

## SAFE PRESENTATION AND ACTIVITIES

**Category:** Health & Safety  
**Application:** All employees and volunteers  
**Responsible Office:** Human Resources

Given the nature of Let's Talk Science's programming, it is recognized that there will be certain health and safety risks for both our audience members and representatives (volunteers and staff). Whether the activity is done in person or is being recorded for online public viewing, safety must be foremost in the minds of every representative. Planning activities always requires careful judgement by trained and experienced individuals.

Every person who does demonstrations or uses equipment, chemicals or other materials should be trained and knowledgeable about the safe use, handling and disposal of any and all equipment and materials used. Representatives should be aware of any hazards associated with the materials and/or equipment and plan carefully to provide a safe environment for their audience and themselves. It is recommended to consult with a trained and experienced scientist when assessing the hazards of the presentation such as ranking the level of exposure of the hazard (both by representatives and audience members), probability of occurrence and consequences of exposure.

A safety checklist should be available to all representatives if the activity involves demonstrations as described above. Please contact a staff member at the Let's Talk Science National Office if you are unsure or would like to submit a request for an exception to the guidelines below. This checklist should include the following precautions:

- *Emphasize and demonstrate appropriate safety procedures throughout the presentation.*
- *Do not use demonstrations in which parts of the human body are placed in danger such as placing dry ice in the mouth or dipping hands in liquid nitrogen.*
- *Do not use live vertebrate animals in demonstrations for experimental purposes (see Canadian Council of Animal Care guidelines website <http://www.ccac.ca/>).*
- *Do not use plants with poisonous oils (e.g., poison ivy), allergens (e.g., peanut plant), or other plants known to be generally toxic to humans.*
- *Always check with schools/groups to identify other allergens specific to that location (e.g. strawberries, bananas, latex balloons) and adjust demonstration and materials accordingly.*
- *Any food used or consumed as part of activity should comply with food safety guidelines for storage, preparation and cooking. For details see your jurisdiction's Ministry/Department of Health and Health Canada (<http://www.hc-sc.gc.ca/fn-an/securit/kitchen-cuisine/index-eng.php>).*
- *Do not conduct experiments or demonstrations with human blood/bodily fluids or other bio-hazardous materials. Some exceptions may be approved such as using saliva for DNA extraction.*
- *Use appropriate gloves when working with hazardous products including cryogenic materials or very hot materials. This includes spectators or participants if placed at risk of injury.*
- *Wear eye protection for all demonstrations where hazardous products are in use or where other risks might exist (i.e. objects potentially flying up accidentally, when liquid transfers are expected to take place). This includes spectators and participants.*

- *Use safety shield protection whenever there is any possibility that a container or its contents could explode or implode with sufficient force to cause personal injury to observers.*
- *Warn members of the audience to place their open hands in front of each ear to act as a barrier to the shock waves whenever a loud explosion is anticipated.*
- *Secure pressurized gas cylinders (e.g., a helium tank for balloons) by strapping or chaining them in place or by using properly-secured supports.*
- *Plan demonstrations so that harmful quantities of noxious gases (i.e. nitrogen dioxide, sulphur dioxide, hydrogen sulfide) do not enter the local air supply. Use a properly-vented system.*
- *Do not use highly-toxic substances (i.e. benzene, carbon tetrachloride, ammonium dichromate, mercury) or acutely dangerous explosive substances (i.e. benzoyl peroxide, ether, picric acid) or any substances that are banned by the institution where the demonstration is taking place.*
- *If an activity involves flame production/explosion, you may need to have an up-to-date fire permit outlining what will be taking place. You should ensure the institution is aware that you will be using flames/explosion and seek approval. The institution is responsible for informing you if you will need a fire permit. The activity can only be performed by the individual whose name appears on this permit and the individual should be trained and confident with the materials they are using. It is also very important to notify on-location personnel in advance in case of fire alarms being set off unnecessarily.*
- *Ensure that demonstrations involving the use of strobe lights, lasers, UV radiation, IR radiation, X-rays, microwaves or sound sources are all controlled such that the participants and audience are not subjected to any harmful exposures. Please make the audience aware that strobe lights will be used.*
- *Provide adequate shielding and containment for all radioactive sources and ensure that radioactive isotopes are used in accordance with the regulations of the Atomic Energy Control Board.*
- *Provide adequate isolation for high voltage circuits such that participants may not come in contact with any high voltage parts of circuits.*
- *Dispose of waste materials that are hazardous to the environment, in appropriate waste containers and remove them from the demonstration site if the venue does not have appropriate disposal available.*
- *Always provide written procedure, hazard and disposal information for each demonstration whenever the audience is encouraged to repeat the demonstration. Many institutions have hazard assessment forms that are provided by the risk and safety office which must be approved.*

***Some items have been adapted from the Science Teachers' Association of Ontario Safety Policy for Demonstrations at Conferences appearing in the Crucible, Volume 30, Issue 3, page 40.***

Representatives should also follow the policies as outlined in the WHMIS policy. It should be noted that school boards/districts, community venues and/or post-secondary institutions may also have their own health and safety rules or risk management offices. Let's Talk Science representatives should check the appropriate guidelines and follow these rules in addition to what is included here.

<b>Date Adopted:</b> 09/01/2014	<b>Last Modification Date:</b> 04/01/2017	<b>Last Reviewed Date:</b> 04/01/2017
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