



# NEW JERSEY

## Sciences & Life Sciences Achievement

### STUDENT ACHIEVEMENT

NAEP Grade 8	NJ	U.S. Avg.	State Rank
Science Average, 2005	153.4	147.1	20
Science, 2005 (% at or above "proficient")	33.1%	27.3%	16
Life Sciences Average, 2005	155.7	148.2	14

ACT	NJ	U.S. Avg.	State Rank
Science Average, 2008	21.7	20.8	16
Biology, 2008 (% of students ready for college level)	35%	28%	12

AP	NJ	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	68.3%	55.4%	2
Science Exams, 2008 (Exams as % of all H.S. grads)	13.7%	10.5%	7
Biology Scores, 2008 (% with a score of 3 or higher)	63.9%	49.8%	3
Biology Exams, 2008 (Exams as % of all H.S. grads)	5.6%	4.6%	10

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	NJ	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	84%	77%	8
Science Teachers Certified, 2006 (% , Grades 7–8)	N/A%	N/A%	–
Biology Teachers Certified, 2006 (% , Grades 9–12)	N/A%	88%	–

**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 **Rider University** hosts **CONNECT-ED (CONsortium for New Explorations in Coherent Teacher EDucation)**, a program of sustained professional development for K-12 science, technology, engineering, and mathematics (STEM) teachers, including in life science. Partners include 14 central New Jersey

## NJ STATE SCIENCE STANDARDS & REQUIREMENTS

### STANDARDS PROFILE

- Most recent update of K-12 Science Standards: **2004**
- Current science standards include “explain how genetic material can be altered by natural and/or artificial means” and “assess impact of current and emerging technologies on our understanding of inherited human characteristics”

*New Jersey Core Curriculum Content Standards for Science, 2004*

### BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

Biology is not specified in science requirement



school districts, Rider University, Princeton University, Raritan Valley Community College, Bristol-Myers Squibb, and the National Staff Development Council. Activities include summer workshops and establishment of support groups in each participating district.

**Rider University's Science Education and Literacy Center (SELECT)** also manages a grant program funded by Bristol-Myers Squibb for Enhancement of Science Teaching across the PK-12 spectrum.

With support from the Howard Hughes Medical Institute and Johnson and Johnson, **Princeton** operates a **Molecular Biology Outreach Program** that offers summer workshops; shares protocols for K-12 laboratory experiments; and offers satellite workshops by master teachers.

Under a first-generation WIRED (Workforce Innovation in Regional Economic Development) grant, the **New Jersey Departments of Education and of Labor and Workforce Development** assisted cities and counties in northern New Jersey in creating several **Innovation Partnership Institutes**, including in the biotechnology/pharmaceutical sector.

Under a third-generation WIRED grant, the five-county region in the central New Jersey corridor between Princeton and Rutgers created a consortium of educators from K-12 through the university level to facilitate smooth

articulation agreements, mentoring, and professional development.

#### **Experiential Learning and Outreach**

**Rider's SELECT** also hosts **PROBE (Program for Regional Outreach in Biology Education)**, which offers 1-day workshops in aquatic ecology for biology students and teachers.

The **North Jersey Section of the American Chemical Society** offers a version of **Project SEED**, which encourages economically disadvantaged high school students to pursue careers in the chemical sciences. SEED students are mentored by an active chemical scientist.

The **Office of Health Science Outreach and Education at the University of Medicine and Dentistry of New Jersey** sponsors the **New Jersey Regional Brain Bee Competition**, a test of neuroscience knowledge for high school students that feeds a national competition.

#### **Bioscience-focused Schools and Programs**

The **Career Academies of Monmouth County** includes Biotechnology High School, a comprehensive magnet school that supports 60 students each year.

The **Bergen County Technical Schools' Academy for the Advancement of Science and Technology** recently began a **Summer Biosciences Research Program**.



## Basic Skills Achievement and Other Summary Metrics

### STUDENT ACHIEVEMENT

NAEP Grade 8	NJ	U.S. Avg.	State Rank
Math Average, 2007	288.6	280.2	6
Math, 2007 (% at or above "proficient")	40.4%	31.0%	5
Reading Average, 2007	270.1	261.0	4
Reading, 2007 (% at or above "proficient")	39.0%	29.2%	3
Writing Average, 2007	175.3	154.3	1
Writing, 2007 (% at or above "proficient")	56.0%	30.6%	1

  

ACT	NJ	U.S. Avg.	State Rank
Percentage of Graduates Tested	13%	43%	47
Math Average, 2008	23.2	21.0	4
Reading Average, 2008	22.9	21.4	10
English Average, 2008	22.6	20.6	6

  

SAT	NJ	U.S. Avg.	State Rank
Percentage of Graduates Tested	82%	48%	6
Math Average, 2008	513	515	33
Critical Reading Average, 2008	495	502	42
Writing Average, 2008	496	494	36

  

AP	NJ	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	74.1%	65.2%	5
Math Exams, 2008 (Exams as % of all H.S. grads)	9.5%	8.7%	13
English Scores, 2008 (% with a score of 3 or higher)	74.2%	59.2%	5
English Exams, 2008 (Exams as % of all H.S. grads)	15.1%	18.9%	26

### SUMMARY STATE EDUCATION METRICS

Selected Indicators	NJ	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	84.8%	73.4%	5
Student/Teacher Ratio, 2006–07	12.4	15.5	5*
Low-income Students, 2006–07 (% of all students)	28.4%	41.6%	–
Expenditure per Student (\$), 2005–06	\$14,954	\$9,154	1

**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).

