

HELPING YOUR CHILD LEARN MATH
WITH ACTIVITIES FOR CHILDREN AGED 5 TO 13

Foreword

"Why?"

This is the question we parents are always trying to answer. It's good that children ask questions: that's the best way to learn. All children have two wonderful resources for learning -- imagination and curiosity. As a parent, you can awaken your children to the joy of learning by encouraging their imagination and curiosity.

'Helping Your Child Learn math' is one in a series of books on different education topics intended to help you make the most of your child's natural curiosity. Teaching and learning are not mysteries that can only happen in school. They also happen when parents and children do simple things together.

For instance, you and your child can: sort socks on laundry day -- sorting is a major function in math and science; cook a meal together -- cooking involves not only math and science but good health as well; tell and read each other stories -- storytelling is the basis for reading and writing (and a story about the past is also history); or play a game of hopscotch together -- playing physical games will help your child learn to count and start on a road to lifelong fitness.

By doing things together, you will show that learning is fun and important. You will be encouraging your child to study, learn, and stay in school.

This book will give you a short rundown on facts, but the biggest part of the book is made up of simple, fun activities for you and your child to do together. Your child may even beg you to do them.

"The first teachers are the parents, both by example and conversation. But don't think of it as teaching. Think of it as fun."

So, let's get started. I invite you to find an activity in this book and try it.

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Introduction

Most parents will agree that it is a wonderful experience to cuddle up with their child and a good book. Few people will say that about flash cards or pages of math problems. For that reason, we have prepared this book to offer some math activities that are meaningful as well as fun. You might want to try doing some of them to help your child explore relationships, solve problems, and see math in a positive light. These activities use materials that are easy to find. They have been planned so you and your child might see that math is not just work we do at school but, rather, a part of life.

It is important for home and school to join hands. By fostering a positive attitude about math at home, we can help our children learn math at school.

It's Everywhere! It's Everywhere!

Math is everywhere and yet, we may not recognize it because it doesn't look like the math we did in school. Math in the world around us sometimes seems invisible. But math is present in our world all the time -- in the workplace, in our homes, and in life in general.

You may be asking yourself, "How is math everywhere in my life? I'm not an engineer or an accountant or a computer expert!" Math is in your life from the time you wake until the time you go to sleep. You are using math each time you set your alarm, buy groceries, mix baby food, keep score or time at an athletic event, wallpaper a room, decide what type of shoe to buy, or wrap a present. Have you ever asked yourself, "Did I get the correct change?" or "Do I have enough petrol to drive 20 miles?" or "Do I have enough juice to fill all my children's flasks for lunch?" or "Do I have enough bread for the week?" Math is all this and much, much more.

How Do You Feel About math?

How do you feel about math? Your feelings will have an impact on how your children think about math and themselves as mathematicians. Take a few minutes to answer these questions:

* Did you like math in school?

- * Do you think anyone can learn math?
- * Do you think of math as useful in everyday life?
- * Do you believe that most jobs today require math skills?

If you answer "yes" to most of these questions, then you are probably encouraging your child to think mathematically. This book contains some ideas that will help reinforce these positive attitudes about math.

You Can Do It!

If you feel uncomfortable about math, here are some ideas to think about.

math is a very important skill, one which we will all need for the future in our technological world. It is important for you to encourage your children to think of themselves as mathematicians who can reason and solve problems.

math is a subject for all people. math is not a subject that men can do better than women. Males and females have equally strong potential in math.

People in the fine arts also need math. They need math not only to survive in the world, but each of their areas of specialty requires an in-depth understanding of some math, from something as obvious as the size of a canvas, to the beats in music, to the number of seats in an audience, to computer-generated artwork.

Calculators and computers require us to be equally strong in math. Their presence does not mean there is less need for knowing math. Calculators demand that people have strong mental math skills -- that they can do math in their heads. A calculator is only as accurate as the person putting in the numbers. It can compute; it cannot think! Therefore, we must be the thinkers. We must know what answers are reasonable and what answers are outrageously large or small.

Positive attitudes about math are important for our country. People are quick to admit that "I am not good at math." We need

to change this attitude, because mathematicians are a key to our future.

The workplace is rapidly changing. No longer do people need only the computational skills they once needed in the 1940s. Now workers need to be able to estimate, to communicate mathematically, and to reason within a mathematical context. Because our world is so technologically oriented, employees need to have quick reasoning and problem-solving skills and the capability to solve problems together. The work force will need to be confident in math.

Build Your Self-Confidence!

To be mathematically confident means to realise the importance of mathematics and feel capable of learning to

- * Use mathematics with ease;
- * Solve problems and work with others to do so;
- * Demonstrate strong reasoning ability;;
- * See more than one way to approach a problem;
- * Apply mathematical ideas to other situations; and
- * Use technology.

The Basics

You may have noticed that we are talking about "mathematics" -- the subject that incorporates numbers, shapes, patterns, estimation, and measurement, and the concepts that relate to them. You probably remember studying "arithmetic" -- adding, subtracting, multiplying, and dividing -- when you were in primary school. Now, children are starting right away to learn about the broad ideas associated with math, including problem solving, communicating mathematically, and reasoning.

Teachers at nursery schools are building bar graphs of birthday cakes to show which month has the most birthdays for the most children in the class. Pizzas or cakes can be used to learn fractions, and measurements can be taken using items other than rulers.

What Does It Mean To

- * Be a Problem Solver,
- * Communicate Mathematically, and
- * Demonstrate Reasoning Ability?

A problem solver is someone who questions, investigates, and explores solutions to problems; demonstrates the ability to stick with a problem for days, if necessary, to find a workable solution; uses different strategies to arrive at an answer; considers many different answers as possibilities; and applies math to everyday situations and uses it successfully.

To communicate mathematically means to use words or mathematical symbols to explain real life; to talk about how you arrived at an answer; to listen to others' ways of thinking and perhaps alter their thinking; to use pictures to explain something; to write about math, not just give an answer.

To demonstrate reasoning ability is to justify and explain one's thinking about math; to think logically and be able to explain similarities and differences about things and make choices based on those differences; and to think about relationships between things and talk about them.

How Do I Use this Book?

This book is divided into introductory material that explains the basic principles behind the current approach to math, and sections on activities you can do with your children. The activities take place in three locations: the home, the supermarket, and in transit.

The activities are arranged at increasingly harder levels of difficulty. The ones you choose and the level of difficulty really depend on your child's ability. If your child seems ready, you might want to go straight to the most difficult ones.

Each activity page contains the answer or a simple explanation of the mathematical concept behind the activity so that you can explain when your child asks, "Why are we doing this?"

With these few signs to follow along the way, your math journey begins.

Important Things To Know

It is highly likely that when you studied math, you were expected to complete lots of problems accurately and quickly. There was only one way to arrive at your answers, and it was believed that the best way to improve math ability was to do more problems and to do them fast. Today, the focus is less on the quantity of memorized problems, and more on understanding the concepts and applying thinking skills to arrive at an answer. To develop "transferable skills".

Wrong Answers Can Help!

While accuracy is always important, a wrong answer may help you and your child discover what your child may not understand. You might find some of these thoughts helpful when thinking about wrong answers.

Above all be patient. All children want to succeed. They don't want red marks or incorrect answers. They want to be proud and to make you and the teacher proud. So, the wrong answer tells you to look further, to ask questions, and to see what the wrong answer is saying about the child's understanding.

Sometimes, the wrong answer to a problem might be because the child thinks the problem is asking another question. For example, when children see the problem $4 + \underline{\quad} = 9$, they often respond with an answer of 13. That is because they think the problem is asking, "What is $4 + 9$?", instead of "4 plus what missing amount equals 9?"

Ask your child to explain how the problem was solved. The response might help you discover if your child needs help with the procedures, the number facts, or the concepts involved.

You may have learned something the teacher might find helpful. A short note or call will alert the teacher to possible ways of helping your child.

Help your children be risk takers: help them see the value of examining a wrong answer; assure them that the right answers will come with proper understanding.

Problems Can Be Solved Different Ways

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