

TO: Senate Education Committee
Date: April 12, 2007
Re: SB 1700, Science Lab Construction/Renovation
From: Dr. Sandra S. West

I fully support the concept in SB 1700. The lack of and poorly designed science lab/classrooms have long been a barrier to excellence in Texas STEM education.

I commend TEA for leading the nation in establishing research-based science facilities standards.

I offer a resource for school districts and architects to calculate the number of labs needed for the 4x4 graduation plans in the handout titled NUMBER OF SCIENCE LAB/CLASSROOMS REQUIRED PER ENROLLMENT. My website has a *Science Lab Calculator* which districts can use to calculate specific needs. Typically districts and architects do not plan an adequate number of lab/classrooms that leads to unsafe overcrowding.

The graphs demonstrate the research findings on the link between overcrowding in science lab/classrooms and increased accident rates.

Lastly, I offer a resource from the National Science Teachers Association; the *NSTA Guide to School Science Facilities*. This book of which I am a co-author, offers numerous suggestions for designing and building safe and effective science facilities. The next edition will be available in August '07.

NUMBER OF LAB/CLASSROOMS REQUIRED PER ENROLLMENT

Well-designed facilities are the foundation for safe and effective science education.

Based on 24 students per class as per
Natural Science Teachers Association and Natural Science Education Leadership Association
recommendations

Developed by
Dr. Sandra S. West
Department of Biology
Texas State University – San Marcos
San Marcos, TX 78666
sw04@txstate.edu

Student Enrollment	No. of Lab/Classrooms when 4 yrs. of science is required	No. of Lab/Classrooms when 3 yrs. of science is required	No. of Lab/Classrooms when 2 yrs. of science is required
400	4	3	2
600	5	4	3
800	7	5	4
1000	9	7	5
1200	10	8	5
1400	12	9	6
1600	14	10	7
1800	15	12	8
2000	17	13	9
2200	19	14	10
2400	20	15	10
2600	22	17	11
2800	24	18	12
3000	25	19	13

Note: The *Science Lab Calculator* can be found at
<http://www.bio.txstate.edu/%7escied/Safety/Safety.html>

Click on “Science Lab Calculator”

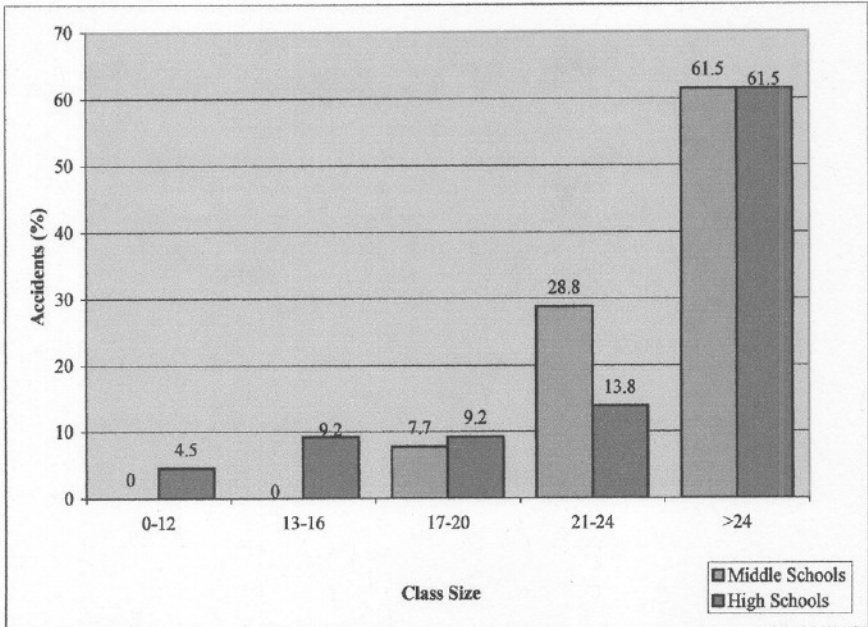
Overcrowding in Science Research

($p < 0.05$)

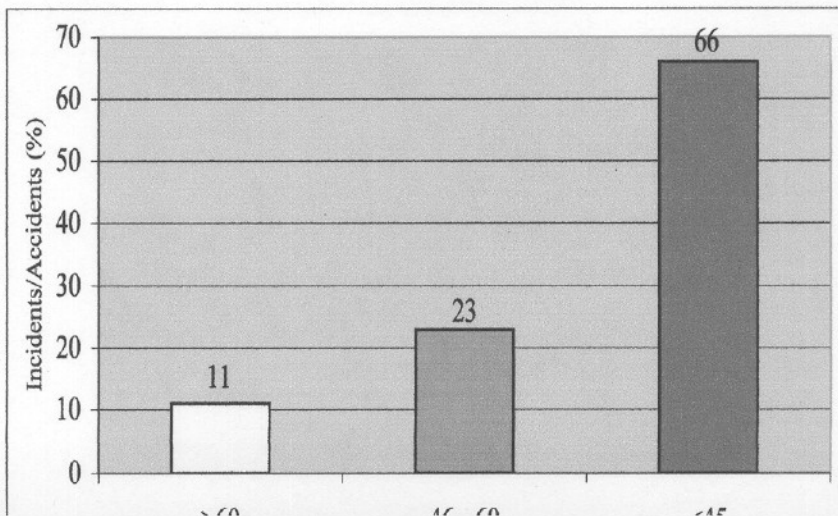
Dr. Sandra S. West

Texas State University-San Marcos

Mishaps Increase as Science Class Size Increases



Mishaps Decrease as Science Space/Student Increases



Mishaps Increase as Science Room Size Decreases

NOTE: Incidents/Accidents increase as room size decreases.

