

Just for Math Trailblazers Families

An Introduction for Families

Math Trailblazers

A Mathematical Journey Using Science and Language Arts

A TIMS® Curriculum from the University of Illinois at Chicago

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A curriculum for your children

The mathematics curriculum being taught in many schools today is very similar to the curriculum that was taught when the parents, grandparents, and even great-grandparents of today's school children attended school. Many of the math skills in that curriculum remain important today. But the world has changed considerably since the time of our grandparents. Advances in technology have created many other essential math skills that your children will need when they complete their formal schooling and enter tomorrow's work force. The National Council of Teachers of Mathematics recognized these needs when, in 1989, it made a series of recommendations for updating math instruction in U.S. schools. *Math Trailblazers* was developed to reflect these national recommendations.

Math Trailblazers will prepare students to:

- know and apply basic math skills;
- solve problems using many different strategies;
- be independent thinkers;
- reason skillfully in diverse situations;
- effectively communicate solutions to problems and methods for solving them;
- work alone and in groups to solve problems.

Math Trailblazers was developed and tested over a six-year period by a team from the Teaching Integrated Mathematics and Science (TIMS) Project at the University of Illinois at Chicago. Using the results of educational research and over 15 years of previous experience in curriculum development, the TIMS Project has written an innovative program that will prepare your children with math skills needed for the 21st century.

What is in the *Math Trailblazers* curriculum?

Math Trailblazers is a comprehensive curriculum that maintains a balance between the development of math concepts and basic skills. Students apply basic math skills while working on meaningful and challenging tasks. The math content of the traditional math curriculum is studied; but other topics—estimation, geometry, measurement, patterns and relationships, algebra concepts, and statistics and probability—are investigated at an appropriate level in each grade.

The curriculum includes different types of lessons:

Activities--explorations of math concepts and skills that use a variety of tools and methods.

Labs--extended investigations that use a simplified version of the method scientists use.

Daily Practice and Problems--items that provide practice in math skills and concepts.

Games--math games that build familiarity with math skills and concepts.

Adventure Books--illustrated stories that deal with math and science ideas.

Assessments--activities that allow the teacher and student to assess progress.

What is a *Math Trailblazers* classroom like?

When you walk into your child's *Math Trailblazers* class, you will probably notice that it does not look like the mathematics classroom you experienced when you were your child's age. Children might be working in groups, rolling cars down ramps, dropping water onto paper towels, or pulling jellybean samples from bags. As they work, children discuss different ways to solve problems. The room is filled with a feeling of excitement and discovery.

In a *Math Trailblazers* classroom, children are:

- learning mathematics by using it to solve many different kinds of problems;
- drawing on their own experiences and working with real-world problems;
- using concrete objects to understand abstract mathematical concepts;
- communicating mathematical ideas to their peers and teacher;

- gaining confidence in mathematics and developing an "I can do it" feeling.

What connections does *Math Trailblazers* make with other school subjects?

In *Math Trailblazers*, children learn mathematics, in part, by applying it in many different contexts. This makes mathematics meaningful for students and models the way mathematics is used outside of school. Science investigations are used often in *Math Trailblazers* to provide a context for learning and applying mathematics. Children design experiments; collect, organize, and graph data; and analyze experimental results in much the same way scientists do. Measurement of length, area, volume, mass, and time is done repeatedly within the context of scientific experiments. This strong connection with science engages students in rich problem-solving activities and introduces students to the tools and methods scientists use.

Math Trailblazers also has many connections with language arts--communication of math ideas in writing and orally are an integral part of every lesson. Children write journal entries, record data, and share ideas. They also read children's books and TIMS Adventure Books that connect with many class lessons. As children communicate their methods for solving problems and justify their answers, they better understand important math concepts. Their writing and other communication skills also improve.

Why is my child using calculators with *Math Trailblazers*?

The calculator is a tool used in appropriate situations to help your child explore number ideas and relationships, solve more complex problems, and explore mathematics on his or her own. The use of calculators is supported by the National Council of Teachers of Mathematics.

How can parents talk with their children about math?

Your child will have a lot to share with you about mathematics. Here are some conversation starters to help your child communicate what he or she is doing in mathematics:

- What problems did you solve in math today? How did you solve the problems? Are there other ways to solve that same problem?
- Did you use any special materials in math today? What were they? How did you use them?
- Did you measure anything in school today? What did you measure?
- Did you collect data in math today? How did you record the data?
- Did you hear a math story today? Please tell me the story.

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