

PARENTS, DID YOU KNOW...?

Recently in the news, you may have heard or seen many headlines regarding Canada's poor performance on the 2012 PISA (Programme for International Student Assessment), a worldwide study by the Organization for Economic Co-operation and Development (OECD). The greatest concern for Canada is the drop in ranking in the area of mathematics. In researching for this article, I found sources, for and against, that presented arguments such as the following:

- 1) The media's report of the results is inaccurate, focusing on the 'bad angle' in an attempt to sensationalize and create reaction from the public;
- 2) The rankings are biased because some of them are based on the results from one city rather than the whole country; eg. China didn't actually enter the competition; the results from China are only based on testing done in Shanghai – the most educated, dynamic city in Asia. If all of the 15-year-olds in China had been tested, the results would have been quite different.
- 3) Countries that 'stream' students, i.e. group according to ability, can manipulate higher results than countries where students are largely main-streamed (all ability levels mixed together).
- 4) Children in many of the Asian countries spend countless hours on after-school math programs with additional homework and demand for mastery to ensure entrance into top universities.
- 5) Blame for Canada's lower performance – 'fuzzy' curriculum – too much emphasis on discovery learning and not enough emphasis on mastering math facts.
- 6) Blame for Canada's lower performance – we don't have math specialists teaching math until grades 9 – 12, so teachers of the younger grades may be under qualified.
- 7) Blame for Canada's lower performance – Universities are not keeping up with best teaching practices and are not training teachers effectively.

The list could go on and on and, if you are interested, I would encourage you to check out this topic from all perspectives.

Regardless of the real reasons why Canadian fifteen-year-olds performed lower than previously on the PISA, the fact remains that educators in our country are trying to do what is best for our children and their future. Does this mean we need to go back to mastering math facts? Certainly, that would help. Knowing math facts increases the rate at which we can perform mental math and increases self-confidence in our mathematical ability. Self-confidence reduces anxiety and enables the brain to better attack and solve problems. That is one reason why the Manitoba government has re-instated the work around learning math facts into the revised curriculum. However, memorizing math facts will not in itself prepare our students to function in the 21st century.

Mathematics on PISA 2012 was assessed through three mathematics processes: 1) formulating situations mathematically; 2) employing mathematical concepts, facts, procedures, and reasoning; and 3) interpreting, applying, and evaluating mathematical outcomes. There were four content areas: 1) quantity, 2) space and shape, 3) change and relationships, and 4) uncertainty and data. In addition questions were based on four contexts: personal, educational, societal, and scientific (The Council of Ministers of Education, Canada). As you can tell, the testing required students to make sense of math and apply it to real life situations. Work in the 21st century demands the ability to think, create and problem solve around things that may not even yet exist! This involves a very high level of thinking. That is the level of thinking our math curriculum tries to address, and we are getting there, but we don't want to forget about building a solid foundation in math. Fortunately, math facts can be practiced daily, anywhere, making it the perfect math homework and way for parents to support their children's mastery of these important skills.

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