6th Grade Unit 3 RWE Teacher's Notes
(Student pages are at the end)

These tasks are modeled from Illustrative Mathematics. A link to those lessons are embedded where applicable.

The school is having a fundraiser and wants to make a somewhat healthy sweet & salty snack to sell during Family Fun Night. This sweet & salty party mix has M&Ms, raisins, almonds, and pretzels in it.

Practice lesson http://www.illustrativemathematics.org/illustrations/1032

In the recipe, there are twice as many cups of raisins as cups of almonds. There are two times as many cups of M&Ms as cups of pretzels, and there are three times as many cups of pretzels as cups of raisins.

Task 1: Create a ratio table that shows various amounts of each ingredient and the total number of cups it makes. Students can use various values in the table as long as the values match the given ratios

Cups of Raisins	Cups of Almonds	Cups of M&Ms	Cups of Pretzels	Total Cups of Sweet & Salty Mix
2	1	12	6	21
4	2	24	12	42
6	3	36	18	63
8	4	48	24	84
10	5	60	30	105
12	6	72	36	126

Task 2: Using information from the ratio table and your knowledge of using variables to write algebraic expressions, write an expression that represents the amount of all the ingredients put together in terms of a single variable, x. $2x + x + 12x + 6x$

raisins + almonds + M&Ms + pretzels

Task 3: If you need to make 63 cups of sweet & salty mix, how many cups of raisins do you need? Show how to calculate this amount using the expression you wrote in Task 2. Is this amount equivalent to the amount of raisins you listed for 63 cups of total mix in the ratio table from Task 1?

$2x + x + 12x + 6x = 63$ where x is the cups of almonds you need for the recipe

$3x + 18x = 63$

$21x = 63$

$\frac{21x}{21} = \frac{63}{21}$

$X = 3$

You need 3 cups of almonds for 63 cups of mix and you need 6 cups of raisins for 63 cups of mix because the recipe calls for twice as many raisins as almonds. Yes, this amount is the same value as in the ratio table.

Discuss with students that either table or equation would yield the correct answer. **Have discussions as to when it would be advantageous to use the various ways to calculate the exact amount of the ingredients. Why do we use one way sometimes and the other way other times? Is there a "right" way?**

Practice lesson http://www.illustrativemathematics.org/illustrations/642

Task 4 is assessed and recorded in Skyward. Students should complete this task independently.

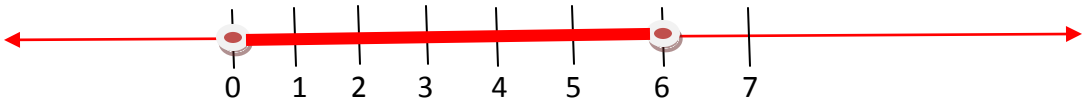
Task 4: This task is the one that is assessed for RWE Skyward grade

Now the school needs to transport the prepared snack mix. Each box can hold up to six containers of sweet & salty mix. Also, each box can hold up to 8 pounds of weight.

a) Write an inequality to describe the number of containers that can fit into a box. Draw a number line diagram that shows all possible solutions.

C is the number of containers that fit in a box

$0 \leq c \leq 6$

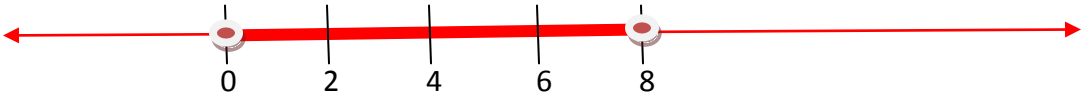


Graph cannot extend past 0 since you cannot have a negative container in a box. Graph cannot extend past 6 since you cannot have more than 6 containers in a box.

b) Write an inequality that describes all total weights allowed in a box. Draw a number line diagram that shows all possible solutions.

W is the amount of pounds in a box

$0 \leq w \leq 8$



Graph cannot extend past 0 since you cannot have a negative weight in a box. Graph cannot extend past 8 pounds since you cannot have more than 8 pounds in a box.

Practice lesson http://www.illustrativemathematics.org/illustrations/806

The school decides to sell the sweet & salty mix by the individual container or by the box. Each container sells for $1.25 and each full box holds six containers.

c) Write an equation for the amount of money, *m*, that will be collected if boxes, *b*, of sweet/salty mix are sold.

$m = b(1.25 \cdot 6)$ or $b = m/1.25 \cdot 6$

(it is important to remember that there are 6 containers in a box so that the box price is 6 times the container price)

d) Which is the independent variable? Which is the dependent variable? How do you know?

Independent variable is b (boxes)

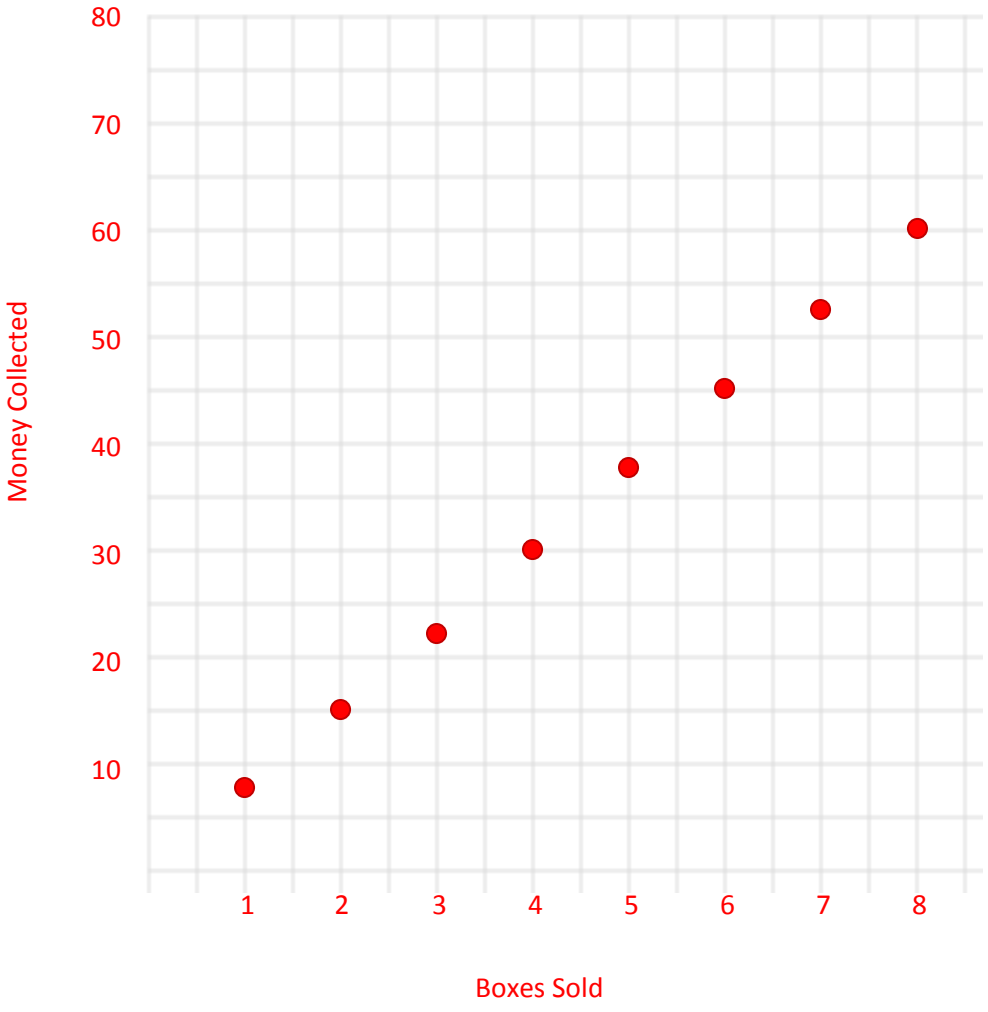
Dependent variable is m (money)

I know this because the value of m changes based on b. When you sell boxes, the amount you collect changes based on the amount of boxes you sell.

e) Make a table to show the possible values for the number of boxes sold and the amount of money collected. Answers may vary.

Number of boxes	Amount of Money Collected
1	$7.50
2	$15.00
3	$22.50
4	$30.00
5	$37.50
6	$45.00
7	$52.50

f) Create a graph of the equation using the ordered pairs from the table you created.



g) How much money will be collected if 100 boxes of sweet & salty mix are sold? How did you develop your answer?

if b = boxes sold and you sell 100 boxes, then b = 100

m = money collected

m = 100 (1.25 ▪ 6)

m = 100 (7.50)

m = $750

If 100 boxes are sold, then the school collected $750. Work shown may vary.

I used the equation I developed earlier. I substituted in 100 for b, the amount of boxes, into the equation and solved for m which is the amount of money collected.

You could also use a table and extend it to 100 boxes. You could also extend the graph and get the answer there.

h) The school collects $382.50 from sales of sweet & salty mix. How many boxes did they sell? How did you develop your answer?

If m = the amount of money collected, then m = $382.50
b = boxes sold
b = 382.50 ÷ (1.25 ▪ 6)
b = 382.50 ÷ 7.50
b = 51
If the school collects $382.50 collects, then the school sells 51 boxes.

I used the equation I developed earlier. I substituted in m = 382.50, the amount of money collected, into the equation and solved for b which is the amount of boxes sold.

You could also use a table and extend it to $382.50. You could also extend the graph and get the answer there.

Scoring Guide 6th Grade Unit 3 RWE

Name: _____

Advanced (100%)	○ Student meets criteria for proficient and demonstrates additional, higher level math conceptual understanding
Proficient (95%)	○ Writes inequalities accurately ○ Graphs inequalities accurately ○ Writes equation accurately ○ Identifies variable types ○ Completes value table accurately ○ Graphs ordered pairs correctly including labels ○ Accurately determines dollars collected and explains thinking ○ Accurately determines boxes sold and explains thinking
Basic (80%)	○ Meets 6 of 8 of the proficient criteria
Below Basic (60%)	○ Meets less than 6 of the proficient criteria Task to be repeated after re-teaching
Comments:	

6th Grade Unit 3 RWE

The school is having a fundraiser and wants to make a somewhat healthy sweet & salty snack to sell during at Family Fun Night. This sweet & salty party mix has M&Ms, raisins, almonds, and pretzels in it.

In the recipe, there are twice as many cups of raisins as cups of almonds. There are two times as many cups of M&Ms as cups of pretzels, and there are three times as many cups of pretzels as cups of raisins.

Task 1: Create a ratio table that shows various amounts of each ingredient and the total number of cups it makes.

Cups of Raisins	Cups of Almonds	Cups of M&Ms	Cups of Pretzels	Total Cups of Sweet & Salty Mix

Task 2: Using information from the ratio table and your knowledge of using variables to write algebraic expressions, write an expression that represents the amount of all the ingredients put together in terms of a single variable, *x*.

Task 3: If you need to make 63 cups of sweet & salty mix, how many cups of raisins do you need? Show how to calculate this amount using the expression you wrote in Task 2. Is this amount equivalent to the amount of raisins you listed for 63 cups of total mix in the ratio table from Task 1?

Task 4: Now the school needs to transport the prepared snack mix. Each box can hold up to six containers of sweet & salty mix. Also, each box can hold up to 8 pounds of weight.

a) Write an inequality to describe the number of containers that can fit into a box. Draw a number line diagram that shows all possible solutions.

b) Write an inequality that describes all total weights allowed in a box. Draw a number line diagram that shows all possible solutions.

The school decides to sell the sweet & salty mix by the individual container or by the box. Each container sells for $1.25 and each full box holds six containers.

c) Write an equation for the amount of money, *m*, that will be collected if boxes, *b*, of sweet/salty mix are sold.

d) Which is the independent variable? Which is the dependent variable? How do you know?

e) Complete the table showing possible values for the number of boxes sold and the amount of money collected.

f) Graph the equation using the ordered pairs from the table you created.

g) How much money will be collected if 100 boxes of sweet & salty mix are sold? How did you develop your answer?

h) The school collects $382.50 from sales of sweet & salty mix. How many boxes did they sell? How did you develop your answer?