



Would you like to know why math instruction at the elementary level looks different than it did when you were in school? Are you stumped by the strategies your child is using with math homework? Read on

At the end of this document, we have listed a variety of resources for those of you who are interested in reading about the scholarly basis for the change in mathematics instruction in recent years. For those of you who would like the brief version... the main point to remember is that children must understand the conceptual basis of numbers and procedures in order to be mathematical thinkers, a critical skill for the 21st century.

You might notice your child using one or more of the following strategies as they solve problems with basic number operations. Do not be alarmed! These strategies keep the “place value” meaning of numbers and are used to introduce operations before teaching students the procedure or algorithm (how you and I were taught to compute). Check out these videos on YouTube and read about some of the “whys” after you’ve watched the videos.

Teaching Strategies (Hold down the control key while clicking to access these videos.)

- Addition and Subtraction
 - [Partial Sums Addition](#)
 - [Partial Differences Subtraction with 2 Digits](#)
 - [Partial Differences Subtraction with 3 Digits](#)
 - [Subtraction using a Number Line](#)
 - [Addition using a Number Line](#)
- Multiplication
 - [Multiplication with Area Model](#)
 - [Partial Product Multiplication with 2 Digits](#)
 - [Partial Product Multiplication-Box Method](#)
- Division
 - [Division with Area Models](#)
 - [Division using Big 7 \(Single Digit Divisor\)](#)
 - [Division using Big 7 \(Double Digit Divisor\)](#)

Teaching *Conceptually*

Why are students taught conceptually before moving to the procedure (or algorithm)?

- To understand the meaning, the use and connections between addition, multiplication, subtraction, and division;
- To understand the “why” and “how” of operations and not just memorizing steps (what most of us learned in school);
- To select from a tool kit of computational strategies (including mental computation) for each operation;
- To be proficient mathematicians;
- To promote students’ capacity to think flexibly of numbers as sums and differences of other numbers with all mental and written calculations².

Do we still teach the procedure? YES

- The procedure, also known as the algorithm, is sometimes a more efficient strategy for students when in written form.
- As students make connections and show understanding of the operation conceptually, teachers then instruct procedure (algorithm).
- Differentiated instruction in small group provides the flexibility for teachers to assess children’s readiness to move to the procedure.

Please contact your child’s teacher if you have questions or want to know more about math instruction in FISD. As always, we appreciate your partnership with FISD staff to ensure a quality education for your child.

Resources:

Elementary Math Curriculum Resources

[Texas Essential Knowledge and Skills \(TEKS\):](#)

Mathematical Texas Essential Knowledge and Skills for grades K-12

[Investigations Parent Communication](#)

Investigations

[STAAR](#)

State of Texas Assessment on Academic Readiness

[Overview of the TEKS:](#)

Mathematics Texas Essential Knowledge and Skills overview

Elementary Math Research of Best Instructional Practices

[Investigations Research](#)

Investigations

[Today's Math](#)

Article published by NCTM

[Basic Facts](#)

Research on learning the basic facts

[NCTM.org](#)

National Council of Teachers of Mathematics

[Principles and Standards for School Mathematics:](#)

Principles and Standards for School Mathematics

[John A. VanDeWalle](#)

Elementary and Middle School Mathematics Teaching Developmentally, John A.

VanDeWalle

[First Steps](#)

First Steps in Mathematics

[NSF.gov](#)

National Science Foundation

[TERC Link](#)

TERC

[National Academies](#)

National Research Council

References:

¹VanDeWalle, John A. (2004.) *Elementary and Middle School Mathematics Teaching Developmentally*, p.6

²Department of Education and Training of Western Australia (2007). *First Steps in Mathematics*.