

Speaker:

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Position: Outreach Manager and Teacher Support

Title: Confidence-Building in Mathematics

Intended Audience: Elementary

Type of Presentation

Preferred: Long Presentation (60 minutes)

Description:

Math anxiety begins early on in elementary school children and travels into high school and beyond. It is hard to say how many people have been limited in their opportunities after high school by early experiences in a system that expects only a portion of students to succeed in math. Consistent declines in school test scores are reproduced in society where the Canadian Council on Learning reports that in Canada, 55% of adults lack the basic numeracy skills they need to navigate their lives.

Over the past 15 years Canadian schools have adopted the discovery based model of teaching where students are expected to explore mathematical ideas and then figure them out by themselves. The problem with this approach is that students aren't being taught the basic skills that they need to understand the concepts. And parents are frustrated because they don't understand the method of practice that their children bring home for homework. The result is huge gaps in student learning.

Unfortunately, programs of mathematics used in schools rarely take proper account of the role of confidence in learning. Researchers such as Carol Dweck inform us that students are more apt to do well in a subject when they believe they are capable of doing well. It seems clear then, that any math program that aims to harness the potential of every student should start with an exercise that will build the confidence of every student.

The proposed vignette will introduce participants to two JUMP Math confidence-building units of study: The Fractions Challenge and Addition with Big Numbers Challenge. The primary goal of these units is confidence-building. The units are designed to help students develop efficient mental math skills, become more confident about their mathematical abilities and raise the level of enthusiasm for the subject. The units have proven to be extremely effective tools for convincing even the most challenged student that they can do well in mathematics. The success experienced by students in these units will work to break down the psychological barriers faced by students, while the algorithmic problem-solving techniques teach what to look for in a question, how to structure the work and methods for organizing the answers to find a problem. (For detailed research on the effects of the unit, see the "JUMP for Joy!" report at [http://64.91.226.46/cms/research\\_reports](http://64.91.226.46/cms/research_reports).)

Background:

JUMP Math, is a complete set of resources intended to cover the curricula for grades one to eight. The approach is “Guided Discovery” where students practice inquiry in manageable steps. In scaffolded lessons students become actively engaged in generating their own knowledge and understanding. But the plans also take into account established recognition in cognitive science, that children are easily overwhelmed by too much new information, require practice to consolidate skills and concepts and benefit from immediate assessment. To learn more visit: <http://64.91.226.46/cms/philosophy>.

Note: The confidence-building units are quite distinct from the grade-level units of study. The teaching of these units is more explicit and less conceptual than in a typical JUMP Math lesson.