

LEARNING MADE EASY



Teaching Your Kids New Math, K–5

for
dummies[®]
A Wiley Brand



Eliminate your
“new math” fears.

Make learning math more fun
and relevant to real life.

Learn how to teach
new math concepts.

Kris Jamsa, PhD²

Old school math whiz—new math
convert and evangelist

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for
dummies[®]
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by Kris Jamsa, PhD²

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Introduction

People use math every day: to shop, to decide when they need to stop for gas, to know when to tune in to watch their favorite team play their division rivals, to pinch pennies, and more.

Math is not new. Newton used math to understand gravity. Columbus used math to find a new world, and Einstein used math to explain the workings of the universe. Don't worry; all those topics are covered in different books. This one is focused strictly on math.

With all the great things that math has given us throughout history, you may be asking, "Why do we need *new* math?"

It turns out that math, like a fine wine, improves over time. New math, therefore, is a result of finding better ways to solve problems.

The good news is that we call it "new math," not "hard math." New math techniques for solving addition, subtraction, multiplication, and division problems are easier for kids (and parents) to learn and master.

This book provides step-by-step instructions for how to use both old and new math to solve problems that kindergartners through fifth-graders must know. It also provides instructions, examples, and practice problems, and sometimes suggests what you should say as you teach your child.

About This Book

There are many reasons why you may have chosen this book. Perhaps your child just asked you for help with their math homework and you experienced a new math "uh-oh" moment. Maybe you just left a parent-teacher conference with practice problems you don't understand, or perhaps, your little math whiz is ready for math at the next grade level.

Regardless of your reasons, you've got the right book.

This book presents the math your child must know from kindergarten through fifth grade, with each chapter focusing on specific key concepts. If your child needs help with only fractions or telling time, you can turn to a specific chapter that addresses that topic. If your child is struggling at their current grade level, you can take a step back and strengthen their foundation, knowledge, and confidence from previous grades.

Within each chapter, you will find step-by-step instructions for how to teach each concept. I've also provided many example problems for you to work through with your child. Let them solve the problems right on the book's pages if you want — it's your book after all.

Foolish Assumptions

I like math — math works! I usually get correct change at the grocery store, I can identify the largest slice of pizza, and I know when the bathroom scale must be broken. That said, I recognize that math may not be everyone's favorite thing to do!

Relax. If it's been a while since you've done math without the help of your phone's calculator app, you'll be fine. In fact, you may surprise yourself with what you remember!

Don't let the phrase “new math” intimidate you. This book covers good ol' addition, subtraction, multiplication, and division, just in new ways. You *can* teach an old dog new tricks, and you *can* quickly learn new ways to solve old problems!

Icons Used in This Book



TIP

The Tip icon marks tips (duh!) and shortcuts that you can use to make learning new math easier, and sometimes when to know that it's time to take a break!



REMEMBER

The Remember icon points out things that you should, uh, remember! You and your child will examine a lot of topics throughout this book. I include this icon for those things you should keep in the back of your mind as you move forward.

Beyond the Book

Becoming a “math whiz” requires practice. I’ve sprinkled many math problems your child can complete throughout this book. But because I know “practice makes perfect,” I’ve provided many worksheets of problems on this book’s companion website at www.dummies.com/go/teachingyourkidsnewmathfd. As you and your child work your way through this book, you should take the time to download and print the corresponding practice worksheets.

In addition, should you need quick help on a math process and you don’t have this book handy, I’ve created a cheat sheet you can download and print that will help you with many key concepts. You’ll also find it at www.dummies.com/go/teachingyourkidsnewmathfd.

Where to Go from Here

This book’s chapters present kindergarten through fifth-grade math in order. However, many math problems occur because kids don’t have a strong foundation in concepts taught prior to their current grade levels. I recommend that you review the math from earlier grade levels with your child. In so doing, you will strengthen their knowledge and build their confidence in what they know! In fact, it may even make math fun!

Lastly, if you are pressed for time and your child just placed the homework due today next to your coffee and orange juice, you can jump directly to the corresponding topic in this book to save the day. Later, when you have a few more minutes, you and your child can review the rest of the chapter.

1

**Laying Down the
Basics with
Kindergarten
Math**

IN THIS PART . . .

Putting on your “math teacher” hat

Recognizing, counting, and writing the digits 1 through 9

Counting through 20 and using a number line

Counting and comparing numbers through 30

Sorting and categorizing objects

Measuring and weighing objects and learning common shapes

Adding and subtracting numbers through 10

- » Building your teaching confidence
- » Taking a deep breath and getting started
- » Justifying your investment of time
- » Establishing a teaching plan
- » Planning your teaching road map

Chapter **1**

Unleashing Your Inner Math Teacher

People buy books to help their kids with homework for many reasons. Some want to give their child an advantage, some are tired of the daily homework struggles, and many, who didn't even want to remember "old math," find "new math" unrecognizable. Whatever your reason for buying this book, relax! If you fall into this last category, then this book is your guide. In it, I sometimes tell you what to say, not just to teach your child "new math," but also to build their confidence along the way!

People often say they don't like math because they have never really understood it, but you don't need to be a math scholar to teach your child kindergarten through fifth-grade math. Perhaps Albert Einstein said it best:

Do not worry too much about your difficulties in mathematics. I can assure you that mine are still greater.

I'm Not Sure I Remember "Old Math," and Now There Is "New Math"

If you are like most people, you use the calculator app on your phone to add, subtract, multiply, and divide, and it's been a while since you had to perform long division or reduce fractions. Don't worry. In this book, I walk you through each process so you can present and teach it to your child with confidence. You'll probably amaze your friends and family with your newfound expertise, and you may even surprise yourself!

If you were born before 2010, you learned to add numbers by carrying, subtract numbers by borrowing, and multiply numbers without the use of boxes. Here's an example of old-school multiplication:

$$\begin{array}{r} 2 \\ 37 \\ \times 23 \\ \hline 111 \\ \underline{740} \\ 851 \end{array}$$

You've likely used these techniques successfully throughout your adult life — that is, until your child asked you for help with their homework! Carrying and borrowing aren't how your child adds and subtracts. Instead, they use approaches that may seem more confusing than a foreign language. Here's the same multiplication problem solved with "new math" boxes:

$$\begin{array}{r} 37 \\ \times 23 \\ \hline \end{array}$$

	30	7
20	600	140
3	90	21

$$\begin{array}{r} 1 \\ 600 \\ +140 \\ +90 \\ \underline{+21} \\ 851 \end{array}$$

Take a deep breath! I like old-school math, and it has worked well for me. But, unlike an old dog, I am willing to learn new tricks, and I must admit that the “new math” techniques are easy, accurate, and fast! In this book, I present you with how to teach your child not only the old-school techniques, but also how to master the new math as well.



TIP

Traditions die slowly. That said, you need to be open to the new ways of learning — especially if you want to help your child master math. My goal with the techniques in this book is to make it enjoyable for your child to learn new math with you. The bond you will create with your child is possibly more important than establishing their math foundation for future success.

Old Math, New Math, Common Core Math

Years ago, smart people in each state would get together and establish the state’s learning curriculum — the things teachers in that state would teach. The problem was that each state’s curriculum was different. What a first-grader learned in California might be different from what a first-grader learned in Alaska or Wyoming. Simultaneously, math scores within the United States were falling. In fact, as of 2015, math scores in the United States had fallen from first to thirty-fifth in the world!

In 2009, the National Governors Association and the Council of Chief State School Officers got together to create the Common Core State Standards Association. From that group, Common Core Math was born.

If you ask a roomful of educators to comment on Common Core, you will hear a wide range of opinions. Some love it! They want to see standards across grade levels and across the country. Others hate it. They want the government to leave curriculum decisions to the individual states. This book does not debate for either side. Instead, I simply present the math skills these groups identified as important for your child to know and for teachers to teach.

It’s Not Too Late to Get Started

It’s great that you’ve picked this book. If your child is struggling with math or you are struggling to help them, this book can help solve the problem. If your goal is to help your child get ahead, you can help them master the skills for their current grade level and then move on.



TIP

If your child is struggling today, it's likely because they didn't master the skills in a previous grade level. That problem is easy to solve. This book starts with kindergarten math. You may want to start there regardless of your child's current grade level. Depending on your child's age and current skills, you may move through that content quickly. The successes your child will experience will give them greater confidence in their knowledge, and you may find that you're able to fill in a few key gaps.

In any case, if your child is having trouble at their current grade level, you can simply turn back a few pages to a previous grade level and lay a better foundation. Remember, you paid for the entire book. Use it!



REMEMBER

You may be worried that you are too busy to help your child with math or that you can't learn new math. Relax. You have the right book. Raising kids can be hard. The good news is that teaching math is not. You can do this!

Your Return on Investment

Kids who do well in math tend to do well in school. Conversely, kids who struggle in math often struggle in school. Math is important. That's why schools teach math every day and in every grade.



REMEMBER

Students who do well in school tend to go to college, and college graduates tend to earn more than \$1 million more in their lifetimes than workers without a college degree. The time investment to work through this book is about 15 minutes per day. With the potential for an extra \$1 million at stake, that's a great return on the investment of your time!

Establish Your Routine

A key to your success in teaching your child math is to establish a daily routine that works for both of you. You might, for example, practice flash cards before breakfast and work on other math problems before dinner.



TIP

By establishing a routine, you will find that you can make time and that your child has the expectation that you will be working together. Knowing that you care about their success is important to your child.

Keep a Positive Attitude

Mathematical problems have a right and wrong answer, and your child will sometimes make math errors. The key is how you respond in such situations. Be positive about the problems your child gets right, and remain positive about what they can learn from the problems they get wrong. You will find that a positive attitude about math is contagious, and being positive will help your child succeed.



REMEMBER

Have fun! You are setting out on an adventure that will forever change your child's life.

