**Class Size Counts Supports HB 2173 for Science Laboratory Class Size Caps of 24**

**HB 2173 caps science lab classes at 24 students** consistent with safety recommendations by the American Chemistry Society, the National Science Teachers Association, and the National Science Education Leadership Association. This bill will prevent accidents during science experiments and improve the quality of middle and high school science instruction.

Nationwide, scientists and science educators recommend class size caps of 24 students for science classes with labs. The **National Science Teachers Association (NSTA**) Position Statement on Lab Safety states that:

> Overcrowding has two research-based safety concerns: sufficient supervision and adequate individual workspace. Classes containing more than 24 students engaged in science activities cannot safely be supervised by one teacher. Additionally, research data show that accidents rise dramatically as class enrollments exceed 24 students or when inadequate individual workspace is provided (West et al. 2005).[1]

The **American Chemistry Society** endorses these NSTA recommendations also.[2]

The **University of Texas** found that accidents – especially major accidents – increased dramatically when there were more than 24 students in a science class.[3] And **Flinn Scientific, Inc.** summarizes the research and several state laws on "overcrowding in the science laboratory" on its web site, which show that large classes increase accidents, reduce the teacher's ability to answer questions, cause teachers to reduce the number of student labs, and increase discipline problems.[4]

**The National Science Education Leadership Association's** position paper on "Occupancy Loads in School Science Labs" states that "[b]ased on current research, a maximum class size of 24 students is the academic and safety expectation for school science laboratories."[5] NSELA also urges all states to adopt laws which 'recognize that every person owes a **duty of care** to another to avoid causing them to experience injury from exposure to unreasonable risks of harm from their action or inaction." NSELA further cites extensive case law which supports that school districts should properly meet their **duty of care** to their students and teachers by supporting certain minimum requirements or standards.[6]

**What is Virginia's Position on Class Size?**

Currently, the Virginia Code does not have legislation to address science laboratory class size caps.[7]

**Why is this a Problem?**

When science classes have more than 24 students, there are significantly higher safety risks during labs. In 2015, for example, Virginia's Woodson HS chemistry class in Fairfax County Public Schools (FCPS) experienced an unfortunate fire tragedy in a class of thirty-one 10th graders that seriously injured three.[8]

Oversized middle and high school science lab classes are particularly problematic and are causing teachers to do fewer labs due to safety risks. One recently-retired science teacher who served as a department chair in multiple schools, for example, noted that FCPS chemistry teachers are doing fewer labs that require the use of fire or acids.

**What Will this Investment Yield?**

By supporting HB2173 Virginia will meet its duty of care to its science laboratory students and teachers and provide a safe, productive learning environment. Please support HB 2173.

**www.classsizecounts.com; Twitter: @CSCFairfax**

**Sources**

[1]National Science Teachers Association (NSTA) Position Statement. NSTA Board of Directors, September 2007 http://www.nsta.org/about/positions/liability.aspx.

[2] American Chemistry Society (ACS) High School Chemistry Guidelines/Physical Plant, The Classroom and Laboratory. https://www.acs.org/content/acs/en/education/policies/physical-plant.html

[3] Fuller, E., Callicoatte Picucci, A., Collins, J., Swann, P. "An Analysis of Laboratory Safety in Texas" Charles A. Dana Center at The University of Texas at Austin., Spring 2001. http://www.utdanacenter.org/downloads/products/lab_safety_report.pdf; http://curriculum.austinisd.org/science/resources/safety/documents/02_Chapter1.pdf

[4] http://www.flinnsci.com/teacher-resources/safety/general-laboratory-safety/overcrowding-in-the-science-laboratory/

[5] Roy, K. "Science Teaching Conditions," National Science Education Leadership Association Position Statements, Adopted May 19, 2009, Revised & Adopted September 21, 2016, http://www.nsela.org/about-nsela/position-statements

[6] Roy, K. "Safety and duty of care," National Science Education Leadership Association Position Statements, Adopted May 19, 2009, Revised & Adopted September 21, 2016http://www.nsela.org/about-nsela/position-statements/631-safety-duty-of-care

[7] Code of Virginia, Chapter 13.2, Standards of Quality. § 22.1-253.13:2. Standard 2. Instructional, administrative, and support personnel. http://law.lis.virginia.gov/vacode/title22.1/chapter13.2/section22.1-253.13:2/

[8] https://www.washingtonpost.com/local/public-safety/three-injured-after-fire-at-woodson-high-school-in-fairfax/2015/10/30/7f6b6aac-7f10-11e5-afce-2afd1d3eb896_story.html