

Why do Kids Need to Learn Math Facts?

We're continuing our summer series that focuses on the foundation skills kids need for early elementary learning, with math facts. This week we'll focus on the what, why and how of math facts. Today, it's about the 'what' and 'why'. Let's begin.

So what's the big deal with math facts? Why in today's day and age – with calculators and computers – do our kids really need to rote learn their basic addition, subtraction, multiplication and division? Isn't this just 'old school'?

In this article we'll touch on why kids need to learn math fact fluency. But first, what do we mean by math fact fluency?

Math facts fluency refers to the ability to recall the basic facts in all four operations accurately, quickly and effortlessly. When students achieve automaticity with these facts, they have attained a level of mastery that enables them to retrieve them for long-term memory without conscious effort or attention.

Brain imaging studies have shown how the progression from effortful processes, such as finger counting, to automatized retrieval is associated with actual changes in the regions of the brain involved in mathematical computation (Rivera, Reiss, Eckert and Menon, 2005).

So why focus on math facts?

Math facts fluency leads to higher order mathematics

Through automaticity students free up their working memory and can devote it to problem solving and learning new concepts and skills (Geary, 1994). Quite simply, a lack of fluency in basic math fact recall significantly hinders a child's subsequent progress with problem-solving, algebra and higher-order math concept.

Fluent math facts mean less confusion

Math facts are important because they form the building blocks for higher-level math concepts. When a child masters his/her math facts, these concepts will be significantly easier and the student will be better equipped to solve them faster. If the child spends a lot of time doing the basic facts, he/she is more likely to be confused with the processes and get lost in their calculations.

Math fact automaticity affects performance – not only in maths

In later elementary, students have longer and more complicated computations to complete to check their understanding of various concepts. At this stage, if a student does not have his/her math facts committed to memory, he/she will spend a disproportionate amount of time figuring out the smaller calculations and risk not completing the test. This not only affects their performance in math class, but will also in other subjects, such as science and geography.

Less math anxiety

Math can be compared to languages in some ways. Just like you have to learn to combine letters into words and words into sentences – and we have strategies like phonics and sight words to help kids to learn to read - math facts are the foundation blocks for learning the next level of maths. There is rote learning involved in both language and math mastery. Math anxiety starts when children fall behind and can't keep up. To avoid these anxieties, students' early elementary years should focus on learning the foundation math skills needed for later years – math facts are among those important math skills.