

## Taking a Survey Performance Task – Part 2

Name: **Mr. Example**

Step 1: What was your statistical question? Explain why you were interested in this question.

Statistical Question: **How many hours of sleep per night do 6<sup>th</sup> graders get? Also, do 6<sup>th</sup> grade boys and girls sleep different amounts?**

Why were you interested in this question? **This is a question that is very important to us teachers because learning is greatly affected by sleeping patterns. We would like to see if 6<sup>th</sup> graders are getting enough sleep here at ISM.**

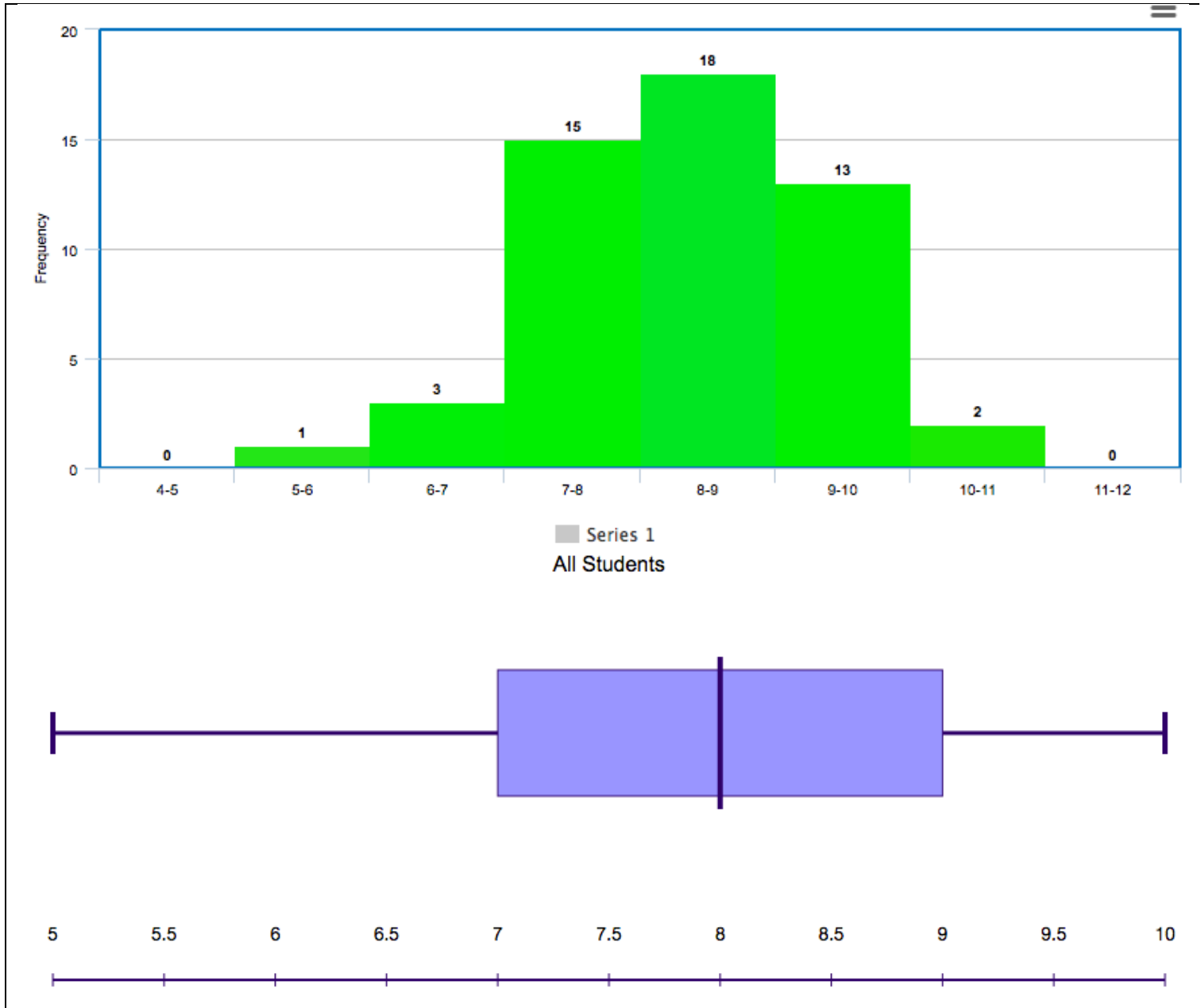
Step 2: What data did you collect? On a separate piece of graph paper organize your data on a frequency table. Make sure the totals for each number/category are clear. Include the percentages represented by each data interval.

All Students				Boys			
Number of Hours Sleeping Per Night	Tally	f	%	Number of Hours Sleeping Per Night	Tally	f	%
4		0	0%	4		0	0%
5	I	1	1.9%	5		0	0%
6	III	3	5.8%	6		0	0%
7	### III	15	28.8%	7	### II	7	26.9%
8	### III III III	18	34.6%	8	### III	8	30.8%
9	### III III	13	25%	9	### III	9	34.6%
10	II	2	3.8%	10	II	2	7.7%
11		0	0%	11		0	0%
Totals:		52	100%	Totals:		26	100%

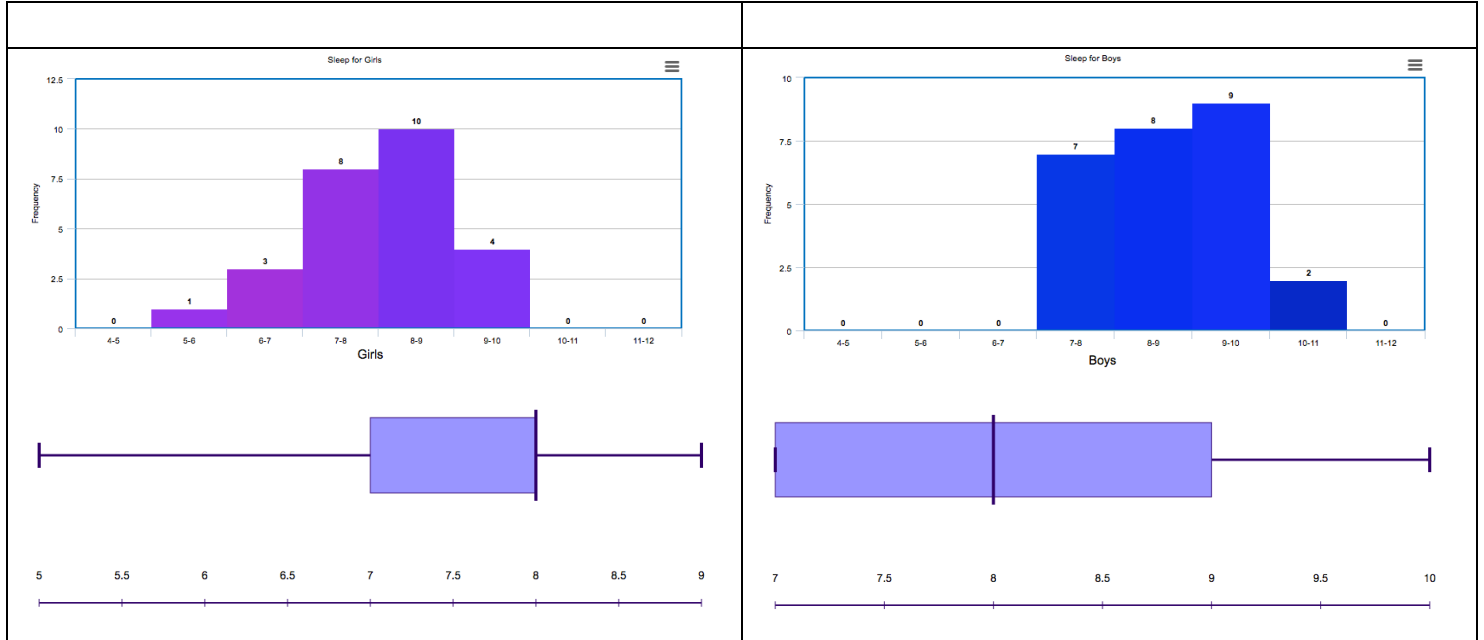
  

Girls			
Number of Hours Sleeping Per Night	Tally	f	%
4		0	0%
5	I	1	3.8%
6	III	3	11.5%
7	### III	8	30.8%
8	### III	10	38.5%
9	IIII	4	15.4%
10		0	0%
11		0	0%
Totals:		26	100%

Step 3: a) Organize and graph your data on a box plot and/or a histogram if you have a range of data.



b) Graph your data again after breaking it down according to gender, side or other characteristic. You may need to create two graphs, one for each characteristic. You may choose any type of graph that you feel works best to represent your data.



Step 4: Describe the shape and distribution of your data from your graphs.

**Graph All Students:** The data for all students was fairly evenly distributed with a slight long tail to the left. There was just one student who slept for 6 hours that caused this. The middle 50% of the data were close to symmetrical. Overall, there is little spread in the data. The vast majority of students sleep between 7 and 9 hours.

**Graph Boys:** There appears to be a slight long tail to the right. There are no data points below 7 hours and one student who slept 10 hours causing the right tail. The middle 50% of the data is not symmetrical as there are more students who sleep 9 hours than do 8 hours.

**Graph Girls:** The girls' data shows a long tail to the left. There are few who slept 9 hours and several who slept 5 and 6 hours. The middle 50% of the data is not symmetrical at all as the median and upper quartile are the same value. There is a large concentration of girls who sleep 7 and 8 hours.

Step 5: Find the measures of center- mean, median and mode - of your total data set.

ALL Students	Boys	Girls
$mean = \frac{409}{52}$	$mean = \frac{214}{26}$	$mean = \frac{195}{26}$
Mean: 7.9	Mean: 8.2	Mean: 7.5
Median: 8	Median: 8	Median: 8
Mode: 8	Mode: 9	Mode: 8

Which measure of center best answers your statistical question? Why do you think so?  
Answer in complete sentences.

There seems to be a real difference in the mean between the boys and the girls that the median does not show this. This is because the data collected was estimated to the nearest full hour of sleep.

According to the median, there is no difference. In this experiment, the mode also supports that the boys get more sleep than the girls.

Step 6: Were there any outliers in your data set? Why or why not? If yes, how did this affect your measures of center?

There were no outliers. There were no gaps in the data and the range of data was fairly small between 5 & 10 hours of sleep for all the data.

Step 7: Analyzing the Data

What did you learn from your data? Did breaking the data down by a characteristic change the results? Include *at least three* things you learned about grade 6 students from your data. Your answers should be in complete sentences. Data should be used to support your ideas. Avoid adding opinions.

Answers will vary depending on the data.....

# Attach your data collection table to this paper.

Survey Table Gold Side

How many hours of sleep do you get in a school night?	4	5	6	7	8	9	10	11	Gender	Green/Gold
Suzy				x					F	Gold
Billy						x			M	Gold
Bob				x					M	Gold
Michael				x					M	Gold
Jill					x				F	Gold
Jan-nette			x						F	Gold
Luke						x			M	Gold
Corey						x			M	Gold
Kaleb					x				M	Gold
Rae-Anne		x							F	Gold
Mai				x					F	Gold
Bailey						x			F	Gold
Jack						x			M	Gold
Johnny					x				M	Gold
Billy					x				M	Gold
Lenny				x					M	Gold
Juliet				x					F	Gold
Sara						x			F	Gold
Sandra				x					F	Gold
Jackie			x						F	Gold
May				x					F	Gold
Kelly					x				F	Gold
Kareem					x				M	Gold
Jake						x			M	Gold
Kasia			x						F	Gold
Julie							x		F	Gold
Totals	0	1	3	8	6	7	1	0		

Survey Table Green Side

How many hours of sleep do you get in a school night?	4	5	6	7	8	9	10	11	Gender	Green/Gold
Ai						x			F	Green
Eli					x				F	Green
Anthony					x				M	Green
Sarah					x				F	Green

Moe				x					F	Green
Elki				x					M	Green
Mohit				x					M	Green
Hanna					x				F	Green
Solenne					x				F	Green
Eden					x				F	Green
Robert							x		M	Green
David								x	M	Green
Kota							x		M	Green
Taewoo					x				M	Green
Danny					x				F	Green
Raphael							x		M	Green
Tomotaka					x				M	Green
Mudit							x		M	Green
Sarah				x					F	Green
Jimin					x				F	Green
Seungjae				x					M	Green
Chloe				x					F	Green
Haewon				x					F	Green
Jackson					x				M	Green
Kayla							x		F	Green
Gellert					x				M	Green
Totals	0	0	0	7	12	6	1	0		