



# MISSISSIPPI

## Sciences & Life Sciences Achievement

### STUDENT ACHIEVEMENT

NAEP Grade 8	MS	U.S. Avg.	State Rank
Science Average, 2005	132.2	147.1	44
Science, 2005 (% at or above "proficient")	14.0%	27.3%	44
Life Sciences Average, 2005	134.6	148.2	44

ACT	MS	U.S. Avg.	State Rank
Science Average, 2008	18.7	20.8	50
Biology, 2008 (% of students ready for college level)	13%	28%	51

AP	MS	U.S. Avg.	State Rank
Science Scores, 2008 (% with a score of 3 or higher)	21.4%	55.4%	51
Science Exams, 2008 (Exams as % of all H.S. grads)	4.3%	10.5%	47
Biology Scores, 2008 (% with a score of 3 or higher)	15%	49.8%	51
Biology Exams, 2008 (Exams as % of all H.S. grads)	2.6%	4.6%	40

SCIENCE TEACHER QUALITY and PROFESSIONAL DEVELOPMENT	MS	U.S. Avg.	State Rank
Science Teachers with Major in Assigned Field, 2003–04 (% , Grades 7–12)	77%	77%	21
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

Mississippi's **Critical Needs Teacher Scholarship Program** provides full scholarships to teachers and/or students who teach or intend to teach in geographical areas and subject areas where shortages exist, including mathematics and sciences.

## MS STATE SCIENCE STANDARDS & REQUIREMENTS

### STANDARDS PROFILE

- Most recent update of K-12 Science Standards: **2008 for full implementation in 2010**
- Research scientists provided input in development of standards
- Science standards specifically mention applied laboratory or other tools for biotechnology or biosciences: Standards call for students to:
  - Research and present a justifiable explanation of practical uses of biotechnology (e.g., chromosome mapping, karyotyping, pedigrees)
  - Research, prepare, and present a position relating to issue surrounding current botanical trends involving biotechnology

*2010 Mississippi Science Framework*

### BIOSCIENCE-RELATED GRADUATION REQUIREMENTS:

Three units of science including biology are required for graduation  
Four units of science including biology and one lab will be required beginning with the class of 2012



Mississippi's **Assistant Teacher Scholarship Program** awards scholarships to attract and retain qualified teachers for academic subject areas in which there exists a critical shortage of teachers.

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

Mississippi State University undertakes education and outreach activities to increase the participation of underrepresented populations in the computational sciences. At the high school level, these include **High School Student Laboratory Demonstrations** carried out at participating high schools by computational scholars along with other graduate students and/or faculty.

**Base Pair**, initiated in 1992, is a biomedical research mentorship program that pairs faculty from the University of Mississippi Medical Center (UMC) with public high school students and educators. Oriented to interact primarily with participants from the largest public school

district in the state of Mississippi, the Jackson Public School District (JPSD), the program has expanded to enlist students and/or teachers from school districts throughout central Mississippi, including Byram, Clinton, Madison, Mendenhall, and Northwest Rankin. This program allows each student to experience the scientific field in a “hands-on” manner under the guidance and supervision of a faculty researcher at UMC. Base Pair seeks to cultivate career awareness of high school students in areas related to health care/biomedical research, to train such students to function as effective “Communicators of Science” to laypersons, and to advance science curriculum development within the target school district. Primary funding for Base Pair has been provided by the Howard Hughes Medical Institute. Additional funding support has been provided by the National Science Foundation and local groups, including Health Futures and the Community Foundation of Greater Jackson.



## Basic Skills Achievement and Other Summary Metrics

### STUDENT ACHIEVEMENT

NAEP Grade 8	MS	U.S. Avg.	State Rank
Math Average, 2007	264.9	280.2	50
Math, 2007 (% at or above "proficient")	13.6%	31.0%	50
Reading Average, 2007	250.1	261.0	50
Reading, 2007 (% at or above "proficient")	17.4%	29.2%	49
Writing Average, 2007	141.8	154.3	45
Writing, 2007 (% at or above "proficient")	14.7%	30.6%	45

  

ACT	MS	U.S. Avg.	State Rank
Percentage of Graduates Tested	92%	43%	4
Math Average, 2008	18.2	21.0	51
Reading Average, 2008	19.1	21.4	51
English Average, 2008	19.3	20.6	47

  

SAT	MS	U.S. Avg.	State Rank
Percentage of Graduates Tested	4%	48%	48
Math Average, 2008	556	515	20
Critical Reading Average, 2008	574	502	12
Writing Average, 2008	566	494	10

  

AP	MS	U.S. Avg.	State Rank
Math Scores, 2008 (% with a score of 3 or higher)	35.9%	65.2%	50
Math Exams, 2008 (Exams as % of all H.S. grads)	3.1%	8.7%	50
English Scores, 2008 (% with a score of 3 or higher)	39.9%	59.2%	49
English Exams, 2008 (Exams as % of all H.S. grads)	11.4%	18.9%	40

### SUMMARY STATE EDUCATION METRICS

Selected Indicators	MS	U.S. Avg.	State Rank
High School Graduation Rate, 2005–06	63.5%	73.4%	47
Student/Teacher Ratio, 2006–07	15.3	15.5	34*
Low-income Students, 2006–07 (% of all students)	67.6%	41.6%	–
Expenditure per Student (\$), 2005–06	\$7,173	\$9,154	46

**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).

