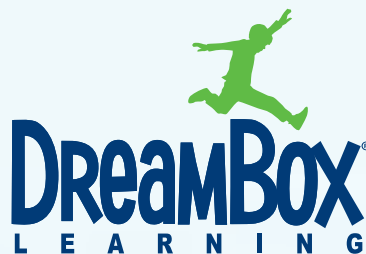


Helping children be successful in math.

A homeschooler's guide to math learning
from DreamBox Learning



Introduction

Expectations for our children's math literacy are high. Math is now the gateway to some of the most critical jobs, and changes in the workplace have created changes in education. For homeschooling parents, it's now more important than ever to ensure your children have a strong foundation in math.

The National Mathematics Advisory Panel has recognized that math education in the US needs improvement.¹ To provide students with a strong foundation and help develop reasoning and problem solving, the panel recommended that students need:

1. Understanding of the basic math facts, including fluency with whole numbers and fractions
2. Opportunities for exploration and discovery
3. Automaticity (automatic recall)
4. Fluency with mental arithmetic

Read on to understand how homeschoolers can achieve these goals!



It starts at home

Homeschooling parents can help their children become math literate and well prepared for success in a changing world by:

1. Fostering a positive learning environment
2. Exploring the math in everyday activities
3. Tuning in to how children think - their ideas are important!



What is numeracy and why is it so vital?

Math literacy, or numeracy, is proficiency and confidence with numbers and measures.

When students develop a strong math foundation, including understanding of the basic math facts, automaticity, and fluency with mental math, they benefit from:

- The tools and the skills to analyze and solve problems logically
- Better reasoning ability
- Mental flexibility
- Independence of thought
- High self-confidence
- The ability to persevere



Begin learning math early

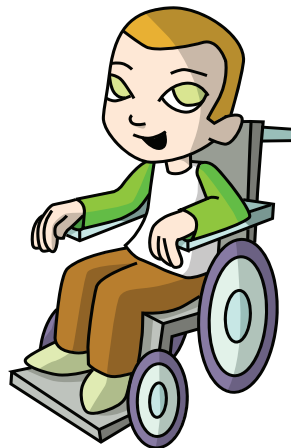
Many parents focus on early literacy to give their child a head start on academic success. But did you know that early math learning is at least as important?

A study of level K-5 students examined links between early math, reading, and other factors, and later school achievement.² The surprise in this report?

Early math skills were the best foundation for later academic success!

- Even more important than reading skills, children who started with early math skills performed better academically than other children through the years.
- This is based on many measures of academic achievement, including test scores.

Want to add books to your homeschool curriculum that help teach both reading and math? Get the free download: DreamBox Read and-Learn-Math List (www.dreambox.com/read_and_learn_math).



How children feel about math is critical

Our children need early math as the foundation for learning higher-level math later. To do that, they need to develop confidence. Recent brain-mapping research shows that a big part of students' willingness to take college-level math is connected to how they view themselves as learners.

It's not just lessons that need to change. It's also our attitudes.

When parents say they “weren't good at math either,” children assume math is a talent they don't possess.³

This is not true!

By encouraging early math learning, in the same way we support early reading, homeschooling parents send a positive message that can influence student attitudes. A supportive family helps children develop confidence in their own abilities.⁴



What can homeschoolers do to encourage a positive attitude towards math?

Some kids walk and talk sooner or later than others. Everyone develops at their individual pace, and math learning is no different.

A positive outlook toward math starts with attitude:

- Form realistic expectations about your child's progress.
- Understand that both teacher and parent, your position on math has a direct influence on your child.
- Value and reinforce your child's positive emotions about math.



Can I model how a learner behaves?

A learner asks questions; A LOT OF THEM. Look for opportunities that can make math interesting and challenging.

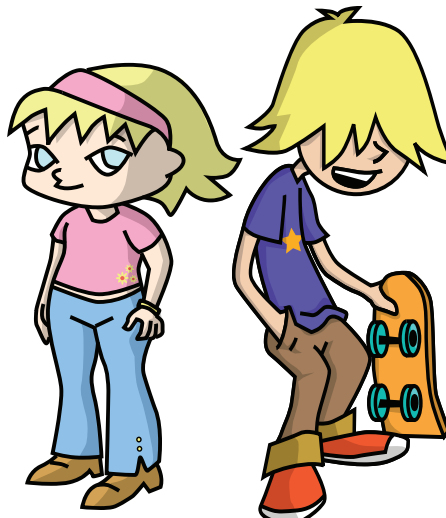
For example: “How tall is that tree?”

It’s an interesting problem because it is too tall to measure. Helping your child think about how to use what he already knows develops resourcefulness.

“You know, I’m six feet tall. How does that information help us think about the height of the tree?”

This kind of conversation provokes reasoning and promotes confidence by:

- Allowing your child to develop a thinking process
- Combining reasoning with a recall of basic math facts (What’s 3 x 6 feet?)
- Reaffirming that you are listening to your child’s ideas
- Confirming your child’s ideas are important.



Parent tips for math in everyday life

As you know, learning doesn't just take place during study hours! Look for other opportunities in everyday life that can make math interesting and challenging!

OPEN-ENDED QUESTIONS ARE GOOD QUESTIONS. Two great questions to ask are: "How many?" and "How can you find out?"

For example: "How many grapes are in the bowl?"

Observe how your child strategizes.

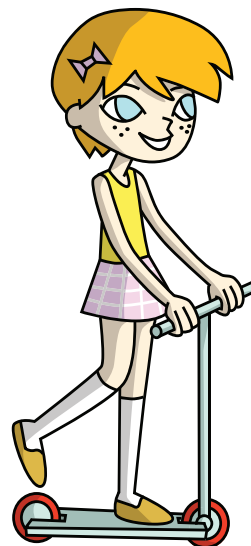
- Does he count by ones?
- Does she solve the problem by grouping the grapes in 2s, 3s, 4s, 5s, or 10s?
- What happens when he loses count? Does he start all over again?

Finding the math in everyday activities helps make it captivating and fun. You know best when your child has reached a limit, so by all means end the exploration.

Want more tips for having fun with math in everyday life?

You'll find them at

www.dreambox.com/parent_tips.



Make early math fun with DreamBox Learning

DreamBox Learning's online math game gives homeschoolers a fun, effective way to make math an important part of their children's early learning curriculum.

Children think DreamBox is a fun adventure full of stories, interactive games, and more!



Parents know it's an individualized, effective math game, made highly engaging so children will be motivated to play and learn.

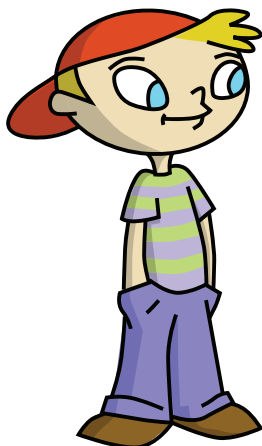
DreamBox Learning Math is a robust math curriculum and a deeply individualized learning experience, with over 600 lessons built on the Common Core State Standards and the National Council of Teachers of Mathematics standards for each grade level.

Parents get real-time reports on their child's progress, plus practical tips for bringing math fun into everyday life. Best of all, you'll be helping your child succeed in academics and in life!



Endnotes

- 1 National Mathematics Advisory Panel. Foundations for Success: The Final Report of the National Mathematics Advisory Panel, U.S. Department of Education: Washington, DC, 2008. You can download a PDF at <http://www.ed.gov/about/bdscomm/list/mathpanel/report/final-report.pdf>
- 2 You can read about the study at <http://www.northwestern.edu/newscenter/stories/2007/11/duncan.html>. And you can learn about its primary author at <http://www.northwestern.edu/ipr/people/duncan.html>.
- 3 Hopko, D., Ashcraft, J., Ruggiero, K., & Lewis, C., Journal of Anxiety Disorders, Vol. 12, Issue 4, "Mathematics Anxiety and Working Memory: Support for the Existence of a Deficient Inhibition Mechanism." 1998, pp. 343-355.
- 4 Duckworth, E., "The Having of Wonderful Ideas" and Other Essays on Teaching and Learning. (New York: Teacher's College Press, 1987).



DreamBox Learning, Inc.
305 108th Ave NE Second floor Bellevue, WA 98004
425.637.8900 / info@dreambox.com / www.dreambox.com