



TENNESSEE

Sciences & Life Sciences Achievement

STUDENT ACHIEVEMENT

NAEP Grade 8	TN	U.S. Avg.	State Rank
Science Average, 2005	145.1	147.1	30
Science, 2005 (% at or above "proficient")	25.0%	27.3%	30
Life Sciences Average, 2005	146.6	148.2	30

ACT	TN	U.S. Avg.	State Rank
Science Average, 2008	20.3	20.8	41
Biology, 2008 (% of students ready for college level)	23%	28%	40

AP	TN	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	56.8%	55.4%	22
Science Exams, 2008 (Exams as % of all H.S. grads)	7.6%	10.5%	31
Biology Scores, 2008 (% with a score of 3 or higher)	51.2%	49.8%	20
Biology Exams, 2008 (Exams as % of all H.S. grads)	3.3%	4.6%	33

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	TN	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	58%	77%	46
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

Bridging Innovations Originating in Tennessee (BioTN) is a not-for-profit foundation that seeks to enhance educational and career opportunities in science and technology.

Memphis Bioworks Foundation, a nonprofit foundation dedicated to establishing the Memphis region as an international bioscience

TN STATE SCIENCE STANDARDS & REQUIREMENTS

STANDARDS PROFILE

- Most recent update of K-12 Science Standards: **2008**
- No update currently scheduled

BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

One unit of biology is required



center, has a major focus on bioscience education.

Examples of Bioscience Education Activities

Teacher Preparation and Professional Development

Middle Tennessee State University, in partnership with BioTN, has a program to prepare biology majors to qualify as teachers.

BioTN is in the process of developing a teacher professional development program.

The **Teach Tennessee Initiative** is a Governor's initiative that challenges mid-career professionals, retirees, and others to teach. Priority is given to those individuals who can teach science, math, and foreign languages.

The State of Tennessee offers **alternative licenses** for individuals with a bachelor's degree and a major in a particular subject area.

BioTN has used funding from a WIRED (Workforce Innovation in Regional Economic Development) grant to offer in partnership with the HudsonAlpha Institute for Biotechnology in Huntsville, Alabama, **summer bioscience teacher training** for Tennessee teachers.

Experiential Learning and Outreach

BioTN works with various organizations to sponsor experiential learning and outreach programs, including holding science career days in middle and high schools, and conducts a hands-on lab event at Williamson County Fair for PK-5th graders. BioTN also works with counselors and school administrators to promote the biosciences. Individual schools also support science career days.

A BioTN/WIRED grant is being used to support four summer camps for middle school students.

Memphis Bioworks undertakes education and outreach programs.

Bioscience-focused Schools and Programs

The **Memphis Academy of Science and Engineering** was launched by Memphis Bioworks Foundation in 2003.

A number of high schools in Tennessee offer a **Biomedical Technology Program** that was jointly developed by the BioTN Foundation, North Tennessee Workforce Board, Tennessee Board of Regents Colleges, Vanderbilt University, and several other business and education groups.

Basic Skills Achievement and Other Summary Metrics

STUDENT ACHIEVEMENT

NAEP Grade 8	TN	U.S. Avg.	State Rank
Math Average, 2007	274.0	280.2	41
Math, 2007 (% at or above "proficient")	23.1%	31.0%	42
Reading Average, 2007	259.2	261.0	35
Reading, 2007 (% at or above "proficient")	25.6%	29.2%	39
Writing Average, 2007	156.2	154.3	18
Writing, 2007 (% at or above "proficient")	30.3%	30.6%	24

ACT	TN	U.S. Avg.	State Rank
Percentage of Graduates Tested	88%	43%	5
Math Average, 2008	19.9	21.0	43
Reading Average, 2008	21.1	21.4	38
English Average, 2008	20.8	20.6	27

SAT	TN	U.S. Avg.	State Rank
Percentage of Graduates Tested	13%	48%	32
Math Average, 2008	570	515	13
Critical Reading Average, 2008	571	502	14
Writing Average, 2008	566	494	10

AP	TN	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	63.6%	65.2%	31
Math Exams, 2008 (Exams as % of all H.S. grads)	6.0%	8.7%	36
English Scores, 2008 (% with a score of 3 or higher)	63.7%	59.2%	23
English Exams, 2008 (Exams as % of all H.S. grads)	14.5%	18.9%	29

SUMMARY STATE EDUCATION METRICS

Selected Indicators	TN	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	70.7%	73.4%	38
Student/Teacher Ratio, 2006–07	15.7	15.5	35*
Low-income Students, 2006–07 (% of all students)	48.7%	41.6%	–
Expenditure per Student (\$), 2005–06	\$7,004	\$9,154	47

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).