

Franklin Jr./Sr High School Reading Article

Math from Memory

Reading Strategy for the Article: Students will take turns reading aloud. Mark the text and write in the margins as you read.

<http://www.timeforkids.com/news/math-memory/1686361100L>

Instructions: COMPLETE ALL QUESTIONS AND WRITE NOTES in the margin box. This requires reading of the article **more than once**.

Step 1: Skim the article using these symbols as you read:

(+) agree, (-) disagree, (*) important, (!) surprising, (?) wondering

Step 2: Number the paragraphs. **Read** the article **carefully** and **make notes in the margin**.

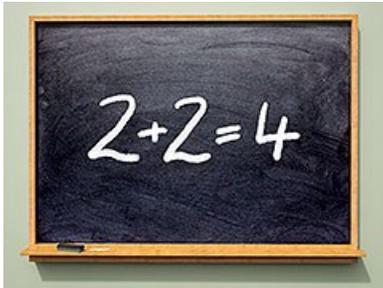
Notes should include:

- Comments that show that you **understand** the article. A summary or statement of the main idea of important sections may serve this purpose.
- Questions you have that show what you are **wondering** about as you read
- Notes that differentiate between **fact** and **opinion**.
- Observations about how the **writer's strategies** (organization, word choice, perspective, support) and choices affect the article.

Step 3: A final quick read noting anything you may have missed during the first two reads.

Your margin notes will be assessed by your teacher along with your answers to the questions.

New research shows how kids' brains reorganize as they learn math



All the time you spent memorizing multiplication tables may have made you a better mathematician, according to a new study. A team of scientists from Stanford University, in California, have shown how the brain reorganizes itself as kids learn math.

After a certain amount of time spent practicing math, kids can put away the calculator. They don't even need to count on their fingers. They simply know the answers to subtraction, addition, and multiplication facts. The quicker kids can recall basic math facts, the easier it is for them to solve more complicated math problems.

Busy Brains

The Stanford University researchers observed the brain activity of 28 students, ages 7 to 9, for the study. They took scans of the students' brains as the students solved math calculations without the help of a calculator, pen or paper. A calculation—three plus four equals seven, for example—flashed on a screen. The students pushed a button to say if the answer was right or wrong. The scientists also recorded the response speed, and what parts of the brain became active as the kids pushed the button.

Notes on my thoughts, reactions and questions as I read.

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These observations showed a process called fact retrieval. Rather than using their fingers to count, or scrawling out equations on a piece of paper, the students pulled the answers from memory. It's as if the answers to basic subtraction, addition, and multiplication problems are kept in a long-term storage compartment in the brain. The storage compartment was built from repetition. "Experience really does matter," said Dr. Kathy Mann Koepeke of the National Institutes of Health.

Quick Response

Children make the shift from counting to fact retrieval when they are 8 to 9 years old, the study says. This is the time when most students are learning basic addition and subtraction. When kids have basic math facts memorized, the brain has more free space to learn more complicated math.

This process has benefits for the future. The study showed, as kids got older, their answers relied more on memory and became quicker and more accurate. Less brain activity was devoted to counting. Some children make this shift quicker than others.

Scientists hope to use this research to develop new strategies to help kids learn math at all levels. One strategy the study suggests is for students to quiz themselves in different orders—solving five times three before five times two, for example. Mixing up the order keeps the brain active. Keep these drills up, and you may be a math whiz in no time

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