

New Math or Old Math?

5th and 6th grade



Math Comfort Level

How many of you feel as though you are good at math?

How many of you like math?

Math Comfort Level

Most individuals have experienced some form of “math trauma”.

This bad math experience can often be traced to a few general beliefs about math:

- 1) First, that math is a gift that only a select few are grace with, and
- 2) People who can do math are the smartest and cleverest people.

Fixed vs. Growth Mindset

- Everyone has a **mindset**, a core belief about how they learn.
- A **fixed mindset** is the belief that you can learn things, but you can't change your basic level of intelligence. Students with this mindset, believe that they are either smart or not.
- People with a **growth mindset** are those who believe that smartness increases with hard work. Students with this mindset, are comfortable with the idea that mistakes are positive steps towards a larger goal.

Boaler, Jo. *Mathematical Mindsets*

Jo Boaler talks about the power of our mindsets



5th grade math

- Based on conceptual understanding of basic procedure
 - Multiple strategies can be utilized for addition and subtraction
 - Multiplication builds from previous knowledge of arrays, and builds to traditional methods.
 - Division uses repeated subtraction of multiple groupings
 - Fractions and decimals use knowledge of the whole, and place-value mastery
 - All math is presented conceptually and encourages representation or illustrations
- Goal is to help students have a deeper understanding of math, as opposed to memorization of a “trick or formula”
- Problem solving, using relatable real-world examples

6th grade math

- From 6th grade until high school, mathematics instruction is more traditional in its approach
 - Very little time is spent on concepts involved in procedures
 - Students are expected to spend the majority of time with problem-solving
 - Material might be presented at a much faster pace
- Students take previous learning to explore and understand algebra and geometry, using real-world problems

5th vs. 6th grade math

5th grade

Traditional algorithm for multiplication, but NOT for division. Division is taught using strategies based on place value understanding.

Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value

6th grade

Traditional algorithm for multiplication and division.

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm

In 5th grade, the progression of number sense to efficiency in procedures is so important because in 6th grade, students will....

- Understand ratio concepts and use ratio reasoning to solve problems.
- Apply and extend previous understandings of multiplication and division to divide by fractions.
- Apply and extend previous understandings of numbers to the system of rational numbers.
- Apply and extend previous understandings of arithmetic to algebraic expressions.
- Develop understanding of statistical variability.