

Improving the Teaching of Mathematics to Meet Needs of Each Child

The focus of the project is to continue to bring high level professional development to elementary and middle school teachers of the Winnisquam Regional School District (WRSD). The project will embed professional development into the classroom by providing mentorship by the university to help teachers to better differentiate instruction to meet the needs of each student. The goal of the project is to provide rigorous instruction to the students of Winnisquam Regional School District. This is in keeping with the district's Professional Development Plan's Purpose:

"Under the federal law No Child Left Behind, educators are publicly accountable for improving student performance. At the same time the diversity of learners in the classroom presents greater challenges to meet all students' learning needs. If all students are to have a chance for success, they must have teachers who teach with high standards. To do this, teachers need more support to meet the learning needs of all students and they need the tools to meet the higher expectations. Teaching to high standards requires teachers to teach in ways that differentiates the instruction for all students. Differentiating instruction means that teachers utilize different instructional strategies, lessons, and materials for students that may be in the same classroom. To plan differentiated lessons, a teacher must assess students' strengths and weaknesses, have time to analyze the assessment and plan lessons as well as orchestrate classroom management for the pacing, transition and flow of different work assignments for meeting all students learning needs. Like students, teachers must be actively involved in learning and must have opportunities to discuss, reflect upon, try out and have better instructional approaches to meet accountability measures that increase each year."

It also directly relates to the district's philosophy:

"The district's plan also enhances what our teachers are already doing in creating a learning community focused on and resulting in improved student performance through: Content knowledge, Student Assessment, Knowledge of Student Development, Use of Data, Differentiated Instructional lessons and Effective teaching strategies and techniques."

This project continues to meet the needs of the district to embed high quality professional staff development into the classroom to model research based techniques to help teachers to continue to learn new strategies that will in turn increase all students' understanding of mathematics resulting in proficient mathematicians and proficient in their understanding of concepts as assessed by NECAP.

The project will be two-fold and would begin in January 2007 by bringing our college partner into the school district's classrooms to observe, model and instruct our teachers on the teaching of mathematics. As a district in need of improvement with a weakness noted in mathematics, this would help to provide our teaching staff with strategies to successfully raise the level of student performance. The mentor would visit the classroom once a month throughout the spring to continue the discussion and review both student and teacher progress. The mentorship project would be followed up with a summer workshop in which teachers would focus on Developing Mathematical Ideas (DMI). This program helps teachers improve the way they teach the big ideas of K-6 mathematics and examines how children approach and understand mathematics. DMI is a program of seminars to help teachers learn more mathematics and improve their mathematics instruction. Seminar participants focus on classroom episodes, or cases, that illustrate students' mathematical thinking.

DMI seminars help teachers:

- Learn how to support students' mathematical thinking.
- Define and select mathematical objectives for their students.
- Recognize the key mathematical ideas that are stumbling blocks to students.
- Ask questions that enhance children's mathematical understanding.
- Analyze curriculum for its mathematical content.
- Investigate and learn more mathematical connections to share with their students.
- This DMI seminar would focus on Number Sense and Operations, an area of weakness noted on NECAP and NWEA MAP test results. Teachers would review and discuss the following:
- How to develop students' number sense and mathematical understanding with these hands-on lessons.
- Following NH GLEs review lessons that explore: place value, statistics, measurement, estimation, calculators, computation, and problem solving.