

What is my child learning?

The Ontario Curriculum is established by the Ministry of Education. It defines what teachers are required to teach and what students are expected to know and be able to do by the end of each grade. It details a connected continuum of student learning, from Kindergarten to Grade 12. In addition, the secondary curriculum offers various pathways for students to support different post-secondary destinations - world of work, apprenticeship, college and university.

What is the same as when I went to school?

- ◆ Learning about numbers, operations, shapes, measures, patterns, data, relationships and algebra;
- ◆ Communicating through symbols, models, graphs and words;
- ◆ Developing skills; and
- ◆ Solving problems.

What else is happening in math education?

- ◆ More attention to understanding ideas and making sense;
- ◆ Students talking through ideas and justifying reasoning;
- ◆ Students learning through investigation;
- ◆ Using math tools such as manipulatives and technology;
- ◆ Honouring student-generated strategies;
- ◆ Students applying learning to realistic situations;
- ◆ Collaboration, cooperative learning; and
- ◆ Greater integration of math across all subject areas.

What math help is available?

Focusing on the Fundamentals of Math, Grades 1–8 —
http://www.edu.gov.on.ca/eng/parents/parent_guide_math_en.pdf

CLIPS (K–12) — www.mathCLIPS.ca

Doing Mathematics with Your Child: A Parent Guide (K–6) —
www.edu.gov.on.ca/eng/literacynumeracy/parentGuideNumEn.pdf

Ministry Funded Parent and Student Resources —
<https://math.thelearningexchange.ca/educator-resources/#section5>

TVO Mathify — <https://www.tvomathify.com/parents>

Mathies — <https://mathies.ca/>

EduGains Home Supports —
<http://www.edugains.ca/newsite/math/homesupport.html>

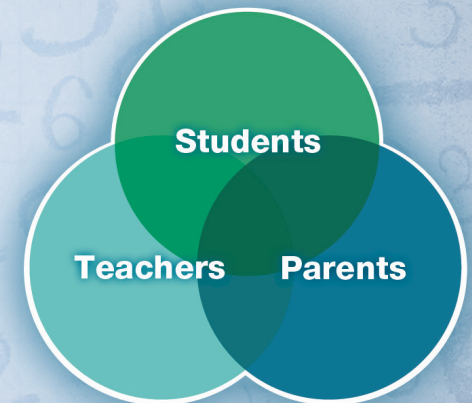
**Thinking mathematically to
make sense of the world...**



OTTAWA-CARLETON
DISTRICT SCHOOL BOARD

A Numeracy Guide for Parents/Guardians

The math children learn today is the math they need for tomorrow's world.



Partners in Learning

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"...every student should be equipped with the mathematical knowledge, skills, and habits of mind that are essential for successful and rewarding participation in society."

— The Mathematics Working Group, Ontario Ministry of Education, 2011, quoted in *Paying Attention to Mathematics Education, K-12*, p. 1

How parents/guardians can help

“Parents have an important role to play in supporting student learning. Studies show that students perform better in school if their parents or guardians are involved in their education.”

— The Ontario Curriculum Grades 1-8, Mathematics, p. 5

Listen

- ◆ Make yourself available; provide opportunities to talk.
- ◆ Ask questions; find out what is happening in math class.

Be a learner, not an expert

- ◆ Model a positive attitude towards math.
- ◆ Encourage and share your child’s natural curiosity about the world. What do you notice? What do you wonder about?
- ◆ Ask your child to teach you something.
- ◆ Resist the temptation to just show.
- ◆ Ask your child to explain his/her thinking to you.

Partner with your child’s teacher

- ◆ Find out about what your child is learning.
- ◆ Explore opportunities to talk with your child’s teacher.

Support your child as a learner

- ◆ Show confidence; believe that your child can do math.
- ◆ Know that your support can help your child.
- ◆ Focus on learning skills and work habits. Help your child to see the connection between these habits and learning.
- ◆ Provide opportunities for your child to explore and practice math.
- ◆ Encourage your child to discuss his/her learning with you and others.
- ◆ Look for connections to mathematics in your day-to-day environment. Show that math matters.
- ◆ Reward perseverance; solutions can be reached in more than one way.

Thinking and learning Mathematics

Thinking and learning go together; students think to learn, and they learn to think. An effective math program balances skills, concepts, strategies and thinking processes.

“When teaching mathematics is seen as a way of teaching people how to think its implications spread throughout the curriculum and it has a place in every class.”

— J. Richards, 2001, quoted in Capacity Building Series, Supporting Numeracy, ed. 28

The Ontario Curriculum emphasizes creative and critical thinking in all subject areas. In Mathematics, key thinking processes are articulated, and are consistent from Kindergarten to Grade 12.

Thinking Processes	Example of student thinking
Reasoning and Proving	2/3 of an object is bigger than 1/4 of the same object because 2/3 is larger than a half, and 1/4 is less than a half.
Reflecting	My answer doesn’t make sense. Where did I make my mistake?
Connecting	This problem is similar to one I’ve solved before.
Selecting Tools and Strategies	I’m going to choose a spreadsheet to help me solve this problem.
Representing	I’m going to represent this situation using a graph to illustrate my conclusion.
Communicating	I can respond clearly with sufficient detail so my thinking can be understood.
Problem-Solving	This gives me an opportunity to try different techniques and strategies.

A balanced program involves both problem solving and practice

Problem solving:

- ◆ Connects math to the world;
- ◆ Helps math make sense;
- ◆ Engages learners; and
- ◆ Develops flexible thinking skills.

Purposeful practice:

- ◆ Improves fluency and accuracy;
- ◆ Helps students remember concepts, facts and procedures; and
- ◆ Helps students learn to communicate mathematically.

Determining Instructional Approaches:

- ◆ Includes guided/direct instruction;
- ◆ Rich learning contexts to develop conceptual and procedural understanding; and
- ◆ Involves large group, small group, and independent learning.

Building Skills and Competencies (Basic Facts and Operational Skills):

- ◆ Supports efficiency and ability to judge “reasonableness” of a solution in mathematics;
- ◆ Involves understanding why a fact or procedure makes sense and how it connects to other concepts and skills; and
- ◆ Develops fluency and understanding.

Using Resources Thoughtfully:

- ◆ Informed by curricular expectations and responsive to student learning needs.
- ◆ Textbooks, manipulatives, technology, media and professional materials (e.g. Guides to Effective Instruction, TIPS, Edugains, etc.) are all valuable resources.

