

# Inspiring Your Child to Learn and Love Math

## Resource Guide



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## Introduction

*“Parent engagement matters. Study after study has shown us that student achievement improves when parents play an active role in their children’s education, and that good schools become even better schools when parents are involved...”*

*Ministry of Education, “Parent Engagement”*

This Parent Tool Kit was created specifically for parents of children in the elementary grades (junior kindergarten to grade 8) in Ontario. The goal of this resource is to provide parents with the most essential, research-based information to help them be the best, most knowledgeable and most confident supporters for their child’s mathematics education.

This Tool Kit is unique because it provides facts and strategies

not found in other parent resources in Ontario. It includes a number of distinct elements: print resources, fact sheets, workshop materials, and videos organized into modules based on grade levels.

How you use this Tool Kit is up to you. You might choose to read the print materials in the five stand-alone modules from front to back. Perhaps you will use them as a reference guide to answer specific questions. Or

# Introduction (continued)

maybe you have time to read only the fact sheets, which highlight key information from each module. A visual learner might begin by watching the overview videos that feature highlights from each module. The videos can be found on the Tool Kit's website.

You might also want to share the Tool Kit with other parents in your community who are struggling to find the information they need to help their children navigate the K-8 mathematics program. You can do so by using the workshop planning guide to host a parent information evening at your

local school. However you choose to use it, this Tool Kit will undoubtedly help strengthen your knowledge and understanding. It emphasizes the many ways in which you play an important role in your child's education, and the fact that your child will be able to succeed in mathematics with your help and support.

The contents of this Tool Kit are available online. They can be reviewed and downloaded by going to:

[ontariodirectors.ca/parent\\_engagement.html](http://ontariodirectors.ca/parent_engagement.html)

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# Module Three



Primary (Grades 1, 2, 3)

## Making it Count

This module covers the following topics:

- The foundations of learning
- Establishing homework routines
- Preparing for homework
- What to expect in your child's math homework
- The learning journey
- Math in everyday activities
- When there is no homework

# The foundations of learning

We all know that reading, writing, and speaking are fundamental skills that affect future success in school. Children who do not read well by the end of third grade are four times more likely than skilled readers to leave school without a diploma.

Math skills are also important indicators of long-term success in school. Every math concept that your child learns in the primary division (grades 1, 2, and 3) will form the basis for all future math studies.

## Some fundamentals of math that students learn in primary division include:

- \* Math vocabulary—words such as “perimeter,” “pyramid,” and “prism.”
- \* Decoding symbols— degree  $^{\circ}$ , greater than  $>$ , less than  $<$ , divided by  $\div$ .
- \* Deconstructing numbers—in 247, the “2” stands for 200 and the “4” stands for 40.
- \* Describing the characteristics of two-dimensional and three-dimensional shapes—number of edges, sides, and faces.
- \* Reading number sentences —“ $3+3=6$ ”; “ $4+1=3+2$ .”
- \* Measuring—length, time, temperature.
- \* Reading grid maps.
- \* Sorting, making, and identifying different kinds of patterns—●○◆◆◆●○◆◆◆
- \* Identifying fractional parts of one whole —  $\frac{1}{12}$  pan of brownies or  $\frac{3}{4}$  hour.

Even though it is not easy to remember what we knew when we were seven years old and what our own “math learning journey” felt like, we can still be a positive influence and guide our children on their math learning journeys!

### By the numbers...

Data from Ontario’s Education, Quality and Accountability Office (EQAQO) show that students who do not meet the provincial education standard early in their schooling—in either grade 3 or grade 6, or both—are more likely to have difficulties in grade 9.

## Establishing homework routines

Arrange for your child to do homework in the kitchen or dining room—close to you as you prepare dinner or do other household tasks.

The room should be free of distractions during homework time. This includes computers and other electronics, unless they are specifically part of the task.

Show an interest in what your child is learning.

Talk about and help with (but do not do) your child’s math homework.

# Preparing for homework

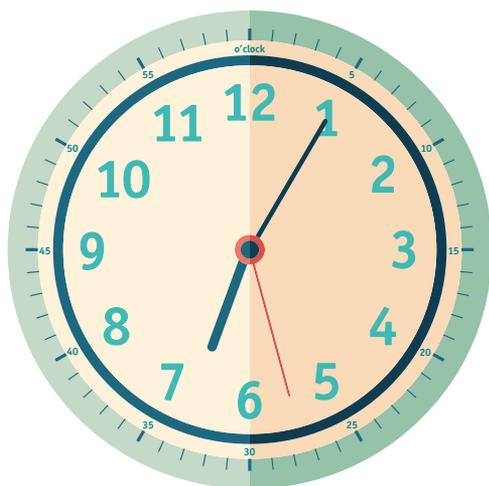
Turn a “junk” drawer into a “homework” drawer so that your child has everything needed to complete assigned tasks. Fill the drawer with pencils, erasers, graph paper, scissors, beads or other counters, glue sticks, rulers, string, coloured pencils or markers, and a calculator.

As much as possible, your child should do homework at the same time every day.

It is important for your child to recognize the start of “homework time” on the clock and be able to tell you how many

minutes have passed since they began the assigned tasks. Seeing an analog clock as well as a digital clock can help your child understand how time is measured.

You can display an analog clock, as shown. You can even make an analog clock from an inexpensive clock kit using a foam plate and construction paper. This way, your child can “grow” into the clock.



Use refrigerator or pantry doors as a home bulletin board. You and your child can create “word walls” by writing on, then posting scrap paper or sticky notes. You can change the words to match the topic your child is studying at school. File away old words in homework scrapbooks for future reference.

### **It’s time to tell time!**

At first, children learn the hours (the numbers “1” to “12”).

They might become confused when they learn about “five after three,” but see the minute hand pointing to the “1” on the clock. This introduces a second layer of information: how the numbers “1” to “12” align with the numbers “1” to “60.”

Learning to tell time is also a good way to learn the five times-table. The clock’s second hand can be added as the child gets better at telling time and learns about seconds.

## **What to expect in your child’s math homework**

Many assignments ask students to show their work, explain how they arrived at the answer, and explain how they know their answer is correct.

Homework often involves drawing pictures and diagrams and using different kinds of objects.

Making mistakes is part of learning. For example, when children see an expression such as "7 + ? = 10," they often respond "17," because they think the problem is asking "What is 7+10?" instead of "7 plus what missing number equals 10?"

You can support your child's learning by asking if the answer is correct and how they know.

Reassure your child that it is OK to make mistakes. If your child becomes very frustrated or loses confidence, stop. Ask them to tell you about the things they can do successfully. Remind them that they have learned many things that have required patience and practice, such as riding a bicycle, writing a paragraph, or playing a musical instrument. Tell your child that you have made

mistakes too, but you learned from them. Help your child to see that it is important to do this math problem, even if it is difficult.

You are likely to see your child completing a two-digit arithmetic question by adding from left to right and recording a solution that looks like this:

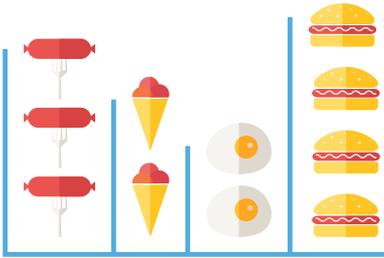
$$\begin{array}{r} 67 \\ + 24 \\ \hline 80 \\ 11 \\ \hline 91 \end{array}$$

This might not look like the way you learned to add, but it is an appropriate method for children in the primary division. Ask your child to explain the process to you. Just as children learn to

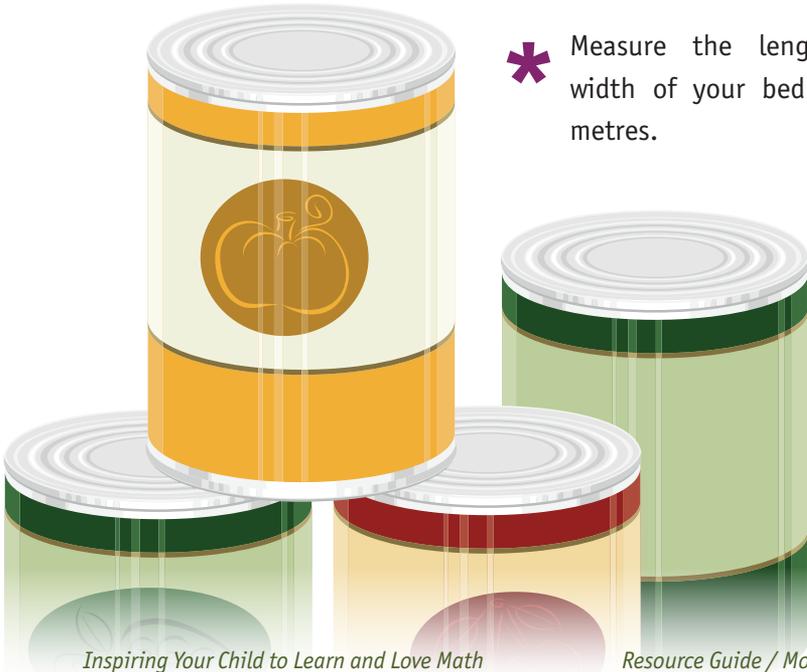


talk before they can read or write, they must talk about math before they are able to explain it. Asking your child to teach you “their method” is an excellent way to reinforce learning and for you to understand more about current teaching methods.

Your child’s homework might be based on a real-world task. These assignments make math more concrete. They also encourage children to use number facts. Sample real-world questions:



- \* How many rectangular prisms (cereal boxes) or cylinders (soup cans) can you find in your house?
- \* Graph the favourite foods of your family members.
- \* How many outfits can be made from three shirts and two pairs of shorts?
- \* Measure the length and width of your bedroom in metres.



\* There is a good chance that your child will be expected to draw a math solution. Ask them to explain the diagrams to you so you understand their process. The teacher will probably expect them to show the answer in more than one way and verify that the answer makes sense. You should expect them to do the same.

\* Then we work on timing and connecting the notes.

\* After practice, practice, practice, we can play a song!

In the primary division, children are learning the equivalent of mathematical notes and scales. They become familiar with the basic tools and symbols of math, and then practice their skills to develop confidence and competence.

## The learning journey

Learning math can be like learning to play the piano. Both activities involve many steps:

\* First, we learn to recognize musical notes—the ABCs of music.

\* Next, we become familiar with the piano keys. We play some “do-re-mi”s and learn the notes of a simple tune.

## Examples of primary math lessons

Subtraction and division (equal shares) are taught at the same time as addition and multiplication because they are “inverse operations.” In other words, each operation reverses the other.

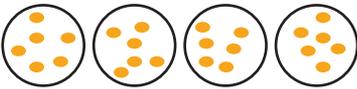
$$7 + 3 = 10 \text{ and } 10 - 3 = 7$$

$$7 \times 3 = 21 \text{ and } 21 \div 3 = 7$$

You can expect to see diagrams like the ones below.

$$6 \times 4 = 24$$

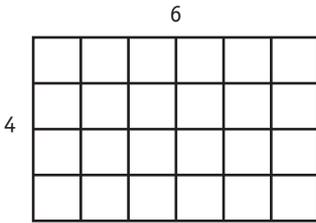
Repeated Groups Drawing



bags of lemons

$$4 \times 6 = 24 \quad 24 \div 4 = 6$$

Area Model



$$4 \times 6 = 24$$

You can act out these lessons using paper plates and beads, paper and pencil, file dots and graph paper, and graph paper and ruler.

It is important to remember that you have enormous influence on your child's attitudes, confidence and achievement as they go through the steps of their own learning journey.

## Math in everyday activities

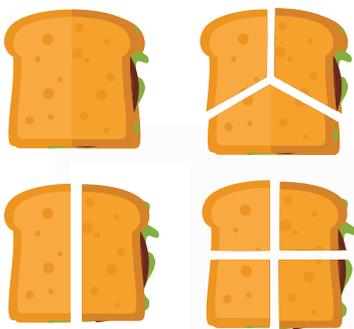
There are many opportunities to do math together in ways that are non-threatening and fun.

When you take one dozen eggs out of the refrigerator to bake a cake with five eggs, ask your child how many eggs are left in the carton.



When you are in the kitchen preparing dinner or baking goodies for the class party, let your children help. Reading a recipe and measuring ingredients with the right tools are important math skills and provide wonderful experiences with fractions!

Although many recipes do not use metric, it is still important to understand the relative size of measures and how to double or divide the quantity of ingredients in half based on the final product.



## When you make snacks or lunches, ask simple questions:

**Question:** “How many ways can a regular sandwich be cut into fourths?”

**Answer:** “Three” (four squares, four triangles, or four rectangles).

It can be confusing for children to understand that one third ( $\frac{1}{3}$ ) is larger than one fourth ( $\frac{1}{4}$ ) in spite of the fact that the number “4” is greater than the number “3.” Preparing sandwiches can be an excellent visual lesson about the relative sizes of fractions.

## The kitchen can also be a good place for children to learn about estimation:

- \* How many grapes will fit into my lunch box?
- \* Which contains more: 250 g of peas or 250 g of corn kernels?
- \* How many minutes does it take to cook eggs?
- \* How many glasses of milk do I need to drink to get the required daily amount?
- \* Is that amount more than or less than one litre?

## When there is no homework

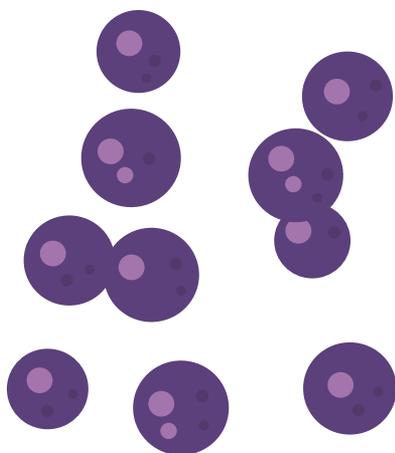
On days when your child does not have math homework, resist the temptation to pull out flash

cards to see how well they have memorized basic facts.

Fast-paced flash card games may cause students to suffer in two important ways. Research has shown that:

For about one-third of students, timed testing represents the beginning of math anxiety.

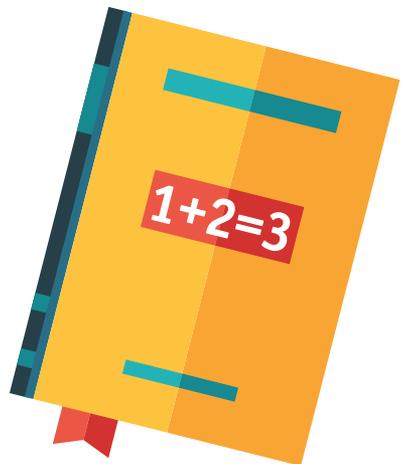
When students are stressed, such as when they are doing math questions under time pressure, the working memory section of the brain becomes blocked and they cannot access math facts, even the ones they know already!



When students realize that they can't perform well on timed tests, they can become anxious and lose confidence in their math abilities.

**"Homework-free days" are perfect opportunities for you and your child to:**

- \* Read a book with a math theme, then talk about what your child learned.
- \* Play simple math games together, such as "Double Digit," or use tangram pieces to create pictures. See the primary workshop for instructions.
- \* Make learning aids, such as place value tents and fraction strips. See the primary workshop for instructions.
- \* Work with coins and money. Young children are often confused by money because the sizes of coins do not match the values. For example, a dime is the smallest coin, but it is worth more than a nickel. Our monetary system has countless different ways to group. For example, one loonie can be made with four quarters, ten dimes, or twenty nickels. Two dimes and a nickel can make a quarter.



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