



KANSAS

Sciences & Life Sciences Achievement

STUDENT ACHIEVEMENT

NAEP Grade 8	KS	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	KS	U.S. Avg.	State Rank
Science Average, 2008	21.8	20.8	14
Biology, 2008 (% of students ready for college level)	33%	28%	17

AP	KS	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	57.7%	55.4%	18
Science Exams, 2008 (Exams as % of all H.S. grads)	3.4%	10.5%	50
Biology Scores, 2008 (% with a score of 3 or higher)	53.6%	49.8%	17
Biology Exams, 2008 (Exams as % of all H.S. grads)	1.5%	4.6%	50

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	KS	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	78%	77%	19
Science Teachers Certified, 2006 (% , Grades 7–8)	52%	N/A%	23
Biology Teachers Certified, 2006 (% , Grades 9–12)	97%	88%	12

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

Key Organization(s) Promoting Bioscience Education

The **Kansas Bioscience Organization (KansasBio)** is focused on enhancing the business and research climate and working with leaders across the state to attract and retain bioscience talent, companies, and funding. A core mission of KansasBio is to promote bioscience education.

KS STATE SCIENCE STANDARDS & REQUIREMENTS

STANDARDS PROFILE

- Most recent update of K-12 Science Standards: **2007**
- Next scheduled update: **Beyond 2012**
- Research scientists provided input in developing standards

BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

One unit of biology is required for graduation



Examples of Bioscience Education Activities

Teacher Preparation and Professional Development

The **Kansas State University (KSU)** holds summer workshops for grades 6 through 12 science teachers. The teachers work with KSU research scientists to develop standards-based classroom activities that integrate life science research. The University of Kansas (KU) offers similar workshops for middle- and high-school science teachers.

Multiple universities offer the opportunity to qualify for a teaching certification in the sciences, such as Wichita State University, which offers an education degree in biology that covers grades 6 through 12. KU, KSU, Emporia State University, Fort Hays State University, Bethany College, Washburn University, Pittsburg State University, and MidAmerica Nazarene University offer education programs that prepare biology majors to become middle and/or high school teachers.

In 2007, the Kansas legislature created the **Teacher Education Competitive Grant Program**, which awards funds on a competitive basis to colleges and universities to expand teacher education programs aimed at increasing the number of students completing the requirements to be certified to teach math or science or willing to teach in an underserved area.

The **Restricted Teaching License Alternative Pathway** is intended to respond to school districts' needs in hiring qualified, licensed teachers. It is designed to recruit mid-career professionals who have a bachelor's or master's degree in a content area they want to teach and who are seeking a career change. This pathway provides an opportunity for these individuals to have immediate access to start teaching under a

restricted license while completing professional education pedagogy coursework to become fully licensed.

Experiential Learning and Outreach

KansasBio members work with 19 Kansas school districts, impacting 2,000 students each year, with the organization's **Simply Science program**. The program, which is based on Bayer's Making Science Make Sense initiative, is coordinated through KSU's Extension Service.

KansasBio members also work with designated bioscience curriculum program in Olathe and Blue Valley School districts to incorporate current bioscience education and training opportunities for students and teachers.

KansasBio members work with the **Abernathy Science Education Center's** annual bioscience academy to provide direct relationships with teachers and students

The **KU Upward Bound Math and Science Center** serves high school students with an interest in math or the sciences. The program provides academic and career advising, tutoring, workshops on financial aid and taking college entrance exams, assistance with the college admissions application process, and visits to local area colleges throughout the year. Participants also attend cultural and social events and presentations by college faculty. A 6-week Summer Institute provides recipients with the opportunity to take academic classes including laboratory science, math, foreign language, and research writing. A bridge program, which allows the students to begin working for college credit, is also offered in the summer.

The **Upward Bound Math Science Regional Center** at **Wichita State University** provides an academic-year program and a summer program for low-income, first-generation high school



freshmen through seniors who are interested in math, science, engineering, or health professions and encourages them to pursue these subjects as postsecondary majors.

Bioscience-focused Schools and Programs

The **21st Century High School programs at Olathe School District** offer a biotechnology and life sciences focus.

The **Blue Valley School District's Center for Advanced Professional Studies (CAPS) Program** provides students the opportunity to

explore professions of interest through a problem-based, inquiry learning method. Local and global business partners participate with instructors to provide exposure and skill acquisition in 21st century professions, including in the biosciences. Students can earn college credit and/or certifications while earning core and elective high school credit.

The **Northeast Magnet High School in the Wichita School District** offers specialized programs in law, science, and visual arts for students in grades 9 through 12.





Basic Skills Achievement and Other Summary Metrics

STUDENT ACHIEVEMENT

NAEP Grade 8	KS	U.S. Avg.	State Rank
Math Average, 2007	290.0	280.2	5
Math, 2007 (% at or above "proficient")	40.2%	31.0%	6
Reading Average, 2007	267.4	261.0	13
Reading, 2007 (% at or above "proficient")	35.2%	29.2%	13
Writing Average, 2007	156.3	154.3	17
Writing, 2007 (% at or above "proficient")	33.0%	30.6%	15

ACT	KS	U.S. Avg.	State Rank
Percentage of Graduates Tested	74%	43%	11
Math Average, 2008	21.8	21.0	21
Reading Average, 2008	22.6	21.4	13
English Average, 2008	21.5	20.6	18

SAT	KS	U.S. Avg.	State Rank
Percentage of Graduates Tested	8%	48%	38
Math Average, 2008	589	515	9
Critical Reading Average, 2008	580	502	10
Writing Average, 2008	564	494	12

AP	KS	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	64.8%	65.2%	25
Math Exams, 2008 (Exams as % of all H.S. grads)	4.6%	8.7%	41
English Scores, 2008 (% with a score of 3 or higher)	64.7%	59.2%	19
English Exams, 2008 (Exams as % of all H.S. grads)	9.8%	18.9%	45

SUMMARY STATE EDUCATION METRICS

Selected Indicators	KS	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	77.5%	73.4%	23
Student/Teacher Ratio, 2006–07	13.3	15.5	11*
Low-income Students, 2006–07 (% of all students)	39.8%	41.6%	–
Expenditure per Student (\$), 2005–06	\$8,640	\$9,154	27

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).