



Job Hazard Analysis

Analysis by:

Reviewed by:

Approved by:

**Department: Science
and Lab. Rooms**

Date: June 20, 2017

Possible Hazards or Task	Describe Harm that could occur	Hazard Rating (Low/Medium/High)	Control Action	Personal Protective Equipment (PPE)	Frequency of Monitoring
Experiments	Burns Chemical poisoning Explosions Eye injuries Dermatitis Lacerations Fire	Variable depending on experiment	<ul style="list-style-type: none"> Assess hazards involved in each experiment and develop controls to minimise and eliminate. Develop a set of rules students must abide by while undertaking experiments Substitute hazardous chemicals or sample for more benign ones. Ensure appropriate safety equipment is available and properly maintained and staff are trained in its use. First aid kit is fully stocked and teachers have a current certificate. Comply with The Ministry of Education's Safety and Science Eye wash station available and properly maintained. 	Gloves, goggles,	<p>Monitored through each lesson plan.</p> <p>Review rules each term or after any incidents.</p> <p>Review chemicals and samples used each term.</p> <p>Audit safety equipment on a weekly basis.</p>



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Preparing materials for class experiments and work	Burns Chemical poisoning Explosions Eye injuries Dermatitis Lacerations Fire Occupational asthma	Medium	<ul style="list-style-type: none"> • Ensure appropriate safety equipment is used when working with hazardous substances. • Have adequate space and an area free from interruptions • Fire extinguishers are operational and chemical spill kits are full and accessible. • Other staff members are informed teacher/technician is working on hazardous task • Telephone is accessible and in working order. • Ensure adequate time is allowed for preparation. • Fire blanket on hand 	Gloves, Goggles	<p>Audit safety equipment on a regular basis.</p> <p>Check every two months and replace when something used.</p> <p>Review system every term.</p> <p>Part of electrical audit every three months.</p>



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Experiments-Biological matter used	Disease	Low	<ul style="list-style-type: none"> • Check all present for allergic reactions • No use of students bodily fluids, e.g. blood, saliva • All bones and feathers disinfected before use. • Cultural safety issues if using human biological material. 	Gloves, Goggles	Reviewed when preparing lesson plan.
Equipment - Electrical	Electrocution Burns	Low	<ul style="list-style-type: none"> • Check equipment before using • Ensure fully trained in safe use of equipment. No operating appliance until this happens. 		Three monthly check of electrical equipment. Training needs analysis at performance review.



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Equipment - Bunsen Burners	Burns Explosions Fumes inhalation	Medium	<ul style="list-style-type: none"> • Ensure regular checks on burners and pipelines. • Remove or repair any faulty equipment immediately • Install kill switches / gas isolation valves • Students trained in correct procedural use. • Burners kept away from curtains, drafts, other combustibles. 	Gloves, Goggles, Masks	-Full check of facilities every term, or when fault reported. -Students reminded of procedures every term.
Equipment -Water	Spills	Low	<ul style="list-style-type: none"> • Master control for all taps/sinks in lab (add). And equipment available. Staff and students are trained. • Material Safety Data Sheets have been obtained from the manufacturer and are on hand. • Staff and students are aware and practiced evacuation and other emergency procedures. • Comply with The Hazardous Substances and New Organisms Act 1996. 		



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Chemicals/Materials - Ventilation	Chemical exposure Illness Fire Burns Explosion Occupational Asthma	Medium	<ul style="list-style-type: none"> Assess risk of each experiment. No heating of samples of unknown composition. Add a controlled ventilation system. 	Gloves, Goggles, Masks	Reviewed every term and before experiments undertaken. Annual review of ventilation systems.



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Storage of Chemicals	Chemical Exposure Illness Fire Burns Explosions	Medium	<ul style="list-style-type: none"> Ensuring incompatible solvents are not stored together. Do not store acid and alkali together. Store chemicals in plastic containers, apart from chemical exceptions-nitric and sulphuric acids and oxidizing agents. Make sure properly labelled, with chemical name, formula, date purchased, disposal date, degree of hazard, type of hazard and precautions. Storage cupboards, stores locked at all times. Restricted access to technician, hood for more dangerous chemicals. Small amounts of chemicals in labs. 		Annual review of chemical storage. Bi annual compliance checks. Checklists hung by door of chemicals inventory on hand.



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Equipment -Glassware Sharps-scalpels, scissors, razor blades, needles -Thermometers	Cuts Chemical poisoning Fumes inhalation Diseases	Medium	<ul style="list-style-type: none"> Clean up any breakages with a brush and pan. Don't handle. Approved glass disposal containers. Dispose of sharps in approved sharps disposable container. Ensure first aid kit fully stocked and staff trained in first aid. Change Thermometers to alcohol based from mercury based. 	Gloves First aid kit	Regular removal of sharps container by approved contractor. Check first aid kit every week and have working reordering system.
Equipment -Lasers	Eye injuries	Low	<ul style="list-style-type: none"> Only Class 1 and 2 lasers used. Not to be used on reflective surfaces. Students and staff instructed on safe use of equipment. 		Check at time of purchasing equipment. Procedures reviewed before experiment undertaken.



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Chemical/ Materials -Handling	Chemical exposure Illness Fire Burns Explosion Occupational asthma	Medium	<ul style="list-style-type: none"> • Ensure appropriate safety equipment is available and properly maintained. • Ensure staff/students aware of appropriate gloves to wear when handling different types of chemicals. • Good response procedures developed for chemical splashes and inhalation • Eye/skin irritation procedures in place. • Guidelines for dangerous goods store in Safety in Science booklet. • No forbidden chemicals. See list in Safety in Science Booklet. • Material Safety Data Sheets have been obtained from the manufacturer and are on hand. 	Gloves, Goggles	Reviewed every term and before experiments undertaken.



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Waste disposal -chemical -physical -biological	Disease Explosions Fire Contamination	Low	<ul style="list-style-type: none"> Sharps container provided and collected by authorised personnel Biological waste incinerated where appropriate or collected by an authorised personnel Chemical spill clean-up material kept separate to avoid unwanted reactions Sand used for spills disposed of through approved waste disposal measures. Acids and bases can be disposed down sink once neutralised. Develop a clean-up plan. Include when outside assistance should be brought in. Train students and staff on correct disposal methods. 	Gloves, Goggles	Review waste disposal procedures every term. Disposal procedures training undertaken when changes occur. Beginning of every term with students.
Slippery surfaces	Falls Bruises	Low	<ul style="list-style-type: none"> Clean up spills immediately Use warning signs to advise students and staff about hazard Use non-slip surfaces on floors 		Part of regular review process.



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Students -behaviour -standards of dress -bags and belongings -numbers	Chemical exposure Illness Fire Burns Explosions Lacerations Falls Stress related conditions	Medium	<ul style="list-style-type: none"> • Keep laboratories locked when not in use • Keep chemicals locked away when not in use. • Train students in safe working procedures, use of equipment and handling chemicals. • Keep bags and coats and belongings off the floor to avoid tripping hazards • Ensure appropriate clothing and footwear is worn. E.g. no loose clothing or dangling ties. • Hair is tied back. • Ensure students use personal protective equipment where necessary. • No eating or drinking in the rooms • Make sure the class size is appropriate for the experiment. E.g. there are not too many students to supervise. Bring in a second staff member. 		Review procedures every term.



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Furniture -stools -benches	Constrained posture, Back and shoulder injuries	Low	<ul style="list-style-type: none"> Ensure demonstration bench is at the correct height for staff. Staff trained on preventing postural injuries. 		Annual review of procedures and facilities.
Room design -students working with back to teacher	Fire Burns Explosions Lacerations	Low	<ul style="list-style-type: none"> Try to reorganise room so this doesn't happen Incorporate this in any remodelling or alterations of science rooms 		Annual review.
Room design -placement of fixed equipment -durability of surfaces -fume cupboards Chemical storage -ventilation	Fires Burns Chemical Burns Fumes-lung problems	Low	<ul style="list-style-type: none"> Ensure gas taps are accessible and burners are not placed near curtains Surfaces are acid and alkali resistant, including sinks. Enough storage to keep chemicals separate. Dangerous goods store where needed 		Annual review. Assess at planning stage in new classrooms. Build into annual plan for changes.
Workload -preparation time	Stress Burns Lacerations Explosions	Medium	<ul style="list-style-type: none"> Ensure there is adequate time to prepare for experiments Assess staffing levels and time needs 		Annual review.