



ARKANSAS

Sciences & Life Sciences Achievement

STUDENT ACHIEVEMENT

NAEP Grade 8	AR	U.S. Avg.	State Rank
Science Average, 2005	144.4	147.1	32
Science, 2005 (% at or above "proficient")	23.4%	27.3%	32
Life Sciences Average, 2005	145.4	148.2	32

ACT	AR	U.S. Avg.	State Rank
Science Average, 2008	20.3	20.8	41
Biology, 2008 (% of students ready for college level)	22%	28%	44

AP	AR	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	24.2%	55.4%	50
Science Exams, 2008 (Exams as % of all H.S. grads)	11.3%	10.5%	15
Biology Scores, 2008 (% with a score of 3 or higher)	21.4%	49.8%	50
Biology Exams, 2008 (Exams as % of all H.S. grads)	6.1%	4.6%	6

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	AR	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	62%	77%	42
Science Teachers Certified, 2006 (% , Grades 7–8)	59%	N/A%	21
Biology Teachers Certified, 2006 (% , Grades 9–12)	95%	88%	13

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 Arkansas Science and Technology Authority (ASTA) awards competitive grants for the **Science, Technology, Engineering, and Mathematics (STEM) Professional Development Program** that supports the professional development of science and math teachers. The program, which is funded by the

AR STATE SCIENCE STANDARDS & REQUIREMENTS

STANDARDS PROFILE

- Most recent update of K-12 Science Standards: **2005**
- Next scheduled update: **2011**
- Research scientists participated in development of standards
- Science standards specifically mention applied laboratory or other tools for biotechnology or biosciences. The standards require that students:
 - Demonstrate a current understanding of life science theories
 - Describe the connections between pure and applied science
 - Describe various life science careers and the training required for selected careers
 - Investigate the molecular basis of genetics
 - Engage in hands-on activities during at least 20% of instructional time.

Arkansas Department of Education, Science Curriculum Framework, Biology, Revised 2005

BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

Three units of science, including one unit of biology, are required for graduation



Winthrop Rockefeller Foundation, provides up to \$10,000 for a professional development workshop and up to \$2,000 for post-workshop expenses. The grants require 50% matching funds for the direct workshop costs.

The Arkansas Department of Education's Non-Traditional Licensure Program (NTLP) is an alternative route to teacher licensure administered by the Arkansas Department of Education. Enrollment in this program allows a candidate with a bachelor's degree or higher to be employed as a classroom teacher while completing the necessary requirements for an Initial Arkansas Teaching License. Candidates must hold a bachelor's degree or higher and must have passed the state-mandated assessments.

Experiential Learning and Outreach

ASTA administers a **Summer STEM Academy Grant Program** that provides real-world learning experiences in a university environment to enhance STEM career choices of Arkansas high school students. Faculty members at Arkansas colleges, universities, and educational organizations may submit applications for grants of up to \$10,000. The sponsoring organization must provide a 50% match.

ASTA also awards **STEM Enhancement Grants** to support teacher-initiated projects and activities aimed at improving curriculum and inquiry-driven teaching strategies in STEM classrooms. Teachers may use the \$1,500 grants to enhance or to expand the use of technology and project-based learning in the classroom by purchasing specialized software, hardware, lab kits, multimedia equipment, or other tools.

Basic Skills Achievement and Other Summary Metrics

STUDENT ACHIEVEMENT

NAEP Grade 8	AR	U.S. Avg.	State Rank
Math Average, 2007	273.9	280.2	42
Math, 2007 (% at or above "proficient")	24.4%	31.0%	40
Reading Average, 2007	258.0	261.0	40
Reading, 2007 (% at or above "proficient")	25.4%	29.2%	40
Writing Average, 2007	150.6	154.3	35
Writing, 2007 (% at or above "proficient")	26.8%	30.6%	29

ACT	AR	U.S. Avg.	State Rank
Percentage of Graduates Tested	74%	43%	11
Math Average, 2008	20.1	21.0	40
Reading Average, 2008	21.0	21.4	39
English Average, 2008	20.7	20.6	30

SAT	AR	U.S. Avg.	State Rank
Percentage of Graduates Tested	5%	48%	47
Math Average, 2008	567	515	16
Critical Reading Average, 2008	575	502	11
Writing Average, 2008	559	494	13

AP	AR	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	35.6%	65.2%	51
Math Exams, 2008 (Exams as % of all H.S. grads)	7.3%	8.7%	30
English Scores, 2008 (% with a score of 3 or higher)	31.3%	59.2%	51
English Exams, 2008 (Exams as % of all H.S. grads)	33.3%	18.9%	2

SUMMARY STATE EDUCATION METRICS

Selected Indicators	AR	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	80.4%	73.4%	15
Student/Teacher Ratio, 2006–07	13.6	15.5	16*
Low-income Students, 2006–07 (% of all students)	58.7%	41.6%	–
Expenditure per Student (\$), 2005–06	\$8,030	\$9,154	37

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).