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

In this first module of Grade 4, students extend their work with whole numbers, first with familiar large units (hundreds and thousands), and then develop their understanding up to 1 million. They practice and further deepen their facility with patterns in the base-10 number system.

Place value chart equivalence
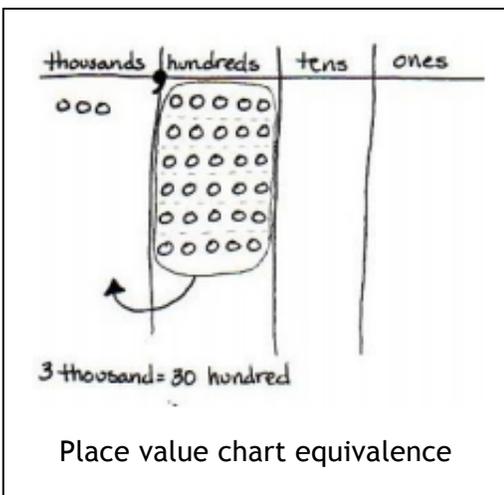
4th grade students will learn to round large numbers to various place values.

$$935{,}292 \approx 900{,}000$$
$$935{,}292 \approx 940{,}000$$
$$935{,}292 \approx 935{,}000$$

We will also discuss which place value is appropriate to round to in different situations – what degree of accuracy is required?

What Comes After this Module:

In Module 2, students further deepen their understanding of the place value system through the lens of measurement and metric units. Students will recognize patterns as they use the place value chart to convert units, e.g. kilograms to grams, meters to centimeters, etc.

Terms, Phrases, and Strategies in this Module:

Ten thousands, hundred thousands (as places on the place value chart)

One million, ten millions, hundred millions (as places on the place value chart)

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

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

=, <, > (equal to, less than, greater than)

+ How you can help at home:

- When given a large, multi-digit number, ask your student what each digit represents. (e.g. "What does the 4 signify in the number 34,500?" Answer: 4,000)

- Help practice writing numbers correctly by saying large numbers and having your student write them down. Students can create their own place value charts to help.

Key Common Core Standards:

- *Use the four operations with whole numbers to solve problems*
  - o Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations
- *Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000*
  - o 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
  - o Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form
  - o 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*
  - o Fluently add and subtract multi-digit whole numbers using the standard algorithm

Welcome to *A Story of Units*!

Each module's parent tip sheet will highlight a new strategy or math model your student will be working on.

Place Value Chart and Place Value Cards – In Module 1, students make extensive use of place value tools, as they have done in earlier grade levels. Now, however, students work with the extended place value chart, which includes place values beyond hundreds, tens, and ones. They may also use place value cards as they have in earlier years to support their learning.

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

(Above) Place Value Chart, to the millions place

(Left) Place Value Cards

Read on to learn a little bit about *Eureka Math*, the creators of *A Story of Units*:

Eureka Math is a complete, PreK–12 curriculum and professional development platform. It follows the focus and coherence of the Common Core State Standards (CCSS) and carefully sequences the progression of mathematical ideas into expertly crafted instructional modules.

This curriculum is distinguished not only by its adherence to the CCSS; it is also based on a theory of teaching math that is proven to work. That theory posits that mathematical knowledge is conveyed most effectively when it is taught in a sequence that follows the "story" of mathematics itself. This is why we call the elementary portion of *Eureka Math* "*A Story of Units*." The sequencing has been joined with successful methods of instruction that have been used in this nation and abroad. These methods drive student understanding beyond process and into deep mastery of mathematical concepts.

The goal of *Eureka Math* is to produce students who are not merely literate, but fluent, in mathematics. Your student has an exciting year ahead, discovering the story of mathematics!

Sample Problem from Module 1:

The school library has 10,600 books.

The town library has 10 times as many books.

How many books does the town library have?

(Sample taken from Module 1, Lesson 3)

hundred thousands	ten thousands	thousands	hundreds	tens	ones

The town library has 106,000 books.
(1 ten thousand 6 hundred) × 10 = 1 hundred thousand 6 thousands = 106,000