

InMath Project Summary

Implementing Investigations in Mathematics (InMath) is a collaborative among Western Michigan University and more than 350 elementary teachers and administrators from six school districts in southwestern Michigan (Battle Creek Public, Holland Christian, Lakeshore Public, Portland Public, Traverse City Public, and Vicksburg Public Schools) who have recently adopted the *Investigations in Number, Data, and Space* (*Investigations*) curriculum in their endeavor to improve mathematics teaching and learning. The Investigations curriculum aligns with both state and national standards and focuses on reasoning and problem solving, requiring students to explain their thinking orally and in writing. Students are also encouraged to make sense of the mathematics they are learning and to use procedures that they understand, rather than those they may have memorized but may not fully understand.

The specific objectives of InMath include:

- Improving teachers' mathematical content knowledge, including knowledge of the technology employed by the curriculum.
- Extending elementary school teachers' understanding of the pedagogical underpinnings of the Investigations program.
- Facilitating elementary school teachers' abilities to critically analyze the process of teaching and student learning.
- Fostering the development of teacher leaders and communities of learners within and across schools.
- Supporting schools' efforts to communicate positively with the community about issues pertaining to reforming mathematics teaching and learning.

Our long-term goals include:

- Facilitating the improvement of student achievement in mathematics through the emphasis on reasoning and the comprehensive development of conceptual understanding of mathematics; and
- Facilitating the development of the structures necessary to sustain long-term professional development activities beyond the life of this project by working with individual schools to create a mechanism to ensure continued growth.

InMath achieves these objectives by offering week-long summer workshops that use investigations to extend teachers' mathematical content knowledge, case studies to encourage teachers to reflect upon effective ways to orchestrate mathematics teaching and learning, and samples of student work to promote critical analysis of the ways in which elementary students engage in mathematics. InMath also offers grade-level specific Reflecting on Teaching workshops, the purpose of which is to analyze a videotaped lesson to think about effective ways to launch a lesson, interact with students while they work on investigations, and close a lesson. Teachers and administrators in the project are committed to participating in at least 100 hours each of professional development activities over the three years of the project.

The InMath project has five key elements that contribute to its success: 1) InMath schools have all chosen to implement *Investigations*, a reform curriculum that explores mathematical topics in depth and focuses on reasoning and problem solving; 2) the approach that InMath takes to professional development is consistent with the approach that *Investigations* takes to student learning; 3) InMath acknowledges that systemic change in mathematics education requires the commitment and understanding of the communities beyond the mathematics department and school; 4) InMath takes

advantage of the unique strengths the individual schools bring to the collaborative to help in overcoming each other's weaknesses; and 5) it was the InMath teachers, mathematics curriculum committees and the administrators that made the initiative to organize this collaborative and will continue to play the dominant role in shaping the activities that InMath provides over the three years of the project.