

# LESSON

# 6

# A Closer Look at Histograms— Sweet!

## LEARNING OBJECTIVES

- Today I am: creating a bar graph and histogram of data about candy.
- So that I can: look at similarities and differences with these displays.
- I'll know I have it when I can: create and analyze histograms.

## Opening Reading

Are candy bars getting smaller or do you just think they are? A poll of 500 people in the U.S. found that 48.3% of them believed that their favorite sweet treats were getting smaller.

1. Below is a table of four popular candy bars and their weight in grams over several decades. What patterns do you see?

Decade	KitKat	Mars	Snickers	Hershey's Milk Chocolate Bar	Twix
1960	35 grams			35 grams	
1970	35 grams			46 grams	
1980	35 grams	49 grams	45 grams	43 grams	60 grams
1990	45 grams	65 grams	62 grams	43 grams	60 grams
2000	48 grams	50 grams	58 grams	43 grams	58 grams
2010	45 grams	51 grams	48 grams	42 grams	50 grams

Data source: <http://www.appliancecity.co.uk/news/updates/is-our-chocolate-getting-smaller/?awin=78888>

2. Why might candy bars be smaller now than they were decades ago?

- Cost less → more profit  
- inflation.  
- Health reasons .

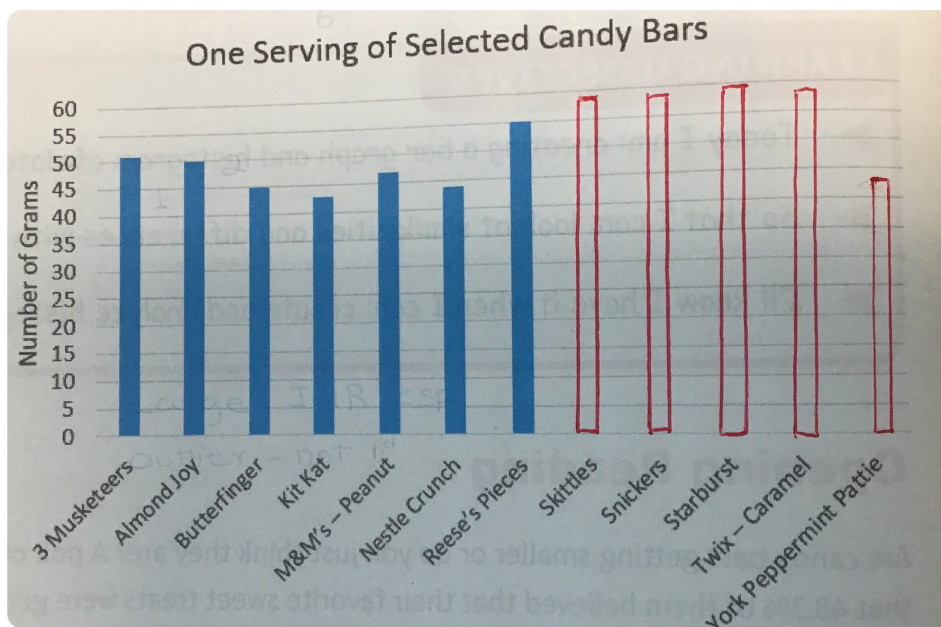
## Opening Activity

3. The table below lists the number of grams of 12 candy bars. Use the table to complete the bar graph.



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Candy Name	Number of Grams
3 Musketeers	51
Almond Joy	50
Butterfinger	45
Kit Kat	43
M&M's—Peanut	47
Nestle Crunch	44
Reese's Pieces	55
Skittles	57
Snickers	57
Starburst	59
Twix—Caramel	57
York Peppermint Pattie	43

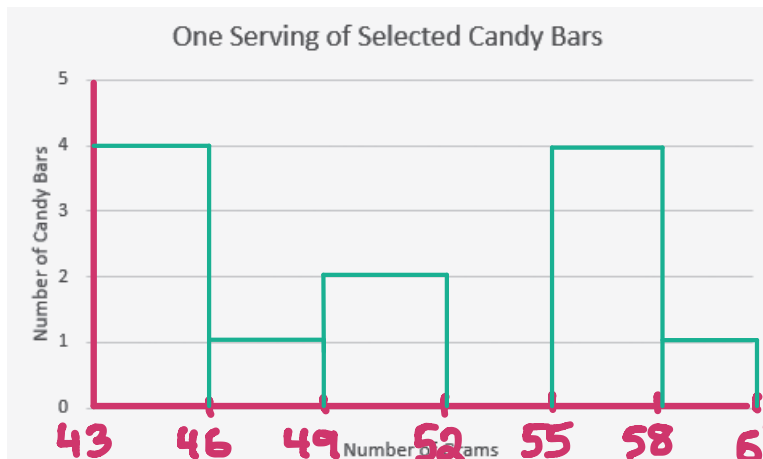


Source: <http://www.cnn.com/FOOD/resources/food.for.thought/sweets/compare.candy.bar.html>

43, 43, 44, 45, 47, 50, 51, 55, 57, 57, 57, 59

4. Use the same data to create a histogram.

5. Why might someone be interested in how many grams are in a single serving of each candy bar?

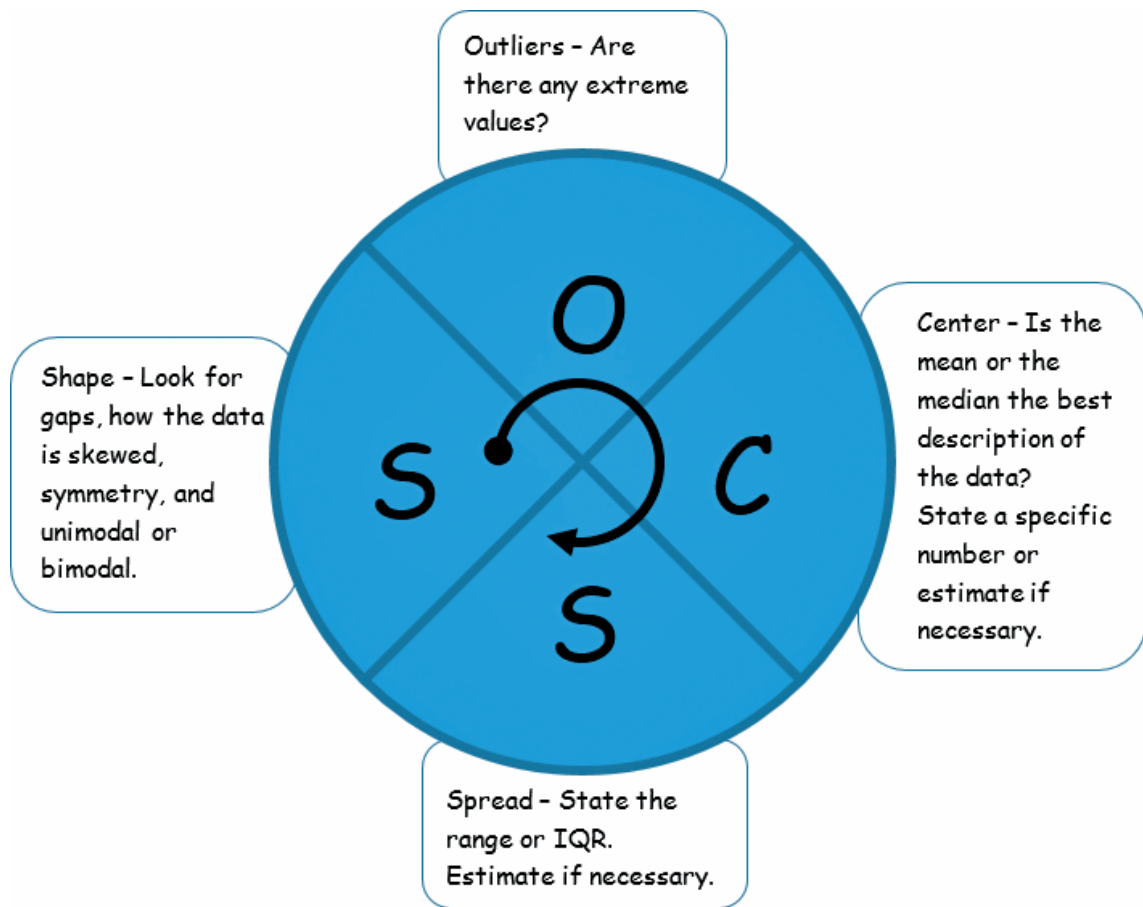


mean = 50.6  
median = 50.5

$43 \leq x < 46$

43 - 46  
46 - 49

Histograms have similar characteristics as other graphical representations. You can use the SOCS diagram we saw in Lesson 3 to describe histograms.



6. Use SOCS to describe the number of grams of the candy bars.

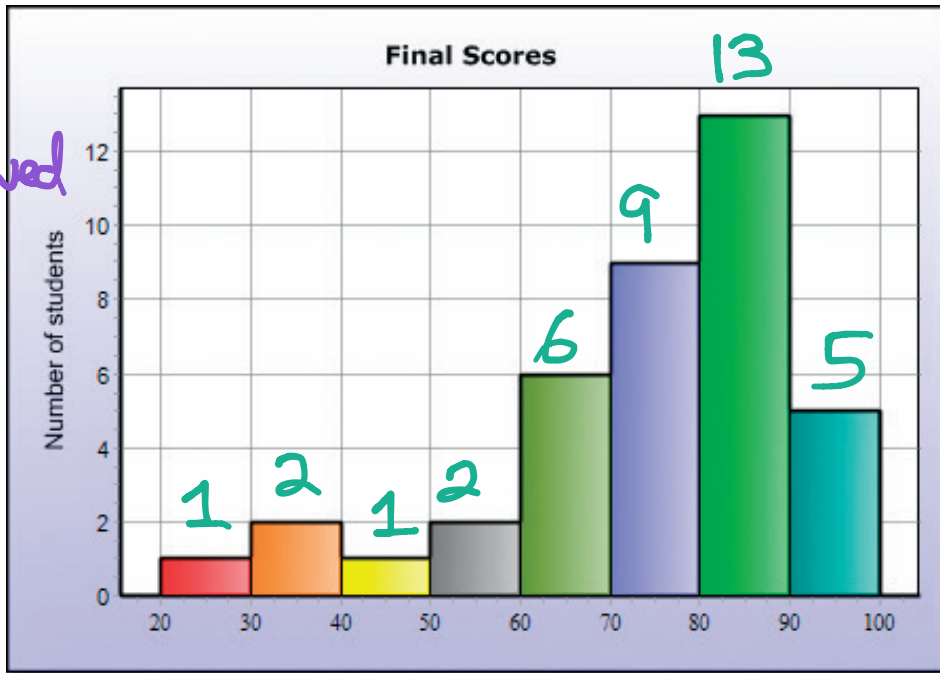
S bimodal, gap (52-54)

O none

C either

S range

7. A. For the histogram below, describe the distribution using SOCS.



S Left skewed  
 O Possible  
 C median ~ 70  
 S IQR

B. Can we determine the original data from the graph? Explain.

No, the bins do not show the actual data.

C. How many students earned less than a 60% on their final?

6

D. How many students took this final?

39

E. Approximate the mean of the data.

~ 60-65?

8. Use the histogram at the right to answer the questions.

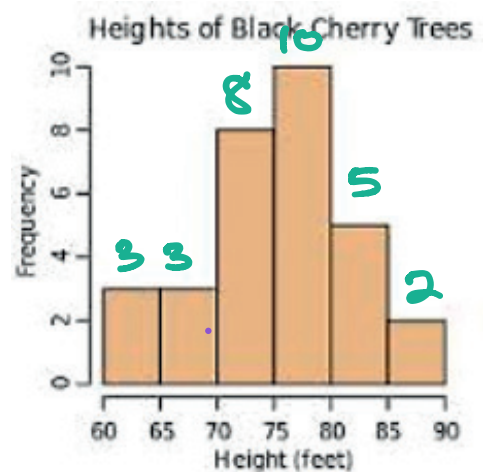
left inclusive

A. How many cherry trees here between 70 and 74.99 feet in height?

8

B. How many cherry trees were measured altogether?

31



C. Can we tell from this histogram what the minimum and maximum are? If yes, what are they? If not, explain.

No

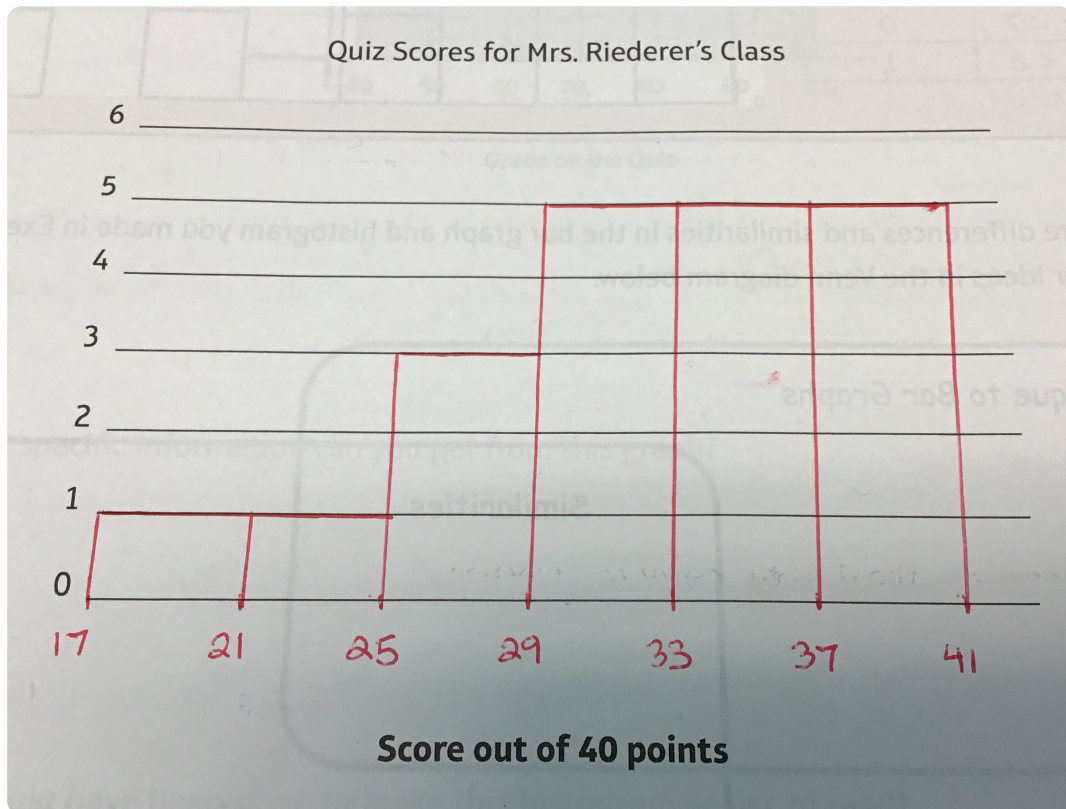
D. Without calculating, what is an approximate mean for this data?

around 76

9. Mrs. Riederer gave her students a quiz out of 40 points. Their scores were:

40	39	39	38	37	35	35	35	35	34
32	31	31	30	29	28	28	28	24	18

Create a histogram of the data. Then describe the data using SOCS.





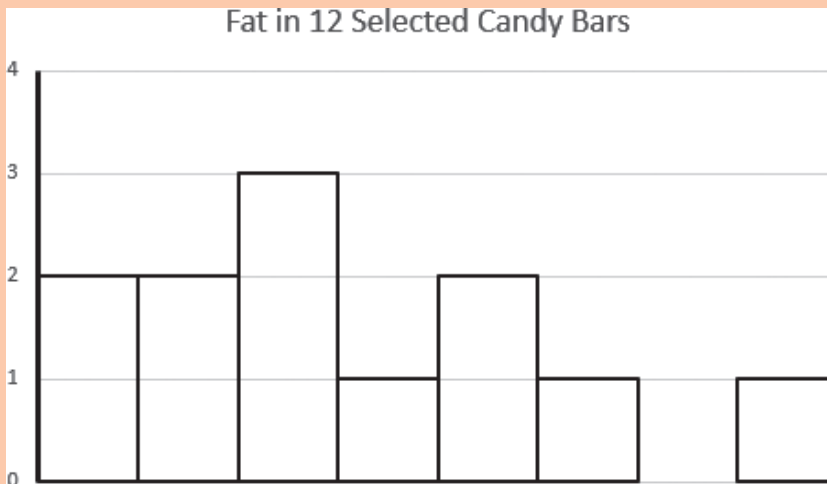
10. Write in the labels on the horizontal axis of the histogram in the summary below.

## Lesson Summary

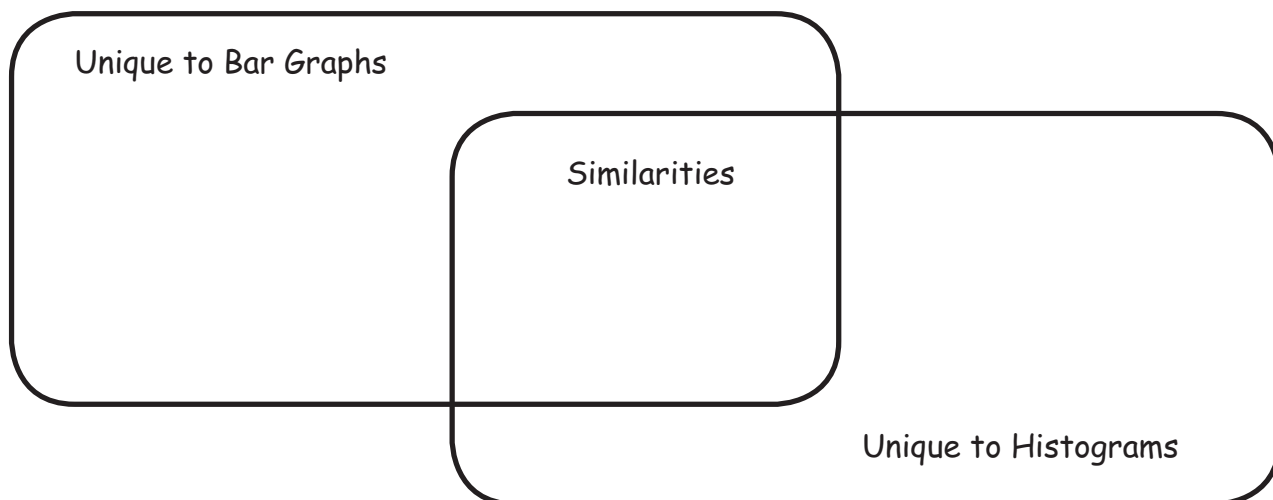
Here are the grams of fat in 12 candy bars: 1.5, 2.5, 5.5, 3, 4.5, 2.5, 7, 0, 0, 4.5, 2.5, 1.5

Intervals:

Grams of Fat	Frequency (counts)
$0 \leq x < 1$	2
$1 \leq x < 2$	2
$2 \leq x < 3$	3
$3 \leq x < 4$	1
$4 \leq x < 5$	2
$5 \leq x < 6$	1
$6 \leq x < 7$	0
$7 \leq x < 8$	1



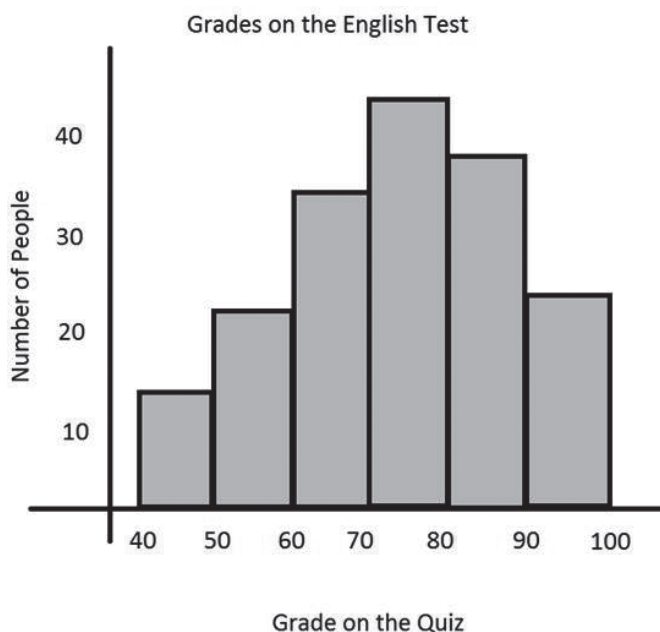
11. What are differences and similarities in the bar graph and histogram you made in Exercise 4? List your ideas in the Venn diagram below.



NAME: \_\_\_\_\_ PERIOD: \_\_\_\_\_ DATE: \_\_\_\_\_

# Homework Problem Set

1. A. Describe the distribution of the data in the histogram below.



B. What specific information can you get from this graph?

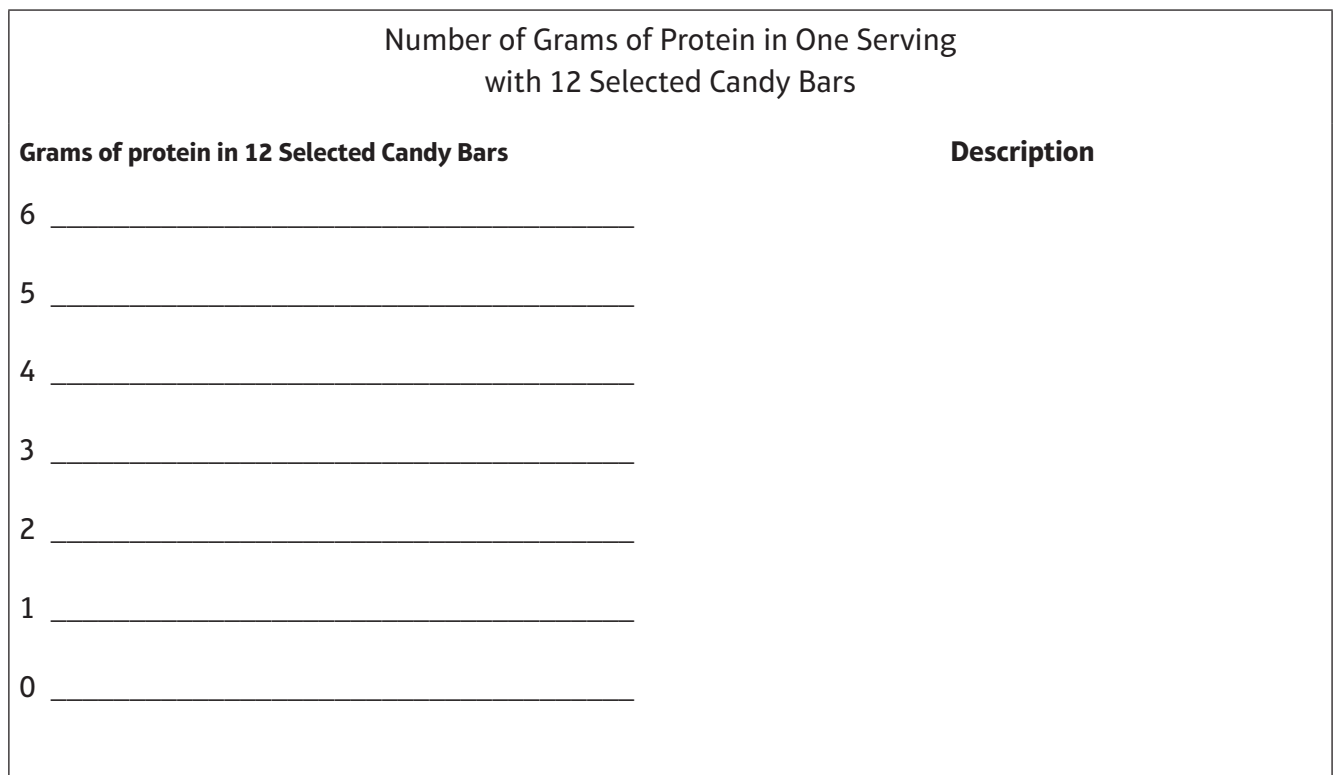
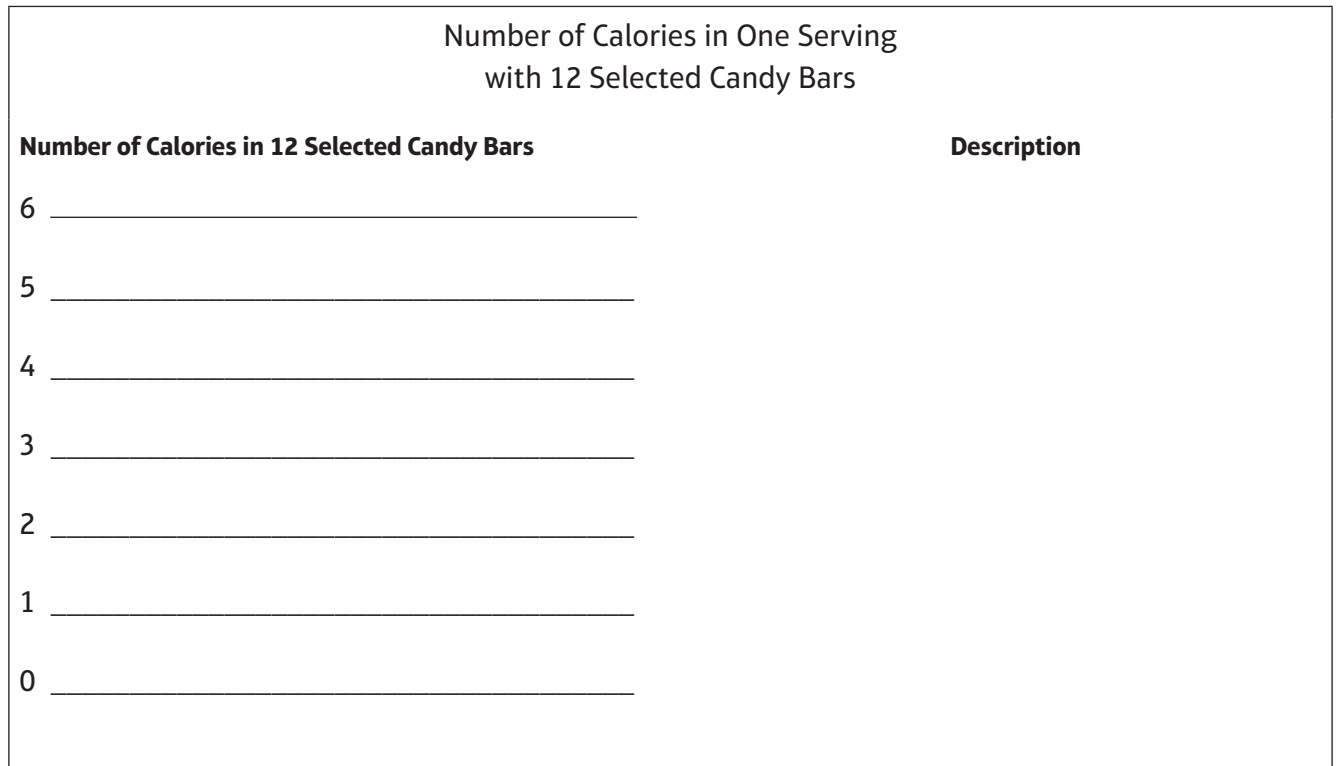
C. What could have been done to make this histogram easier to read?

2. Use the data on candy bars data to create two histograms—one on the number of calories and one on the grams of protein. Then describe the data in each distribution.

<b>Candy Name</b>	<b>Number of Grams</b>	<b>Calories</b>	<b>Proteins in Grams</b>
3 Musketeers	51	212	1.5
Almond Joy	50	232	2.5
Butterfinger	45	216	5.5
Kit Kat	43	220.5	3
M&M's—Peanut	47	242.5	4.5
Nestle Crunch	44	229.5	2.5
Reese's Pieces	55	258	7
Skittles	57	231	0
Snickers	57	273	4.5
Starburst	59	233.5	0
Twix—Caramel	57	284.5	2.5
York Peppermint Pattie	43	149	1.5

Source: <http://www.cnn.com/FOOD/resources/food.for.thought/sweets/compare.candy.bar.html>





**Spiral REVIEW—Solving Equations**

Solve each equation.

3.  $4n - 2n = 4$

4.  $-12 = 2 + 5v + 2v$

5.  $3 = x + 3 - 5x$

6.  $x + 3 - 3 = -6$

7.  $-12 = 3 - 2k - 3k$

8.  $-1 = -3r + 2r$

9.  $6 = -3(x + 2)$

10.  $-3(4r - 8) = -36$

11.  $24 = 6(-x - 3)$

12.  $75 = 3(-6n - 5)$