENTERS AND WORKSHOP LEADERS MUST FOLLOW THE NSTA MINIMUM SAFETY GUIDELINES

THE FOLLOWING MAY NOT BE PART OF ANY PRESENTATION OR WORKSHOP AT AN NSTA CONFERENCE UNDER ANY CIRCUMSTANCES:

1. Parts of the body are not to be placed in danger, such as placing dry ice in the mouth or dipping hands or fingers into liquid nitrogen or molten lead, or exposing the hands and face to microorganisms. Demonstrations such as the following shall not be conducted: walking on broken glass or hot coals of fire with bare feet, passing an electric current through the body, and lying on a bed of nails and having a concrete block broken over the chest.
2. Live vertebrate animals may not be used in demonstrations or for experimental purposes. Such animals may be used only for observational purposes provided the animals have been lawfully acquired, are housed in proper containers, and are handled in a humane way following the NSTA's "Guidelines for Responsible Use of Animals in the Classroom" (NSTA Position Statement). Any certification papers or vaccination documents shall be made available upon request.
3. Animals are to be used for educational purposes and not for the exploitation of the animal for advertisement, commercial purposes, or sensationalism. This includes use of animals in the Exhibit Hall.
4. Live ammunition, firearms, or acutely dangerous explosives, such as benzoyl peroxide, diethyl ether, perchloric acid, picric acid, and sodium azide, may not be used. Commercially available fireworks and blasting caps shall never be employed.
5. Plants with poisonous oils (*e.g.*, poison ivy), saps (*e.g.*, oleander) or other plants known to be generally toxic to humans are not to be used. (Resource: [Human Poisoning from Native and Cultivated Plants](#), by James W. Hardin and Jay M. Arena. The publisher is Duke University Press, Durham, NC 27708.)
6. Experiments or demonstrations with human blood/body fluids may not be conducted.
7. Radioactive powders, liquids, or solutions are not to be used except in a laboratory facility designated for the type of radioactive material. Arrange for proper shielding and protection for demonstrations which involve radiation. Only low-level, radioactive sources shall be employed.

GUIDELINES FOR PREPARING YOUR PRESENTATION:

1. Practice all demonstrations or workshop procedures BEFORE presenting them to an audience or having participants try them.
2. Research and understand the properties, chemical reactions, and dangers involved in all demonstrations. Plan to use correct handling and disposal procedures for all chemicals and biohazards used. Arrange to have a fire extinguisher available whenever the slightest possibility of fire exists. Be aware of emergency and fire escape routes for your site.
3. Prepare a handout that gives participants detailed instructions about the procedures, safety precautions, hazards, and disposal methods for each demonstration and workshop. Material Safety Data Sheets (MSDS) for chemicals and biohazards shall be made available upon request.
4. Prepare photographs, slides, videotapes, and so on that show safe science practices. When preparing these materials, safety goggles and equipment shall not be removed for aesthetic considerations.
5. In planning demonstrations and/or workshops, keep quantities of hazardous materials to a minimum. Use only those quantities that can be adequately handled by the available ventilation system. Do not carry out demonstrations that will result in the release of harmful quantities of noxious gases into the local air supply in the demonstration or other rooms. The following gases shall not be produced without using a fume hood: nitrogen dioxide, sulfur dioxide, and hydrogen sulfide. Volatile, toxic substances such as benzene, carbon tetrachloride, and formaldehyde shall not be used unless a fume hood is available.

6. Make sure your glassware and equipment are not broken or damaged. The use of chipped or cracked glassware shall be avoided. If glassware is to be heated, Pyrex™ or its equivalent shall be used.
7. Thoroughly check motor-driven discs that will be revolved at moderate or high speeds. Make sure the disc is sturdy, that it contains no parts that may come free, and that the safety nut is securely fastened.
8. Arrange to use a safety shield and/or eye protection for audience members and interpreters for any demonstration(s) in which projectiles are launched or when there is the slightest possibility of an unsafe explosion. Do not allow direct viewing of the sun, infrared, or ultraviolet sources.
9. Make sure any lasers to be used in demonstrations are helium-neon lasers with a maximum output power rating not exceeding 1.0 milliwatt. At all times, avoid direct propagation of the laser beam from the laser into the eye of an observer or from a reflected surface into the eye.
10. Secure pressurized gas cylinders by strapping or chaining them in place or by using proper supports, *i.e.*, lecture bottles.
11. Obtain, in advance, the necessary state and/or local permits needed, for the firing of model rockets. Activities involving the firing of rockets must be well planned and follow Federal Aviation Agency (FAA) regulations, state and local rules and regulations, and the National Association of Rocketry's (NAR) Solid Propellant Model Rocketry Safety Code.
12. Arrange for appropriate waste containers and for the disposal of materials hazardous to the environment.
13. Plan to dress safely for your presentation or workshop.

If you have any questions concerning safety and your presentation, contact Kenneth Roy, chairperson of NSTA's Science Safety Advisory Board (860-652-7293) or e-mail royk@glastonburyus.org.

DURING THE PRESENTATION:

1. Comply with all local fire and safety rules and regulations. Follow the "NSTA Minimum Safety Guidelines."
2. Wear appropriate eye protection, an apron, ear protection, and similar protective gear for all chemical demonstrations or when appropriate for other demonstrations. Provide eye protection, aprons, and safety equipment for participants who will be handling chemicals, hazardous substances, or working with flames. If flame or flammable materials are used, fire suppression equipment must be available (fire extinguisher). Appropriate personal protective equipment must also be provided for audience members who are considered in the danger zone.
3. Do not select "volunteers" from the audience. Assistants used in demonstrations shall be recruited and given the proper instructions beforehand.
4. Warn participants or audience to cover their ears whenever a loud explosion is anticipated.
5. Use a safety shield for all demonstrations that involve the launching of projectiles, or whenever there is the slightest possibility that a container, its fragments, or its contents could be propelled with sufficient force to cause injury. Shield moving belts attached to motors. Use caution when motor-driven discs are revolved at moderate or high speeds. Shield or move participants to a safe distance from the plane of the rotating disc.
6. Follow proper procedures for working with pressurized gases and when heating all forms of matter.
7. Use appropriate gloves and shields when working with hazardous chemicals and biohazards, cryogenic materials, hot materials, radioactive substances, vacuums, electromagnetic radiation, and when presenting animals for observation.
8. Do not taste or encourage participants to taste any non food substance. A food substance subjected to possible contamination or unsafe conditions shall never be tasted.
9. Alert the audience clearly at the beginning of the program of the presence or production of allergenic materials such as strobe lights, microwaves, "theater" smoke, lycopodium powder, or live animals.
10. Maintain clear egress during the demonstration or workshop.
11. Emphasize and demonstrate appropriate safety precautions throughout the presentation or workshop.
12. Distribute a handout that will give participants detailed instructions about the procedure, safety precautions, hazards, and disposal for each demonstration and workshop.

Presenters must read and agree to adhere to NSTA's safety guidelines. The person submitting the original proposal should sign the safety agreement on the second page of the proposal form, but NSTA also requires signed safety agreements from the session's other presenters. If a presenter is giving more than one presentation, we'll need a copy of his or her signature on file for each session. We can only use multiple copies of the same signed agreement if the safety considerations are exactly the same for each session. **IF WE DO NOT HAVE A COPY OF YOUR SIGNED SAFETY AGREEMENT ON FILE, YOU WILL NOT BE LISTED AS A PRESENTER IN THE CONVENTION'S FINAL PROGRAM.** The Final Program should list your name, school/ place of work, city, and state. Please fill in the information below, and this will help ensure that we have your correct affiliation on file.

Name _____
Dept. _____
School/Inst. _____
Work Address _____
City, State, Zip _____
Phone: work () _____ home () _____
Fax: () _____ e-mail: _____

SESSION NUMBER _____ SESSION NAME _____
CONVENTION CITY _____

PLEASE SUBMIT ONE FORM PER SESSION, EVEN IF THEY APPEAR SIMILAR.

SAFETY

Identify any potential safety hazards associated with your presentation. _____
 N/A _____

What precautions will be taken during the presentation to deal with these hazards and to inform the audience?
 N/A _____

What safety equipment will be required? (Please specify what equipment you will be providing and/or what equipment you need NSTA to provide.)
 N/A _____

I plan to use: open flame animals microorganisms biohazards projectiles radioactive substances

I have received a copy of the "Minimum Safety Guidelines for NSTA Presenters and Workshop Leaders" and agree to comply with the guidelines during my presentation. **Please sign below even if safety considerations are not applicable to your session.**

Signature _____ Date _____

Please fax this page (no cover sheet necessary) to:

Attention: Jo Neville

Fax# (703) 522-5413

Or mail to:

Attention: Jo Neville
NSTA Conventions
1840 Wilson Blvd
Arlington, VA 22201-3000
Phone: (703) 312-9221

Please submit one form per session, and include your session number/name above.