FLINN SCIENTIFIC CANADA

Safety Notes

Discussion and Notes

Keep a copy of these safety training notes and a signed attendance sheet to verify regular safety training. Regulatory inspectors will usually request proof of safety training.

Safety First Is No Accident

Safety First describes the vision and goals that all science instructors share for school science labs. We all *say* that safety always comes first! But what does this mean in practice? The following policies, procedures, and processes will help you transform this slogan from a vision into a reality and thus ensure safety in all science lab activities.

The Culture of Safety

Safety First is above all an attitude or culture that must be established and nurtured. The culture of science or lab safety is a shared responsibility that depends on all individuals working together to protect themselves, each other, the students, and indeed the community. The administration, faculty and staff, the students and their parents, and the community all benefit from the success of the *Safety First* philosophy. The process of ensuring lab safety requires that all individuals recognize their unique roles and carry out their assigned functions. While the immediate or fundamental goal of a *Safety First* culture in science labs is obviously to prevent or reduce accidents and injuries, the long-term benefits may be even more important. *Safety First* will be the students' vision of science throughout their lives!

General Safety Responsibilities

The administration and faculty must provide leadership and policies to establish a culture of safety throughout the curriculum. The school administration and instructors share the responsibility for maintaining a safe lab environment. The school must provide safety equipment that is appropriate for the hazards and maintain the equipment in proper working order. The science faculty has a responsibility to inform the administration of safety requirements, recommend safety equipment, practices and procedures, and inspect safety equipment on a regular basis.

Flinn Scientific has developed a free Chemical Hygiene Plan template expressly for schools. Call or write us today to request your copy!

Check with your local province for a written safety manual, summarizing the policies and procedures for the use of laboratory chemicals. The safety manual should include general laboratory rules and procedures, safety and personal protective equipment requirements, spill and accident procedures, chemical storage rules and requirements, inspection procedures, employee safety training, processes for evaluating and monitoring chemical exposure, and emergency response. WHMIS.org is another great resource.

Science instructors are responsible for what takes place under their supervision and instruction. Instructors have a duty of care to supervise students in the classroom and lab, provide adequate instructions for students to perform the tasks required of them, and warn students of the possible dangers involved in performing laboratory activities.

Flinn's Safety Contracts are available on the Flinn website at www.flinnsci.ca

The Safety Contract

The importance of lab safety must be consistently reinforced. A laboratory safety contract or agreement is the foundation of the school science safety program. Students are required to follow all safety rules and instructions provided by the school and the instructor. Signing the safety contract signifies that students have read the information, understand the rules, and agree to abide by the safety requirements in the science laboratory. If the student is in a K–12 school, the agreement should also be signed by parents or a guardian to document that they are aware of the rules their child must follow and the potential consequences of not following them. Students have a responsibility to come to class prepared for the laboratory activity. Failure to carefully read and understand lab instructions is a leading cause of lab accidents. Students must wear all required personal protective equipment, including safety glasses or chemical splash goggles and chemical-resistant gloves and aprons, as directed by the instructor.

Discussion and Notes

The article "Greening the School Science Lab" provides useful suggestions for updating science lab activities to make them safer. It can be found at flinnsci.ca

Reviewing Lab Activities

Careful planning of science activities is the cornerstone of a successful *Safety First* culture. Instructors should continually review all lab activities to identify possible hazards, assess risk, develop appropriate safety precautions, and evaluate their success. The science department should discuss any "near misses" at its regular meetings. Did a student accidentally inhale when trying to waft an odor? Was there adequate ventilation in the biology lab during a dissection activity? Did a student experience a slight shock while participating in a Van de Graaff generator demonstration? Was the instructor prepared for the large amount of heat generated when preparing a sodium hydroxide solution? While none of these close calls may have resulted in injury, illness or damage, they may reveal shortcomings and suggest possible improvements in safety policies and procedures. Mandatory reporting and evaluation of near misses has been used for years to continuously improve safety in the aviation industry, health care organizations, and fire/rescue services.

Follow a Safety Checklist

Some experiments or demonstrations present greater hazards than others. When working with flammable solvents, concentrated acids and reactive metals, always go through a "safety checklist" before performing the lab activity. In the case of flammable solvents, the following steps should be checked off to ensure that all safety precautions have been followed:

- There are no flames or sparks in the lab.
- The solvent bottles have been capped and removed from the work area.
- Any glassware has been placed on a flame-resistant surface.
- The location of the nearest fire extinguisher is known and handy.

Safety checklists are valuable tools for ensuring that *Safety First* is no accident!

Free Online Safety Training

Every science instructor should be "Flinn Safety Certified!" Comprehensive, informative, and motivational safety training is available online to all instructors, absolutely free, anywhere and anytime! Visit the Flinn website at http://labsafety.flinnsci.com/home.aspx for more information.

Thank You For Your Support

Please continue to support our efforts to improve safety in school science labs by ordering your science supplies and laboratory chemicals from Flinn Scientific.

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"Your Safer Source for Science"