

MATH ESSENTIALS AND BEYOND: CONCRETE TASKS FOR LEARNING AND ENRICHMENT

PDIG FINAL REPORT

Our Project

Our project involved practical, concrete goals. We wanted to create materials to use with students that reflected the shift in our teaching practices that resulted from mathematics training that we have experienced over the last few years.

Since embarking on a series of professional development sessions related to conceptual math, teachers participated in various experiences and gathered different resources aimed at helping students build understanding in math, as opposed to applying algorithms and memorizing procedures.

However, implementing these experiences and resources into practical lessons that we could use on the Smartboard, ipad, or on paper, took time that we didn't always have. In our classrooms, we didn't always present different aspects of concepts.

The PDIG provided time for us to write provocative questions that extend students' understanding of math concepts, help us diagnose misconceptions, and encourage math talk.

When we applied for the PDIG in the spring of 2018, five teachers chose to participate. In the fall, one teacher needed to withdraw from the project. In September, we reported this change to LCEEQ.

Team members grew to value our professional math talk. As well as our meeting days, the PDIG team members met regularly, after school and even on a Saturday.

Attaining Goals

We initiated our project, Math Essentials and Beyond: Concrete Tasks for Learning and Enrichment, with one goal in mind: putting the ideas some teachers had experienced at the Math Focus summer camp into practice. As we developed the project, these goals emerged:

- Encouraging math talk among our students
- Supporting student success
- Providing remedial math lessons
- Providing enrichment math lessons
- Encouraging math talk among teachers!
- Utilizing the diverse, high quality resources provided by our School Board
- Making the most of the math manipulatives in the building
- Increasing teacher efficiency
- Improving the flow of math instruction across the grades

The PDIG, provided time for teachers to meet, discuss, “dust off” and examine resources, and create materials. We achieved these goals.

The Math Consultant at CQSB provided examples of activities involving various manipulatives that helped students understand concepts. She shared resources that we could adapt for our clientele.

Producing Outcomes

When we applied for the PDIG, we had a clear vision about the project goals. We knew what we needed to accomplish, therefore it was easy to start the work.

We did discuss the challenges faced by teachers and our students, the materials we could use, and formats available to share our work.

We specified strands of mathematics we would investigate:

- Numeration: whole numbers
- Numeration: fractions
- Operations
- Measurement: length, capacity, mass, time, money
- Geometry: polygons, solids, motions, position
- Data management
- Probability
- Patterns

Then we began creating lessons and activities. At the beginning of every meeting, we would share materials we had created and report on how the lessons played out in the classroom. When we noticed lessons did not foster math talk, concept acquisition, or address students’ misconceptions, we refined parts of them. We tried lessons created by team members in our own classroom and reported back.

We also had time to consult some resources, written in French, available for math teachers in the province of Quebec. These resources offered some interesting math problems that inspired us to create some problems, written in English, for our students.

We stored the materials produced in folders, organized by grade level, in a public Sharepoint folder.

<https://cqsb.sharepoint.com/sites/ConceptualMath/Shared%20Documents/Forms/AllItems.aspx>

Reinvesting the Project

We chose to store materials in accessible files on a cloud service.

Teachers who participated in the PDIG, colleagues in our school, and School Board, can all use the materials. Teachers can modify the materials to meet their own needs.

As we continue to develop our own expertise as teachers of math, we can add resources to the folders. Any teacher who wishes to collaborate may add resources.

The time provided by the PDIG strengthened our ability to provide conceptual math lessons for our students, but it also helped us add to the foundation for a conceptual math approach in our school that can grow over time.