Name: ________________________________ Date: ________________________

BLM 8–15

Chapter 8 Math Link: Wrap It Up!

This worksheet will help you with the Wrap It Up! on page 333.

Use the data from the table on page 333 to write a word problem that can be solved using each of the following types of linear equations:

a) an equation of the form $ax = b$
Choose one food from the table. The amount of energy in one serving will be the constant a in your equation. The unknown number of servings is represented by x. The result is b, which is the known amount of total energy.

Example: A pitcher is filled with an unknown number of servings of buttermilk, which have a total of 1.32 MJ of energy. One serving of buttermilk has 0.44 MJ of energy. How many servings of buttermilk are in the pitcher?
Equation: $0.44x = 1.32$

Create a similar problem of your own. Then, show a solution.

b) an equation of the form $\frac{x}{a} = b$
Choose one food from the table. The amount of energy in one serving will be the constant a in your equation. The unknown amount of total energy is x. The result is b, which is the known number of servings.

For example: A block of cheddar cheese has an unknown total amount of energy. When it is cut into two pieces, each piece has 0.76 MJ of energy. What was the total energy of the block of cheese?
Equation: $\frac{x}{0.76} = 2$
Create a similar problem of your own. Then, show a solution.

c) an equation of the form $ax + b = c$
Choose a food from the table. The amount of energy in one serving will be the constant a in your equation. The number of servings of this food is the unknown number, x. Choose another food from the table. The amount of energy in one serving will be the constant b in your equation. The result is c, which is the known amount of total energy.

Name: ______________________________ Date: ________________________

BLM 8–15
(continued)

For example: Bob ate some lentils and one serving of corn. The total amount of energy Bob consumed was 2.39 MJ. How many servings of lentils did Bob eat?

Equation: $1.02x + 0.35 = 2.39$

Use two foods from the list to create a similar problem of your own. Then, show a solution.

d) an equation that includes a grouping symbol
An example of this type of equation is $a(x + b) = c$. To solve equations of this type, you must use the distributive property. Choose a food from the table. The amount of energy in one serving of this food is the constant a. The number of servings of this food is the constant b. A second number of servings of this food is the unknown number, x. The result is c, which is the known amount of total energy in all the servings.

For example: Sasha and John both ate some mangoes. Sasha had two servings of mangoes. Their snacks had a total energy value of 2.4 MJ. One serving of mango has an energy value of 0.48 MJ. How many servings of mango did John eat?
Equation: $0.48(2 + x) = 2.4$

Use two foods from the list to create a similar problem of your own. Then, show a solution.

e) an equation with the same variable on both sides
An example of this type of equation is $ax + b = cx + d$.

For example: A recipe calls for an equal number of servings of lentils and potatoes. The lentils in the recipe provide 0.32 MJ more energy than the potatoes. How many servings are there of the two foods in the recipe?

For the problem to be solved for x, you must provide the values of a, b, and c
In the example,
a = the energy in a serving of lentils, or ________ MJ
c = the energy in a serving of potatoes, or ________ MJ
b = the difference between the two foods, or ________ MJ
substitute into $ax = b + cx$: $1.02x = 0.32 + 0.94x$.

The creator of the example problem determined beforehand that the answer to the problem would be $x = 4$. So, $1.02(4) - 0.94(4) = b$, or 0.32.

Use two foods from the list to create a similar problem of your own. Then, show a solution.