

## Science Safety Plan

A science safety plan is necessary in order to create the safest science program possible. No action should jeopardize the health or safety of any student (Department of Education 2000). Thus, I will implement the following *general* science safety plan in my classroom.

### **Designing for Safety**

A science classroom needs to be well-organized. Desks and other classroom items will be arranged in a manner so that students can easily navigate around the room. In addition, exits will be accessible and clearly marked. All usage of electrical outlets will follow the appropriate electric code. Using outlets in areas of high possible liquid spillage will be avoided. Also, cords and wires will be properly arranged so that they do not interfere with walking paths or student work areas. All necessary safety equipment will be accessible and clearly marked. This includes fire extinguishers, fire blankets, eyewash fountains, safety showers, sinks, and goggles. Items will also be tested as recommended by the Virginia Department of Education to ensure that they are working properly. All other classroom equipment (microscopes, glassware, chemicals, etc) will have clearly labeled storage areas. These areas will be accessible and ensure proper care. For example, glassware will not be thrown into a large box to rummage through and microscopes will not be left out in high-traffic areas). It is important to note that not all equipment will be easily accessible to students (fire extinguishers, certain chemicals, etc) and may in fact be locked away. However, the teacher will have easy access. Lastly, the teacher will consider safety while designing all lesson activities. The minimal amount of chemicals needed to successfully implement the lesson will be used. The teacher will remain up-to-date on chemicals and procedures that should and should not be used in the classroom. Particularly hazardous activities will always be substituted with less risky activities. Having a lab that is well-organized will cut down on many potential hazards (fires due to circuit overloads, students tripping over cords,

students not being able to access a functioning safety shower, students not knowing where to find materials, lesson activities involving too many risks, etc).

### **Handling and Storage of Chemical and Biological Hazards**

Chemical storage serves four functions: to provide security against unauthorized use, to restrict or vent emissions from stored chemicals, to protect chemicals from fire, and to prevent unintended chemical reactions (Virginia Department of Education 2000). First, all chemicals in the lab will be inventoried. This inventory will include inventory date, chemical name and formula, shelf life, and amount. MSDS sheets will be acquired for all chemicals present and placed in an accessible area. Second, all chemicals will be labeled, sealed, and stored in a safe location. Chemicals will be stored by chemical groups and incompatible chemicals will be separated in storage. Acids will be stored in flammable cabinets and corrosives will be stored in a dedicated cabinet. Flammables will be stored in explosion-proof or explosion-safe refrigerators. Substances that emit fumes or gases will be stored in a well-ventilated stockroom. However, those substances that require extensive care will be avoided altogether (danger of chemical not outweighed by benefit of use). Bottom line, the teacher will **know** all stocked chemicals.

Animals included in the instructional program should be acquired only through reputable methods (not from the wild or from local breeders). In addition, the teacher will follow any permitting processes. Only disease-free animals that are appropriate to classroom instruction will be considered. In addition, potential allergies, animal size, and habitat/food/water requirements will be carefully considered. Lastly, student procedures for handling animals must be safe, clear and consistent.

Microorganisms used in the classroom should be acquired only through reputable methods (established biological supply company) and stored appropriately (as suggested by

company and possibly not accessible to students). In addition, proper handling, disposal, and sterilization should be practiced.

### **Ensuring Classroom Safety Standards**

Teachers are responsible for notifying administration of safety hazards and then pursuing any requests made. When necessary, administrators should be made aware of potential liability issues. The teacher should strongly urge administration to follow required safety procedures (such as supplying sinks, safety showers, multiple exits, meeting ventilation requirements, and honoring appropriate room and student class size requirements, etc).

### **Preparing Students for Safety**

Lastly, student procedures must be established in order to ensure safety. This includes making students aware of necessary rules and consequences (see **Safety Contract**). This also includes familiarizing students with the location and proper use of safety equipment (showers, etc) as well as proper equipment handling and storage (how to carry a microscope, not placing unused chemicals back into original containers, etc). Students must also understand how the science lab is organized and labeled. Lastly, teachers must minimize safety hazards using methods that do not decrease student understanding of the activity. This may include placing chemicals at workstations prior to student arrival (so they do not have to carry them around the room) or setting up work stations (plugging in necessary cords), etc.

### **References**

Department of Education. 2000. Safety in Science Teaching. Retrieved at

<http://www.pen.k12.va.us/VDOE/Instruction/safetymanual.pdf>.

## Safety Contract

All laboratory activities completed in this course should be educational, enjoyable, and **SAFE**. To ensure safety, I have provided the following rules that will be implemented in the lab **at all times** with **NO EXCEPTIONS!!!** Remember, this is for **your** own good!

If you fail to follow these rules, you will be prohibited from participating in the lab activity at that time. If possible, you will have the option of completing the lab at a later date. If not, you will be provided with another option as comparable as possible to the original lab. Multiple dismissals from the lab will result in a parent/teacher conference and possibly further administrative action. This could ultimately result in your removal from the class.

I, \_\_\_\_\_, agree to:  
(Please Print)

1. Refrain from all “horse play” and running;
2. Familiarize myself with specific safety concerns for a given lab prior to class;
3. Perform only authorized experiments;
4. Follow instructions explicitly;
5. Wear lab safety goggles when the activity includes flame, glassware, or chemicals;
6. Never return once-removed chemicals to their original containers even if unused;
7. Tie back all long hair, wear closed-toe shoes, and secure all baggy clothing;
8. Know the location of and how to operate all safety equipment including fire blankets, safety showers, eye wash fountains, sinks, and goggles;
9. Never touch the fire extinguishers without explicit instructions or in cases of extreme emergency;
10. Clean up my station directly following the completion of the activity;
11. Properly handle and store all lab equipment;
12. Refrain from eating or drinking at all times;
13. Immediately report all accidents and unusual occurrences;
14. Ask questions if I don't understand what to do.

I understand that all of these rules address specific safety concerns. By following these rules, I am protecting myself and others. Failing to comply could result in serious injury or death, thus these rules are not taken lightly.

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

I, \_\_\_\_\_, have read the following safety contract with my child. I am aware  
(Please Print)  
of all rules and consequences and expect my son/daughter to follow this safety contract at all times.

\_\_\_\_\_  
Parent/Guardian Signature

\_\_\_\_\_  
Date