

**NETWORKS OF INQUIRY AND INNOVATION
2011-2012**

**T M ROBERTS ELEMENTARY
#05 Southeast Kootenay**

Leadership Team

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Contact

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School Context/Community

École TM Roberts School is a dual-track English/French Immersion located in Cranbrook, BC. We are the largest Elementary school in our district, with population of 340 students. We have a total of 42 adults who support our students in a variety of ways, but most directly in 16 classrooms. Our socio-economic demographic ranges from low to middle income families with many parents on shift or seasonal work. Our student population at École TM Roberts School is about 10% Aboriginal and 10% on IEP's. In order to directly support these students, we have a Youth Care Worker, Aboriginal Support Worker, two Student Services teachers, and 6 Educational Assistants. The class directly involved in this project is 18 students in a grade 2/3 multi-grade class (14 grade 2/ 4 grade 3/). In this particular class, there is one student who works one on one with an EA on an individualized education plan. There is a second student who works in the classroom on a fully modified program with limited support. Both students took part in the classroom activities based on math problem solving at their own levels. At École TM Roberts School, we have the goal to "Celebrate Learning Together". We encourage you to visit our school and become a part of our school community.

School Inquiry and Action

NUMERACY

School Question

To what extent will student achievement increase when using a set problem solving strategy to solve word problems, as measured by the BC performance standards in mathematics?

Focus of Our Inquiry

- This focus was chosen to increase exposure to problem solving in the class as teacher observation and assessment has shown math problem solving to be a weakness
- We recognized that students needed fundamental instruction in strategies for solving math problems; foundational understanding in what a problem is and the language to describe and solve the problem
- Enhance numeracy skills, specifically in the area of Problem Solving using a set framework or "plan". This is a framework on which students can solve math problems the goal being that they will successfully transfer this knowledge and skills to independent work.
- Build oral language skills - verbalizing problems solving strategies
- Students were afraid to take risks, they often said "I can't do this" or "This is too hard", we wanted to create more independent learners

Strategies

- We assessed students to create a baseline of student performance.
- Students were taught problem solving strategies through a long period of modeling, guided practice and a movement towards independent practice with as much scaffolding as needed.
- Whole class instruction consisted of eliciting the various methods students used to solve the problems

NETWORKS OF INQUIRY AND INNOVATION 2011-2012

- We realized that a strong focus on the language and vocabulary of problem solving was essential, with an emphasis on common math language and posted math vocabulary around the room.
- To start our word problems were teacher driven as skills and confidence developed students began creating their own problems.
- To increase motivation we (two Cranbrook schools) traded 1 class developed word problem every week, which was written on chart paper, this was solved as a class.
- Students were taught to use self-assessment tools such as the 5-Step Hand and Checklists.
- On-going self-assessment was completed.
- Parents were involved with weekly home communication, problems were taken home to solve with parents, and work was posted and celebrated in hallways. At the year-end students took a word problem solving “project” home. This involved solving a class generated word problem and they were asked to write one and return it. The returned problems were compiled into a booklet.

Focus on Formative Assessment

- Learning intentions: learners know what they are learning and why they are learning it.
- Self-assessment: Thumbs Up, Medium, Down (with discussion about what each gesture means and why)
- Checklist on Word Problem (read & retell, important info., picture, equation, word sentence, operation)
- Ongoing communication between collaborating teachers on student needs and successes
- Verbal and comment only feedback; lots of regular, thoughtful feedback
- Learners were in charge of their own learning
- Lots of opportunity to talk, reflect and share experiences both academic and social
- Using step-by-step framework or “plan” allowed students to organize their thinking; students were encouraged to slow down, question, and think about what they were doing

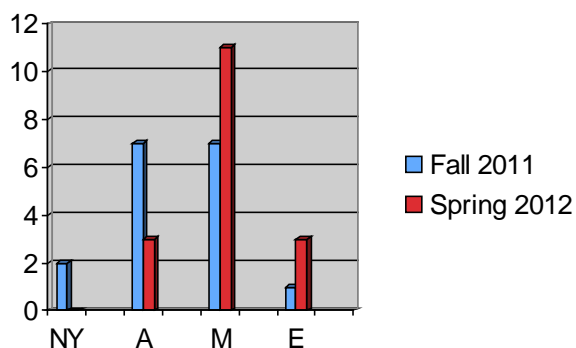
Partner School

I partnered with a teacher (Gretchen Fletcher) at Steeples Elementary School in Cranbrook and shared resources and ideas throughout the project.

School Findings

	NY		A		M		E	
	#	%	#	%	#	%	#	%
Fall 2010	3	19%	8	49%	3	19%	2	13%
Spring 2011	1	6%	3	19%	10	62%	2	13%
Fall 2011	2	12%	7	41%	7	41%	1	6%
Spring 2012	--	--	3	18%	11	64%	3	18%

NETWORKS OF INQUIRY AND INNOVATION 2011-2012



Mrs. Nielsen's Grade 2/3 Problem Solving Results

School Plans for 2012-2013

- Next year we would like to build on this year's success with this problem-solving framework. We will continue to focus on instruction that includes modeling, guided practice and independent practice.
- We will continue to use formative assessment strategies to guide our practice such as verbal feedback, self-assessment, explicit learning intention and ultimately putting the ownership for learning in the hands of the students.
- We would like to spend more time collaborating with other teams at other school who have a similar inquiry
- Ultimately we would like to include more classes with our respective schools and work towards to common plan language and "plan" throughout our school(s).
- We will create, post, and share problem on our weekly blog.

Reflections, Advice

Challenges

- The ages and developmental stages of early learners
- Time for the team to collaborate, plan and reflect when not in the same school
- A degree of learned helplessness in students was difficult to overcome
- Literacy - less skilled readers and writers struggles with word problems
- Taking the time to support the learners who continue to struggle with multi-step instruction
- Job Action prohibited inter-district collaboration

Success

- Increased problem solving skills and abilities
- Willingness to solve math problems, decreased panic
- Both groups developed a deeper sense of ownership for their learning
- Seeing student growth in the area of reading and comprehending a word problem
- Partnering with another school in Cranbrook was positive, we shared resources and ideas.
- Allows students to instantly level themselves and provides challenge because there is not just one way to solve the problem.
- We created information packets for other teachers and have promoted involvement throughout the school
- A minimum of 4 other classes within our school (TMR) have adopted the problem solving structure and are using it in their math lessons in both the English and French programs (Kindergarten to Grade 6).