Fourth Grade Foundational Math Skills

Addition & Subtraction Fluency	Multiplication Fluency
• Students should be able to mentally add and subtract two 1 digit numbers fluently (example: Knowing within 3 seconds that 6 + 9 = 15) • Students should be able to add and subtract whole numbers to the hundred thousands with regrouping/ungrouping • Students should be able to subtract across zeros (example: 50,000 - 3,488)	• Students should be able to recall multiplication facts 1-10 fluently from memory, or be able to use *strategies* to help them recall multiplication facts • It would be even more helpful if students knew their 11's and 12's • Fluency comes when students develop number sense--when they are mathematically confident because they understand numbers

"Number sense is the foundation for all higher-level mathematics."
-Stanford University (Feikes & Schwingendorf, 2008)

Practicing at Home:

- Roll the Dice (Addition, Subtraction or Multiplication)
- Play War (Addition or Multiplication) with a standard deck of cards (Aces represent 1s, Jacks, Queens, and Kings can be counted as 10s for an easier game or 11, 12, 13 for more challenge)
- Make your own flashcards (practice in the car, during breakfast, before bed, waiting in line at the grocery store or the DMV 😊)
- Practice mental math while ordering from a menu at a restaurant or drive-thru

Online Resources:

- www.xtramath.org - Math facts practice
- www.zearn.org - Practice with current math skills
- www.khanacademy.org - Math videos
- www.ascendmath.com/fcm/html5/ - Math facts practice (customizable)
- Subscribe to "TheWCPSSAcademics" youtube channel (look for the playlist of ES math videos) - Video resources provided by the district
- Mrs. Laug's Classroom website: www.mrslaug.weebly.com
- Mrs. Flynn's Classroom website: www.mrsflynnsfourthgrade.weebly.com

Additional Math Resources:

- The fourth grade team uses the NCDPI Unpacking Document to create the scope and sequence of each math unit. **NCDPI Unpacking Document:** http://www.ncpublicschools.org/docs/acre/standards/common-core-tools/unpacking/math/4th.pdf
- **YouCubed at Stanford University:** *Fluency Without Fear: Research Evidence on the Best Ways to Learn Math Facts* (Feikes & Schwingendorf, 2008)

Fourth Grade Long Division

Standard	**NC.4.NBT.6** Find whole-number quotients and remainders with up to three-digit dividends and one-digit divisors with place value understanding using rectangular arrays, area models, repeated subtraction, partial quotients, properties of operations, and/or the relationship between multiplication and division. This standard also references interpreting remainders. Remainders should be put into context for **interpretation**. Ways to address remainders: ● Remainder as a left over ● Partitioned into fractions or decimals ● Discarded leaving only the whole number answer ● Increase the whole number answer up one ● Round to the nearest whole number for an approximate result The focus of this standard is to build conceptual understanding of division. Students are expected to use various strategies and explain their thinking. Students are not expected to master the traditional algorithm until middle school.
Division Unit Overview	In this standard, students build on their understanding of the meaning of division and the relationship to multiplication by modeling, writing, and explaining division by a one-digit divisor. This standard calls for students to explore division through various strategies. Students should be able to apply their understanding of place value and various forms of a number to compute quotients. Students will also use arrays and area models, repeated subtraction, partial quotients and properties of operations to solve division problems ***NOTE:*** *Students will not be required to use the standard algorithm until 5th grade.* (Students may **check** their work using the standard algorithm **IF** they can explain how this model works using place value knowledge, number sense, and mathematical vocabulary)
Examples	A 4th grade teacher bought 4 new pencil boxes. She has 260 pencils. She wants to put the pencils in the boxes so that each box has the same number of pencils. How many pencils will there be in each box? Possible responses: ● Using Base 10 Blocks: Students build 260 with base 10 blocks and distribute them into 4 equal groups. Some students may need to trade the 2 hundreds for tens but others may recognize that 200 divided by 4 is 50. ● Using Place Value: 260 ÷ 4 = (200 ÷ 4) + (60 ÷ 4) ● Using Multiplication: 4 x 50 = 200, 4 x 10 = 40, 4 x 5 = 20; 50 + 10 + 5 = 65; so, 260 ÷ 4 = 65

Long Division "How To"

Area Model: 845 divided by 5

	100	+ 60	+ 9
5	845 − 500 345	345 − 300 45	45 − 45 0

Partial Quotients

$$\begin{array}{r} 100 \\ 60 \\ +\ 9 \\ \hline 169 \end{array}$$

Menu
5 x 10 = 50
5 x 100 = 500

Menu
5 x 6 = 30
5 x 60 = 300

Menu
5 x 9 = 45

Expanded Notation: 845 divided by 5

Menu
5 x 10 = 50
5 x 100 = 500

5 x 6 = 30
5 x 60 = 300

5 x 9 = 45

$$\begin{array}{r} 9 \\ 60 \\ 100 \\ \hline 5\,)\ 845 \\ -\ 500 \\ \hline 345 \\ -\ 300 \\ \hline 45 \\ -\ 45 \\ \hline 0 \end{array} \quad (9 + 60 + 100 = 169)$$

169