Peterborough Victoria Northumberland and Clarington Catholic District School Board

Math Moment…

Thinking Tools for Math

Mathematicians create models with objects and drawings as they are exploring patterns and thinking their way through problems. In the same way, students of all ages and their educators, model mathematical concepts to not only share their thinking, but to help them to do the actual problem-solving. In school, we often call the objects used 'manipulatives' or 'thinking tools.' Classrooms have some very specific manipulatives for use, but a 'thinking tool' can be any object that helps to share or clarify a mathematical idea. These visual models of mathematical ideas allow us to organize our thinking, solve problems, and make connections from the concrete through to the abstract. They also support and enhance our ability to solve problems with others, talk about, write and demonstrate our thinking. As students are exploring and investigating through models and drawings, they are building their knowledge and solving problems, moving towards a deeper understanding. They are making connections between what they know in all areas of mathematics and how they see mathematics in their world. Math becomes understandable, engaging and relevant.

How can parents support?

You can support your child to use objects and sketches as 'thinking tools' to problem-solve when they do math at home. Ask the following prompting questions:

- "What might help you to think through this problem?"
- "Try showing this with objects or a sketch."
- "Can you show me what you are seeing in your mind?"

If you are looking for similar tools used in your child's classroom, please contact your child's school, as there are Math Kits available for sign out. They have been put together keeping in mind the type of learning happening in primary, junior, and intermediate (elementary and secondary).

In addition, there are virtual tools available through Mathies.ca, a website designed for Ontario K – 12 students and parents. This website includes games, learning tools, activities, and additional supports for students to explore, build and enhance their mathematical thinking. A parent 'Frequently Asked Questions' section includes: "How can I help with the learning of mathematics?", "What mathematics activities can we do together?", "What digital supports are available?", and "What additional support is available?"