

LABORATORY SAFETY CONTRACT

Safety in the lab is the #1 priority for all of us. To ensure a safe practical work, a list of rules has been developed and provided to you in this student safety guideline. These rules must be followed at all times. The laboratory is a safe place to experiment if you are careful. You must assume responsibility of the safety of yourself and your neighbours. Following are some safety and procedural rules to help guide you in protecting yourself and others from injury in the laboratory.

1. General Guidelines

- 1.1. Conduct yourself in a responsible manner at all times in the laboratory.
- 1.2. Be familiar with your lab assignment **before** you come to lab. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, ask the teacher before proceeding.
- 1.3. Never work alone. No student may work in the laboratory without an instructor present.
- 1.4. When first entering the lab, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
- 1.5. Do not eat food, drink beverages, or apply makeup in the laboratory. Do not use laboratory glassware as containers for food or beverages.
- 1.6. Perform only those experiments authorized by the instructor. Never do anything in the laboratory that is not called for in the laboratory procedures or by your instructor. Carefully follow all instructions, both written and oral. Unauthorized experiments are prohibited.
- 1.7. Safety goggles and lab coats must be worn whenever you work in lab. Gloves should be worn whenever you use chemicals that cause skin irritations or need to handle bacterial, viral, or cell culture. Wear older clothes that cover the maximum amount of skin.
- 1.8. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times. Bring only your laboratory instructions, worksheets, and/or reports to the work area. Other materials (books, purses, backpacks, etc.) should be stored in the classroom area.
- 1.9. Keep aisles clear. Push your chair under the desk when not in use.
- 1.10. Always work in a well-ventilated area. Use the fume hood when working with volatile substances or poisonous vapours. Never place your head into the fume hood.
- 1.11. Know the locations and operating procedures of all safety equipment including the first aid kit, eyewash station, safety shower, spill kit, fire extinguisher, and fire blanket. Know where the fire alarm and the exits are located.
- 1.12. Be alert and proceed with caution at all times in the laboratory. Notify the instructor immediately of any unsafe conditions you observe.
- 1.13. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water and those solutions designated by the instructor. Solid chemicals, metals, matches, filter paper, and all other insoluble materials are to be disposed of in the proper waste containers, not in the sink. Check the label of all waste containers twice before adding your chemical waste to the container. Cracked or broken glass should be placed in the special container for "Broken Glass."
- 1.14. Labels and equipment instructions must be read carefully before use. Set up and use the prescribed apparatus as directed in the laboratory instructions provided by your teacher.
- 1.15. Keep hands away from your face, eyes, mouth, and body while using chemicals. Wash your hands with soap and water after performing all experiments. Clean (with detergent powder), rinse, and dry all work surfaces and equipment at the end of the experiment.
- 1.16. Experiments must be personally monitored at all times. You will be assigned a laboratory station at which to work. Do not wander around the room, distract other students, or interfere with the laboratory experiments of others.
- 1.17. Students are never permitted in the preparation room unless given specific permission by their instructor.
- 1.18. Know what to do if there is a fire drill during a laboratory period; containers must be closed, gas valves turned off, and any electrical equipment turned off.
- 1.19. If you spill acid or any other corrosive chemical on you skin or clothes immediately wash area with large amounts of water (remember that small amounts of water may be worse than no water at all). After this get the teacher's attention, the spill kit will be used for spills on floor or counter-top.
- 1.20. At the end of the laboratory session see that: a) main gas outlet valve is shut off b) the water is turned off c) desk top, floor area, and sink are clean d) all equipment is cool, clean, and arranged.

2. Clothing

- 2.1. Any time chemicals, heat, or glassware are used, students will wear laboratory goggles. There will be no exceptions to this rule! No contact lenses are allowed!
- 2.2. Dress properly during a laboratory activity. Long hair, dangling jewellery, and loose or baggy clothing are a hazard in the laboratory. Long hair must be tied back and dangling jewellery and loose or baggy clothing must be secured. Shoes must completely cover the foot. No sandals are allowed.

3. Accidents and Injuries

- 3.1. Report any accident (spill, breakage, etc.) or injury (cut, burn, etc.) to the instructor immediately, no matter how trivial it may appear.
- 3.2. If you or your lab partner is hurt, immediately yell out "Help, Help" to get the instructor's attention. Everyone should turn off burners and prepare to help if needed.
- 3.3. If a chemical should splash in your eye(s), immediately flush with running water from the eyewash station for at least 20 minutes. Notify the instructor immediately.

4. Handling Chemicals

- 4.1. All chemicals in the laboratory are to be considered dangerous. Do not touch, taste, or smell any chemical unless specifically instructed to do so. The proper technique for smelling chemical fumes (when instructed to do so by the teacher) is to gently fan the air above the chemical toward your face. Breathe normally.
- 4.2. Check the label on chemical bottles twice before removing any of the contents. Take only as much chemical as you need. Smaller amounts often work better than larger amounts. Label all containers and massing papers holding dry chemicals.
- 4.3. Never return unused chemicals to their original containers.
- 4.4. Balances for weighing chemicals should be kept clean at all times. Spillages must be cleaned up immediately; other workers will not know the nature and safety precautions required to cleaning up your spillage.
- 4.5. Never use mouth suction to fill a pipette. Use pipette bulb or pipette filler.

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- 4.6. Acids must be handled with extreme care. ALWAYS ADD ACID SLOWLY TO WATER, with slow stirring and swirling, being careful of the heat produced, particularly with sulphuric acid.
 - 4.7. Handle flammable hazardous liquids over a pan to contain spills. Never dispense flammable liquids anywhere near an open flame or source of heat.
 - 4.8. Never take chemicals or other materials from the laboratory area.
 - 4.9. Take great care when transferring acids and other chemicals from one part of the laboratory to another. Hold them securely and in the method demonstrated by the teacher as you walk.
- 5. Handling Microbes and Cell Culture Materials**
- 5.1. Aseptic technique (hand washing with antibacterial soap before and after the lab, disinfection of tables before and after the lab, and using the proper procedures for handling microbes) should be followed at all times when handling microbes) should be followed at all times when handling bacteria, protozoan, and fungi. Notify your teacher before you begin the lab of any health problems you have which may have compromised your immune system.
 - 5.2. Work areas should be initially cleaned with 70% ethanol before begin the practical exercise. At the end of the practical session, clear your work area again with 70% alcohol, make sure it's dry, and slide your chair under the table. If necessary, chemicals and reagents must be returned to their proper places.
 - 5.3. Be aware that biology labs use stains, chemicals, etc. that can damage or ruin your clothing. You should wear lab coat at all times when working.
 - 5.4. Keep your lab coat clean and do not wear it outside the lab. Note that lab coat for microbiology is different from the kind used in the chemistry lab.
 - 5.5. Biological waste must be disposed of properly in the Biohazard Waste Container as directed by the demonstrator or lab staff on-duty.
 - 5.6. Some experiments will involve working with bodily material. Please use necessary precautions when handling these materials (gloves, lab coat, safety glasses, overall cleanliness). In addition, bodily material is considered biological waste and must be disposed of properly as directed by the demonstrator or lab staff on-duty. If in doubt, ask.
 - 5.7. Perform procedures carefully to minimize the creation of splashes or aerosols.
 - 5.8. If you are using a bunsen burner and leave it unattended ensure that an orange flame is visible to all other students in the lab.
 - 5.9. All biohazardous disposable glass items (i.e. slides, cover slips, Pasteur pipettes, etc.) must be disposed of properly in the Biohazard Sharps Container, NOT the regular trash can nor the Biohazard Waste Container.
 - 5.10. Never pipette by mouth. Always use a suction bulb or pipette-aid.
 - 5.11. You should always wash your hands before leaving the laboratory.
- 6. Handling Glassware and Equipment**
- 6.1. Inserting and removing glass tubing from rubber stoppers can be dangerous. Always lubricate glassware (tubing, thistle tubes, thermometers, etc.) before attempting to insert it in a stopper. Always protect your hands with towels or cotton gloves when inserting glass tubing into, or removing it from, a rubber stopper. If a piece of glassware becomes "frozen" in a stopper, take it to your instructor for removal.
 - 6.2. When removing an electrical plug from its socket, grasp the plug, not the electrical cord. Hands must be completely dry before touching an electrical switch, plug, or outlet.
 - 6.3. Examine glassware before each use. Never use chipped or cracked glassware. Never use dirty glassware. Do not immerse hot glassware in cold water; it may shatter. Replacement cost will be incurred to you on any broken glassware due to your carelessness.
 - 6.4. Report damaged electrical equipment immediately. Look for things such as frayed cords, exposed wires, and loose connections. Do not use damaged electrical equipment.
 - 6.5. If you do not understand how to use a piece of equipment, ask the instructor for help.
- 7. Heating Substances**
- 7.1. SHOULD THE BUNSEN BURNER GO OUT, IMMEDIATELY TURN OFF THE GAS AT THE GAS OUTLET VALVE. If you wish to turn off the burner, do so by turning off the gas at the gas outlet valve first, then close the needle valve and barrel. Never reach over an exposed flame. Light gas burners only as instructed by the teacher.
 - 7.2. Never leave a lit burner unattended. Never leave anything that is being heated or is visibly reacting unattended. Always turn the burner or hot plate off when not in use.
 - 7.3. You will be instructed in the proper method of heating and boiling liquids in test tubes. Do not point the open end of a test tube being heated at yourself or anyone else.
 - 7.4. Heated metals, glass, and ceramics remain very hot for a long time. They should be set aside to cool on a trivet and then picked up with caution. Use tongs or heat-protective gloves if necessary. Determine if an object is hot by bringing the back of your hand close to it prior to grasping it.
- 8. Amendment**
- 8.1. This contract may be amended and supplemented at anytime.



LABORATORY SAFETY CONTRACT

SECTION A: STUDENT INDEMNITY & CONSENT (*Please delete accordingly)

I have read and agree to abide by the safety guidelines as set forth in the **LABORATORY SAFETY CONTRACT** and also by any additional printed instructions provided by the instructor and/or PSB Academy. I further agree to follow all other written and verbal instructions given in class. Except where provided or required by law and such cannot be excluded, I agree that PSB Academy and its respective staffs, members or lab instructors are absolved from all liability however caused, arising from participating in the practical.

I warrant that all information provided is true and correct.

Name of Student (as in NRIC / Passport)

*NRIC / FIN / Passport No. (Include prefix)

Student Number

Cohort

Handphone No.

Signature of Student

Date

SECTION B: PARENT'S / GUARDIAN'S SIGNATURE FOR STUDENTS UNDER THE AGE OF 21 YEARS OLD AT THE DATE OF INTAKE COMMENCEMENT (*Please delete accordingly)

Name of *Parent / Guardian

*NRIC / FIN / Passport No. (Include prefix)

Handphone No.

Signature of *Parent/Guardian

Date

NB: All information provided is treated with strictest confidentiality and are meant for internal use only.