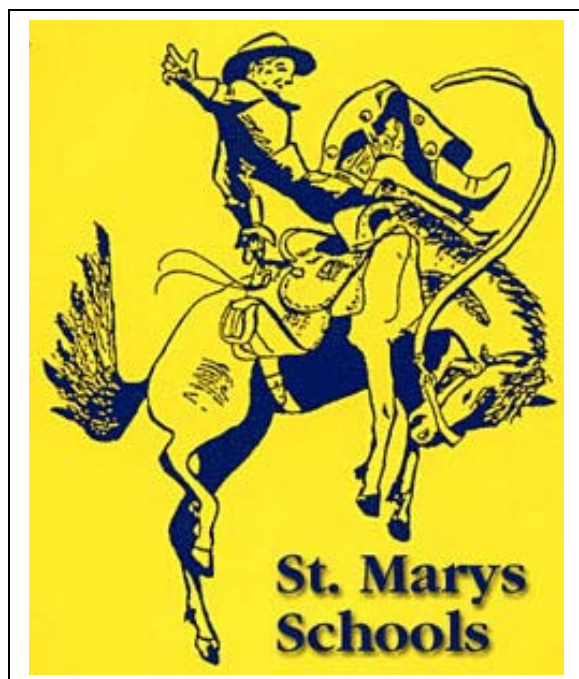


# Laboratory Safety And Chemical Hygiene Plan for Classroom Teachers



# Preface

Laws written in the past were specific to industry and did not address the safety issues of the laboratory setting or the K-12 school. In 1990, the Occupational Safety and Health Administration instituted “The Laboratory Standard” to address the specific safety needs of the laboratory. The application of the Laboratory Standard in the school serves to protect teachers and students from being overexposed to hazardous chemicals. This goal is met through the appointment of a chemical hygiene officer to develop, implement, and monitor a chemical hygiene plan.

OSHA requires exposure monitoring, a chemical hygiene plan, standard operating procedures for use of hazardous materials, employee training and exposure monitoring, and a chemical inventory and file of all MSDS for chemicals used, as outlined on the next page. The school board and administration have the ultimate responsibility for institutional compliance through record keeping, employee training, and proper procedures for the processing and handling of chemicals.

The practical purposes of this safety plan are twofold. First, it will strengthen safety practices in the classroom by updating science teachers and providing them with guidelines to create a safe environment for learning. Secondly, it will place St. Marys City Schools in compliance with OSHA 29 CFR 1910.1450 standards and with the request made by the St. Marys City Fire Department for a chemical inventory of each building.

The local fire department requires an inventory of all chemicals and their storage locations for use in the event of a building emergency.

The information for elementary classrooms is very general. Teachers are encouraged to refer to specific sections of the manual or other reference materials as well as the high school staff for more detailed information.

## Credits

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# Ohio Safety Outcomes (current)

## 4<sup>th</sup> grade outcomes

9. Demonstrate an understanding of safe use of materials and/or devices in science activities.

## Sixth-Grade Learning Outcomes

2. Identify the potential hazards and/or precautions involved in scientific investigations.

## 9<sup>th</sup> grade outcomes

3. Identify and apply science safety procedures.

Identify the safety precautions needed when doing an experiment.

# Science Competencies HSGQE

Students will:

History and Nature of Science

3. Given a personal, societal, or global circumstance, identify, interpret, and/or apply appropriate safety precautions and equipment.

Incorporates ninth-grade outcome #3: Identify and apply science safety procedures.

## 12<sup>th</sup> grade outcomes (this test is currently not administered but that's this week.)

13. Identify the safety precautions that should be taken given a  
Manufacturers Safety Data Sheet (MSDS) or a product label with a key

Know how to interpret safety precautions given on a MSDS or a  
product label

# State Standards

(draft December 2001; will be revised when standards are approved)

## **Standard: Scientific Inquiry**

Kindergarten, Grade 1, Grade 2

Use appropriate safety procedures when completing scientific investigations.

Grade 3, Grade 4

Identify and apply science safety procedures.

Grade 5

Identify potential hazards and/or precautions involved in scientific investigations.

Grade 6

Safely and accurately use tools for example thermometer, metric ruler, eyedropper, as well as other appropriate tools.

Use safety equipment appropriately in the science classroom.

Grade 7

Safely and accurately use tools for example microscopes, slides, and beakers as well as other appropriate tools.

Use safety equipment appropriately in the science classroom.

Grade 8

Safely and accurately use tools for example balance, scale, graduated cylinder, stopwatch, as well as other appropriate tools.

Use safety equipment appropriately in the science classroom.

Grade 9

Select and safely use the appropriate tool or instrument to solve a specific problem.

Grade 10

(there are currently no safety outcomes for Grade 10)

Grade 11

Safely uses tools (e.g., hand tools, measuring instruments, calculators, computer) to perform accurate scientific investigations and communications.

Use appropriate safety equipment and procedures in the science classroom.

Grade 12

(there are currently no safety outcomes for Grade 12)

# National Standards:\*

## Standard V:

Accomplished science teachers create safe and supportive learning environments that foster high expectations for the success of all students and in which student's experience the values inherent in the practice of science.

### Early Adolescence/Science Standards (for teachers of students ages 11–15)

Safety and respect for living creatures—in the handling of animals; on a field trip; and in the use of tools, materials, or lab equipment—is a paramount concern of teachers. They instruct their students in and enforce standard practices regarding the use of safety equipment such as eye-protection devices. They make students aware of their responsibility to follow proper safety procedures inside the classroom and out, and insist that they do so. They teach students to care and show respect for all living things.

### Adolescence and Young Adulthood/Science Standards (for teachers of students ages 14–18+)

Like adults, students need a healthy, stimulating, and supportive work environment, one that welcomes the open expression of ideas and encourages the search for greater understanding and knowledge. Nonetheless, students sometimes find themselves in settings where abusive language, put-downs, and bigotry are accepted and where prejudice and disrespect exist. From the outset of the school year, teachers actively combat such pernicious behavior. They foster a sense of community by encouraging student interactions that show concern for others, by dealing constructively with socially inappropriate behavior, and by appreciating and using humor. They create a community that ensures students' physical safety, and is secure and intellectually as well. In sum, teachers create instructional settings that promote learning for all students, including those with special needs..... Safety in the use of lab equipment is a paramount concern of science teachers. They instruct their students in and enforce standard practices regarding the use of safety equipment such as eye-protection devices. They make students aware of their responsibility to follow proper lab procedures and, in general, ensure that safety concerns are not used as a rationale for the elimination of activity-based science.