

# PARTNERSHIP FOR REFORM IN SCIENCE AND MATHEMATICS



## IMPACT REPORT- SEPTEMBER 2007

### PRISM's Ten Strategies

1. Offering customized professional learning in science and mathematics for K-12 teachers
2. Offering P-5 Science and Mathematics Endorsements for teachers
3. Providing opportunities to participate in P-16 Learning Communities, focused on improving teaching and learning in science and mathematics
4. Providing the Institute on the Teaching and Learning of Science and Mathematics
5. Improving teacher preparation programs in science and mathematics
6. Recruiting teachers to teach science and mathematics
7. Improving K-12 teacher working conditions
8. Implementing Georgia's Performance Standards in science and mathematics
9. Providing needed information to parents about the importance of taking challenging science and mathematics courses
10. Changing the higher education faculty reward structure

### Vision

Increase science and mathematics (SM) achievement for all K-12 students in order to improve their readiness for post-secondary education and careers by enhancing teacher quality, raising expectations for all stakeholders, and closing the achievement gaps through the collaboration of K-16 partners.

**PRISM** is a comprehensive research, development and implementation project designed to test key strategies to increase student learning and achievement in science and mathematics in schools and colleges, to codify what works, to use it to influence statewide change in policy and practice, and to inform the nation about successes that should be replicated to rebuild America's competitive advantage in science and mathematics. In January 2003, the P-16 Department, within the University System of Georgia (USG), submitted a proposal for a Comprehensive Mathematics and Science Partnership (MSP) Grant to the National Science Foundation (NSF). This proposal was written by a partnership of seven University System colleges and universities and 15 public school systems in four geographical regions of the state with the University System and Georgia Department of Education. The award was announced in September 2003. The P-16 Department serves as the coordinating unit and fiscal agent for NSF's award of \$34.6 million over 5 years (2003-2008)

Approximately 170,000 K-12 students, 10,000 K-12 faculty and 575 University System faculty are or will be impacted through PRISM over the five years of the grant.

### INSIDE THIS REPORT

- Comparison data between PRISM districts and districts with similar demographics
- Data on the number and percentage of high school students enrolled in more challenging science and mathematics courses
- Regional success stories
- Data on students taking core mathematics courses at the college level
- Sustainability

## A LOOK AT K-12 STUDENT ACHIEVEMENT DATA BETWEEN PRISM DISTRICTS AND DISTRICTS WITH SIMILAR DEMOGRAPHICS

For comparison purposes 15 Georgia school districts were chosen based on the following similarities: total enrollment; percent free and reduced lunch; percent black; and percent white. The Georgia Criterion Referenced Curriculum Tests were used for elementary and middle school comparisons, and the Georgia High School Graduation Tests in Science and Mathematics were used for high school comparisons.

**Chart 1: Science Test Data Comparisons**

PRISM and Comparison District Performance in Science Percent Meeting or Exceeding Aggregated Across PRISM and Similar School Districts and Aggregated Across Elementary, Middle, and High School Grade Levels				
		FY 2004	FY 2006	Change
Elementary	PRISM Districts	80	85	+5
	Comparison Districts	83	85	+2
Middle	PRISM Districts	72	60	-12
	Comparison Districts	76	63	-13
High	PRISM Districts	63	69	+6
	Comparison Districts	67	72	+5

**Chart 2: Mathematics Test Data Comparisons**

PRISM and Comparison District Performance in Mathematics Percent Meeting or Exceeding Aggregated Across PRISM and Similar School Districts and Aggregated Across Elementary, Middle, and High School Grade Levels				
		FY 2004	FY 2006	Change
Elementary	PRISM Districts	82	86	+4
	Comparison Districts	85	86	+1
Middle	PRISM Districts	68	68	0
	Comparison Districts	73	71	-2
High	PRISM Districts	90	90	0
	Comparison Districts	92	92	0

Using Charts 1 and 2 on page 2, comparisons show that in 2004 PRISM districts lagged behind their comparison districts in aggregated test scores at all levels and in both science and mathematics. By 2006, PRISM districts had caught up with the comparison districts at the elementary level, posting greater gains in both science and mathematics. At the middle school level, performance in science decreased in both sets of districts. This is consistent with research indicating that declines in student performance are expected immediately following implementation of a new curriculum. The Georgia Performance Standards (GPS) were implemented and tested in grades 6 and 7. PRISM districts did not post a change in mathematics and the comparison districts posted a 2 point decrease. PRISM districts and the comparison districts showed improvement in high school science. Neither set of districts made any change in their mathematics scores.

## COMPARING THE BLACK-WHITE ACHIEVEMENT GAP BETWEEN PRISM DISTRICTS AND DISTRICTS WITH SIMILAR DEMOGRAPHICS

**Chart 3: Closing the Gap Comparisons**

PRISM and Comparison District Performance in Science Percent Meeting or Exceeding Aggregated Across PRISM and Similar School Districts and Aggregated Across Elementary, Middle, and High School Grade Levels				
		FY 2004	FY 2006	Change
Elementary Science	PRISM Districts	22	18	-4
	Comparison Districts	16	15	-1
Elementary Math	PRISM Districts	17	14	-3
	Comparison Districts	11	10	-1
Middle Science	PRISM Districts	26	36	+10
	Comparison Districts	17	28	+11
Middle Mathematics	PRISM Districts	29	28	-1
	Comparison Districts	16	17	+1
High School Science	PRISM Districts	29	26	-3
	Comparison Districts	27	26	-1
High School Math	PRISM Districts	13	11	-2
	Comparison Districts	8	8	0

In 2004, PRISM districts had a greater achievement gap between white and black students compared to their comparison districts. All PRISM districts have made some progress in closing the achievement gap between white and black students with the exception of middle grades science.

CHANGES IN NUMBER OF HIGH SCHOOL STUDENTS TAKING  
ADVANCED COURSES IN SCIENCE AND MATHEMATICS IN PRISM  
DISTRICTS

In 2006, there were more students taking intermediate and advanced courses in life sciences, physical sciences and mathematics than in 2003. In addition, there were fewer students taking basic courses in life sciences and mathematics. The number taking basic physical science courses stayed relatively the same.

**Chart 4: Comparing the Number of Students in PRISM Districts in Science and Mathematics Courses:  
2003-2006**

Year	Subject	Students in Basic	Students in Intermediate	Students in Advanced	Total
2003	Life Sciences	1287	14653	4076	19272
2006	Life Sciences	656	15096	4389	19344
2003	Physical Sciences	425	12354	8269	20697
2006	Physical Sciences	426	13110	9852	22778
2003	Mathematics	11522	26558	5630	40062
2006	Mathematics	9910	28737	6232	41611

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**Definition of Basic, Intermediate, and Advanced Courses**

**Basic courses in science and mathematics:**

Principles of Technology I and II, Applied Biology/Chemistry I and II, Basic Mathematics I, II, III, and IV, General Mathematics I, II, III, and IV, Mathematics I and II, Applied Problem Solving, Applied Algebra, Applied Geometry, Pre-Algebra, Fundamentals of Algebra, Concepts of Probability and Statistics, Concepts of Problem Solving, Concepts of Algebra

**Intermediate courses in science and mathematics:**

Biology I, Ecology, Environmental Science, Physical Science, Astronomy, Meteorology, Earth Science, Geology, Oceanography, Science Technology and Society, Mathematical Money Management, Algebra I, Informal Geometry, Euclidean Geometry, Algebra II, Algebra III

Continued at the bottom of page 5

## CHANGES IN IN THE PERCENT OF HIGH SCHOOL STUDENTS TAKING ADVANCE COURSES IN SCIENCE AND MATHEMATICS IN PRISM DISTRICTS

In 2006, the percent of students taking basic courses decreased while the percent of students taking intermediate and advanced courses increased. The largest decrease in basic courses occurred in mathematics. Five percent fewer students were taking basic courses in 2006 when compared to the percent in 2003.

**Chart 5: Comparing the Percent of Students in PRISM Districts in Science and Mathematics Courses: 2003-2006**

Year	Subject	Students in Basic	Students in Intermediate	Students in Advanced
2003	Life Sciences	6.7%	76%	21.1%
2006	Life Sciences	3.4%	78%	22.7%
2003	Physical Sciences	2.1%	59.7%	40%
2006	Physical Sciences	1.9%	57.6%	43.3%
2003	Mathematics	28.8%	66.3%	14.1%
2006	Mathematics	23.8%	69.1%	15%

Continued from page 4

### Advanced courses in science and mathematics:

Biology II, AP Biology, Genetics, IB Biology I and II, Botany, Microbiology, AP Environmental Science, IB Environmental Systems, Zoology, Entomology, Human Anatomy/Physiology, Chemistry I and II, AP Chemistry, IB Biochemistry, Physics I and II, AP Physics B and C, IB Physics I and II Honors, Astrophysics, Forensic Science, Advanced Physics Principles/Robotics, Advanced Scientific Research, Advanced Scientific Internship, Statistics, History of Mathematics, IB Mathematical Methods, IB Mathematical Studies, IB Mathematics I and II, Advanced Algebra and Trigonometry, Analysis (Pre-Calculus), Computer Mathematics, Discrete Mathematics, Calculus, AP Calculus AB and BC, AP Statistics, Advanced Calculus

## SUCCESS STORIES FROM THE REGIONS

Each region has many examples of successful implementation of PRISM strategies. This report highlights just one successful story from three of the four regions.

### From the Southeast Region:

#### Studio Physics versus Traditional Physics: Improving Student Learning and Retention Rates

Armstrong Atlantic State University completed a comparison study between traditional physics (N = 46) and studio physics (N = 74). The purpose of the study was to determine the effectiveness of studio physics in increasing retention rates and improving conceptual understanding and problem solving skills in algebra-based introductory physics. The course usually has low retention rates (60% or lower) and students do not have strong problem solving skills and conceptual understanding of the foundation of physics. The results show that studio physics is a more effective, proactive method of instruction than traditional (lecture) physics.

Table 1: Retention rates and gains of AASU PHYS 1111 courses.

Note: Retention Rate = % of students that received a final grade of A, B, or C. \*

	Traditional Fall 2005	Studio Spring 2006	Studio Fall 2006	Studio Spring 2007
Enrollment	46	26	25	23
Withdraws	9	3	3	2
Retention Rate	58.7%	72%	72.7%	70%
FMCE %pre	17.9%	17.6%	17.1%	16.9%
FMCE %post	26.4%	28%	44.9%	40.4%
FMCE % gain	10.4%	12.5%	33.5%	28.3%

The three studio physics courses had better retention rates and higher levels of student learning. Fall semesters in PHYS 1111 generally have stronger students because they are coming into the class in sequence and did not have problems getting through the math pre-requisites. Therefore, a comparison of the two fall courses reveals a great improvement from traditional (58.7% retention rate and 10.4% gain on FMCE) to studio (72.7% retention rate and 33.5% gain on FMCE). The fact that there was an improvement, though slight, from Fall 2005 (10.4% gain) to Spring 2006 (12.5%) means a lot to the physics faculty. The Spring 2006 group of students was not strong and also had several non-science majors that were taking the course for Core Area D. These students seemed to thrive off of the student-centered classroom because they were able to discuss ideas and questions with students and build concepts by doing, not listening to the professor, which is supported by research done by Dean Zollman. A remarkable improvement was observed between the two fall semesters: 10.4% in 2005 to 33.5% in 2006. A similar improvement occurred from Spring 2006 (12.5% gain) to Spring 2007 (28.3% gain). Note that similar withdraw rates are observed in other physics courses. The withdraw rate in traditional physics course during the Spring 2007 semester was 19%. Therefore, we have gone from 1 out of 5 students withdrawing to 1 out of 8 students. The data is verifying the effectiveness of studio courses in improving student learning while keeping more students in the class.

The feedback received from students in studio physics has been very positive. The students preferred the studio-style courses to traditional science courses. Some of their comments included the increased interaction with the instructor helped them understand the material, the collaboration with peers helped them learn, and the immediate transition from lecture to lab or from lab to lecture helped reinforce what was being taught. The instructor minimizes lecturing and allows the students to construct physics concepts and learn how to solve problems without just copying what the instructor is doing on the board. The classroom becomes student-focused as opposed to instructor-focused. Students are asking the department head for PHYS 1112 to be studio physics.

\* $\langle g \rangle = (\% \text{posttest} - \% \text{pretest}) / (100 - \% \text{pretest})$

where  $\% \text{posttest}$  and  $\% \text{pretest}$  are the posttest and pretest class percentage averages and  $\langle g \rangle$  is the average normalized gain. For example, suppose that for a given class the test average before instruction was  $\% \text{pretest} = 34\%$ , and the test average after instruction was  $\% \text{posttest} = 68\%$ . Then the percentage average actual gain is  $\% \text{Gain} = 68\% - 34\% = 34\%$ . The greatest possible actual gain for this class would have been  $\% \text{Gain}_{\text{max}} = (100\% - 34\%) = 66\%$ . Therefore,  $\langle g \rangle = \% \text{Gain} / \% \text{Gain}_{\text{max}} = 34\% / 66\% = 0.51$ , that is, the class made an average gain of 51% of the maximum possible average gain.

## From the Northeast Region:

### The Impact of the NE GA PRISM AP Calculus Learning Community

The NE GA PRISM AP Calculus Learning Community was formed in Dec. 2005 with 14 members who met monthly to share successful lessons, deepen their understanding of mathematical content, broaden their instructional expertise, develop strategies to motivate students, and discuss review techniques to help students earn exemplary scores on the College Board exam. An increase in student scores on the 2006 exam was typical for these teachers, and in some cases, quite dramatic.

Less than two years later, the team has grown to 20 members and impacts students in 12 school districts. An interview with Oconee County teacher, Paula Whitmire, which appeared in the July 25<sup>th</sup> edition of the Athens Banner-Herald, describes some of the advantages of the learning community. "I've taught for more than 23 years and I've been teaching AP Calculus for the last two years, and I don't think I could have made it without the learning community," Whitmire said. Jeanette Phillips, another team member added, "The learning community provides me a chance to hone my skills, and I really enjoy the camaraderie; for the most part, I haven't had that. The knowledge of this group is powerful." Both teachers also mentioned the support given to less experienced teachers and the bonds that have formed across school districts. Hamilton Hardison began attending the AP Calculus Learning Community as a student teacher and just completed his first year of teaching in Spring 2007. He stated the following message to the Learning Community after he heard about his students' scores, "I was just informed that my calc class had the highest average score of all the AP classes at the school (although I don't know what those numbers are). How exciting to be able to say that I had a 100% pass rate for my first year as an AP teacher (and as a teacher in general)! Thanks so much for all you did over the past year and a half to get me ready for teaching calc. I never would have had such wonderful results without the help of the learning community. The resources, tips, and collective expertise are most appreciated, (as is the opportunity simply to talk with people who actually understand calculus)."

As a result of the success of this group, a PRISM AP Statistics Learning Community has been formed. Each of these groups will present some of their work at the Georgia Council of Teachers of Mathematics (GCTM) Conference held at Rock Eagle during Oct. 17-19, 2007, and will also join together to offer a third session designed to help teachers form effective professional learning communities.



*Hamilton Hardison (R) leads team members Caroline Oliver (C) and Jeanette Phillips (L) through Calculus computer activities that the learning community will include in their presentation at the Georgia Mathematics Conference sponsored by the Georgia Council of Teachers of Mathematics (GCTM) in October, 2007.*

#### AP Calculus Learning Community—By the numbers

- From 2006 to 2007, the number of students taking the AP test increased by 10% across the AP Calculus Learning Community classes.
- In both 2006 and 2007, the overall mean scores (average) of the students from the AP Calculus Learning Community teachers' classes exceeded both Georgia and National mean scores.
- In both 2006 and 2007, a larger percentage of students from the AP Calculus Learning Community teachers' classes passed with a score of three or better than in Georgia or the nation.

	Georgia	National	AP Calculus Learning Community
'06 Mean Scores	2.85	3.02	3.31
'06 % Scoring 3+	56.02%	61.01%	66.47%
'07 Mean Scores	2.82	2.92	3.28
'07 % Scoring 3+	55.86%	58.37%	66.84%

## SUCCESS STORIES FROM THE REGIONS CONTINUED

## From the East Central Region:

## Effectiveness of the Science Academic Coach Pilot Program in Effingham County

PRISM created the opportunity for schools and school districts to apply for funds to support an Academic Coach in science and/or mathematics. Effingham County applied for a science academic coach position. Wendy Porter was selected for this position and began working with middle school science teachers in Fall of 2006. During the year, Wendy provided support to 45 teachers in order to facilitate improved instruction by focusing on best practices for science instruction. Strategies utilized were:

- Intensive data analysis with instructional support (CRCT and benchmark assessments);
- Established science benchmarks;
- Assessed the effectiveness of all middle school science instruction including instruction for student with disabilities;
- Provided training in lab-based in inquiry-based lessons
- Established a model for collaborative planning and professional learning;
- Provided support for school-based science learning communities; and
- Facilitated planning and implementation of the new Georgia Performance Standards (GA's new curriculum) in science.



Wendy working with a middle school science teacher

**EFFINGHAM COUNTY SCHOOL SYSTEM  
CRCT - STATE RANKING  
APRIL, 2007 ADMINISTRATION  
Rank - Based on % of Meets + Exceeds**

## Grade 6

Content Area	System State Ranking	Total Number of Systems	Mean Scale Score	N Tested	% Meets + Exceeds
Reading	35	187	832.65	809	93.33%
ELA	35	187	830.02	809	89.99%
Math	24	187	823.42	810	75.31%
Science	15	187	822.65	808	75.50%
Social Studies	25	187	331.53	807	90.33%

## Grade 7

Content Area	System State Ranking	Total Number of Systems	Mean Scale Score	N Tested	% Meets + Exceeds
Reading	42	188	826.68	831	89.17%
ELA	20	188	832.09	832	93.87%
Math	17	188	830.02	833	85.35%
Science	17	188	832.11	829	84.32%
Social Studies	25	188	340.26	826	91.04%

## Grade 8

Content Area	System State Ranking	Total Number of Systems	Mean Scale Score	N Tested	% Meets + Exceeds
Reading	38	188	828.44	830	92.29%
ELA	24	188	832.52	830	93.25%
Math	17	188	834.78	832	90.63%
Science	16	188	828.56	825	86.06%
Social Studies	27	188	338.6	826	91.65%

Notes: The total number of school systems varies across grade levels and content areas due to the following reasons:  
 - the wildfires in Ware County,  
 - the number of students enrolled in psycho-educational adolescent centers, and  
 - the number of students enrolled in Department of Juvenile Justice (DJJ) centers.

While it did take time for science teachers to understand that the academic coach was there to provide support and not serve as an evaluator, the teachers did benefit from Wendy's expertise. She will continue to work with middle school teachers and will begin working with high school teachers during the 2007-08 school year.

The chart to the left shows the state ranking for Effingham County on Georgia's curriculum tests in Reading, English Language Arts, Math, Science, and Social Studies in Spring 2007. In each grade, the highest ranking for the system occurs in mathematics and science. Effingham has employed a mathematics academic coach since 2002, but last year was the first year for a science academic coach.

## A LOOK AT THE PASS RATES FOR MATHEMATICAL MODELING, COLLEGE ALGEBRA AND PRE-CALCULUS

**Chart 6: Comparison of Percent of Students in PRISM Partner Universities and the University System of Georgia Passing the Course with an A, B, or C: 2003-2006**

Year	Course Number	Course Name	PRISM Institutions	University System
2003	1101	Mathematical Modeling	61.4%	61.4%
2004	1101	Mathematical Modeling	64.1%	64.0%
2005	1101	Mathematical Modeling	66.5%	64.1%
2006	1101	Mathematical Modeling	67.8%	63.9%
2003	1111	College Algebra	56.1%	54.7%
2004	1111	College Algebra	56.8%	55.7%
2005	1111	College Algebra	55.9%	54.5%
2006	1111	College Algebra	58.7%	55.9%
2003	1113	Pre-Calculus	58.7%	56.8%
2004	1113	Pre-Calculus	59.2%	58.3%
2005	1113	Pre-Calculus	60.2%	58.1%
2006	1113	Pre-Calculus	61.9%	59.9%

The University System of Georgia requires each institution to use the same course numbers for core mathematics courses. Data were collected on Mathematical Modeling, College Algebra and Pre-Calculus. The percent of students passing (A, B, C) these courses, has increased each year within PRISM partner colleges and universities. For the system as a whole, the increase has been smaller with a slight decrease seen in 2005 for College Algebra and Pre-calculus. The PRISM institutions have a slightly higher percentage of students passing with an A, B, or C than the system. Comparisons of core science courses between PRISM institutions and all USG institutions are more difficult since course numbers and titles are not the same at each institution.

## SUSTAINABILITY AT THE UNIVERSITY SYSTEM LEVEL—THE UNIVERSITY SYSTEM OF GEORGIA'S PRESIDENTS' SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM) INITIATIVE

### MATH + SCIENCE = SUCCESS

In early 2007, the Chancellor for the University System of Georgia charged a Presidential Committee to design a plan to:

*Increase the number of K-12 students interested in mathematics/science/engineering, the number of students in college who pursue the STEM disciplines, and the number of teachers prepared who are better able to keep K-12 students in the STEM pipeline.*

The Committee's work plan, approved in June 2007, includes replication of lessons learned from P-16 initiatives in Georgia, from a grant based at Georgia Perimeter College and Darton College called Mathematics, Engineering, and Science Achievement (MESA), and from the Partnership for Reform in Science and Mathematics (PRISM). The Committee's work plan was also informed by studies that describe the changing landscape of higher education on the world stage, and the corresponding implications for the economic competitiveness of the nation. Implementation of the work plan begins in January 2008.

The work plan features a systemic approach to problem resolution. It includes:

#### A. Strategies to influence K-12 student preparation for and interest in majoring in STEM in college.

**Strategy 1:** Serve as a collaborative partner with the Georgia Department of Education as it leads revisions to the High School Graduation Rule that stipulates the courses required for graduation.

**Strategy 2:** Replicate the PRISM Public Awareness Campaign to influence middle and high school students' course-taking patterns by positively altering their perceptions about science and mathematics, and to reinforce parental and guardian involvement to increase students' interest in science and mathematics.

**Strategy 3:** Replicate the PRISM Academy for Future Teachers of Science and Mathematics throughout the USG.

#### B. Strategies to increase the success of STEM majors in college.

**Strategy 4:** Replicate Project MESA (Mathematics Engineering Science Achievement), which focuses on underrepresented groups. Georgia would be second only to California in offering this program statewide.

**Strategy 5:** Replicate the PRISM state-level Institute on the Teaching and Learning of Science and Mathematics throughout the USG that focuses on teaching college introductory courses in mathematics and the sciences. All institutions that offer the associate or baccalaureate degree are eligible to participate.

**Strategy 6:** Recommend that all USG access institutions and baccalaureate degree-granting institutions set targets as to the percent of students completing the following introductory courses with a grade of A, B, or C, and the percent of students who withdraw:

- Math Modeling, College Algebra, Pre-Calculus.
- Introductory Biology Courses for majors and non-majors.
- Introductory Chemistry courses for majors and non-majors.

**Strategy 7:** Participate in a national project, Mathematics Success, to determine which interventions might be used to improve student success in Developmental Mathematics, College Algebra, Pre-calculus, and Calculus I.

**Strategy 8:** Recommend that each of the USG institutions that offers majors in the STEM disciplines sets annual institutional production targets for baccalaureate degrees conferred in the STEM disciplines, FY 2007-FY 2013, and makes reaching these targets high institutional priorities. The Committee sees these targets as realistic, given projected enrollment increases throughout the USG.

**C. Strategies to produce more and better science and mathematics teachers for the schools, which in turn will lead to increased preparation of K-12 students in science and mathematics.**

**Strategy 9:** Establish a structured “mini-grant” program for STEM and science and mathematics education faculty to collaborate in K-16 learning communities, using the PRISM Structured Abstract as a guide, and for STEM faculty to work on increasing student understanding of the subject matter in introductory science and mathematics courses.

**Strategy 10:** Replicate Project FOCUS from PRISM—a project where undergraduate science and mathematics majors get exposed to teaching in the public schools through working with elementary students.

In July 2007, \$1.6 million was appropriated through state funds to begin implementation of several key strategies. Institutions will support some strategies through redirection of existing funds to achieve the priorities of the system. Additional funding has been requested to begin in July 2008.

**Chart 7: Intended Outcomes for the STEM Initiative—MATH + SCIENCE = SUCCESS**

Item #	By Year	Intended Outcome of the University System of Georgia	Baseline	Baseline Year
1	2013	Number of baccalaureate degrees in STEM disciplines will increase to at least 7,200	4,726	2006
2	2013	Number of baccalaureate degrees in engineering and engineering technology will increase to at least 2,800	1,828	2006
3	2013	Number of baccalaureate degrees with a major in mathematics will increase to at least 400	196	2006
4	2013	Number of baccalaureate degrees with majors in chemistry, geosciences, and physics will increase to at least 420, 80, and 130, respectively	215-Chm 41-Geo 67-Phys	2006
5	2013	Number of middle grades teachers with a concentration in mathematics will increase to at least 480 per year	276	2006
6	2013	Number of middle grades teachers with a concentration in science will increase to at least 350 per year	200	2006
7	2013	Number of high school mathematics teachers will increase to at least 270 per year	135	2006
8	2013	Number of high school science teachers will increase to at least 160 in Biology 45 in Chemistry 15 in Physics 20 in Earth Sciences	54 9 3 1	2006
9	2013	Success rates with a grade of C or better in introductory STEM courses will increase to at least 75%	50%-70%	2006
10	2013	Number of high school students taking college preparatory science and mathematics courses will increase by at least 20%	67% or 55,077	2006



We're on the Web  
[www.gaprism.org](http://www.gaprism.org)  
[www.mathsciencesuccess.org](http://www.mathsciencesuccess.org)



## Coming Soon in the Next PRISM Impact Report

- 2007 K-12 student achievement data for PRISM districts
- Data on the percentage of students taking core level science courses at the college level who make A's, B's, or C's

### PRISM partners:

- 15 school districts with 275 schools: Atlanta Public Schools, Bryan, Bulloch, Camden, Candler, Chatham, Clarke, Effingham, Evans, Glynn, Jackson, Oconee, Screven, Toombs, and Vidalia City
- 7 colleges and universities: Armstrong Atlantic State University, Coastal Georgia Community College, Georgia Perimeter College, Georgia Southern University, Georgia State University, Georgia Institute of Technology's Center for Education Integrating Science Mathematics and Computing (CEISMC), and the University of Georgia
- 4 regions in Georgia: Northeast, East Central, Southeast and Metro Atlanta
- 2 state partners: University System of Georgia and Georgia Department of Education



Supported by the National Science Foundation under Cooperative Agreement Number: EHR-0314953. Any opinions, findings, and conclusions or recommendations expressed in this document are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.