



MATH NEWS



LAFAYETTE
UNIVERSITY

Grade 4, Module 1, Topic E

4th Grade Math

Module 1: Place Value of Multi-Digit Whole Numbers

Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. Module 1 of Eureka Math (Engage New York) covers place value, rounding, and algorithms for addition and subtraction.



Focus Area ▶ **Topic E:** Multi-Digit Whole Number Subtraction

Words to Know:

Algorithm - a process or set of rules to be followed in calculations

Difference - answer to a subtraction problem

Bundling, renaming, regrouping, trading - exchanging 10 ones for 1 ten, 10 tens for 1 hundred and so on

Unbundling, renaming, regrouping, trading - exchanging 1 ten for 10 ones, 1 hundred for 10 tens and so on

Decomposing using Place Value

It is vital that students understand how to decompose larger units into smaller units as shown in the example below.

$$53 - 28$$

Tens	Ones
4 5	13
—	8

4 5¹³
- 28
25

One of the 5 tens was unbundled or decomposed into 10 ones. That makes 13 ones. Now we can subtract the 8 ones.

OBJECTIVES OF TOPIC E

- ▶ Use place value understanding to decompose to smaller units once using the standard subtraction algorithm, and apply the algorithm to solve word problems using tape diagrams.
- ▶ Use place value understanding to decompose to smaller units up to 3 times using the standard subtraction algorithm, and apply the algorithm to solve word problems using tape diagrams.
- ▶ Use place value understanding to fluently decompose to smaller units multiple times in any place using the standard subtraction algorithm, and apply the algorithm to solve word problems using tape diagrams.
- ▶ Solve two-step word problems using the standard subtraction algorithm fluently modeled with tape diagrams and assess the reasonableness of answers using rounding.

Focus Area ▶ **Topic E:** Multi-Digit Whole Number Subtraction
Understanding the Subtraction Algorithm

Students will be asked to solve multi-step word problems involving the subtraction of numbers into the millions. These problems are designed to give ample practice with the subtraction algorithm. It is expected that they master the algorithm by the end of 4th grade.

Example Problem and Answer

On Monday, a farm sold 25,196 pounds of potatoes. On Tuesday, they sold 18,023 pounds. On Wednesday, they sold some more potatoes. In all, they sold 62,409 pounds of potatoes in the 3 days.

a. About how many pounds of potatoes did the farm sell on Wednesday? Estimate by rounding each value to the nearest thousand and then compute.

	Rounded Amounts
Monday	25,196 ≈ 25,000
Tuesday	18,023 ≈ 18,000
Total	62,309 ≈ 62,000

62,000

$$\begin{array}{r} 25,000 \\ + 18,000 \\ \hline 43,000 \end{array}$$

$$\begin{array}{r} 62,000 \\ - 43,000 \\ \hline 19,000 \end{array}$$

The farm sold about 19,000 pounds of potatoes on Wednesday.

b. Find the precise number of pounds of potatoes sold on Wednesday.

62,309

$$\begin{array}{r} 25,196 \\ + 18,023 \\ \hline 43,219 \end{array}$$

$$\begin{array}{r} 62,309 \\ - 43,219 \\ \hline 19,190 \end{array}$$

The farm sold 19,190 pounds of potatoes on Wednesday.

c. Is your precise answer reasonable? Compare your estimate from (a) to your answer from (b). Write a sentence to explain your reasoning.

Yes, my answer 19,190 is reasonable because it is close to my estimate of 19,000.



MATH NEWS



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Grade 4, Module 1, Topic F

4th Grade Math

Module 1: Place Value of Multi-Digit Whole Numbers

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Focus Area ▶ Topic F: *Addition and Subtraction Word Problems*

Words to Know:

Algorithm - a process or set of rules to be followed in calculations

Tape diagram - a visual representation of addends using connected rectangles - designed to help students break down and analyze word problems - visually represent part, part, whole relationships

Variable - a letter like x or y that represents an unknown number

Example: in $x + 5 = 7$, x is the variable

Multi-Step Problems with Tape Diagrams

Tape diagrams are used to model single and multi-step word problems. In the example below, the tape diagram helps the student determine which operations will be needed.

Example Problem and Answer

A pair of hippos weighed 5,201 kg together. The female weighed 2,038 kg. How much more did the male weigh than the female?

The male hippo weighed 1,125 kg more than the female hippo.

$$\begin{array}{r} 5,201 \\ - 2,038 \\ \hline 3,163 \end{array}$$

$$\begin{array}{r} 513 \\ - 2,038 \\ \hline 1,125 \end{array}$$

OBJECTIVES OF TOPIC F

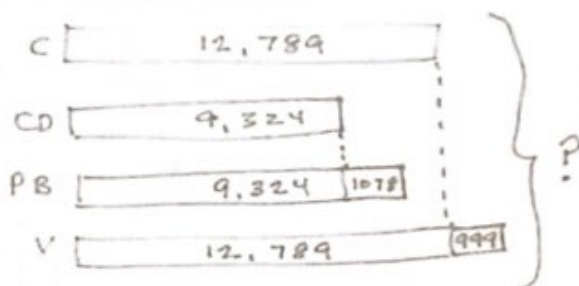
- ▶ Solve additive compare word problems modeled with tape diagrams.
- ▶ Solve multi-step word problems modeled with tape diagrams and assess the reasonableness of answers using rounding.
- ▶ Create and solve multi-step word problems from given tape diagrams and equations.

Focus Area ▶ Topic F: *Addition and Subtraction Word Problems*
Multi-Step Problems with Tape Diagrams

As students continue practicing with tape diagrams, their ability to reason and problem solve will increase as will their ability to work with more complex problems.

Example Problem and Answer

The shop sold 12,789 chocolate and 9,324 cookie dough cones. They sold 1,078 more peanut butter cones than cookie dough cones and 999 more vanilla cones than chocolate cones. What was the total number of ice cream cones sold?



$$\begin{array}{r} 9,324 \\ + 1,078 \\ \hline 10,402 \end{array}$$

$$\begin{array}{r} 12,789 \\ + 999 \\ \hline 13,788 \end{array}$$

$$\begin{array}{r} 12,789 \\ 9,324 \\ 10,402 \\ + 13,788 \\ \hline 46,303 \end{array}$$

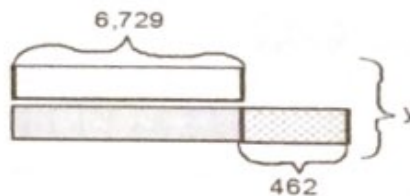
They sold 46,303 ice cream cones!

Starting with Tape Diagrams

Students will be given a tape diagram and asked to create and solve multi-step word problems that would fit it.

Example Problem and Answer

Using the diagram below, create your own word problem and solve for the missing variable.



Answer

Hal had 6,729 baseball cards. Jeff had 462 more cards than Hal. How many did they have altogether?

$$6,729 + 6,729 + 462 = y$$

$$\begin{array}{r} 6,729 \\ 6,729 \\ + 462 \\ \hline 13,920 \end{array}$$

$$y = 13,920$$

Can you think of another problem to match the tape diagram?