

# Texas Safety Standards

Kindergarten  
through Grade 12  
Science



A Guide to Laws, Rules,  
Regulations and  
Safety Procedures  
for Classroom,  
Laboratory, and Field  
Investigations

**Third Edition**  
**2006**

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***Inquiry opens their minds . . .***



***. . . Guide their journey safely.***

*Dedicated to Texas science educators and students.*



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### Chapter 9: Safety Training

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Texas Department of Health  
Texas Parks and Wildlife  
Texas State University  
VWR



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# Introduction

The Charles A. Dana Center is proud to present the third edition of *Texas Safety Standards: Kindergarten through Grade 12* to Texas educators. This edition is published and distributed by the Charles A. Dana Center. The first two editions are widely used in Texas public schools as well as by other states as a means for students, teachers, and school administrators to understand safety rules, regulations, and recommendations and establish good safety procedures for science rooms.

Figures and tables are numbered consecutively throughout the book.

Additional research related to safety and the maximum number of students that should be allowed in a science class appears in **Chapter 1: Providing Safe Learning Environments**. New tables allow the reader to compare square footage requirements for classrooms, laboratories, and laboratory/classroom combination rooms.

Users of the first two editions will find that the laws that relate to safety in public schools have been updated in **Chapter 2: Laws, Rules, and Regulations**, with the exact text appearing in Appendix A. For example, School Facilities Standards for Construction on or after January 1, 2004, mandates school districts must include specific safety materials, equipment, and space for science classrooms, laboratory rooms, and combination laboratory/classrooms.

The Texas Education Agency has defined the state-required 40 percent laboratory investigation to include some demonstrations and computer simulations; this is described in **Chapter 3: Laboratory Investigations and Activities**. A new emergency response system flow chart has been added to the chapter as an example of how a system of this kind could respond in the event of a fire with injury.

New field guidelines from TEA's publication *Guidelines for Instructional Field Experiences* (2002) are included in **Chapter 4: Field Investigations and Activities**, to better define what is meant by a field investigation.

**Chapter 5: Facilities** is vastly expanded to include the new commissioner's rules concerning school facilities standards. Tables and figures to assist with the explanation of changes and floor plan examples of science facilities also are included throughout this chapter.

In **Chapter 6: Safety Equipment and Supplies**, additional figures are included as examples of the types of equipment that meet the standards for science classrooms in Texas. A new table is included that defines the different types of eye protection mandated by law that students and teachers must wear when conducting hazardous activities. Proper use of a fire extinguisher and tables illustrating the types of fires and chemical agents needed to extinguish those types of fires are now included in the chapter.

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**Chapter 7: Chemical Safety** focuses on the Texas Hazard Communications Act that all Texas science teachers must receive training on. Explanations and examples of material safety data sheets and chemical labels as well as the National Fire Protection Association’s hazard diamond and tables appear in the chapter.

Laboratory dissections are addressed in **Chapter 8: Health Concerns**, and there are references to new position statements from science professional organizations.

**Chapter 9: Safety Training** discusses the Hazard Communications Act as it relates to Texas public employees. It also provides clarification, through the state attorney general’s opinion, of whether students should receive training as employees on HAZCOM. The Texas Department of Health was renamed the Texas Department of State Health Services.

**Appendix A: Laws, Rules, and Regulations** contains up-to-date copies of laws that govern safety in Texas schools and mandate new standards for science facilities.

**Appendix B: Professional Organization Position Statements** reflects changes made by science professional organizations to their positions on important issues in science education, such as dissections and the maximum number of students that a teacher should have in science classes.

Newly designed forms appear in **Appendix C: Safety Forms** for teachers and administrators to use as examples in developing their own.

A new *Science Facility Safety Checklist* was field tested, modified, and added to **Appendix D: Checklists and Guides**. In addition, readers will find the *Safety and Equipment Checklist (Calendar)* to assist them with regular science safety checks at their schools.

**Appendix E: Hazardous Chemical Lists** remains the same with tables of hazardous chemicals that are not recommended for use in public schools.

A glossary of terms commonly found on a Material Safety Data Sheet appears in **Appendix F: Material Safety Data Sheet Glossary**. Each page contains a section of an MSDS with the definition of the terms used in the section appearing below it.

**Appendix G: Science Materials and Safety Equipment Lists** itemizes materials, laboratory equipment, and safety equipment necessary for students to learn the science content in the Texas Essential Knowledge and Skills. These lists contain the required tools as specified in the TEKS for kindergarten through the high school courses and other materials necessary to meet these state-mandated standards.

An updated listing of agencies that science teachers may find helpful appears in **Appendix H: State and Federal Agencies**. Current contact information is given with each listing.

**Resources for Further Reading** has been updated, with current web addresses added for publications available online.

The **Index** has been updated and expanded.