

Curriculum activity risk assessment

Welding, Electric Arc

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Activity scope

This document relates to student participation in Welding, Electric Arc as a curriculum activity.

Electric welding refers to the gain or transfer of molten metal from an electrode or filler rod or wire to a parent metal by the use of an electric arc. This trade process fall into the categories of TIG, MIG, GMAW, MMAW, ARC, plasma and spot welding.

Plastic solvent welding is not addressed in this document.

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?



Inherent risk level		Action required / approval
<input type="checkbox"/>	Medium	<ul style="list-style-type: none"> ☑ Record controls in your planning documents and/or complete this <i>Curriculum Activity Risk Assessment</i>. ☑ Consider obtaining parental permission.
<input type="checkbox"/>	High	<ul style="list-style-type: none"> ☑ A <i>Curriculum Activity Risk Assessment</i> must be completed. ☑ Principal or delegated Deputy Principal or Head of Program (i.e. HOD, HOSES, HOC) to review and approve risk assessment. ☑ Obtaining parental permission is recommended. ☑ Once approved, activity details are to be entered into the <i>School Curriculum Activity Register</i>.

Teachers/leaders:

Activity description:

Start date:

Finish date:

No of students (approx.):

Class groups:

Supervision ratio (approx.):

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

For a registered teacher with qualifications in Industrial Technology Design (ITD):

- Metals and engineering trade base when electric arc welding is included in the apprenticeship or traineeship program
OR
 minimum accreditation in the National Metals and Engineering curriculum module MEM 50012 or equivalent industry certification
OR
 Bachelor of Technology Education program and successful completion of welding certification equivalent to the above
OR

For a leader other than a registered teacher:

- trade welding certification equivalent to MEM 50012

A teacher could demonstrate their competency to conduct an activity to the person approving the Curriculum Activity Risk Assessment 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.

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: <ul style="list-style-type: none"> <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:		
Appropriate and maintained fire safety equipment (extinguisher, blanket, evacuation plan); Extinguishers should be identified with standard specification identification code signs.	<input type="checkbox"/>	<input type="checkbox"/>
Drinking water (students should not share drinking containers)	<input type="checkbox"/>	<input type="checkbox"/>
Standard operating procedures clear and present for ALL equipment used. For further information, refer to Standard Operating Procedures for EQ Sites	<input type="checkbox"/>	<input type="checkbox"/>
Wear appropriate personal protective equipment.	<input type="checkbox"/>	<input type="checkbox"/>
Fixed residual current device on all portable equipment. For further information, refer to: quick reference guide for specified electrical equipment	<input type="checkbox"/>	<input type="checkbox"/>
Adequate lighting and ventilation, especially if welding is done in a booth	<input type="checkbox"/>	<input type="checkbox"/>
Suitable non-slip floor surface	<input type="checkbox"/>	<input type="checkbox"/>
Suitable and sufficient waste bins	<input type="checkbox"/>	<input type="checkbox"/>
Adequate screening that conforms to Australian Standards	<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
Electricity <ul style="list-style-type: none"> • Electrocution 	<ul style="list-style-type: none"> • Ensure that electric welding equipment is earthed to metal welding tables (when these tables are used) by bolting or clamping the earth lead to the table. This prevents the inadvertent connection of the earth to the case of the welder unit. 	<input type="checkbox"/>	<input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
Environmental conditions <ul style="list-style-type: none"> Weather Surfaces Surrounds 	<ul style="list-style-type: none"> Refer to Managing a Practical ITD Workspace. 	<input type="checkbox"/>	<input type="checkbox"/>	
Heat/flame/explosion/light (flash burn) <ul style="list-style-type: none"> Friction Elements Gas cylinders 	<ul style="list-style-type: none"> Ensure that appropriate tools and equipment are available for the purpose of moving and positioning potentially hot project material or metal. Ensure that a suitable quenching area is provided. Ensure that gas welding and electric welding are carried out in separate areas. Ensure that students do not wear clothing that is at risk of ignition, such as some forms of synthetic cloth. Ensure that combustible or flammable materials are not used in the vicinity of the heating and welding activity. Ensure that appropriate personal protective equipment is worn. Ensure that there is a suitable number of appropriate face shields. Ensure that the automatic face shield is checked and working. 	<input type="checkbox"/>	<input type="checkbox"/>	
Noise <ul style="list-style-type: none"> Continuous, repetitive noise One-off noise exposure 	<ul style="list-style-type: none"> Note that, as far as is practicable, teachers should control, administer or engineer the use of equipment and/or machines to ensure the accumulated noise in the Design Technology Workspace is not above the recognised safe industrial level (of approximately 85 decibels(A)). 	<input type="checkbox"/>	<input type="checkbox"/>	
Students <ul style="list-style-type: none"> Student numbers Special needs High risk behaviours Medical 	<ul style="list-style-type: none"> Refer to Individual education plan/Educational adjustment plan/Behaviour management plan and other student documents. Obtain parental permission, including relevant medical information. 	<input type="checkbox"/>	<input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
conditions	<ul style="list-style-type: none"> • Where necessary, obtain advice from relevant advisory visiting teachers or specialist teachers. • When students with medical conditions are involved, ensure that relevant medical/emergency plans and medications are readily available (insulin, Ventolin, EpiPen, etc.) • Ensure there is adequate adult supervision. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Tools, plant or Equipment	<ul style="list-style-type: none"> • Ensure that loose jewellery and clothing is secured or removed. • Ensure that long hair is tied back. • Have clearly designated work areas. • Monitor the use of tools and equipment. • Check equipment for damage before lessons, including leads and electrode holders, especially for exposed metal parts or excessive charring. • Follow standard operating procedures for all equipment. For further information, refer to Standard Operating Procedures for EQ sites • Avoid the use of extension leads where possible. • Securely fix any jobs to a bench, table, floor or other suitable surface. • Material safety data sheet information should be obtained for all hazardous substances used in the Design Technology Workspace (such as paints, adhesives, glues, solvents, acids, fluxes, flammable liquids). Particular attention should be given to the correct storage, disposal and clean up of possible spillage of these substances. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
	<ul style="list-style-type: none"> <li>• Ensure that machinery, plant and equipment are installed in such a way that sufficient space and safe footholds are provided around individual machines or units to allow for group instruction, normal operation and adjustments. <li>• Teachers should make regular inspections of personal protective equipment supplied by students (e.g. safety glasses), and ensure that the equipment is to Australian Standard specification and is in good serviceable condition. <li>• Ensure that gas cylinders are stored and used in an upright position. Gas cylinders should also be securely restrained to prevent them from falling over, particularly when they are used as a mobile plant. 	<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 reason(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

- HLS-PR-003: First Aid
<http://education.qld.gov.au/strategic/eppr/health/hlspr003/>
- HLS-PR-004: Infection Control and Management of Prescribed Contagious Conditions
<http://education.qld.gov.au/strategic/eppr/health/hlspr004/>
- Infection Control Guideline:
http://education.qld.gov.au/health/pdfs/healthsafety/infection_control_guideline.pdf
- HLS-PR-005: Health and Safety Incident Reporting and Notification
<http://education.qld.gov.au/strategic/eppr/health/hlspr005/>
- HLS-PR-013: Developing a Sun Safety Strategy
<http://education.qld.gov.au/strategic/eppr/health/hlspr013/>
- HRM-PR-010: Working with Children Check – Blue Cards
<http://education.qld.gov.au/strategic/eppr/hr/hrmpr010/>
- HLS-PR-006: Managing Occupational Risks with Chemicals
<http://education.qld.gov.au/strategic/eppr/health/hlspr006/hs16.pdf>
- Standard Operating Procedures for EQ sites
<http://education.qld.gov.au/health/safety/hazards/equip-resources.html#sop>
- Hearing Protection Fact Sheet
<http://education.qld.gov.au/health/pdfs/healthsafety/hearing-protection-factsheet.pdf>
- 2004 Noise Code of Practice
http://www.deir.qld.gov.au/workplace/resources/pdfs/noise_code2004.pdf
- Managing a Practical ITD Workspace
<http://education.qld.gov.au/strategic/eppr/health/hlspr012/resources/pracitdworkspace.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](#).

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.