

# Grade 4 Tips for Parents • Module 1

## Place Value, Rounding, and Algorithms for Addition and Subtraction

In this module, students extend their work with whole numbers. They begin with large numbers using hundreds and thousands and develop their understanding of millions.

**What Came Before this Module:** Floyd County is introducing a new math curriculum this year in grades K-8. Please become familiar with this newsletter and use it as a tool to understand concepts your child will be learning in Math, and be open to the use of new math strategies.

## Key Vocabulary:

Algorithm - step-by-step procedure for calculations

Variable - a symbol for a number we don't know yet

Sum - answer to an addition problem

Difference - answer to a subtraction problem

Rounding - approximating the value of a given number

Place value - the numerical value that a digit has by virtue of its position in a number

Digit - a numeral between 0 and 9

Standard form - a number written in the format: 135

Expanded form - e.g.,  $100 + 30 + 5 = 135$

Word form - e.g., one hundred thirty-five

Tape diagram - bar diagram

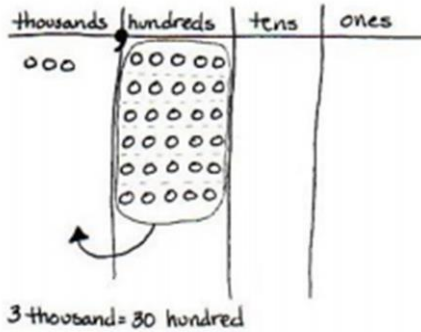
Number line - a line marked with numbers at evenly spaced intervals

Bundling, making, renaming, changing, exchanging,

regrouping, trading - e.g. exchanging 10 ones for 1 ten

Unbundling, breaking, renaming, changing, regrouping, trading - e.g. exchanging 1 ten for 10 ones

=, <, > - equal, less than, greater than



## What Comes After this Module:

We will be working with mixed measurement units, converting and problem solving.



## How you can help at home:

Have your child explain the strategies used in class today.

Go over their homework each night.

Your child will be practicing multiplication fluency daily with an exercise called Sprints. Work with them daily on multiplication facts.

## Key Common Core Standards:

### Use the four operations with whole numbers to solve problems.

4.OA.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

### Generalize place value understanding for multi-digit whole numbers. (Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.)

4.NBT.1 Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that  $700 \div 70 = 10$  by applying concepts of place value and division.

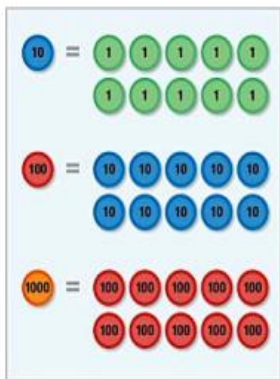
4.NBT.2 Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

4.NBT.3 Use place value understanding to round multi-digit whole numbers to any place.

### Use place value understanding and properties of operations to perform multi-digit arithmetic.

4.NBT.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.

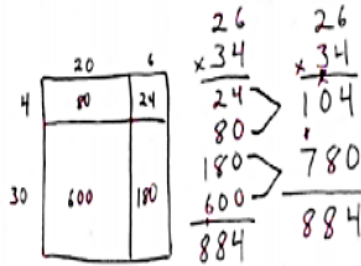
Number Disks may be a new learning tool your child will be introduced to this year to assist in learning about place value.



The area model encourages students to think about each part of a number as they multiply.

Thus,  $34 \times 26$  becomes a series of partial products:

$$\begin{array}{r} 4 \times 6 \quad 24 \\ 4 \times 20 \quad 80 \\ 30 \times 6 \quad 180 \\ + 30 \times 20 \quad 600 \\ \hline 884 \quad 884 \end{array}$$



## Spotlight on Math Models:

### Area Models

You will often see mathematical representation in *A Story of Units* (Our new math curriculum)

## A Story of Units

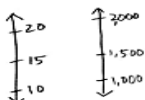
*A Story of Units* has several key mathematical “models” that will be used throughout a student’s elementary years.

Students began in earlier grades to build arrays, showing multiplication and division as a series of rows and columns. In 4<sup>th</sup> grade, they learn to show these types of problems as an area model.

As students move through the grades, the area model will be a powerful tool that can take them all the way into algebra and beyond. One of the goals in *A Story of Units* is to first give students concrete experiences with mathematical concepts, and then build slowly toward more abstract representations of those concepts. The area model is a tool that helps students to make that important leap.

$$700,000 + 20,000 + 20 + 8 = 720,028$$

place value cards



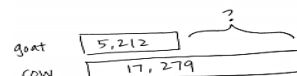
number line

thousands	hundreds	tens	ones
		0000	0000

place value chart

The module culminates with multi-step word problems in Topic F (4.OA.3). Tape diagrams are used throughout the topic to model additive compare problems like the one exemplified below. These diagrams facilitate deeper comprehension and serve as a way to support the reasonableness of an answer.

A goat produces 5,212 gallons of milk a year. The cow produces 17,279 gallons a year. How much more milk does the goat need to produce to make the same amount of milk as a cow?



$$17,279 - 5,212 = \underline{\quad}$$

The goat needs to produce \_\_\_\_\_ more gallons of milk a year.

This is an example of an Area Model called a Tape Diagram.