

Curriculum activity risk assessment

Science Experiment Activities,
Conducting Safe Work Practices

clever • skilled • creative

Activity scope

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



Teachers/leaders:		
Activity description:		
Start date:	Finish date:	No of students (approx.):
Class groups:		Supervision ratio (approx.):

Risk level

The actual risk level will vary according to the specific circumstances of the activity and these **must** be considered when assessing the inherent risk level and planning the activity. As a starting point, ask the following questions:

- Which students will be involved?
- What will the students be doing?
- What will the students be using?
- Where will the students be?
- Who will be leading the activity?



Queensland Government

Inherent risk level		Action required / approval
<input type="checkbox"/>	<p>Low</p> <p>Activities which do not involve heat, pressure or vacuums, acids or other corrosive materials, highly volatile and/or flammable chemicals, mains-voltage power sources, dangerous biological materials or animals;</p> <p>Activities may take place outside a laboratory.</p>	<input checked="" type="checkbox"/> Manage through regular planning processes.
<input type="checkbox"/>	<p>Medium</p> <p>Activities which 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;</p> <p>Activities may only take place outside a laboratory after careful risk evaluation has been conducted.</p>	<input checked="" type="checkbox"/> Record controls in your planning documents and/or complete this <i>Curriculum Activity Risk Assessment</i> . <input checked="" type="checkbox"/> Consider obtaining parental permission.
<input type="checkbox"/>	<p>High</p> <p>Activities which 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;</p> <p>Activities should only take place in the laboratory, where all safety features are functional and accessible.</p>	<input checked="" type="checkbox"/> A <i>Curriculum Activity Risk Assessment</i> must be completed. <input checked="" type="checkbox"/> Principal or delegated Deputy Principal or Head of Program (i.e. HOD, HOSES, HOC) to review and approve risk assessment. <input checked="" type="checkbox"/> Obtaining parental permission is recommended. <input checked="" type="checkbox"/> Once approved, activity details are to be entered into the <i>School Curriculum Activity Register</i> .

Listed below are the minimum recommendations for this type of activity. For any items ticked 'No', provide further information regarding the additional or alternate controls to be implemented for the safe conduct of the activity.

Minimum supervision

Adequate adult supervision is to be provided. In determining what is adequate, consider the number of students, their individual needs, and the nature of the activity. If an adult other than a registered teacher is engaged for instruction, a teacher should be present to take overall responsibility. [Blue Card](#) requirements **must** be adhered to.

Registered teacher with minimum qualifications as outlined below

OR

An adult with minimum qualifications as outlined below, in the presence of a registered teacher

Further information:

Minimum Qualifications

The qualifications listed in this section are minimums for each type of situation. Leaders are encouraged to seek training to raise their qualification level above the minimum listed.

Current first aid qualifications including Cardio Pulmonary Resuscitation (CPR) or ready access to first aid facilities, including qualified personnel.

[Blue Card](#) requirements met

Low — Activities which do not involve heat, pressure or vacuums, acids or other corrosive materials, highly volatile and/or flammable chemicals, mains-voltage power sources, dangerous biological materials or animals;

Activities may take place outside a laboratory.

For a registered teacher:

knowledge of the activity and its potential hazards

For a leader other than a registered teacher:

an adult with knowledge of the activity and its potential hazards, if a teacher with knowledge of the activity is not available

Medium — Activities which 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;

Activities may only take place outside a laboratory after careful risk evaluation has been conducted.

For a registered teacher:

experience (previous involvement) in the activity

For a leader other than a registered teacher:

an adult with experience (previous involvement) in the activity, if a teacher with the relevant experience is not available.

A teacher could demonstrate their competency through their:

- knowledge of the activity and the associated hazards and risks
- experience (i.e. previous involvement) in undertaking the activity
- demonstrated ability and/or expertise to undertake the activity
- possession of qualifications related to the activity.

High — Activities which 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;

Activities should only take place in the laboratory, where all safety features are functional and accessible.

For a registered teacher with qualifications in science or a leader other than a registered teacher:

competence (demonstrated ability) in the activity

A teacher could demonstrate their competency through their:

- knowledge of the activity and the associated hazards and risks
- experience (i.e. previous involvement) in undertaking the activity
- demonstrated ability and/or expertise to undertake the activity
- possession of qualifications related to the activity.

Minimum Qualifications

The qualifications listed in this section are minimums for each type of situation. Leaders are encouraged to seek training to raise their qualification level above the minimum listed.

Further information:

Minimum equipment/facilities <i>If 'No' is ticked, provide further information.</i>	Yes	No
First aid kit suitable for activity	<input type="checkbox"/>	<input type="checkbox"/>
Communication system: <input type="checkbox"/> phone-line at location <input type="checkbox"/> mobile phone <input type="checkbox"/> walkie talkies/UHF radio <input type="checkbox"/> student/adult messenger Other:		
Sun safety equipment (hat, sunscreen, shirt etc)	<input type="checkbox"/>	<input type="checkbox"/>
Drinking water (students should not share drinking containers)	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate protective equipment, such as safety glasses and laboratory coats or aprons, should be worn by all persons involved in the activity.	<input type="checkbox"/>	<input type="checkbox"/>
Further information:		

Governing bodies/associations <i>If 'No' is ticked, provide further information.</i>	Yes	No
Guidelines/codes of practice are established for this activity. See: <ul style="list-style-type: none"> Safe Work Practices Conducting Science Experiment Activities Aspects of Science Management: A Reference Manual for Schools Have these been considered during the planning of this activity?	<input type="checkbox"/>	<input type="checkbox"/>
Further information:		

Hazards and suggested control measures

All persons engaging in this activity should:

- identify the hazards, including any additional hazards not mentioned here
- assess their significance
- manage the potential risks.

Listed below are indicative hazards/risks and suggested control measures. They are by no means exhaustive lists. After checking these, add details of any other identified hazards/risks and additional controls you intend to implement.

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
Breakages <ul style="list-style-type: none"> • Glass • Crockery 	<ul style="list-style-type: none"> • Treat all spillage and breakages according to instructions in Aspects of Science Management (Reference Manual for Schools). 	<input type="checkbox"/>	<input type="checkbox"/>	
Dust, gas or fumes <ul style="list-style-type: none"> • Inhalation 	<ul style="list-style-type: none"> • Use a fume cupboard where inhalation of some reactant or product of the activity is a hazard. • Ensure there is adequate ventilation. 	<input type="checkbox"/>	<input type="checkbox"/>	
Environmental conditions <ul style="list-style-type: none"> • Surrounds 	<ul style="list-style-type: none"> • Develop a clearly defined emergency procedure. • Ensure that appropriate and accessible evacuation exits are available in case of fire, explosion, gas leak or other circumstance requiring evacuation. 	<input type="checkbox"/>	<input type="checkbox"/>	
Hazardous substances <ul style="list-style-type: none"> • Corrosive chemicals • Flammable chemicals • Carcinogenic chemicals • Volatile chemicals • Heavy metals 	<ul style="list-style-type: none"> • Take care to store combustible substances in the approved manner, according to material safety data sheet information. • Some combustible substances also require special care in preparation for activities (e.g. phosphorus which is cut under water and sodium and potassium which is cut under kerosene). • Implement control processes to restrict the possibility of contact with any chemical whether toxic or not. Such processes might include: <ul style="list-style-type: none"> ○ appropriate labelling ○ using small quantities ○ not putting stirrers on the bench without rinsing ○ always standing test tubes 	<input type="checkbox"/>	<input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
	upright in a rack.			
Heat sources <ul style="list-style-type: none"> Hot plates Flames Friction heat Conduction 	<ul style="list-style-type: none"> Implement control processes for the safe use of heat and/or the use of combustible substances in any activity. Such processes might include: <ul style="list-style-type: none"> keeping burners on low heat while not directly using them using very small quantities of combustible substances keeping combustible substances a specified minimum distance away from naked flames using appropriate water-bath techniques. 	<input type="checkbox"/>	<input type="checkbox"/>	
Students <ul style="list-style-type: none"> Student numbers Special needs High risk behaviours Medical conditions 	<ul style="list-style-type: none"> Obtain parental permission, including relevant medical information. When students with medical conditions are involved, ensure that relevant medical/emergency plans and medications are readily available (insulin, Ventolin, EpiPen, etc.) Refer to Individual education plan/Educational adjustment plan/Behaviour management plan and other student documents. Where necessary, obtain advice from relevant advisory visiting teachers or specialist teachers. Ensure there is adequate adult supervision. Emphasise the importance of students' personal hygiene (e.g. washing hands after all experiments). 	<input type="checkbox"/>	<input type="checkbox"/>	
Tools, plant or equipment	<ul style="list-style-type: none"> 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. 	<input type="checkbox"/>	<input type="checkbox"/>	

Additional control measures

These would relate to the specific student needs, location and conditions in which you are conducting your activity.

Hazards/risks	Control measures

Submitted by:	Date:
List the names of those who were involved in the preparation of this risk assessment.	

Approval	
<input type="checkbox"/>	Approved as submitted:
<input type="checkbox"/>	Approved with the following condition(s):
<input type="checkbox"/>	Not approved for the following reasons(s):
By:	Designation:
Signed:	Date:
Once approved, activity details should be entered into the <i>School Curriculum Activity Register</i> by administrative staff.	Reference no.

Monitor and review <i>To be completed during and/or after the activity and/or at the completion of the series of activities.</i>	Yes	No
Are the control measures still effective?	<input type="checkbox"/>	<input type="checkbox"/>
Have there been any changes?	<input type="checkbox"/>	<input type="checkbox"/>
Are further actions required?	<input type="checkbox"/>	<input type="checkbox"/>
Details:		

Important links

- SCM-PR-002: School Excursions
<http://education.qld.gov.au/strategic/epr/schools/scmpr002/>
- HLS-PR-003: First Aid
<http://education.qld.gov.au/strategic/epr/health/hlspr003/>
- HLS-PR-005: Health and Safety Incident Recording and Notification
<http://education.qld.gov.au/strategic/epr/health/hlspr005/>
- HRM-PR-010: Working with Children Check – Blue Cards
<http://education.qld.gov.au/strategic/epr/hr/hrmpr010/>
- Safe Operation of Laboratory Equipment
<http://education.qld.gov.au/strategic/epr/health/hlspr012/resources/safelabequip.pdf>
- Handling Live Animals in a School Setting
<http://education.qld.gov.au/strategic/epr/health/hlspr012/resources/liveanimals.pdf>
- Biological Activities
<http://education.qld.gov.au/strategic/epr/health/hlspr012/resources/biolactivities.pdf>
- Chemical Hazards
<http://education.qld.gov.au/strategic/epr/health/hlspr012/resources/chemhazards.pdf>
- Management and Storing of Hazardous Materials in Science
<http://education.qld.gov.au/strategic/epr/health/hlspr012/resources/hazsciencematerials.pdf>
- Maintenance and Operation of a Safe Laboratory
<http://education.qld.gov.au/strategic/epr/health/hlspr012/resources/safelab.pdf>
- Maintenance and Operation of a Safe Work Area Outside the Laboratory
<http://education.qld.gov.au/strategic/epr/health/hlspr012/resources/safework.pdf>
- Aspects of Science Management (Reference Manual for Schools)
<http://education.qld.gov.au/health/pdfs/healthsafety/aspects-science-mgmt.pdf>

Further information

For further information on incorporating risk management strategies into curriculum activity planning refer to [HLS-PR-012 Managing Risks in Curriculum Activities](#) and the associated list of [Curriculum Activity Risk Assessment Guidelines](#). (See: <http://education.qld.gov.au/strategic/epr/health/hlspr012/index1.html>)

For further support with risk management training and advice, contact trained staff in schools such as Workplace Health and Safety Officers (WHSOs) and Workplace Health and Safety Representatives (WHSRs), and regional staff such as Senior Health and Safety Consultants.