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## Making Multiplication and Division a Piece of Cake

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## Why Learn to Multiply and Divide by Heart?

First of all, a calculator is just a tool. Without a properly developed number sense, children won't be able to use this tool effectively. If they key in something by mistake, they won't have the skills to estimate if a number is too large or too small. If they don't understand key concepts, they won't know what to key into a calculator when they're problem-solving. Learning what multiplication is, and memorizing some basic facts helps to develop the mathematical intuition needed to use a calculator with a high level of competence.

Another reason to learn to multiply and divide by heart is that these skills are building blocks for more complex math. As your child moves through the grades and begins to work with larger numbers, fractions, algebra, it will serve them well to have basic math facts memorized.

When solving problems that involve multiple steps and increasingly complex reasoning, lack of mastery of multiplying and dividing will slow them down, or worse, frustrate them. The last thing you want is for your child to feel overwhelmed when there is something that you can do from early to make sure this doesn't happen.

On a practical level, these are skills that everyone needs in daily life, such as quickly estimating the discount price of furniture, or deciding what's a reasonable tip at a restaurant. Children who develop a solid foundation and flexibility with numbers, become savvy shoppers and wise managers of money later on in life.

It's pretty clear then, that even in a digital age, children need to learn a lot of the same math you learned as a child. That doesn't mean you should frown on technology, it just means you want to be savvy about selecting digital learning resources.

## Choosing Fun Kids Apps to Help Your Child Memorize Essential Math Facts

It helps to understand what exactly is meant by math facts. Math facts are simple calculations involving two numbers. Mastery of math facts involving numbers 1-10 means being able to automatically tell, for example, what is 8-2 or what is 7+3. The

keyword is automatically, where your child no longer pauses to count on fingers or visualize in the mind.

The facts are so engrained in their minds that the response is automatic and confident. That is your indicator that your child has mastered those facts. Once they've mastered that, you push the boundaries to twenty. After that, memorizing loses its usefulness; what comes into play is noticing patterns. Children learn to reason that since 17 + 3 = 20, then 27 + 3 = 30.

After mastering adding and subtracting, children learn that multiplication is simply a matter of repeated addition, and dividing is simply a case of repeated subtracting.



Watch on YouTube

To really develop this kind of mastery where correct responses become automatic, children need lots of repetition and practice. At the same time, they need to visualize the concepts. Our kids learning app achieves these two things.

The Talented and Gifted app uses a scaffolded approach, also called the gradual release approach. Think of how you teach a child to ride a bike. You start them off with training wheels (most people do anyway). When the child has mastered that, you remove the heels but hold the bike so they don't fall, and you keep various little supports in place until the child can ride independently. That's a scaffolded approach - notice you gradually release responsibility to the child. Our app uses this approach by starting your child with pictures only. Your child will count the numbers in an array, whether by skip-counting or by counting one at a time. The visual representation of equal groups of items help develop a conceptual understanding of multiplying and dividing. Rows and columns are essentially multiplication in picture form - for example, 3 rows and 4 columns of cookies are 12 cookies in all. We offer lots of repetition to build automaticity which, when you think of it, is sort of like building muscle memory.



In grade 3, the training wheels come off, and children now begin to work with numbers along with the pictures. In the example below, you see the child now works with number representations of the information in the picture.



Most kids math apps offer drills without proper application of this approach, but not so with the Talented and Gifted app. Furthermore, in the Talented and Gifted app, you will find lots of repetition and all the visual cues children need to understand math. Plus, you will also find videos that walk through each concept (such as multiplying and dividing) in a child-friendly way.



Something else you will find in the Talented and Gifted App is variety. The math is presented in different ways in order to deepen understanding. In the example above, notice how the two questions are related. The vocabulary isn't taught this early, but children are being exposed already to the inverse relationship between multiplying and dividing. Even the question mark in 2 X ? =16 is setting up the idea that a symbol can hold the place of an unknown value, an important concept in algebra. Variety helps to maintain interest so that your child will be engrossed for longer. Among the variety of Kids Academy, there are kids learning worksheets, videos, games, lessons and so on.



Providing lots of quizzes, and other learning games in small chunks over a long period of time help to develop that mastery we talked about earlier. We know that frequent practice over a long time works better than cramming a lot in a short period.



After your child has mastered the Math facts, they will feel confident then they get lots of opportunities to use the learned facts to solve word problems. Afterall, learning math facts is a means to an end and not an end in itself.



Kids Academy: Talented and Gifted is a comprehensive learning app for kids from 2 to 10 years old. It offers several modes of learning — through collections of activities in the Adventure Land or through the structured curricula specific to each subject and grade level. In a playful manner, kids can perfect their knowledge of math, English, science, and social studies, as well as practice chess and explore their creativity with the arts and crafts course. Kids Academy also has several other educational apps: Fun kids apps.



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