

Math-E-Motion 2001

Goals

The students will:

- * increase their confidence in learning mathematics;
- * learn mathematics concepts and procedures across all five strands of elementary mathematics (i.e., data management and probability, geometry and spatial sense, measurement, number sense and numeration, patterning and algebra);
- * see mathematics as an integral part of their lives;
- * communicate their mathematical understandings in a variety of ways (i.e., building, enacting, listening, reading, speaking, and writing).

The teachers will

- * learn about mathematics through inquiry;
- * identify and explore their own dilemmas and questions about inquiry-based teaching and learning practices;
- * develop inquiry-based teaching practices;
- * acquire mathematics teaching resources for implementing inquiry-based mathematics program;
- * increase their confidence in teaching mathematics;
- * see the different ways students learn and communicate mathematical understandings;
- * use written reflection to articulate their own learning.

Grades 6, 7, and 8 students and teachers learning through inquiry.

The Goal

Kids, teachers, and instructors strive to become more passionate, confident, and able to do, learn, and teach mathematics. Everyone's success was dependent on how well this "community of learners" could pull together and support one another's learning.

The Math Path

Students noticed that there was a very regular pattern to the facades of apartments. They began to estimate what percentage of the face of the building was glass or brick. Some even began to devise strategies for estimating the number of tenants. Other students were intrigued about the grass on the field. How many blades were there? How long was the cumulative root system?

Fermi Problems

"If I had accidentally knocked fifteen peas off my plate every night for the last eight years, they would now be level with the tabletop."

» Counting on Frank by Rod Clement

Fermi Problems

Students were challenged to create her own question to extend the storyline of *Counting on Frank*. Along with their narrative, they had to provide a full solution. These solutions included statements about assumptions, required measurements, mathematical equations, calculations, inferences, conclusions, and **what if?** and **what if not?** questions.

A trip to the Metro Toronto Zoo. Now, **what does math have to do with this?** Students found their zoo animals, sketched the habitat, made linear measurements, determined areas and volumes, and sought background information by questioning the zookeepers. On the way home, the excitement was evident and the conversations indicated how mathematics is truly all around us!

Half of the groups continued to work on the scale models while keeping clear records of the all the mathematics that they employed to carry out this task. The remaining students went to the computer lab to be introduced to geometry through the software package, *Geometer's Sketchpad*.

The students were learning mathematics through inquiry. From the very first day they were challenged to make observations, create their own mathematical questions, collect data, manipulate data, draw conclusions, make inferences, and communicate their results. This procedure was integral to the Math Path, the Fermi problems, and the New Zoo habitat activity. In terms of content, these students addressed over 20 expectations from the measurement, data management, and number sense strands of the Grades 7 and 8 curricula.

By the end of the week, 60 students, 25 teachers, and 7 instructors had become the ultimate community of learners. Every individual could provide a different and powerful example of what they had learned. It could be said that inquiry learning was at the very heart of every one of those responses.

Finally, when one asks, **“What’s math got to do with it?”** one could say that **math touches** virtually everything that is a human endeavour.