

Standard Deviation

Name: Key

Partner Name: _____

Who is best at texting, boys or girls?

My prediction:

Data Collection:

Table 1: Speed & Number of Trials (Only record Attempt/Speed for an accurate text—once per person)

Attempt Number	My Speed (in seconds)

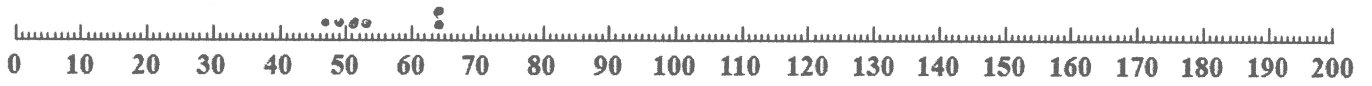
Record your data in the group data chart.

Table 2: Class Data for Number of Attempts & Time

Boys		Girls	
Number of Attempts	Time in Seconds	Number of Attempts	Time in Seconds
1	64	1	86
1	51	2	108
1	64	1	55
2	47	2	89
1	53	1	118
3	49	1	131
		1	45
		1	55
		1	51
Mean: 1.5	Mean: 54.67	Mean: 1.22	Mean: 82

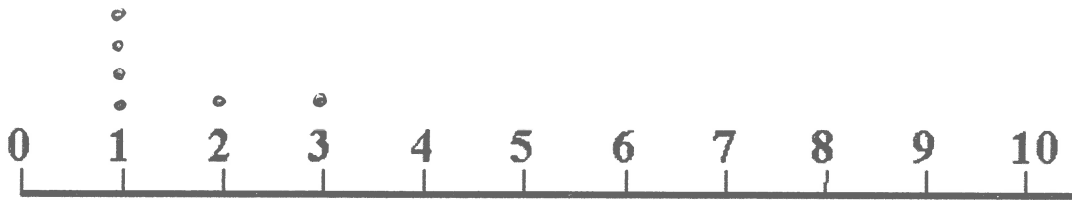
Create dot plots for Number of Trials & Time in Seconds for boys and girls, and then answer questions below.

Times(s) – Boys 47 49 51 53 64 64



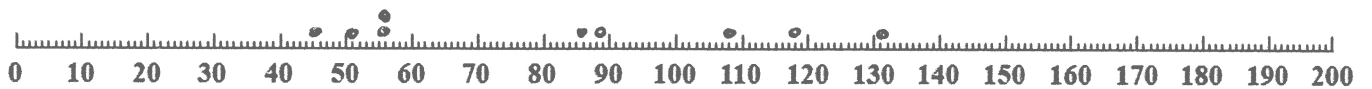
Median: 52 Shape: skewed left Spread: almost uniform
 Range: 17 (tail left)

Number of Trials – Boys 1 1 1 1 2 3



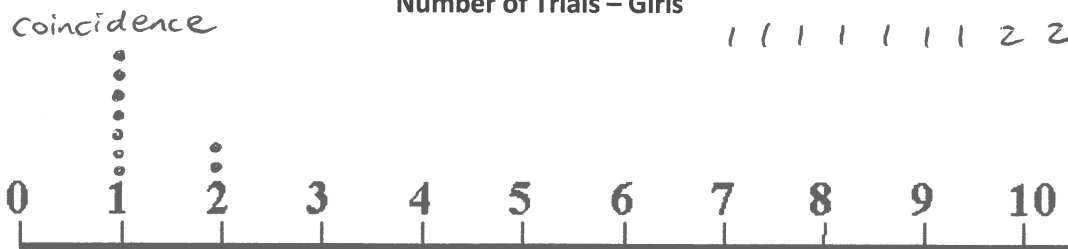
Median: 1 Shape: skewed right Spread: peak at 1 trial
 Range: 2

Times(s) – Girls 45 51 55 55 86 89 108 118 131



Median: 86 Shape: skewed right Spread: huge spread
 Range: 86 cluster 45-55

Number of Trials – Girls 1 1 1 1 1 1 1 2 2



Median: 1 Shape: skewed right Spread: peak at 1 trial
 Range: 1

do just one (e.g., one that matches your gender w/ which you identify)

Table 3: Standard Deviation, Boys' and Girls' Time(s)

Boys' Time(s)				Girls' Time(s)			
x	\bar{x}	$x - \bar{x}$	$(x - \bar{x})^2$	x	\bar{x}	$x - \bar{x}$	$(x - \bar{x})^2$
64	54.67	9.33	87.049	86	82	4	16
51	↓	-3.67	13.469	108	↓	26	676
64		9.33	87.049	55		-27	729
47		-7.67	58.829	89		7	49
53		-1.67	2.789	118		36	1296
49		-5.67	32.149	131		49	2401
						45	-37
				55	-27	729	
				51	-31	961	
Sum of $(x - \bar{x})^2$			281.334	Sum of $(x - \bar{x})^2$			8226
n - 1 (number of data values - 1)			5	n - 1 (number of data values - 1)			8
$SD = \sqrt{\frac{\Sigma(x - \bar{x})^2}{n - 1}}$			7.501	$SD = \sqrt{\frac{\Sigma(x - \bar{x})^2}{n - 1}}$			32.067

Table 4: Comparison of Boys' and Girls' Texting Results

	Number of Trials			Time of Text (s)		
	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation
Boys	1.5	1	.837	54.67	52	7.501
Girls	1.22	1	.441	82	86	32.067

↑
Excel

Interpreting Results:

1. On average, how much did the time for boys and girls to type the text differ?

By quite a lot (boys were 27 sec faster)

2. What is relationship between number of trials and time to type the text?

Expectation: more trials \Rightarrow more time required
(this didn't happen here — WHY?)

3. What percentage of boys was within one standard deviation of the mean for time to type the text?

$54.67 \pm 7.501 = (47.169, 62.171)$
50% of data

4. What percentage of girls was within one standard deviation of the mean for time to type the text?

$82 \pm 32.067 = (49.973, 114.067)$
67% of data

5. What generalizations, if any, can we make using this data?

Attempts required were similar for both groups.

Boys required less time to text; this is due to

6. What is the maximum time for

a. Girls: 131 sec

the spread in the data
for the girls.

b. Boys: 64 sec
(occurred twice)

7. Using the information provided in Table 4, determine if girls outperformed boys, boys outperformed girls, or both performed equally.

Boys were faster texters (w/ less variation).

However, the sample size was very small.

Girls data was more spread out &
this contributed to a slower texting
time.