

## Communication in math

*For parents of students in the primary and junior grades*

Mathematical communication is an essential process for learning mathematics because through communication, students reflect upon, clarify and expand their ideas and understanding of mathematical relationships and mathematical arguments. (*Ontario Ministry of Education, 2005*)

### What is communication in mathematics?

Communication is a vital process needed in developing mathematical understanding and in developing language skills.

Communication-rich environments help students extend their thinking and encourage a range of literacy and numeracy skills that help students consolidate their learning.

### Categories of Mathematical Communication

- expression and organization of ideas and mathematical thinking (e.g., clarity of expression, logical organization), using oral, visual, and written forms (e.g., pictorial, graphic, dynamic, numeric, algebraic forms; concrete materials)
- communication for different audiences (e.g., peers, teachers) and purposes (e.g., to present data, justify a solution, express a mathematical argument in oral, visual, and written forms)
- use of conventions, vocabulary and terminology of the discipline (e.g., terms, symbols) in oral, visual, and written forms

(Ontario Ministry of Education, 2005, p. 23)

### What can you do to develop your child's mathematical communication?

It takes ongoing effort by students, parents and teachers to create learning opportunities where communication skills are developed, refined and built upon. You are an important partner in this process.

- **Make thinking tools and visuals available.** Manipulatives and hands on materials help facilitate communication by providing a point for talk about mathematical thinking. Ask students how models or objects help them solve a problem or think of a problem differently. Invite your child to use a thinking tool to solve a problem or show their thinking.
- **Talk.** Help your child understand their homework by talking about what the question is asking them to think, decide and do. Clarify their understanding of vocabulary, use your native language as a resource to activities prior knowledge and make connections between words with similar linguistic origins. Below are several talking strategies commonly used by teachers to help students share their thinking .

### Talk Moves

- 1. Revoicing** – Repeating what your child has said and then asking for clarification.
  - *So you're saying is that...*
- 2. Repeating** – Asking your child to restate someone else's reasoning.
  - *Can share another strategy someone else in the class used?*
- 3. Reasoning** – Asking your child to apply their own reasoning to someone else's reasoning.
  - *Do you agree or disagree and why?*
  - *Can you repeat what he just said in your own words?*

- Can you say more about what \_\_\_\_\_ said?
- What did s/he mean by...?
- Can you give an example of what was said?

**4. Adding on** – Prompting your child for further participation.

- *Would you like to add something more to that?*
- *How could you take the idea a little further?*

**5. Waiting** – Provide time to think.

- *Take your time ... We'll Wait*
- *Write your thoughts down*

**Source:** Adapted from Chapin, S.H., O'Connor, C. & Anderson, N.C. (2009). Classroom discussions: Using math talk to help students learn, Grades K–6.

- **Ask effective questions in your first language or in English and engage in your child's thinking process.**

- What do you need to find out? How do you know?
- Tell me what you know about the problem.
- What models could you use to show your thinking?
- Explain why you chose to solve the problem using...
- What academic vocabulary can you use to share your thinking and decision making? What do those words mean? How else can you explain them?
- Does your answer make sense? How do you know?
- Can you rephrase or restate the problem and what you did to solve it?
- Explain what you did and why.
- How is your thinking similar to or different from...

- **Support communication.** Set aside time to talk to your child about mathematics, set learning goals. Discuss strategies that they find effective to solve problems and ones they may consider to help them in the future.

## Useful Websites

- [www.edu.gov.on.ca](http://www.edu.gov.on.ca)
- [www.eqao.com](http://www.eqao.com)
- <http://mathonline.peelschools.org>
- **Doing Mathematics with Your Child**, Kindergarten to Grade 6  
[www.edu.gov.on.ca/eng/literacynumeracy/parentGuideNumEn.pdf](http://www.edu.gov.on.ca/eng/literacynumeracy/parentGuideNumEn.pdf)
- The importance of home languages, with reference to the work of Dr. Roma Chumak-Horbatsch.  
[www.ryerson.ca/mylanguage/](http://www.ryerson.ca/mylanguage/)
- ABC 123 - tips to help children with reading, writing, math and homework, as well as other resources for parents in a variety of home languages  
[www.edu.gov.on.ca/abc123/](http://www.edu.gov.on.ca/abc123/)
- Helping Your Child with Reading and Writing: A Guide for Parents.  
[www.edu.gov.on.ca](http://www.edu.gov.on.ca)

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