Mississippi MSP Mission, Goals and Representative Activities

Mission
The mission of the Mississippi Math and Science Partnership (Mississippi MSP) is to improve the science and mathematics achievement of all preK–12 students in 49 partner school districts and preK childcare programs in Mississippi and to advance educational reform across the nation through collaborative action uniting the educational and research communities and diverse entities from the public and private sectors in support of preK–12 students and teachers.

Strategic Plan for Scaling-Up of Partnership Activities and Impact
While Mississippi MSP activities will involve all preK–12 partners throughout the proposed grant period and beyond, the initial project focus will be on schools/districts/childcare programs exhibiting greatest readiness and need for full engagement in reform efforts. Criteria for full engagement during Year 1 include the following: 1) district recommendation of participating program(s)/school(s); 2) CRT/NRT student achievement scores in math/science below district average for school/children performing below *academic readiness* in the preK program(s); and 3) demonstration of commitment from teachers and administrators to support change through a) collecting and analyzing data from various sources (action research); b) long-range planning; c) building professional learning communities (faculty studies); and d) dedicating time and school/district resources to participate in leadership/professional development activities to prepare for full implementation of standards-based teaching and learning by May 2004. Activities designed to move additional schools/districts/childcare programs to full engagement will be ongoing, with the goal of engaging 100% of the districts/programs in full-scale educational reform efforts by Year 4. It is projected that Cohort I (one-third of schools/districts) will be actively engaged in Academic Year (AY) 2002–03, Cohort II (one-third of schools/districts) in AY 2003–04, and Cohort III (one-third of schools/districts) in AY 2004–05; thus, all preK–12 partners will be active participants by the end of year 3, with the final 2 years devoted to refining and expanding implementation.

Representative Activities in Relation to Partnership Goals

Goal 1

To enhance significantly the capacity of the partner schools to provide a challenging curriculum for every student and to encourage more students to participate and succeed in advanced mathematics and science courses.

- **Overarching objective:** Substantial increases in instructional capacity and opportunities for high-quality, standards-based, hands-on learning available to students through curriculum design, technology, and other programs.

  - Conduct school self-assessments.
  - Conduct curriculum analysis.
  - Initiate interventions based on items 1. and 2.
  - Use “The Early Childhood Environmental Rating Scale-R” to help develop an improvement plan to identify strengths and address weaknesses.
  - Work with community colleges and universities to develop preservice course content that is co-designed by scientists/mathematicians and early childhood.
  - Leverage emphasis on reading by including mathematics and science activities that require using language arts skills.

- **Overarching objective:** Significant increases in student participation and success in advanced mathematics and science courses, with emphasis on closing the achievement gap.

  - Schedule "Community Meetings" involving stakeholders to identify their beliefs, values and perceptions of what children need to know and be able to do.
  - Engage parents and community members in child development programming.
  - Engage parents and community members in programming such as "Parent Career Nights".
  - Create partnerships among districts to leverage resources and offer AP STEM courses.
  - Establish a pool of scientists and business/industry representatives to mentor high school students and allow them to participate in "job shadowing" opportunities.

Goal 2

To increase and sustain the number, quality, and diversity of preK-12 mathematics and science teachers in the partner school districts, all of which have been traditionally underserved, through further development of an effective professional education continuum.

- **Overarching objectives:** Increases in the number, quality, and diversity of mathematics and science teachers serving the partner school districts via **alternative routes into the profession** and via **traditional preservice** programs, with related modifications in **preservice** and other programs through collaboration of faculty from content fields and schools of education, as well as students, resource personnel, and others.

  - Develop a dual graduation track at colleges and universities, with opportunities for senior mathematics and science content majors participating in the dual-track program to teach a middle/high school course in partnership with the classroom.
  - Encourage universities to provide field experiences for general studies students early in their programs to consider education as a viable field of study.
  - Provide after-school/summer school job opportunities for mathematics and science majors to gain classroom experience.
  - Provide opportunities for Mississippi Alliance for Minority Participation (MAMP) students to mentor high school students.
  - Work with school districts and local businesses and agencies to identify and encourage high school students to participate in apprenticeship programs in mathematics and science.
  - Aggressively pursue attracting college students into mathematics and science tracks. Work with the Mississippi Department of Education to recruit teachers for partner districts.
  - Conduct a two-day seminar for school districts on effective teacher recruitment and retention strategies based on research.
  - Convene stakeholders, including preK–12 educators and university faculty from diverse disciplines, to explore and design preservice program modifications based on sound research and pertinent data.

- **Overarching objective:** Increases in the number, quality, and diversity of mathematics and science preK-12 teachers serving the partner school districts through retention and development programs focused on the **induction** period.

  - Develop and implement intensive induction programs in the participating districts that include the following:

a. Recruiting, providing leadership professional development for, and assigning on-site mentors to first-year teachers;
b. Providing program materials for mentors/mentees to use as resources;
c. Providing substitutes and release time for mentors/mentees to share information and successful teaching strategies;
d. Providing tuition assistance to new teachers to encourage enrollment in graduate courses and sustained professional development.

- **Overarching objective:** Increases in instructional capacity of **inservice** mathematics and science teachers who currently work in the partner school districts but who are teaching with less than full credentials.

  - Provide and leverage ongoing professional development that includes a Certification Institute. The summer institute in standards-based teaching and learning will include six-hours of graduate credit.
  - Use distance learning and other technologies to enhance teaching and learning
  - Provide and leverage paraprofessional faculty development

- **Overarching objective:** Increases in instructional capacity of all **inservice** mathematics and science teachers in the districts through innovative, research-based delivery mechanisms.

  - Create professional learning communities that include the teachers, college and university faculty, MMSP staff and partners.
  - Provide and leverage ongoing professional development such as the following:
  - Conduct Summer Leadership Development Institutes that bring local school district math and science teachers together with university faculty and National Board-certified model teachers to develop standards-based instructional skills.
  - Infuse technology that encourages the use of technology to enhance learning and provide online professional development.
  - Provide professional development to Headstart teachers that emphasizes child development principles pertinent to mathematics and science teaching

Goal 3

To contribute to the national capacity to engage in large-scale reform through participation in a network of researchers and practitioners, organized through the MSP program, which will study and evaluate educational reform and experimental approaches to the improvement of teacher preparation and professional development.

- **Overarching objective:** Meaningful contribution to the national capacity for educational reform.

  - Collaborate with the national MSP network of researchers and practitioners as it evolves.

  - Establish a research agenda that includes selecting at least 5 "R & D" schools to participate in in-depth analysis of results of reform interventions.

Goal 4

To engage the learning community in the knowledge base being developed in current and future NSF Centers for Learning and Teaching and Science of Learning Centers.

- **Overarching objective:** Engagement of the Mississippi learning community in the knowledge base being developed through NSF Centers for Learning and Teaching and Science of Learning Centers.

  - As the NSF Centers are implemented, the Mississippi MSP pledges to work with the centers to complement their work and further reform of STEM education.

Goal 5

To enhance the individual and collaborative capacity of the Mississippi MSP partners to bring about immediate and long-term gains in science and mathematics achievement for all preK–12 students.

Changing Policies That Impact Academic Performance

- Work with the Mississippi Department of Education and the legislature to achieve policy changes such as the following:

Conferences, Forums, and Institutes

- Convene annual conferences uniting all partners, as well as other stakeholders as appropriate.
- conduct a two-day retreat, "Combining Research and Practice: Opening the Lines of Communication between Universities and Schools," to provide opportunities for college and school faculties to dialogue and develop shared understandings of reform, design effective, research-based interventions, and assess progress towards implementing reform strategies.
- Develop special-topic forums and institutes focused on key issues in mathematics and science teaching and learning. The first forum "Creating a Vision for Educational Technology for the Delta", co-sponsored with The Southern Technology Council, will involve local stakeholders, program partners and national leaders in technology.