

Doing Mathematics with Teachers

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...at The Vermont Mathematics Initiative



Purpose of VMI

- ▶ Improve learning in mathematics for all students
- ▶ Build leadership capacity in Vermont schools

VMI Goals

- ▶ Improve the teaching of mathematics
- ▶ Improve teacher mathematical content knowledge
- ▶ Develop mathematics teacher leaders
- ▶ Understand and use educational research

The VMI Program

Summer 1	Math as a 2nd Language Functions & Algebra	
Fall/Spring 1	Trigonometry & Geometry Geometry & Probability	Lesson Development and Analysis Project
Summer 2	Number Theory Stats & Action Research I	Leadership Institute
Fall/Spring 2	Statistics II Algebra & Geometry	Curriculum Project, Leader- ship Impact Plan, Mentoring
Summer 3	Statistics III Calculus for K-8 Teachers I	
Fall/Spring 3	Calculus for K-8 Teachers II Capstone	Action Research

VMI was founded in 1999 by University of Vermont Professor Kenneth Gross, working with Vermont Education Commissioner Marc Hull and Norwich University Professor Ted Marsden.

Teaching teams are central to the VMI course structure. Each course has a team of about 4 instructors, including mathematicians and experienced classroom teachers (many of whom are VMI graduates).

Teaching Team



Challenges for Mathematicians

In some cases, the shallowness of K - 8 teachers' conceptual understanding of mathematics can be startling.

In a few cases, their procedural understanding is also weak.

N.B.: It's not their fault.

Some days require a lot of patience.

Many teachers are anxious, some are fearful. This can affect their willingness to take a fresh look at mathematics.

This can also affect how they view you, the mathematician, before they meet you.

More Challenges

Teachers are busy. To accommodate their schedules, and the fact that they are coming from all over the state, classes meet all day.

A full day of class, or two in a row, or five, is not an ideal setting for learning mathematics.

It's not an ideal fit into a mathematician's life, either.

Teaching as part of a team may be a big adjustment.

Some days require a lot of patience.

Good Problems



These teachers are dedicated professionals and interesting people. They know children, they interact with families; their jobs are bigger than mathematics.

I continue to learn about the K-8 (and beyond) landscape from them.

My own teaching has improved as a result of working at VMI.

Moriah and Mike



Quotes from Final Presentations

"Before VMI, I don't think my students had a good understanding of fractions when they left my classroom."

"Before VMI, I didn't realize there could be more than one way to do a math problem."

"I never want a child in my class to feel the same way about math that I did growing up."

"Now I understand the building whose foundation I'm helping to build."

"I always liked math, but now numbers are neon."

Never Do Math Alone!

