



DELAWARE

DE STATE SCIENCE STANDARDS & REQUIREMENTS

Sciences & Life Sciences Achievement

STUDENT ACHIEVEMENT

NAEP Grade 8	DE	U.S. Avg.	State Rank
Science Average, 2005	151.6	147.1	23
Science, 2005 (% at or above "proficient")	29.3%	27.3%	23
Life Sciences Average, 2005	152.1	148.2	22

ACT	DE	U.S. Avg.	State Rank
Science Average, 2008	22.0	20.8	10
Biology, 2008 (% of students ready for college level)	37%	28%	9

AP	DE	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	57.5%	55.4%	19
Science Exams, 2008 (Exams as % of all H.S. grads)	12.9%	10.5%	8
Biology Scores, 2008 (% with a score of 3 or higher)	51.3%	49.8%	19
Biology Exams, 2008 (Exams as % of all H.S. grads)	5.2%	4.6%	15

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	DE	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	N/A%	77%	–
Science Teachers Certified, 2006 (% , Grades 7–8)	72%	N/A%	14
Biology Teachers Certified, 2006 (% , Grades 9–12)	92%	88%	17

Note: NAEP = National Assessment of Educational Progress, AP = Advanced Placement
N/A = Data not available.

Key Organization(s) Promoting Bioscience Education

Delaware Valley Innovation Network, funded by the U.S. Department of Labor's Workforce Innovation in Regional Economic Development (WIRED) program, is a 14-county, tristate regional initiative dedicated to growing the region's bioscience talent.

STANDARDS PROFILE

- Most recent update of K-12 Science Standards: **2008**
- Next scheduled update: **Beyond 2012**
- Research scientists provided input in developing standards
- Science standards specifically mention applied laboratory or other tools for biotechnology or biosciences. The standards
 - Require that students in grades 9–12 "investigate how scientists use biotechnology to produce more nutritious food, more effective medicine, and new ways to mitigate pollution."
 - State, with respect to life processes and their applications, that "Biotechnology is a growing international field of research and industry. Many scientists, including those in Delaware, conduct cutting-edge research in biotechnology."

Delaware Department of Education, Delaware Content Standards and Recommended Curriculum, Science Content Standards and Grade Level Expectations

BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

One unit of biology is required; 100% of high school graduates have taken biology

All 10th graders in Delaware complete three sections of science, one of which is called genetics/biotechnology



Examples of Bioscience Education Activities

Teacher Preparation and Professional Development

Delaware Biotechnology Institute at the University of Delaware offers professional development programs, including an annual life science in-service for middle and high school teachers.

Under Delaware's **Alternate Routes to Certification** program, individuals with college degrees in selected subjects, including all areas of science, may be hired by a public or charter high school and complete certification requirements during the first year of teaching through a 12- to 18-month program of classes and seminars accompanied by intensive, school-based mentoring and supervision.

Delaware Valley Innovation Network has provided funding for teacher professional development.

Experiential Learning and Outreach

Delaware Technical and Community College offers a **Biotechnology Summer Experience** to introduce high school students with an interest in pursuing a science degree to biotechnology and research.

Delaware Valley Innovation Network provides comprehensive information on life science careers, internships, and resources for educators and students.

Bioscience-focused Schools and Programs

St. Georges Technical High School offers 14 career programs, each of which has a detailed program of study overseen by an advisory group of related business representatives. Students make their career selection after exploring a variety of career programs in 9th grade. They work toward meeting specified competencies, leading to a career certificate awarded upon graduation, in addition to a high school diploma. The school offers a program in biotechnology.

The **Conrad Schools of Science** is a magnet school program that will eventually serve grades 6 through 12. It offers a rigorous curriculum focused in the areas of biotechnology and allied health. It began in 2007, with grades 6 through 9.

SOURCE NOTES:

Basic Skills Achievement and Other Summary Metrics

STUDENT ACHIEVEMENT

NAEP Grade 8	DE	U.S. Avg.	State Rank
Math Average, 2007	283.0	280.2	26
Math, 2007 (% at or above "proficient")	31.3%	31.0%	30
Reading Average, 2007	264.5	261.0	23
Reading, 2007 (% at or above "proficient")	30.5%	29.2%	27
Writing Average, 2007	158.4	154.3	10
Writing, 2007 (% at or above "proficient")	33.6%	30.6%	14
ACT	DE	U.S. Avg.	State Rank
Percentage of Graduates Tested	11%	43%	49
Math Average, 2008	22.5	21.0	9
Reading Average, 2008	23.1	21.4	8
English Average, 2008	22.2	20.6	9
SAT	DE	U.S. Avg.	State Rank
Percentage of Graduates Tested	72%	48%	10
Math Average, 2008	498	515	45
Critical Reading Average, 2008	499	502	35
Writing Average, 2008	490	494	39
AP	DE	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	71.4%	65.2%	11
Math Exams, 2008 (Exams as % of all H.S. grads)	11.2%	8.7%	6
English Scores, 2008 (% with a score of 3 or higher)	61.7%	59.2%	27
English Exams, 2008 (Exams as % of all H.S. grads)	19.1%	18.9%	15

SUMMARY STATE EDUCATION METRICS

Selected Indicators	DE	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	76.3%	73.4%	26
Student/Teacher Ratio, 2006–07	15.2	15.5	32*
Low-income Students, 2006–07 (% of all students)	37.1%	41.6%	–
Expenditure per Student (\$), 2005–06	\$11,621	\$9,154	8

Note: NAEP = National Assessment of Educational Progress, AP = Advanced Placement
N/A = Data not available. * Lowest value receives highest ranking.

TABLE SOURCE NOTES:

NAEP Assessments, grade 8: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics (NCES), National Assessment of Educational Progress (NAEP), 2005; **ACT Exam:** ACT, Inc., 2008; **SAT Reasoning Test:** The College Board, 2008.

Advanced Placement (AP): Battelle analysis of data from the College Board, 2008; AP test takers as a share of high school graduates includes graduate data from U.S. Department of Education, NCES for both public (Common Core of Data) and private high schools (Private School Survey).

Science Teacher Indicators: Council of Chief State School Officers (CCSSO) analysis of State Departments of Education data on public schools, 2007; U.S. Department of Education, NCES Schools and Staffing Survey, 2003–04 as reported by CCSSO, 2007.

Summary State Education Metrics: U.S. Department of Education, National Center for Education Statistics (NCES), Common Core of Data (CCD) on public elementary and secondary education.

Note: High school graduation rates are averaged freshman graduation rates—the rate is the number of graduates divided by the estimated count of freshmen 4 years earlier. U.S. figure for share of students eligible for free or reduced-price school lunch ("low-income" students) is available for 2005–06 only (state data are for 2006–07).