MATH NEWS

Grade 4, Module 1, Topic D

4th Grade Math

Module 1: Place Value of Multi-Digit Whole Numbers

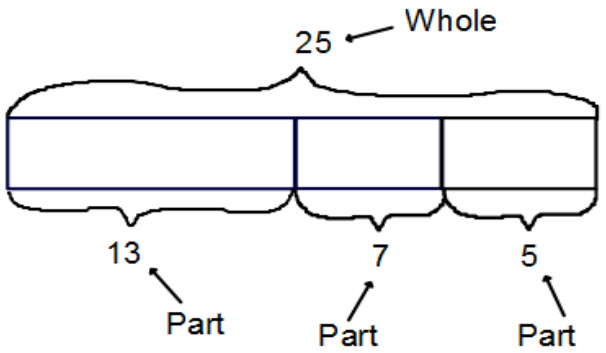
Math Parent Letter

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 D: *Multi-Digit Whole Number Addition*

Words to Know:

Algorithm - a process or set of rules to be followed in calculations
Sum - the answer to an addition problem
Rounding - approximating the value of a given number
Digit - a numeral between 0 and 9
Place value - the numerical value that a digit has by virtue of its position in a number
Tape diagram - a visual representation of addends using connected rectangles – designed to help students break down and analyze a word problem – visually represents part, part, whole relationships as in the example below



OBJECTIVES OF TOPIC D

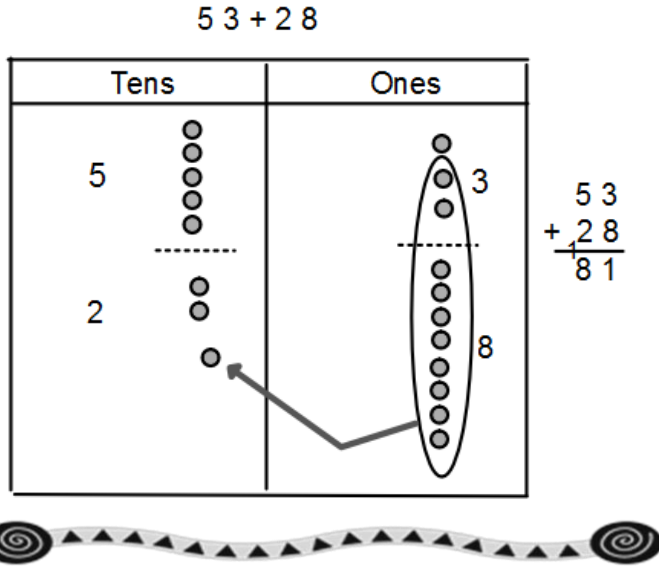
▸ Use place value understanding to fluently add multi-digit whole numbers using the standard addition algorithm and apply the algorithm to solve word problems using tape diagrams.
▸ Solve multi-step word problems using the standard addition algorithm modeled with tape diagrams and assess the reasonableness of answers using rounding.

Focus Area ▸ Topic D: *Multi-Digit Whole Number Addition*

Place Value and Addition

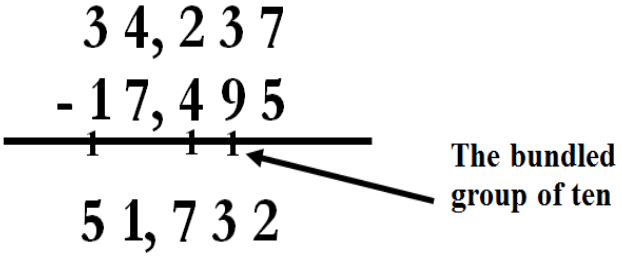
Students will use place value understanding to add multi-digit whole numbers using the standard algorithm and tape diagrams.

In this example, when the 3 ones are added to the 8 ones, we get 11 ones. That means we need to bundle 10 ones and make 1 ten. This understanding is crucial if students are to be successful with using the algorithms for addition, subtraction, multiplication, and division.



Algorithm Strategy

A common strategy used in the standard addition algorithm is altered a bit. In the past, when students bundled a group of ten they brought it to the top of the next column. Students are now placing the bundled ten at the bottom.



By putting the regrouped bundle at the bottom, the students are writing the number in a way they are used to doing. The **12** is not broken up. The **1** ten is written closer to the **2** ones.

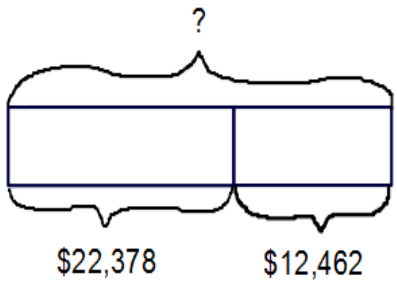
The word problems require the students to use a tape diagram to represent a variety of situations.

Example Problems and Answers

Draw a tape diagram to model the following problems. Use number and words to explain your answer.

1. The school raised $12,462 during the Bowl-a-thon in October. In December, the school raised $22,378 selling wrapping paper. How much money did the school raise?

Setting up a tape diagram will help students see that the 2 parts added together will make the whole.

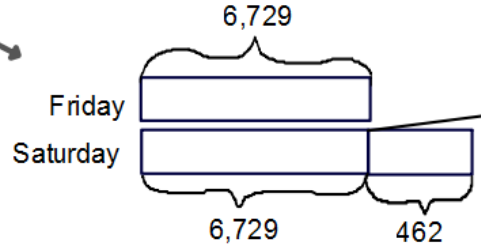


$$\begin{array}{r} \$22,378 \\ +\ \$12,462 \\ \hline \$34,840 \end{array}$$

The school raised $34,840.

2. On Friday, 6,729 people attended the play. On Saturday, 462 more people attended the play than on Friday. How many people attended the play on Friday and Saturday?

Using a tape diagram will help students better understand multi-step word problems.



Saturday

$$\begin{array}{r} 6,729 \\ +\ \ 462 \\ \hline 7,191 \end{array}$$

Friday & Saturday

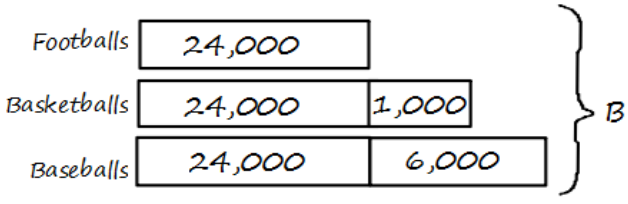
$$\begin{array}{r} 7,191 \\ +\ 6,729 \\ \hline 13,920 \end{array}$$

13,920 tickets were sold on Friday and Saturday.

3. In August, Sports for All sold 24,289 footballs. They sold 1,482 more basketballs than footballs. The number of baseballs sold was 5,655 more than the number of footballs sold. How many footballs, basketballs, and baseballs were sold in August?

a. About how many footballs, basketballs, and baseballs were sold in August?

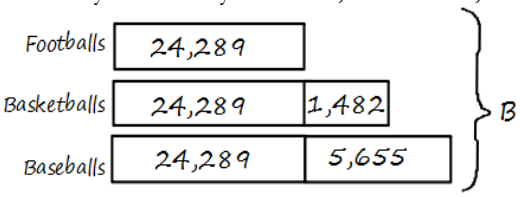
24,289 ≈ 24,000
1,482 ≈ 1,000
5,655 ≈ 6,000



$$\begin{array}{r} 24,000 \\ 25,000 \\ +\ 30,000 \\ \hline 79,000 \end{array}$$

About 79,000 footballs, basketballs, and baseballs were sold in August.

b. Exactly how many footballs, basketballs, and baseballs were sold in August?



$$\begin{array}{r} 24,289 \\ +\ \ 1,482 \\ \hline 25,771 \end{array}$$

$$\begin{array}{r} 24,289 \\ +\ 5,655 \\ \hline 29,944 \end{array}$$

$$\begin{array}{r} 24,289 \\ 25,771 \\ +\ 29,944 \\ \hline 80,004 \end{array}$$

80,004 footballs, basketballs, and baseballs were sold in August.

c. Assess the reasonableness of your answer in (b). Use your estimation from (a) to explain.

Yes, my answer is reasonable because 80,004 is close to my estimation of 79,000.