Dear Parents,
We will begin our next unit of study in math soon. The information below will serve as an overview of the unit as you work to support your child at home. If you have any questions, please feel free to contact me. I appreciate your ongoing support.

Sincerely,
Your Child's Teacher

Unit Name: Making Sense of Multiplication and Division

North Carolina Content State Standards:

NC.3.OA.1
For products of whole numbers with two factors up to and including 10:
- Interpret the factors as representing the number of equal groups and the number of objects in each group.
- Illustrate and explain strategies including arrays, repeated addition, decomposing a factor, and applying the commutative and associative properties.

NC.3.OA.2
For whole-number quotients of whole numbers with a one-digit divisor and a one-digit quotient:
- Interpret the divisor and quotient in a division equation as representing the number of equal groups and the number of objects in each group.
- Illustrate and explain strategies including arrays, repeated addition or subtraction, and decomposing a factor.

NC.3.OA.3
Represent, interpret, and solve one-step problems involving multiplication and division:
- Solve multiplication word problems with factors up to and including 10. Represent the problem using arrays, pictures, and/or equations with a symbol for the unknown number to represent the problem.
- Solve division word problems with a divisor and quotient up to and including 10. Represent the problem using arrays, pictures, repeated subtraction and/or equations with a symbol for the unknown number to represent the problem.

NC.3.OA.6
Solve an unknown-factor problem, by using division strategies and/or changing it to a multiplication problem.

NC.3.OA.7
Demonstrate fluency with multiplication and division with factors, quotients and divisors up to and including 10.
- Know from memory all products with factors up to and including 10.
- Illustrate and explain using the relationship between multiplication and division.
- Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

NC.3.OA.8
Solve two-step word problems using addition, subtraction, and multiplication, representing problems using equations with a symbol for the unknown number.

NC.3.OA.9
Interpret patterns of multiplication on a hundreds board and/or multiplication table.

NC.3.NBT.3
Use concrete and pictorial models, based on place value and the properties of operations, to find the product of a one-digit whole number by a multiple of 10 in the range 10–90.

Math Language:

- Product
- Multiplication
- Factor
- Repeated Addition

- Equal Groups
- Equation
- Quotient
- Properties
- Place Value
- Associative Property of Multiplication
- Distributive Property
- Skip Counting
- Quick Array
- Divisor
- Break Apart
- Ones
- Zero Property of Multiplication
- Array
- Division
- Dividend
- Unknown
- Tens
- Multiplicative Identity Property
- Repeated Subtraction
- Divide
- Related Facts
- Partial Product
- Multiple
- Commutative Property of Multiplication

Unit Overview:

The focus of this unit is for students to build a conceptual understanding of multiplication and division. Students will use the properties of multiplication along with multiple strategies including equal groups, arrays, and repeated addition/subtraction to solve and represent multiplication and division problems. Students will apply these strategies to solve and represent one and two step story problems. Throughout the unit students will continue to explore patterns in multiplication as they work with various fact families.

Skills/Strategies:

- Decompose a factor as a strategy for solving a multiplication problem
- Demonstrate that the order of the factors does not matter when you are multiplying (or adding) numbers
- Use a variety of strategies, like arrays and repeated addition, to model multiplication
- Use repeated subtraction (measurement model) and/or fair share (partition model) when solving a division problem
- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurements quantities
- Use equal groups/equal shares as a strategy to solve multiplication and division word problems
- Use various representations to show an unknown
- Use multiplication and/or division to solve problems with an unknown factor
- Illustrate and explain using the relationship between multiplication and division
- Use addition, subtraction, and multiplication to solve two-step word problems
- Use concrete and pictorial place value models to find the product of a one-digit whole number by a multiple of 10

Video Support:

Video support can be found on The WCPSS Academics YouTube Channel.

- http://tinyurl.com/WCPSSAcademicsYouTube
- ES 3 Math Whole Number Multiplication Arrays
- ES 3 Math Whole Number Discovering Division
- ES 3 Math Whole Number Area as Multiplication
- ES 3 Math Whole Number Multiplication Using the Number Line
- ES 3 Math Whole Number Partition Model as Division
- ES 3 Math Whole Number Multiplication Using Equal Groups

Video support can be found on LearnZillion. https://learnzillion.com/
LearnZillion Videos About Multiplication

- https://learnzillion.com/lessons/2488-multiply-by-multiples-of-10-with-base-ten-blocks
- https://learnzillion.com/lessons/2652-multiply-by-multiples-of-10-using-number-lines

Solving Problems using Different Multiplication and Division Strategies

- solve-division-problems-by-drawing-pictures
- solve-word-problems-using-the-idea-of-equal-groups
- find-the-missing-quotient-in-a-division-problem
- understand-the-commutative-property-of-multiplication-in-word-problems
- interpret-division-as-an-unknown-factor-problem-using-arrays
- solving-twostep-word-problems-using-a-model

Additional Resources:

- NCDPI Additional Resources

Questions to Ask When Helping Your Child with Math Homework

Keep in mind that homework in elementary schools is designed as practice. If your child is having problems, please let the classroom teacher know. When helping your child with his/her math homework, you don't have to know all the answers! Instead, we encourage you to ask probing questions so your child can work through the challenges independently. Some examples may include the following:

- What is the problem you're working on?
- What do the directions say?
- What do you already know that can help you solve the problem?
- What have you done so far and where are you stuck?
- Where can we find help in your notes?
- Are there manipulatives, pictures, or models that would help?
- Can you explain what you did in class today?
- Did your teacher work examples that you could use?
- Can you go onto another problem & come back to this one later?
- Can you mark this problem so you can ask the teacher for an explanation tomorrow?