

Cardboard Backboard Statistics Data Sheet



Mark a spot directly in front of your backboard roughly three big steps away from the hoop. This will be your “free-throw” spot. Next, find a small ball or a balled-up sock to use as your tiny basketball. With your ball, take five shots from the “free-throw” spot and record the number of successful shots.

____ / 5
How many shots did you make?

Take five more shots and record the number of successful shots.

____ / 5
How many shots did you make?

Do this three more times: take five more shots and record the number of successful shots.

____ / 5	____ / 5	____ / 5
How many shots did you make?	How many shots did you make?	How many shots did you make?

The numbers you recorded are **data**. Data is information we can organize and study. When we collect multiple points of data, we create a **data set**. Your number of successful shots make up a data set. List the five numbers of successful shots in a list:

____ , ____ , ____ , ____ , ____ (example: 3, 4, 3, 5, 2)

Since you have collected this information, you can now analyze this data. Collecting and analyzing data is the study of **statistics**.

Let's start by putting all of the numbers from your data set in order from smallest to largest:

____ , ____ , ____ , ____ , ____ (example: 2, 3, 3, 4, 5)

Statistical Analysis Table:

Mode: _____	
Write down the number, or numbers, from your list that occurs most often.	Example A: 2, 3, 3 , 4, 5 Mode: <u>3</u>
This is your mode, the data point with the greatest frequency. If two numbers appear most often, your data set has two modes.	Example B: 2, 2 , 3, 5, 5 Mode: <u>2 & 5</u>
Median: _____	
With your numbers listed in order from smallest to largest, write down the middle number.	Example: 2, 3 , 3, 4, 5 Median: <u>3</u>
This is your median, the middle data point of your set	Example: 2, 3 , 4, 4, 5, 5 : 4+4= 8 8/2=4 Median: <u>4</u>
If you have an even number of data points in a set, take the sum of the middle numbers and divide them by two.	
Range: _____	
Find the largest and smallest values from your data set. Subtract the largest number from the smallest number.	Example: 2, 3, 3, 4, 5 Largest value: 5 Smallest value: 2 5 - 2 = 3 Range: <u>3</u>
This is the range of your data set. This tells you how much your data varies. For this experiment, a range of 0-2 means your data doesn't vary much, while a range of 4-5 means your data varies greatly.	
Mean: _____	
Let's calculate your average, or mean , of your successful free throw shots for every five shots.	
Add all the numbers together to find the sum: _____	Example: 2, 3, 3, 4, 5 2 + 3 + 3 + 4 + 5 = <u>17</u>
Next, we count the number of values we have in our set, or the number of times we shot the ball five times. That number is 5.	Number of items in the set = <u>5</u>
Finally, we will divide the sum of our set by the number of items in the set. _____ / 5 = _____	Example: 17 (sum) / 5 (data points) = <u>3.4</u> Median: <u>3.4</u>

Additional Data:

In order to graph this data, you'll want to collect a few more pieces of data. Shoot five more sets of five shots and record your results here:

Results from first five sets of five shots (ex. 3, 4, 3, 5, 2): _____ , _____ , _____ , _____ , _____				
____ / 5	____ / 5	____ / 5	____ / 5	____ / 5
How many shots did you make?	How many shots did you make?	How many shots did you make?	How many shots did you make?	How many shots did you make?
Results from all ten sets of five shots (ex. 3, 4, 3, 5, 2, 4, 3, 0, 2, 2): _____ , _____ , _____ , _____ , _____ , _____ , _____ , _____ , _____ , _____				

Frequency Tables:

With this new additional data, you can create a **Frequency Table**. This is a method of representing data as a table of potential outcomes. For example, the data set (3, 4, 3, 5, 2, 4, 3, 0, 2, 2) would be expressed as the following frequency table:

Example Data:

Possible Outcome of 5 shots	0	1	2	3	4	5
Times possible outcome occurred	I	-	III	III	II	I

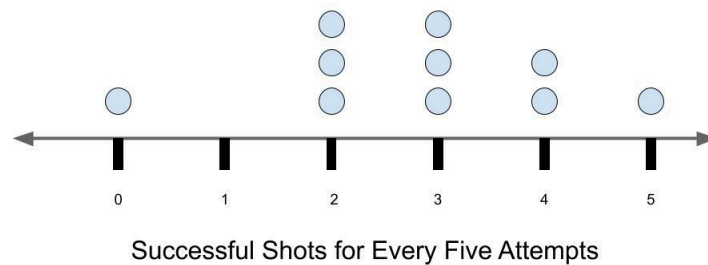
Your Data:

Possible Outcomes	0	1	2	3	4	5
Occurrences						

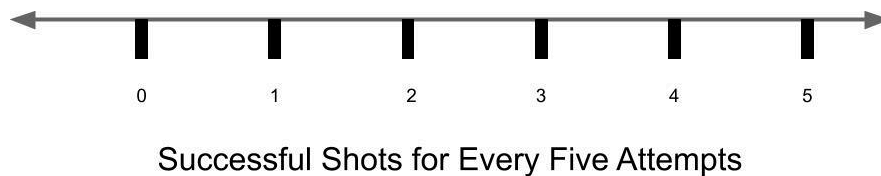
Make a Dot Plot

Transfer the data from your Frequency Table to the final graph, a **Dot Plot**. This graph uses circles to represent frequency of outcomes, similar to another type of graph called a histogram.

Example Dot Plot:



Your Dot Plot:



Share what you made with your family, classmates, or teachers!