



NEW YORK

Sciences & Life Sciences Achievement

STUDENT ACHIEVEMENT

NAEP Grade 8	NY	U.S. Avg.	State Rank
Science Average, 2005	N/A	147.1	–
Science, 2005 (% at or above “proficient”)	N/A%	27.3%	–
Life Sciences Average, 2005	N/A	148.2	–

ACT	NY	U.S. Avg.	State Rank
Science Average, 2008	22.8	20.8	1
Biology, 2008 (% of students ready for college level)	43%	28%	1

AP	NY	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	63.3%	55.4%	7
Science Exams, 2008 (Exams as % of all H.S. grads)	16.3%	10.5%	2
Biology Scores, 2008 (% with a score of 3 or higher)	56.7%	49.8%	11
Biology Exams, 2008 (Exams as % of all H.S. grads)	7.6%	4.6%	2

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	NY	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	91%	77%	1
Science Teachers Certified, 2006 (% , Grades 7–8)	92%	N/A%	8
Biology Teachers Certified, 2006 (% , Grades 9–12)	91%	88%	20

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

Examples of Bioscience Education Activities

Teacher Preparation and Professional Development

The New York State Education Department (NYSED) offers grants to colleges and universities in partnership with public school districts for 50% of the costs of science, technology, engineering, and mathematics (STEM) teachers attending university- or college-based summer classes and institutes. The

NY STATE SCIENCE STANDARDS & REQUIREMENTS

STANDARDS PROFILE

- Most recent update of K-12 Science Standards: **1996**. The resource/curriculum guide references biotechnology as a key idea

BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

One two-credit course in life sciences is required



last round, in 2007, was for \$2.5 million and supported 29 institutions, both public and private.

NYSED also offers grants under the federal **Mathematics and Science Partnership** program for partnerships between high-need school districts and STEM departments in institutions of higher education.

Through the **Collaboration for Leadership in Urban Science Teaching, Evaluation, and Research (CLUSTER)**, the New York Hall of Science Museum offers part-time paid “explainer” work and the City University of New York offers free education courses at City College, as part of an effort to attract and develop new STEM teachers. The program also helps fellows take the New York State-certified teacher’s exam and get placed with teaching jobs in New York City.

Experiential Learning and Outreach

The New York State Center of Excellence in Bioinformatics and Life Sciences at the State University of New York’s (SUNY’s) University at Buffalo hosts a career portal **called iSciWNY** and offers workshops on computational research for high school students in western New York.

The **Center for Science and Mathematics Education** at SUNY’s Stony Brook University offers three separate bioscience summer campus and additional middle- and high-school programs.

The New York Hall of Science offers the **Science Career Ladder**, which provides meaningful “explainer” work for high school students and an elaborate system of training leading to increased levels of responsibility, pay, and skill.

Many public and private universities in New York State offer experiential learning programs in the STEM disciplines. Among those in the private sector highlighted by the Commission on Independent Colleges and Universities (CICU) are Adelphi University, Albany College of Pharmacy, Barnard College and Columbia University, Clarkson University, College of Saint Rose, Daeman College, Dowling College, Hobart and William Smith Colleges, Houghton College, Ithaca College, Mount Saint Mary College, Nazareth College of Rochester, New York Medical College, Niagara University, Polytechnic Institute of NYU, Rochester Institute of Technology, St. Joseph’s College, Union College, Utica College, University of Rochester, and St. Francis College. CICU also identified STEM outreach programs to girls at Colgate University, College of Saint Rose, St. Bonaventure University, Skidmore College, University of Rochester, and Sage Colleges.

The **Dolan DNA Learning Center**, with licensees in other states, is headquartered at the Cold Spring Harbor Laboratory on Long Island.



Basic Skills Achievement and Other Summary Metrics

STUDENT ACHIEVEMENT

NAEP Grade 8	NY	U.S. Avg.	State Rank
Math Average, 2007	280.1	280.2	33
Math, 2007 (% at or above "proficient")	30.2%	31.0%	32
Reading Average, 2007	263.5	261.0	26
Reading, 2007 (% at or above "proficient")	32.2%	29.2%	22
Writing Average, 2007	154.2	154.3	24
Writing, 2007 (% at or above "proficient")	31.2%	30.6%	22
ACT	NY	U.S. Avg.	State Rank
Percentage of Graduates Tested	23%	43%	35
Math Average, 2008	23.5	21.0	2
Reading Average, 2008	23.3	21.4	5
English Average, 2008	22.3	20.6	8
SAT	NY	U.S. Avg.	State Rank
Percentage of Graduates Tested	89%	48%	2
Math Average, 2008	504	515	40
Critical Reading Average, 2008	488	502	46
Writing Average, 2008	481	494	43
AP	NY	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	69.5%	65.2%	16
Math Exams, 2008 (Exams as % of all H.S. grads)	10.9%	8.7%	7
English Scores, 2008 (% with a score of 3 or higher)	64.4%	59.2%	21
English Exams, 2008 (Exams as % of all H.S. grads)	21.2%	18.9%	13

SUMMARY STATE EDUCATION METRICS

Selected Indicators	NY	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	67.4%	73.4%	41
Student/Teacher Ratio, 2006–07	12.8	15.5	7*
Low-income Students, 2006–07 (% of all students)	44.6%	41.6%	–
Expenditure per Student (\$), 2005–06	\$14,615	\$9,154	2

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).

