Mastering Basic Math Facts

A Guide for Teachers and Parents of the Knox County Schools

Basic Math Fact Fluency

A Position of the Knox County Schools Mathematics Department

Question

How do we help students develop and retain basic math fact fluency?

Knox County Schools Mathematics Department Position

Fluency with basic math facts is an essential skill necessary for success in mathematics. Fluency with basic math facts is the ability of students to be able to efficiently, flexibly, and accurately perform basic operations (addition, subtraction, multiplication, and division) with whole numbers. To develop mastery of basic math fact fluency, students need experiences in developing number sense or in using numbers flexibly. Students need opportunities to discover patterns in numbers, relationships between numbers, structures in counting, to make connections between numbers and sets of numbers, and to strengthen their understanding and skill through frequent distributed practice.

* For a full description of the KCS Mathematics Department Position, visit our website at knoxschools.org/Domain/1007

Fluency Expectations

Pre-K	Kindergarten	1st Grade	2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
PK.CC.B.5 Understand that a number represents a corresponding quantity. a. Subitize quantities up to 5 (i.e., the ability to look at a quantity and say the quantity (1-5) quickly, just by looking.) b. Given a number from 1-10, count out that many objects.	K.OA.A.5 Mental addition and subtraction within 10	1.OA.C.6 Mental addition and subtraction within 20	2.OA.B.2 Mental addition and subtraction within 30	3.NBT.A.2 Addition and subtraction within 1000 using strategies, algorithms, properties, and relationship	4.NBT.B.4 Addition and subtraction within 1,000,000 using strategies and algorithms	5.NBT.B.5 Multiplication of multi-digit whole numbers (up to three-digit by four-digit factors) using strategies and algorithms	6.NS.B.2 Fluently divide multi-digit numbers using a standard algorithm.
		1.OA.C.6 Memorization of all sums up to 10	2.NBT.B.5 Addition and subtraction within 100 using properties, strategies, and relationship	3.OA.C.7 Memorization of all products of two one-digit numbers and related division facts			6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.
			2.OA.B.2 Memorization of all sums of two one-digit numbers and related subtraction facts	3.OA.C.7 Multiplication and division within 100 using strategies, relationship or properties			

Resources for Teachers and Parents

MINDS UNDER CONSTRUCTION

Slow and Steady!
Fluency ≠ Speed
Fluency = Understanding

Ask Questions

During Practice and Homework:
How do you know?
Explain how you did_____?
What does _____ represent?

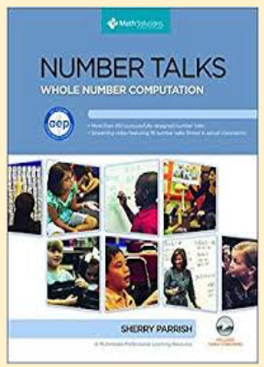
During Classroom Discourse:
What strategy did you use?
Can someone restate [student's] explanation?
Would another method work as well or better?
How does this relate to_____?

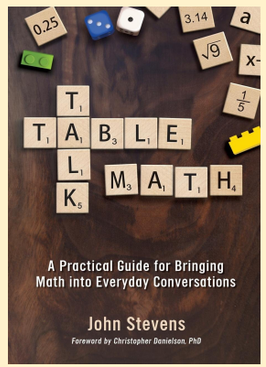
In the Car

Play Guess my Number
Count: How many trucks, red cars, etc.?
Count, add, or multiply road sign numbers or license plate numbers.

Number Talks

Pose a problem and ask kids to solve it mentally.
Try to gather as many strategies as possible.
Discuss the different methods and how they are related.





Number Talks by Sherry Parrish
Table Talk Math by John Stevens

#talkmath

Free Games and Apps

- Xtra Math
  xtramath.org
- Bedtime Math
  bedtimemath.org
- Kakooma
  gregtangmath.com/kakooma
- Prodigy
  prodigygame.com

Websites and Activities

- You Cubed and Fluency Without Fear:
  youcubed.org/evidence/fluency-without-fear
- Graham Fletcher: gfletchy.com
- Steve Wyborney: stevewyborney.com
- Teach at the Speed of Learning:
  visiblethinking.weebly.com/daily-routines.html
- For songs, subscribe on YouTube to:
  NumberRock and Jack Hartmann Kids Music Channel

KCS Mathematics Department

- Mathematics Department Web page: knoxschools.org/Domain/1007
- Add *Math Support* to your Aspen Pages for Ready Math Parent Letters
- For strategy videos, subscribe on YouTube to *Knox County Mathematics*
- For Teachers: *Elementary Math Teacher Canvas Page*