



Engineering Virtual Learning

HS Intro to Engineering Design Lesson #12

April 21, 2020

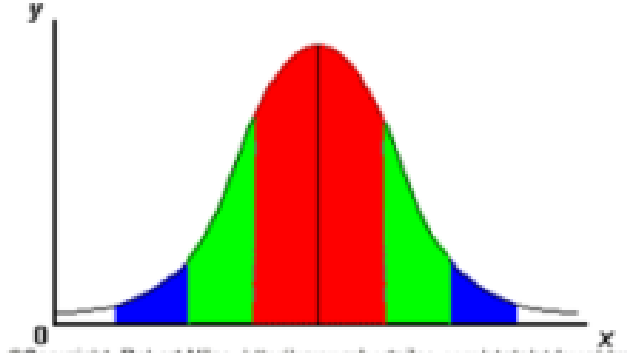


Objective/Learning Target:

Students will use collected “Free Throw” data to work with statistics.
(project day 2 of 4)

Bell-work:

Why do you think this graph is called a Bell Curve?



What do you think that says about the tendency of the data of a certain event? (hint: is the data distributed normally?)

Record your answers in your engineers notebook in the
“Free Throw Activity and the Empirical Rule”

Learning Practice:

Find the mean, median, mode and range of your free throw data from yesterday (sample data is shown). The learning resources has links to videos about Statistics.

Number of Free Throws Made	Number of Free Throws Missed	20 Total Attempts
15 made	5 missed	20
12 made	8 missed	
16 made	4 missed	
9 made	11 missed	
14 made	6 missed	
15 made	5 missed	
6 made	14 missed	
13 made	7 missed	
11 made	9 missed	
18 made	2 missed	

Mean is the Average – add all numbers and divide by how many there are.

Median is the Middle – arrange data in order from largest to smallest and pick the middle number.

Mode occurs Most often – pick the one that is repeated.

Range - Highest number – Lowest number (difference of the values)

What do you think your “bell curve” would look like? Explain why you say that.

What would the mean of your “made” shots look like if you throw out the low and high score?

Check For Understanding: Answer Key

Number of Free Throws Made	Number of Free Throws Missed	20 Total Attempts	
15 made	5 missed	20	Mean –
12 made	8 missed		Made: $129/10 = 12.9$
16 made	4 missed		Missed: $71/10 = 7.1$
9 made	11 missed		Median –
14 made	6 missed		Made: 14.5
15 made	5 missed		Missed: 6.5
6 made	14 missed		Mode –
13 made	7 missed		Made: 15
11 made	9 missed		Missed: 5
<u>18 made</u>	<u>2 missed</u>		Range –
Total: 129 made	71 missed		Made: 12
			Missed: 12

What would the mean of your “made” shots look like if you throw out the low and high score?
 Mean = 14.8, This is called eliminating the outliers.

Learning Resource Links:

Measures of central tendency or Statistics -

<https://www.khanacademy.org/math/ap-statistics/summarizing-quantitative-data-ap/measuring-center-quantitative/v/statistics-intro-mean-median-and-mode>