



# NEW HAMPSHIRE

## Sciences & Life Sciences Achievement

### STUDENT ACHIEVEMENT

NAEP Grade 8	NH	U.S. Avg.	State Rank
Science Average, 2005	161.7	147.1	4
Science, 2005 (% at or above "proficient")	40.5%	27.3%	6
Life Sciences Average, 2005	162.6	148.2	3

ACT	NH	U.S. Avg.	State Rank
Science Average, 2008	22.2	20.8	8
Biology, 2008 (% of students ready for college level)	39%	28%	6

AP	NH	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	67.6%	55.4%	3
Science Exams, 2008 (Exams as % of all H.S. grads)	9.3%	10.5%	25
Biology Scores, 2008 (% with a score of 3 or higher)	66.9%	49.8%	2
Biology Exams, 2008 (Exams as % of all H.S. grads)	3.7%	4.6%	27

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	NH	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	72%	77%	33
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.

## Key Organization(s) Promoting Bioscience Education

The **New Hampshire Bio/Medical Council** lists fostering “the growth of educational infrastructure” as one of 10 key mission areas.

Funded through a \$2 million U.S. Department of Labor grant to Great Bay Community College, the **BioConnect NH project** provides industry-driven worker training and capacity

## NH STATE SCIENCE STANDARDS & REQUIREMENTS

### STANDARDS PROFILE

- Most recent update of K-12 Science Standards (Grade Span Expectations): **2006**
- Current K-12 life science standards include a unit on social issues in medical technology and biotechnology

*New Hampshire Department of Education, New Hampshire Curriculum Framework, Life Science, June 2006*

### BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

One unit of biology is required



building at both community colleges and high schools.

### Examples of Bioscience Education Activities

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#### Teacher Preparation and Professional Development

BioConnect NH has offered a **biotech basic skills workshop for teachers** throughout the state, focusing on DNA fingerprinting.

#### Experiential Learning and Outreach

The **University of New Hampshire's Leitzel Center** hosts the **Advancing Science program**, which links to a network of industrial experts who can provide hands-on learning experience for high school students in molecular biology, spectroscopy, molecular modeling, and chromatography.

Industry partners of the BioConnect NH project include Lonza Biologics, Stryker Biotech, BioConcepts, TissueLink, and Elliot Health Systems.

BioConnect NH has sponsored the **DNA/Lego Teacher Workshop**, which provides hands-on instruction on the principles of molecular biology.

BioConnect NH created a high school biotechnology student organization and also offers **Biotech Summer Research Camps** that bring together six or seven high school students and their teacher/mentors for a week of intensive activities at Great Bay Community College.

BioConnect NH sponsors field trips for high school students statewide to the biotechnology

laboratories at Great Bay Community College and provides full scholarships for four students from Seacoast School of Technology to take credit-bearing courses at Great Bay.

The **Community College System of New Hampshire** offers the **Running Start program**, which enables high school students to enroll in college courses, including in the biosciences, at a significant reduction in tuition.

#### Bioscience-focused Schools and Programs

BioConnect NH has supplied equipment and training to **Bow High School** to become a “mini-biomanufacturing” facility, which in turn will provide DNA kits for classroom instruction in 20 other high schools, each of which will be provided \$3,200 in start-up equipment.

The **Academy for Science and Design** in Merrimack is a public charter school specializing in science, technology, engineering, and mathematics (STEM) disciplines beginning in 7th grade and offering a specialization in chemistry and biomedicine.

#### Career and Technical Education

There are six biotechnology pathway programs in Career and Technical Centers: Seacoast School of Technology, Nashua North High School, Milford High School, Somersworth High School, Dover High School, and Laconia High School. Unlike many career and technical education “biotechnology” clusters that target conventional careers, these programs are designed to lead to laboratory technician and scientist careers.



## Basic Skills Achievement and Other Summary Metrics

### STUDENT ACHIEVEMENT

NAEP Grade 8	NH	U.S. Avg.	State Rank
Math Average, 2007	287.6	280.2	9
Math, 2007 (% at or above "proficient")	37.9%	31.0%	9
Reading Average, 2007	269.7	261.0	6
Reading, 2007 (% at or above "proficient")	37.2%	29.2%	5
Writing Average, 2007	160.5	154.3	7
Writing, 2007 (% at or above "proficient")	39.1%	30.6%	5

  

ACT	NH	U.S. Avg.	State Rank
Percentage of Graduates Tested	15%	43%	44
Math Average, 2008	23.0	21.0	6
Reading Average, 2008	23.7	21.4	2
English Average, 2008	23.0	20.6	3

  

SAT	NH	U.S. Avg.	State Rank
Percentage of Graduates Tested	83%	48%	5
Math Average, 2008	523	515	28
Critical Reading Average, 2008	521	502	27
Writing Average, 2008	511	494	27

  

AP	NH	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	76.7%	65.2%	3
Math Exams, 2008 (Exams as % of all H.S. grads)	9.1%	8.7%	18
English Scores, 2008 (% with a score of 3 or higher)	78.3%	59.2%	3
English Exams, 2008 (Exams as % of all H.S. grads)	13.4%	18.9%	31

### SUMMARY STATE EDUCATION METRICS

Selected Indicators	NH	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	81.1%	73.4%	11
Student/Teacher Ratio, 2006–07	13.1	15.5	8*
Low-income Students, 2006–07 (% of all students)	17.9%	41.6%	–
Expenditure per Student (\$), 2005–06	\$1,0396	\$9,154	14

**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).

