



Appendix A

Laboratory Safety Checklist

The following checklist is intended to assist school and district staff to ensure a safe environment in the science areas of the school. The laboratory safety checklist could be completed by each science teacher each year as part of an overall safety program while the lists of carcinogens, mutagens and explosives should be used to identify potential hazards for immediate removal

Please note that the checklist is neither comprehensive nor prescriptive. The criteria should be reviewed and modified to suit local situations.

Please place a check mark in the appropriate column. Under the Date column, indicate the date of last maintenance if one is available. Base your answers on current practice. "No" answers suggest a potential problem.

Laboratory Safety Checklist		Yes/Date	NO	N/A
I. Space & Class Size				
A.	140 m ² floor space per laboratory (including preparation areas)			
B.	5.0 m ² / student in combined classroom/laboratory (rough guide)			
C.	Class size is appropriate and safe for room design			
D.	Sinks (with mats) - 1 per 4-5 students			
II. Communication System				
A.	Phone			
	1. Accessible phone located nearby			
	2. Current emergency phone numbers posted			
B.	Intercom System			
C.	Cooperative plan with nearby colleague			

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Yes/Date NO N/A

III. Safety Instruction

A. Safety Pretest given to students (for use in planning instruction)			
B. Safety rules posted (copy should be provided to each student)			
C. Safety posters displayed in room			
D. Appropriate warning signs posted (hazardous material)			
E. Safety contract between teacher & student/parent signed & on file			
F. Teacher includes safety as part of each pre-lab instruction			
G. Safety procedures documented in the teacher's lesson plans			
H. Appropriate facilities for special needs students			
I. Safer chemicals substituted in lab activities when possible			
J. Hot plates or microwave ovens substituted for open flames when possible			
K. Students instructed in proper handling of glass tubing			
L. Students instructed on biohazards in animal handling			
M. Field manuals available with safety instruction for field trips			

IV. Master Cut-offs

A. Master control cut-off valve available, location known and accessible to teachers, administrators, and custodians,			
1. Gas			
2. Electricity			
3. Water			
B. Master control cut-off clearly labeled			
1. Gas			
2. Electricity			
3. Water			
C. Gas valves inspected for closure at end of each day			
D. Gas cut off with master control when not in use			

V. Fire Control

A. ULC Listed 2A10BC dry chemical fire extinguisher			
1. Suitable size, easily handled			
2. Evidence of quarterly check			
3. Safety seal intact			
4. Easily visible location & unobstructed from view			
5. In every storeroom or prep room			
6. Located near escape route of lab			
7. Access to a 2nd fire extinguisher			
8. Clean (CO ₂ or Halon) extinguisher available in areas where dust sensitive equipment used or stored (e.g. computer, electronic balance, microscopes)			
9. Teacher trained in use of fire extinguisher through actual fire situations			
10. Teacher trained within the last year			
11. Alternate plan if extinguisher malfunctions			
B. Presence of 5-10 L container of clean, dry sand for class D (flammable solids, i.e., sodium, potassium, etc. in each)			
1. Earth Science / Geology room			
2. Biology room			
3. Chemistry room			

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Yes/Date

NO

N/A

4. Physics room			
5. Storeroom			
6. Any area where chemicals are stored or used			
7. Teacher has knowledge of when & how to use			
C. Presence of a fire blanket			
1. Standard fire-proof woolen blanket in every lab and storeroom			
2. Visible location and known to teacher and students			
3. Last inspection for rips and holes (Please indicate date)			
4. Stored near eye-level			
D. Fire exits and drills			
1. Two fire exits in each laboratory clearly marked			
2. Two fire exits in each storeroom/prep room			
3. Unobstructed and unlocked fire exits			
4. Labeled and functioning doors on exits			
5. Posted and practised fire drill procedures			
6. Functioning general alarm system for entire building			
E. Smoke Alarm			
1. Presence of smoke alarm in each laboratory			
2. Presence of smoke alarm in each storeroom			
3. Indication of regular maintenance (indicate date of most recent maintenance)			
F. Automatic sprinkler system last inspection (date)			
G. No Smoking rule in lab and preparation areas			
VI. Availability of First Aid Treatment			
A. School nurse available			
B. Separate kit for chemical first-aid			
C. First Aid kit in each laboratory and storeroom/prep room			
D. Date of last inspection and restocking of kit			
E. First Aid kit visible and accessible			
F. Instructions for emergency action/first aid posters displayed prominently			
G. Teacher trained in CPR within the last year			
H. Teacher trained in first-aid within the last year			
I. Established first-aid policy (e.g., protect; treat only major injuries)			
VII. Ventilation			
A. Forced ventilation capability in each laboratory with manual control (fume hood or air conditioner not acceptable to evacuate room air at rate of 5 air changes per hour (preferably at floor level))			
B. Continuous ventilation in storeroom			
C. Exhaust (on roof) ventilated away from air intake			
D. Fume hood			
1. Ventilation to roof (away from intake)			
2. Not used as a storage area			
3. In every chemistry laboratory for use with hazardous, vaporous chemicals			
4. Evidence of maintenance (for exhaust rate and leakage) Please indicate most recent date			
5. Provides minimum of 0.5 metres per second of air movement at hood face with sash open 20 cm. above bench (can be measured with a district supplied velometer)			

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Yes/Date

NO

N/A

VIII. Lighting

A	Safe light level in laboratory (500-750 lux ambient plus task lighting)			
B.	Emergency light			
	1. In each laboratory (possibly not necessary if adequate natural light is available)			
	2. Located in each storeroom/prep room			
	3. Evidence of regular maintenance (Please indicate date)			

IX. Personal Protection

A.	Safety Shower			
	1. One in each chemistry laboratory			
	2. Functional (with water turned on) unobstructed shower and valve handle			
	3. Rigidly fixed valve handle (no chains unless provided with large ring)			
	4. Plainly labeled valve handle			
	5. Sufficient water pressure			
	6. Floor drain			
	7. Large enough to accommodate more than one person			
	8. Evidence of maintenance on a regular basis (Please indicate date)			
B.	Eye Wash			
	1. Available and visible in each laboratory			
	2. Training in eye wash procedures within last year (Please indicate date)			
	3. Type of eye wash (Squeeze bottles or single eye drench are not recommended)			
	a) dual eye wash fixture or portable pressurized, eye wash pump			
	b) one located near a safety shower			
	4. Equipment to treat both eyes simultaneously with instant, gentle, tempered flow of aerated water for 10-15 minutes			
	5. Evidence of maintenance of eye wash equipment (Please indicate date) Please indicate date for:			
	a) change solutions(s)			
	b) check for pressure			
	c) check for breakage			
C.	Protective Clothing			
	1. Presence of aprons			
	2. Presence of gloves			
	a) heat resistant gloves			
	b) chemical resistant gloves for student use			
	3. Presence of safety goggles/eye protectors for each student when needed			
	4. System for disinfecting goggles/eye protectors			
	5. Presence of face shields			
	6. Are standard procedures for use of protective gear enforced?			
	7. Eye protectors/goggles are clean and in good condition.			
D.	Carriers available for carrying chemicals and acids			
E.	Belt guards on all belt driven equipment (e.g. rock saw)			

X. Storage

A.	Chemicals			
	1. Regular inventory and disposal of unused hazardous chemicals			
	2. Chemicals not stored in areas regularly traveled by students			

Laboratory Safety Checklist		Yes/Date	NO	N/A
3.	Correctly labeled when transferred from original container			
4.	Quantity of chemicals stored not excessive (1 or 2 semesters)			
5.	Properly and clearly labeled by WHMIS standards with			
	a) secure, water-proof labels			
	b) date of acquisition			
	c) hazard alert			
	d) name of supplier			
	e) chemical's strength or purity			
	f) MSDSs properly filed			
6.	Stored in compatible chemical families (not alphabetical or other unsafe methods)			
7.	Acids stored separately on non-metal, non-wood shelves			
8.	Flammables in dedicated and approved cabinet or safety cans			
9.	Poisons under lock at all times			
10.	Immersion fluids topped up? (sodium and other alkali metals with kerosene)			
11.	Stored in a regulated area with entry allowed only for authorized personnel			
12.	There is an "authorized persons only" sign on the door.			
13.	Inside of storage rooms sufficiently fire resistant			
14.	Teachers have received WHMIS training			
B. Cabinets				
1.	Secured to floor and/or wall and free from corrosion			
2.	Presence of lockable cabinets			
3.	Are the following items kept locked in cabinets?			
	a) hypodermic syringes			
	b) drugs			
	c) dangerous chemicals			
4.	Presence of lab refrigerator			
	Does it store			
	a) only chemicals and living cultures (no food)			
	b) explosive chemicals (ether, etc.) stored in explosive proof refrigerator			
C. Shelves				
1.	Are equipped with lip edge to prevent bottle roll off			
2.	Portable shelves are secured to wall or ceiling			
3.	Chemicals stored at or below eye level			
4.	Glass cylinders stored off the floor			
5.	Chemicals stored off the floor			
6.	Large containers stored in a tray to contain spillages			
7.	Storage of tall items at back of shelf and heavy glassware on lower shelves, no chemical containers stacked double			
8.	Glass rods and tubing stored horizontally with no pieces protruding over edge			
D. Gas Cylinders				
1.	Capped			
2.	Supported to prevent rolling or tipping			
3.	Placed away from heat sources and open flames			
4.	Clamped tightly in place after being positioned for use			

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Yes/Date NO N/A

XI. Animal Cages/Tanks

A. Cleaned regularly			
B. Animals have adequate food and water			
C. Animals appear to be in healthy condition			
D. Could animals pose a threat or health hazard to people in the room?			

XII. General Storeroom or Lab Safety

A. Centrifuges			
1. Anchored securely			
2. Instructions labeled			
3. Positive locking head			
4. Top equipped with disconnect switch that shuts off if top is inadvertently opened			
B. Electrical			
1. Outlets carry grounding connections			
2. Sufficient electrical outlets are provided so as to eliminate the use of extension cords or overlapping wires or multiple plugs			
3. No outlets close to faucets, etc.			
4. All major lines fused or on circuit breakers			
5. Location of circuit breakers is known to teachers, custodians, and administrators			
6. Date of last inspection			
7. Floor plugs securely fastened			
8. Recessed floor plugs water proof			
9. Extension cords are 18 gauge or heavier			
10. No extension cords across aisles			
11. DC and AC lines clearly labeled			
12. Sockets and switches securely screwed without cracks			
13. No loose or exposed wires.			
C. Preparation/Workroom			
1. Large sink			
2. Hot water			
3. Posted rules for safe: handling, clean-up, disposal, protective equipment, conduct			
D. Presence of			
1. Bulb (not mouth) pipets			
2. Fan guards			
3. Materials Safety Data Sheets (MSDS) for each hazardous chemical present			
4. Automatic request for MSDS on all purchase orders			
5. Aisles wide enough so teachers and students can move freely without interfering with others (no books and coats on floor)			
6. Work surfaces are made of non-porous and chemical resistant materials			
7. Non-reactive chemical waste container(s) available			
E. Clean-up materials for chemical spills			
1. Chemical spill kit available			
2. Spill pillows available			
3. Protective clothing			
4. Approved waste disposal practised			
F. Presence of laboratory chemical and biological wastes disposal system for			

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1.	glass			
2.	dry chemicals/reagents			
3.	liquid chemicals/reagents			
4.	biological wastes			
G.	Respirator available (ensure that any respirator is appropriate for its intended use; check with WCB)			
H.	No pathogenic bacteria			
I.	Annual safety inspection			
J.	Chemicals in original containers not available for student use			
K.	Caution (Do Not Eat) sign on icemaker			
XIII. Housekeeping				
A.	Labs, storage, and prep rooms are organized and clean			
B.	Aisles are clear			
C.	Supplies and equipment (cleaned) are returned to proper storage area			
D.	Work surfaces are clear and clean			
E.	Floor in safe condition			
F.	Adequate number and size of garbage containers			
G.	Glassware is free of cracks, chips and sharp edges			
H.	Bunsen burner tubes are free from leaks			

School _____ Inspection by _____

Classroom location _____ Date _____

Actions taken and other recommendations

Teacher Signature _____ Date _____

Copies of completed survey should be given to Safety Chairperson, Science Department Head and School Administration.