Numinbah Valley Environmental Education Centre

Curriculum Activity Risk Assessment

Activity Details

	CARA Creation Date: 16-Apr-2024		
Activity:	**Biological activities**		
Activity Scope:	This guideline is provided to support schools in implementing the Managing risks in school curriculum activities procedure The CARA planner must be used for the specific school context in conjunction with this guideline considering additional risks, hazards and controls and including environmental, facility, equipment and student considerations For activities beyond the scope of this guideline, complete a CARA record using the CARA generic template **This guideline relates to student participation in biological activities (e.g. studying animal tissues, live specimens, invertebrate organisms, microorganisms, plant material, fungi or tasting food samples grown in the school garden) to support curriculum delivery within, and external to, a science laboratory.** This activity may also involve the use of a range of laboratory equipment e.g. glassware, heating and digital equipment and chemicals. Depending on the scope of this activity, other risk assessments may be required when planning. Curriculum activities encompassing more than one CARA guideline (e.g. Marine organism activities when conducting fieldwork to investigate microorganisms) must comply with the requirements of all CARA guidelines appropriate to the activity. For curriculum activities involving the introduction of agents or conditions that may contaminate food, consult the Food experimentation activity guideline. For curriculum activities involving observing and handling animals and animal remains, consult the Animal observation and handling activity guideline. For curriculum activities involving observing and handling marine animals and organisms, consult the Marine organism activities activity guideline. For activities conducted at a non-Department of Education venue, and/or when engaging external expertise, request written risk assessment advice and attach it to this CARA record. For activities conducted off-site, schools must comply with the School excursions and International school study tours procedure		
Guidelines:	https://education.qld.gov.au/curriculum/stages-of-schooling/CARA/activity-guidelines		
Activity Description:	Biodiversity - students collect invertebrates and examine them using magnifying glass and/or microscopes.		
Inherent Risk Level:	Low		
Inherent Risk Level Description:	Activities involving low risk equipment and non-hazardous biological material (e.g. pre-prepared microscope slides, pond water, silkworms, foodstuffs).		
Start Date:	Monday, 29 April, 2024	End Date:	Sunday, 29 April, 2029
On School Grounds:	Yes	Is parental permission required for this activity?	No

Activity Requirements

The following activities are prohibited:

- taking human blood samples or using human blood products

- collecting samples from areas likely to pose risk of contamination by human pathogens including, but not limited to, human or animal body fluids, waste on toilets, carcasses, diseased tissue (plant or animal), hand basins, door handles, phones or computer keyboards
- swabbing raw poultry or surfaces used to prepare raw poultry
- sub-culturing swabs taken from food preparation surfaces.
- incubating body fluids or other tissues in broths, plates or cultures
- incubating microbial cultures at temperatures higher than 30ºC.

Schools may sample human saliva, urine, cheek cell and/or DNA, however students must only collect/handle their own samples.

All biological material is to be considered contaminated and potentially hazardous.

Schools must prevent and manage infection control in accordance with the Infection control procedure and/or relevant Australian Standards (e.g. AS 2243.3 — Safety in laboratories: Microbiological safety and containment). Utilise the Infection control guideline for practical implementation advice.

Unfamiliar activities (e.g. from online sources) must be trialled without students to identify foreseeable hazards and plan safety processes. Do not proceed if risks of the activity outweigh educational outcomes.

Attach any additional information used to support student safety in the activity (e.g. resources from Australian Science Teachers Association, published experiments or online risk assessment tools) to the CARA record.

Students

Schools must consider age, maturity and skill level of students when planning curriculum activities. Adjustments are required for students with disability to support access and participation in the curriculum. Consult with the parents/carers of students with disability, or when appropriate the student, to ensure risks related to their child's participation in the activity are identified and managed.

Schools must consult current student medical information and/or health plans in accordance with the Managing students' health support needs at school procedure. Record information about any student condition (e.g. physical or medical) that may inhibit safe engagement in the activity and include specific support measures within emergency procedures.

Emergency and first-aid

Emergency plans and injury management procedures must be established for foreseeable incidents (e.g. accidental ingestion, exposure to contaminated material).

Adult supervisors must have:

- emergency contact details of all participants
- a medical alert list and a process for administering student medication;
- communication equipment suitable to conditions (e.g. mobile phone) and a process for obtaining assistance and/or receiving emergency advice.

Safety procedures must be determined for the location (e.g. using equipment, managing broken glass) and are to be informed by details provided on manufacturer's instructions, product labels, vendor SDS, SOP and published experiments as relevant.

Access is required to First aid equipment and consumables suitable for foreseeable incidents

An adult with current emergency qualifications is required to be quickly accessible to the activity area. Emergency qualifications include:

- HLTAID009 Provide cardiopulmonary resuscitation (CPR) or equivalent; and
- HLTAID011 Provide first aid or SISSS00118 - Sports Trainer Level 1 or equivalent.

Induction is required for all adult supervisors on emergency procedures (e.g. location of first aid support and equipment, location and use of eye wash) and safety procedures (e.g. identification of ingestion hazards, disposal of wastes/sharps). If the activity is conducted at an off-site facility, induction is to be informed by advice provided in consultation with expertise at the venue.

Induction and instruction Instruction is required for students and adult supervisors on correct techniques (e.g. managing spills, correct set-up and operation of equipment). Teacher demonstrations are recommended to exemplify safe and hygienic practices and techniques. When conducting fieldwork, participants must receive prior instruction on potential hazards (e.g. thorned flora, steep slopes), basic first aid procedures for biological hazards (e.g. ticks, leeches), appropriate behaviours to help keep themselves safe during the activity (e.g. observe wildlife from a safe distance, keep to the path) and the process if lost or separated from the group. **Consent** Parent consent is required for all activities conducted off-site and for extreme risk activities conducted on-site. It is strongly recommended for high risk activities conducted on-site.	
The activity requirements have been met and any additional requirements for the activity are included below or attached	☑

Risk Management Details

Supervision	
For activities with students with a medical condition or disability that may impact on safety during the activity, consultation with parents is required prior to allocating supervision to determine the impact of students' medical condition or disability on safety during the activity.	☐
The number of adult supervisors required to fulfil emergency and supervision roles must consider the nature of the activity, students' ages, abilities and specialised learning, access and/or health needs.	☐
Before the activity, all adult supervisors must be familiar with the contents of the CARA record.	☐
During the activity, all adult supervisors: • must be readily identifiable • must closely monitor students with health support needs • must comply with control measures from the CARA record and adapt as hazards arise • must suspend the activity if the conditions become unfavourable (e.g. extreme temperatures).	☐
Do not allow experiment products from the laboratory e.g. reactant products, food products to be removed by students or taken home.	☐
Supervision requirements determined as part of booking process. Visiting school to identify and provide additional supervision for identified students as required.	

Supervisor Qualifications	
All adult supervisors must comply with the Working with Children Authority - Blue Cards procedure and be able to identify, and respond to, risks or hazards that may emerge during the activity.	☑
A registered teacher must be appointed to maintain overall responsibility for the activity.	☑
At least one adult supervisor is required to be:	
A registered teacher with knowledge of the activity and its potential hazards	☑
or	
An adult supervisor, working under the direct supervision of a registered teacher, with competence (knowledge and skills) in the activity.	☑

Facilities and Equipment	
Consult Chemicals in curriculum activities for support in assessing the risks of chemicals used with/by students in curriculum activities.	☐
If a CARA record is required in OneSchool, a summary of chemicals, plant, equipment and/or materials used in the activity must be provided by entering directly onto the CARA record in OneSchool or by attaching a summary. Sample templates are provided on Chemicals in curriculum activities and Plant, equipment and materials in curriculum activities.	☐
Location must be suitable for the activity being undertaken, including sufficient space, adequate lighting and ventilation to ensure safe participation and that safety rules and procedures can be followed. This may be in a specialised facility (e.g. laboratory) or other suitable location (e.g. school stockyard). Undertake a reconnaissance of new or infrequently used locations to ascertain suitability.	☐
All emergency equipment and processes (e.g. shut-off switches, eye wash unit) must be functional.	☐
Schools must source biological specimens (e.g. animals bred for scientific purposes) from commercial suppliers.	☐
Schools must maintain, store, transport and dispose of biological material appropriately (e.g. use SDS and Clinical and related waste guideline). Such materials include but not limited to: live animals (e.g. silkworms, fish); biological material (e.g. specimens, manure, foodstuffs); wastes (e.g. paper towel, gloves); and used instruments (e.g. dissection boards, probes). Comply with Animal Use in Queensland State Schools requirements when handling live animals.	☐

Participants must wear Personal protective equipment including non-porous enclosed footwear and apron/coat. Other personal protective equipment appropriate to the activity may include lab standard eye protection, gloves, appropriate face protection (e.g. mask to protect against airborne organisms in potting mix).	☐
First aid equipment and consumables, as required.	☑
Equipment and tools must be well-maintained, transported safely (e.g. using a protective cover) and stored appropriately. Conduct a visual inspection of equipment (including portable electrical equipment) to identify damage and remove from use.	☐
Clean up equipment as necessary e.g. dustpan, breakages bin, spill kit, disinfectants for microorganisms.	☐

Hazards and Control Measures

Further to those listed, include any additional hazards and control measures considering the local context of the activity.	
Environmental hazards	

Animal bites/stings
• If participating outside:
  ◦ Respond appropriately to approaching wildlife
  ◦ Use insect repellent, as outlined in Insect viruses and allergies.
	☑

Biological material • Avoid contact with plant and animal material (e.g. saps, tissue matter). Include protection and handling processes with student safety procedures (e.g. rinsing equipment after use). • Use only the smallest quantity of biological material that will guarantee the viability of the experiment. • If swabs are taken from food preparation surfaces, keep petri dishes closed to reduce the risk of transmission of food borne illness (e.g. Salmonella and E.coli). • Wash hands and other contaminated areas of the body with soap and water before leaving the activity site. • Sterilise biological material (e.g. microbial, genetic, enzymatic) and tools appropriately before disposal. Note: If unsure, seek advice from an institution proficient in disposal techniques such as a university. • Clean tools following use to reduce the risk of contamination or accidental exposure. Sterilise equipment in contact with microbial and genetically modified organisms. • Dispose of hazardous biological materials using a double-bagging technique. • Label and date all specimens and samples for storage. Refrigerate as necessary. Dispose within appropriate timeframes.	☐

Environmental conditions • When participating outside: ◦ Follow the school's sun safety strategy ◦ Assess weather (Bureau of Meteorology) and environmental conditions prior to participation ◦ Follow the Managing excessive heat in schools guidelines when participating in very hot or extreme heat conditions. ◦ Ensure drink breaks occur regularly. Make water available for individual participants between drink breaks. ◦ Monitor participants for cold related illness (e.g. hypothermia) in cold weather conditions.	☑
Facilities and equipment hazards	
Electricity • Electrical or extension leads must not pose a tripping hazard. Secure (e.g. tape down) and cover for protection. • Consider the placement of technology devices (e.g. tablets, laptops) and the peripherals (e.g. cords, mouse) during activities to avoid contamination by chemical/biological materials or contact with water.	☐
Faulty or dangerous equipment • Check equipment for damage before and during the activity. • Comply with control measures provided on the SOP or manufacturer's instructions. See the Plant, equipment and materials in curriculum activities template for details of specific risk management practices. • Restrict student access to any equipment that requires thermal insulation (e.g. liquid nitrogen, incubator).	☐
Hazardous chemicals • Comply with control measures for preparation, use and disposal of chemicals provided on the vendor SDS in the school Chemwatch manifest and/or safety instructions on the product label. See the Chemicals in curriculum activities template for details of specific risk management practices for each Chemwatch hazard colour rating. • All chemicals required for the decontamination processes must be arranged in advance and be readily available. • Manage spills immediately.	☐
Heat sources and radiation • Only appropriately-qualified adult supervisors may handle radiation sources and equipment (e.g. UV lamps). Establish and implement an exclusion zone away from equipment that may produce radiation. • Clearly sign/label equipment with hot surfaces and allow to cool before being returned to storage. • Manage heat sources and/or combustible substances safely. This includes, but is not limited to: keeping burners on low heat or orange flame while not directly in use; using small quantities of combustible substances only; keeping combustible or toxic substances away from naked flames; and using appropriate water-bath techniques.	☐
Wastes • Dispose of waste according to established safety procedure as soon as possible after the activity.	☐

Student considerations	
Manual handling • Use correct manual handling processes when lifting, lowering, pushing, pulling or carrying. Use aids for safe handling, lifting and carrying (e.g. guards, safety steps and mobile trolleys), as appropriate.	☐
Student issues • Where individual experimental investigations are undertaken, students must have complete and appropriate procedures in place that identify and manage hazards associated with their activity. • Remove accessories (e.g. necklaces, lanyards) before participating. • Ensure fingernails and hair and clothing (e.g. long hair, loose shirts) do not interfere with the activity. • Monitor and enforce the correct use of equipment and materials and safe movement around the area. • Account for all equipment, chemicals and resources (e.g. matches, unused samples) after the activity. • In addition for off-site activities: • Implement procedures (e.g. buddy system, roll marking mechanisms) to account for all participants. • Ensure staff can easily recognise those students with health support needs and are familiar with their needs when participating off-site.	☑
Additional links Creating Healthier Workplaces Department of Agriculture and Fisheries Office of the Gene Technology Regulator Australian school science information support for teachers and technicians	
Students instructed to wear hats. Students instructed to wash hands upon activity completion. First aid equipment and trained staff to be easily accessible.	

Planning Considerations

Which students will be involved?

- Consider the number of students, size of student groups and students' capabilities e.g. age, experience, competence, fitness, maturity.
- Consider any individual student needs e.g. personalised learning, support provisions (including behaviour support plans), health management (including health plans and prescribed medication requirements).

Where will the students be?

- Consider the location of the activity e.g. remote/easily accessible, public /private, school/classroom/workshop/other.
- Is the number of students appropriate for the available space?
- If outdoors – sunsafe strategies are implemented; weather and environmental conditions are assessed before and during activity (e.g. temperature, storms, water currents, tides); and strategies to reduce the likelihood of viruses, allergies and skin infections caused by insects (e.g. ticks, mosquitoes, spiders) and other animals are applied.
- The site is checked for hazards (e.g. poisonous plants, dangerous animals, uneven terrain, barbed wire,) and necessary controls implemented.
- Activities are appropriately situated in relation to buildings, pedestrians, members of the public, vehicles and other activities e.g. designated areas for activity, spectators and vehicles are established.

What will the students be doing?

- Consider the nature and duration of the activity i.e. need for drinking water, food, rest, appropriate clothing, warm-up and warm-down.
- Instruction in rules and pre-requisite skills is provided.
- Student skills are developed in a progressive and sequential manner.
- First aid and emergency medical treatment provisions are appropriate for the type of activity and location e.g. first aid kit, first aid trained personnel, Ventolin®, Epipen®, and students' personal prescribed medications as required in health plans are available.
- Emergency response strategies are in place e.g. communication plans (e.g. mobile phone, walkie talkie), safety induction, evacuation plans.
- Hair, clothing, footwear and jewellery are worn in a manner that is appropriate and safe for the activity.
- Personal items, e.g. drink bottles, towels and mouthguards, will not be shared between students.

What will the students be using?

- Instruction in safety procedures and safe handling of equipment is provided.
- Equipment is suitable for the activity, properly maintained, appropriately used and complies with the relevant safety standard.
- Relevant department procedures and guidelines are adhered to for the use of equipment and work processes.

Who will be leading the activity?

- A registered teacher has overall responsibility for the activity.
- Sufficient adult supervision is in place to manage the activity safely (including in emergency situations).
- The activity leader has the competence (knowledge and skills) to plan, induct, instruct and manage the activity safely for students and others.
- There are sufficient adults present with current First Aid qualifications (including CPR) or ready access to qualified first aid personnel.
- Blue Card requirements are adhered to for leaders/volunteers.

☑ I have incorporated the above factors when planning my risk management strategies for this activity.

☑ Additional activity-specific requirements for students with specialised learning needs are provided in the Other Details box below.

Visiting school to identify and provide additional supervision for identified students as required.