MATH NEWS

Grade 5, Module 2, Topic H

5th Grade Math

Module 2: Multi-Digit Whole Number and Decimal Fraction Operations

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. Grade 5 Module 2 of Eureka Math (Engage New York) covers Multi-Digit Whole Number and Decimal Fraction Operations. This newsletter will discuss Module 2, Topic H. In this topic, students apply the work of Module 2 to solve multi-step word problems using multi-division.

Topic H. Measurement Word Problems with Multi-Digit Division

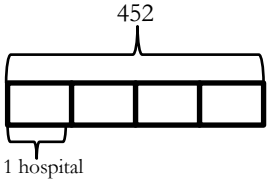
Words to know:

- Model/Tape Diagram
- Equation/Number Sentence
- Units/Sections
- Reasonableness
- Solution/Answer

Things to remember:

- **Tape Diagram –** Drawing that looks like a segment of tape, used to illustrate number relationships.

Example: There are 452 heart pamphlets that must be delivered to 4 hospitals. If each hospital receives the same amount, how many pamphlets are delivered to each hospital?



The whole diagram represents the 452 pamphlets. Since there are 4 hospitals, the diagram is divided into 4 units/sections. To find the value of 1unit/ section you would divide 452 by 4.

- **Approach to solving a problem**: Draw a **model**, write an **equation/number sentence**, compute, and assess the **reasonableness** of **answer/solution**.

OBJECTIVE OF TOPIC H

- Solve division word problems involving multi-digit division with group size unknown and the number of groups unknown.

Focus Area– Topic H

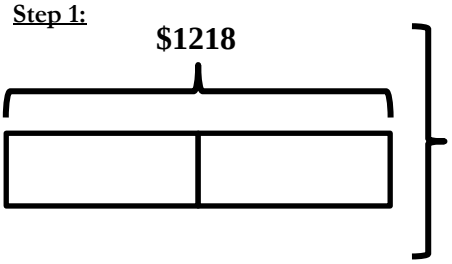
Measurement Word Problems with Multi-Digit Division

Example 1:

Billy is saving for a 52 inch flat screen TV that costs $1,218. He already saved half of the money. Billy earns $14.00 per hour. How many hours must he work in order to save the rest of the money?

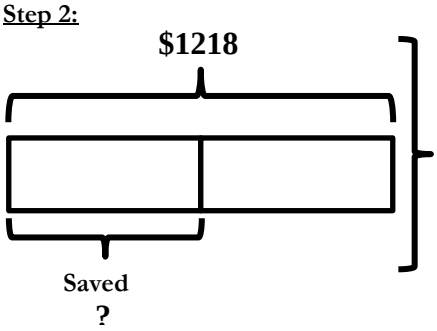
Strategy Approach:

Step 1:



Draw a tape diagram to represent $1,218 which is amount he needs to buy the TV. It is divided into 2 equal **units** since the problem states that he already saved half of the money.

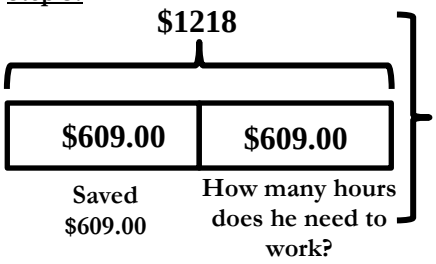
Step 2:



To find out how much he already saved, we divide 1218 by 2.

Equation:
1218 ÷ 2 = 609

Step 3:



If half is equal to $609.00, then the other half is equal to $609.00.

Since he makes $14.00 per hour, we want to find out how many 14s are contained in 609.

Number sentence:
609 ÷ 14 = 43.5

Solution/Answer: Billy needs to work 43.5 more hours.

Reasonableness:

609 ÷ 14
≈ 600 ÷ 10
= 60

Student could round 14 to 10 and 60 is a multiple of 10. Since 14 is rounded down to 10, the answer will be less than the estimate.

OR

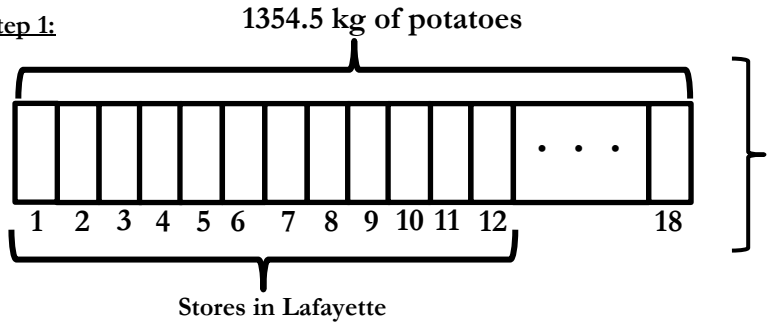
609 ÷ 14
≈ 600 ÷ 15
= 40

Student knows that 15 is a factor of 60 and 15 is very close to 14.

Example 2:
Mr. Smith has 1354.5 kilograms of potatoes to deliver in equal amounts to 18 stores. 12 of the stores are in Lafayette. How many kilograms of potatoes will be delivered to stores in Lafayette?

Strategy Approach:

Step 1:



The tape diagram drawn to represent the total kilograms of potatoes (1354.5 kg) that needs to be deliver to 18 stores. The three dots in the rectangle between 12 and 18 represent stores 13 to 17.

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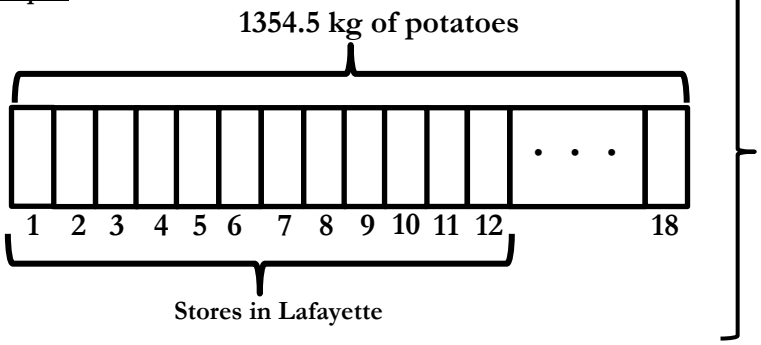
The **model** is showing 18 units (equal sections) that equal 1354.5. We have to find the value of 1 **unit** or one section.

Step 2:



Equation:
1354.5 ÷ 18 = 75.25

75.25 kg of potatoes delivered to each store.

Assess the **reasonableness**:
Round the divisor: 18 rounds to 20
13 is not a multiple of 2 but 14 is so our whole or dividend is 1400.

1400 ÷ 20
= (1400 ÷ 2) ÷ 10
= 700 ÷ 10
= 70
We can conclude that 75.25 does make sense since it is close to 70.
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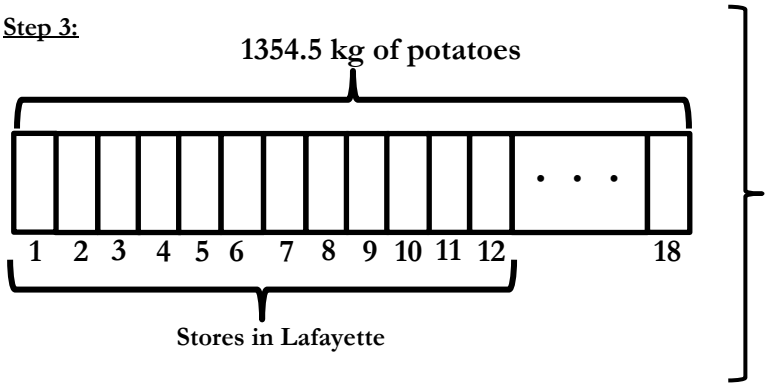
Step 3:



Now that we know the kilograms of potatoes delivered at each store, we need to multiply 75.25 kg times 12 to determine how many kilograms of potatoes were delivered to the 12 stores in Lafayette.

Equation: 75.25 x 12 = 903 kg

903 kg of potatoes were delivered to 12 stores in Lafayette.

Assess the **reasonableness**:
When studying the model it is easy to see that more than half of the total amount of potatoes is being delivered to stores in Lafayette. 903 kg is more than half.