

Science Experiment Activities, Conducting Safe Work Practices

Activity scope

This document relates to student participation in conducting Science Experiments as a curriculum activity.

Minimum activity-specific qualifications for supervisors

Low risk level (activities not involving heat, pressure or vacuums, acids or other corrosive materials, highly volatile and/or flammable chemicals, mains-voltage power sources, dangerous biological materials or animals, and may take place outside a laboratory):

- An adult with knowledge of the activity and its potential hazards.

Medium risk level (activities that may involve heat, pressure or vacuums, fumes, acids or other corrosive materials, highly volatile and/or flammable chemicals, mains-voltage power sources, biological materials, and low-speed mechanical and/or moving devices or objects, and may only take place outside a laboratory after careful risk evaluation has been conducted):

- An adult with experience (previous involvement) in the activity.

High risk level (activities that involve high levels of heat or very low temperature materials [e.g. liquid oxygen or nitrogen], high pressures or low vacuums, toxic fumes, highly corrosive substances, highly volatile and/or flammable chemicals, high-voltage electricity [static and/or current], radiation emitters, dangerous biological materials and high-speed mechanical and/or moving devices and objects):

- A registered teacher with qualifications in Science, **OR**
- A leader other than a registered teacher with Competence (demonstrated ability) in the activity.



Minimum activity-specific equipment/facilities

- Appropriate protective equipment, such as safety glasses, gloves, and laboratory coats or aprons.
- The site for the storage of all chemicals must be in accordance with criteria given in the [Chemical Hazards in the Curriculum](#) guideline and related [Chemical Hazards Guidance Notes](#).
- Adequate ventilation.
- A clearly defined emergency procedure, as appropriate.
- Appropriate and accessible evacuation exits in case of fire, explosion, gas leak or other circumstance requiring evacuation.
- Combustible substances must be stored in the approved manner, according to safety data sheet information. Some combustible substances also require special care in preparation for activities, e.g. cut phosphorus under water, and sodium and potassium under kerosene.

Activity-specific hazards/risks and suggested control measures

- Ensure all controls outlined in [Maintenance and Operation of a Safe Laboratory](#), [Safe Operation of Laboratory Equipment](#), and [Maintenance and Operation of a Safe Work Area Outside the Laboratory](#) are followed, as relevant.
- When using high-risk equipment, teacher demonstration may feature as a mode of operation. Placement of students in relation to the teacher, equipment and material used, and the site of the activity should be considered seriously.
- Implement control processes to restrict the possibility of contact with any chemical whether toxic or not. Such processes might include:
 - appropriate labelling
 - using small quantities
 - not putting stirrers on the bench without rinsing
 - always standing test tubes upright in a rack.

- Use a fume cupboard where inhalation of some reactant or product of the activity is a hazard.
- Emphasise the importance of students' personal hygiene (e.g. washing hands after all experiments).

Useful activity-specific links

- *Biological Activities* – Curriculum Activity Risk Assessment guideline
<http://education.qld.gov.au/curriculum/carmg/pdf/biological-activities.pdf>
- *Chemical Hazards in the Curriculum* – Curriculum Activity Risk Assessment guideline
<http://education.qld.gov.au/curriculum/carmg/doc/chemical-hazards-template.doc>
- *Chemical Hazards Guidance Notes*
<http://education.qld.gov.au/curriculum/carmg/doc/guidance-notes.doc>
- *Handling Live Animals in a School Setting* – Curriculum Activity Risk Assessment guideline
<http://education.qld.gov.au/curriculum/carmg/pdf/handling-live-animals.pdf>
- *Maintenance and Operation of a Safe Laboratory* – Curriculum Activity Risk Assessment guideline
<http://education.qld.gov.au/curriculum/carmg/pdf/maintenance-operation-safe-laboratory.pdf>
- *Maintenance and Operation of a Safe Work Area Outside the Laboratory* – Curriculum Activity Risk Assessment guideline
<http://education.qld.gov.au/curriculum/carmg/pdf/maintenance-operation-outside-lab.pdf>
- *Safe Operation of Laboratory Equipment* – Curriculum Activity Risk Assessment guideline
<http://education.qld.gov.au/curriculum/carmg/pdf/safe-operation-lab-equip.pdf>

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