

A Parent's Guide to the Fundamentals of Math

Grades 1 to 8

Making sure that students have a strong understanding of the fundamentals of math is one of the best ways to prepare them for success, now and in the future. What students learn today will help best position them to solve everyday problems and to increase their employability in tomorrow's economy.

As students progress through elementary school, they will develop their ability to think mathematically, learn about different concepts and relationships, and to apply their knowledge. Key concepts include addition, subtraction, division, and multiplication, which will help to set the stage for more advanced skills, including algebra, and working with integers and decimals, among others.

By developing a strong understanding of numbers, students will be able to perform mathematical calculations quickly and accurately – whether they do so mentally, on paper, or by using a calculator. The ultimate goal is for them to be able to perform mathematical procedures with ease. This skill will also support students as they develop their skills in critical thinking and problem solving.

Ontario's publicly funded schools are focusing on the fundamentals of math. This is an overview of what Ontario students in Grades 1-8 are learning in math, and how you can support your children's math learning at home.

Fundamental math skills from Grades 1 to 8

Most students learn math facts gradually over a number of years as they build their knowledge and confidence in their own ability to do math. The chart below provides examples of some fundamental math concepts and skills that students are expected to learn in elementary school by the end of primary grades (1-3), junior grades (4-6), and intermediate grades (7-8).

By the end of Grade 3, students will:

- Show understanding of and the use of whole numbers to 1000, i.e., 0, 1, 2, 3... 1000,
- Count forwards and backwards from 1000
- Use coins and bills to count and make change up to \$10
- Add and subtract numbers to 1000
- Recall and use multiplication facts to 7×7 , and related division facts, e.g., $49 \div 7$
- Understand the relationship between 1 whole and parts of 1 whole as fractions

By the end of Grade 6, students will:

- Show understanding of and the use of whole numbers to 1 000 000 and decimal numbers to thousandths (e.g., 0.001)
- Count by tenths, hundredths, and fractional amounts
- Read money up to \$1000 and represent it using bills and coins

- Add and subtract whole numbers and decimal numbers to thousandths
- Use multiplication and division facts to multiply and divide:
 - ◆ 4-digit whole numbers by 2-digit whole numbers
 - ◆ decimal numbers to tenths by whole numbers
- Understand equivalent fractions (e.g., $\frac{2}{4} = \frac{1}{2} = \frac{2}{18}$)
- Understand the relationship between fractions, decimals and percents
- Use and apply ratios and unit rates (e.g., use a water to sugar ratio of 4:1 to make syrup)

By the end of Grade 8, students will:

- Show understanding of and the use of any whole number and decimal number
- Work with money as an application of decimals, fractions, percents, and rates. For example, calculating the total cost of an item, including tax
- Add, subtract, multiply and divide combinations of whole numbers, decimal numbers, and integers, using the order of operations (e.g., $(2 - 5)^2 - 0.8 \div 2 = 8.6$)
- Add, subtract, multiply and divide fractions
- Use equivalent forms of a number (decimals, fractions, percents) (e.g., $\frac{3}{4} = 0.75 = 75\%$)
- Solve problems involving ratios, and rates, e.g., calculate the most economical way to purchase 125 songs, if 25 songs cost \$7.99 and 50 songs cost \$10.45

Why math skills are important

We all use mathematical concepts in everyday activities, without even thinking about it. Every day, we are making correct change when shopping, estimating how many cans of paint are needed to paint a room, measuring ingredients when cooking, or calculating the tip on a restaurant bill. Fundamental math skills are also foundational to other aspects of the math curriculum, such as determining area, volume or rates. These are the skills we use when determining how much tile is needed for a new floor, or determining the more economical way to purchase music online – for instance, is it a better deal to buy 24 songs for \$7.99, or 50 songs for \$10.45?

How can you help?

Math is everywhere, and you can help your children make connections between what they are learning in school and everyday experiences at home and in the community, such as at the store, cooking at home, or managing money.

Here are some ideas about how math can be part of your regular day-to-day routine:

- **Math games** – Math puzzles and games can show that math is fun. They also require trial-and-error thinking, enhance numeracy and logical thinking, and promote discussion.
- **Math on TV** – Watch educational television programs. Many offer websites with activities to do together, including free games, apps, math crafts, and songs.
- **Math at the grocery store** – You can talk to your child about how to weigh fruit on a scale or how to estimate the total cost of items as you fill your cart.
- **Math with money** – Help your child manage money by creating a budget together or saving to make a special purchase. Or you could go shopping together and help with estimating the amount of a purchase, calculating the tax and checking the change.
- **Math in computer games** – If your child enjoys the computer, introduce them to fun and educational web-based games and activities.
- **Math in the kitchen** – Bake, cook and prepare food with your child. There are many great math opportunities in the kitchen, such as measuring ingredients.

By making math a priority and finding ways to help your child with math at home and in day-to-day life, you are helping to inspire a love of learning, and a better understanding of math.

Ontario is committed to working with parents, teachers and students to focus on the fundamental skills and concepts of math to help improve students' performance in math.

For more information and resources on how to help your child with math at home, please visit:
http://www.edu.gov.on.ca/eng/parents/min_math_strategy.html

Additional resources include:

- Doing Mathematics with Your Child –
<http://www.edu.gov.on.ca/eng/literacynumeracy/parentGuideNumEn.pdf>