

# THAT'S NOT HOW I LEARNED MATH!

## HOW IS MATH TAUGHT THESE DAYS?

Parents have observed that the way their children are learning math is very different from how *they* learned math. Many of the math programs offered in schools today differ from the traditional approach of math instruction which emphasized computation skills (addition, subtraction, etc.) and rote memorization of facts and formulas. Now, math facts are taught so that they can be used to solve problems, but are not always an end in itself.

Many educators are teaching students how to reason and to use logic when solving "real-world" problems that are relevant to students' lives. Students are learning how to apply mathematics to everyday situations and make decisions based on their knowledge of mathematics. They are learning to communicate, both orally and in writing, how they solved problems. Using hands-on manipulatives or visual aides (blocks or pictures) to make sense of mathematics is encouraged in many classrooms. It is acceptable for students to solve problems in different ways so long as they can explain their logic behind their methods. In essence, students are being taught how to **think mathematically**.

## EXAMPLES OF "REAL-WORLD PROBLEMS"

- noticing and understanding patterns
- estimating
- figuring out how much to tip (percentages)
- determining which is more economical: buying a six pack of soda or a 2-liter bottle (unit price)
- measuring and weighing
- using graphs to interpret data
- calculating discounts, tax, or change when shopping (money)
- understanding timetables and schedules
- calculating distance
- budgeting for holiday shopping
- balancing a checkbook
- calculating how much a car will really cost after financing, or how credit cards interest rates affect debt.



## A CAUSE FOR WORRY?

Parents are naturally concerned that their children are not learning one of the "Three R's" or that what their children are learning has not prepared them for the "real world" which requires the ability to work with the basic math facts. However, the authors of the current math programs argue that students need to learn to think mathematically to understand the basic concepts of mathematics. Most experts agree that thinking mathematically is critical to learning and understanding mathematics.

The National Council of Teachers of Mathematics (NCTM) has created a series of standards for mathematics programs. These standards focus on problem solving and using mathematics functionally. While facts form the basics of math, equally important are the application of those facts, the choice of skills used in solving problems, and use of prior knowledge. The major math programs offered in schools focus on meeting these standards.

## ENCOURAGING CHILDREN TO THINK MATHEMATICALLY

Parents can help their children by focusing on the purposes and functions of math. Of primary importance is the use of mathematics in the real world. Measurement, purchasing, and designing are the most common uses of math in everyday life. Parents should encourage their children to recognize patterns, estimate quantity, and evaluate quality. A strong familiarity with distance, location, direction and similar skills is important.

Our society has become far more data driven. We are asked to interpret numbers, respond to complex data sources, and make decisions based on those sources. Mathematics is used in everyday life to understand information.

Parents can help their children in this area by discussing the information they hear and see. Giving children experiences in evaluation of information and application of that information to their own lives in critical in developing interpretive skills. A trip to the supermarket involves numerous mathematical skills. Parents should take advantage of these daily occurrences to stress the importance of math and the interrelationships of diverse math skills.

## ADDITIONAL WAYS TO SUPPORT STUDENTS' MATH LEARNING

✓ Attend parent-teacher conferences, family math nights, and other school events. Find out which math concepts will be taught for the grade level. Ask educators for suggestions on how to support math learning at home.

✓ Encourage youth to persevere when they are having difficulty completing math homework. Urge them work through difficult problems by checking their notes from school or by rereading explanations in their math textbook. Encourage them to draw a picture or to use manipulatives to solve problems. Have them explain their answers to you. If their answer is way off-base guide them by asking, "Do you think that answer makes sense?"



✓ Remember that all youth can learn mathematics. Avoid making statements such as "math is not your strength" or perpetuating myths such as, "boys are better at math." Instead of talking about bad math experiences from your youth, discuss how math is important. Show them how you use math, for example, when paying bills, calculating interest, cooking, or measuring fabric.

✓ As children progress through school, make certain they continue to take challenging math classes.

✓ Become familiar with the NCTM standards, and the Massachusetts Curriculum Frameworks, for mathematics for each grade level. Visit [www.nctm.org](http://www.nctm.org) to download the NCTM standards or call their headquarters in Reston, VA at (703) 620-9840. The Curriculum Frameworks can be found on the Massachusetts Department of Education Website at [www.doe.mass.edu/frameworks/current.html](http://www.doe.mass.edu/frameworks/current.html). To order by phone, call 617-727-2834 (Boston area) or 413-784-1376 (Western Massachusetts).

## OTHER HELPFUL LINKS:



- <http://www.math.com>
- <http://www.pbs.org>
- <http://www.wrightgroup.com>