



MATH NEWS



LAFAYETTE
PARISH SCHOOL SYSTEM

Grade 3, Module 2, Topic E

October 2013

3rd Grade Math

Module 2: Place Value and Problem Solving with Units of Measure

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 2 of Eureka Math (Engage New York) covers Place Value and Problem-Solving with Units of Measure. This newsletter will discuss Module 2, Topic E.

Topic E. Two- and Three- Digit Measurement Subtraction Using Standard Algorithm

Vocabulary Words

Minuends – the quantity or number from which another is subtracted.

Place Value Chart

hundreds	tens	ones

Borrowed is not a word commonly used in the classroom anymore, instead of borrowing students unpack or unbundle, and regroup.

OBJECTIVE OF TOPIC E

- 1 Decompose once to subtract measurements including three-digit minuends with zero in the tens or ones place.
- 2 Decompose twice to subtract measurements including three-digit minuends with zeros in the tens and ones place.
- 3 Estimate differences by rounding and apply to solve measurement word problems.
- 4 Estimate sums and differences of measurements by rounding, and then solve mixed word problems.

Focus Area– Topic E

Two- and Three- Digit Measurement Subtraction Using Standard Algorithm

Solve using a place value chart

Sabrina had 726 milliliters of water when she started her hiking trip. She has 182 milliliters of water after her hiking trip. How many milliliters of water did Sabrina drink?

726 - 182 = _____		
hundreds	tens	ones
7	2	6

726 - 182 = _____		
hundreds	tens	ones
5	4	4

Start with the ones. Can 2 ones be taken away from 6 ones? Yes, 6 ones – 2 ones = 4 ones. Move to the tens, can 8 tens be taken away from 2 tens? No! There are not enough tens to subtract so **unbundle** 1 hundred and create 10 tens. Now there are 12 tens. 12 tens – 8 tens = 4 tens. Can 1 hundred be taken away from 6 hundreds? Yes 6 hundreds – 1 hundred = 5 hundreds.

Sabrina drank 544 mL of water on her hiking trip.

Solve using standard algorithm

Start with the ones place. 6 ones – 2 ones = 4 ones. Now move to the tens place. Can 8 tens be taken from 2 tens? Unpackage 1 hundred for 10 tens. Now regroup and there are 12 tens. Can 8 tens be taken away from 12 tens? Yes 12 tens – 8 tens = 4 tens. Now move to the hundreds place. Because 1 hundred was unpacked from 7 hundreds, there are 6 hundreds left. Can 1 hundred be taken from 6 hundred? Yes, 6 hundreds – 1 hundred = 5 hundreds.

$$\begin{array}{r} 6 \overline{) 726} \\ - 182 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 6 \overline{) 726} \\ - 182 \\ \hline 544 \end{array}$$

Sabrina drank 544 mL of water on her hiking trip. This word problem can be solved in more than one way.

Two- Step: Solve by Decomposing

Casey ran for 50 minutes on Thursday. On Friday she ran for 19 minutes less than she ran on Thursday. How many total minutes did she run on Thursday and Friday?

First find out how many minutes she ran on Friday.

Decompose the 50 into 30 and 20. Subtract the 19 from the 20. $20 - 19 = 1$. The numbers left are 30 and 1. $30 + 1 = 31$. She ran 31 minutes on Friday.

Thursday = 50 minutes
Friday = 50 minutes - 19 minutes

$$\begin{array}{r} 50 \\ -19 \\ \hline 31 \end{array}$$

She ran 31 minutes on Friday

Next find out how many minutes she ran on Thursday and Friday together. $50 + 31 = 81$ She ran 81 minutes total.

Draw a Tape Diagram to Solve

Tammy went to the fruit stand. She bought 682 grams strawberries on Monday. On Tuesday she buys 273 grams of strawberries. How many more strawberries did Tammy buy on Monday than on Tuesday?

682 g
273 g

?

$\begin{array}{r} 7\ 12 \\ 682 \\ -273 \\ \hline 409 \end{array}$

Tammy bought 409 g more strawberries on Monday than on Tuesday.

Draw a Tape Diagram to Solve

John has to drive from Lafayette to New Orleans. The total distance is 294 kilometers. John has 85 kilometers left to drive, how many kilometers did John drive so far?

294 km
85 km

?

$\begin{array}{r} 8\ 14 \\ 294 \\ -85 \\ \hline 209 \end{array}$

John drove 209 km

Estimate the 449 - 262 by Rounding

$$449 - 262 = 187$$

- | | |
|--------------------|-------------------|
| a. Nearest Hundred | $400 - 300 = 100$ |
| b. Nearest Fifty | $450 - 250 = 200$ |
| c. Nearest Ten | $450 - 260 = 190$ |

Only C could help check to see if the answer is **reasonable** (makes sense). If A or B was used the exact answer could be way off. A close estimate is needed to see if the actual sum is reasonable.

Subtract Using Mental Math Strategies

Strategy 1: "Breaking up Tens and Ones" - Abstractly:

$$\begin{array}{r} 57 - 18 = 39 \\ 47\ 10 \\ -10\ -8 \\ \hline 37\ 2 \end{array}$$

Equations:

$$\begin{aligned} 57 - 18 \\ = (47 - 10) \text{ and } (10 - 8) \\ = 37 + 2 \\ = 39 \end{aligned}$$

Strategy #3 Compensation: "Uncle and Nephew"

Equations:

$$\begin{aligned} 57 - 18 \\ +2\ +2 \\ = 59 - 20 \\ = 39 \end{aligned}$$

Strategy 4: "Rounding Numbers":

Equations:

$$\begin{aligned} 57 - 18 \\ = 57 - 20 + 2 \\ = 39 \end{aligned}$$

Strategy 2: "Breaking up the 2nd term"

Number Bonds:

$$\begin{array}{r} 57 - 18 \\ 17\ 1 \end{array}$$

Equations:

$$\begin{aligned} 57 - 18 \\ = 57 - 17 - 1 \\ = 40 - 1 \\ = 39 \end{aligned}$$

Strategy 5: "Number Lines":

