

Statistical Reasoning - Engaging Resources

SR SO1 - Uses of Standard Deviation

(Link: [Rivers math class blog](#))

A teacher posted the question, "Name 3 ways that you could use standard deviation in the real world", and received many comments. These comments may be used to show students various uses of standard deviation or this question could be posted to a class and see what they come up with.

Rivers math class

Monday, November 12, 2012

Name 3 ways that you can use standard deviation in the real world?

Posted by Rivers Rivers at 6:57 AM

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54 comments:


Cornesha Jones November 12, 2012 at 2:06 PM

Sport teams use standard deviation. For example a team that may be consistently good may have low standard deviation , but a team that scores alot standard deviation might be high. Another scenario may be money. In money standard deviation may mean the risk of the prices. If the investment looses money, its going to have a low standard deviation. And another one might

Blog Archive

- ▶ 2013 (11)
- ▼ 2012 (5)
 - ▼ November (3)
 - Taxes?
 - Name 3 ways that you can use standard deviation i...
 - Why do we need statistics in the world?
 - ▶ October (2)

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 **Rivers Rivers**

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SR SO1 - Investigation: Speed of Text Messaging versus Age

(Download: [Investigation Text Messaging.docx](#))

In this investigation, students are given data relating to speed of text messaging and age. They will need to draw histograms and determine the mean and standard deviation for different groups of data and use this information to interpret the results of the data collection. Ideally, students will strengthen their understanding of the connection between mean, standard deviation and data.

Investigation: Speed of Text Messaging versus Age

Problem: Does the age of a person affect their speed at text messaging on their own phone and on an unfamiliar phone?

Procedure: Thirty individuals of varying ages were given the following message to text on a cell phone: *"the quick brown fox jumps over the lazy dog."* The message had to be typed with no errors, no abbreviations, and no use of the phone directory. Each subject had the message in front of them. The time was measured using a stop watch (to 0.01 seconds).

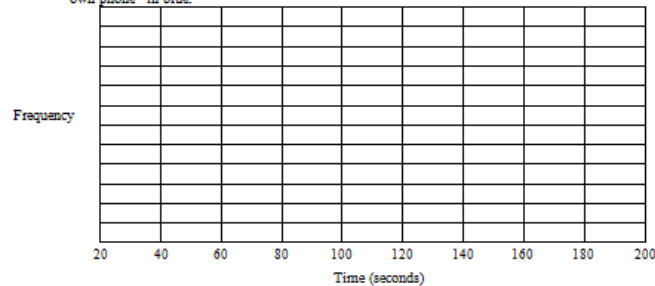
Variables: ID: An identifier for the individual
 Age: The person's age
 Age Group: "Teens" or "Over 30"
 Time: The time, in seconds, to text the above message
 Phone: The type of phone used; either their "own" phone or a "control" phone using a control cell phone.

Data:

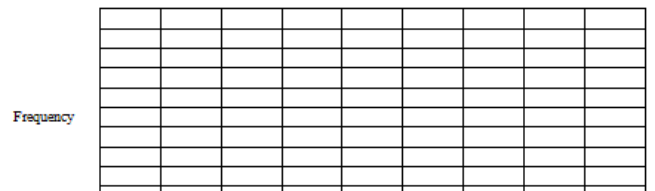
ID	Age	Age Group	Time with Own Phone	Time with Control Phone
1	14	Teens	37.6	58.80
2	14	Teens	54.87	72.96
3	15	Teens	27.27	37.19
4	13	Teens	65.58	68.20
5	14	Teens	38.35	41.02
6	17	Teens	35.65	42.18
7	14	Teens	38.6	53.80
8	14	Teens	50.00	61.94
9	16	Teens	21.20	31.80
10	14	Teens	36.55	62.00
11	15	Teens	43.96	91.10
12	14	Teens	39.17	44.82
13	14	Teens	57.31	56.31
14	13	Teens	30.00	61.25
15	13	Teens	42.30	51.11
16	61	Over 30	87.94	97.00
17	40	Over 30	51.90	70.77
18	39	Over 30	102.44	195.60
19	47	Over 30	107.50	87.60

Analysis:

- Examine the data and state any trends you observe.
- Make histograms of the four sets of data. Label axes appropriately and include a scale.
 - On the grid below, sketch histograms for "teens using own phone in" red and "over 30 using own phone" in blue.



- On the grid below, sketch histograms for "teens using control phone" in red and "over 30 using control phone" in blue.



SR SO1 Do Objects Vary Very Much?

(Link: [Beacon Learning Center](#))

This activity is a fun way to introduce standard deviation (SD). Students measure the SD of colors in a collection of objects (e.g. candy)

Title: Do Objects Vary Very Much?

Part A (Individual Work)

	Colors	Number in collection	Percentage of Collection
1.			
2.			
3.			

Total Number of Objects: _____ Total Percentage (should be 99-101%): _____

Calculations

Part B (Group Work) (mean and SD calculations)

Color 1: _____

	Student	Number	Mean	Difference	Square
1.					
2.					
3.					
4.					

Sum of squares:

Mean of squares:

Square root of mean of squares:

Calculations:

Title: Do Objects Vary Very Much?

Color 2: _____

	Student	Number	Mean	Difference	Square
1.					
2.					
3.					
4.					

Sum of squares:

Mean of squares:

Square root of mean of squares:

Calculations:

Color 3: _____

	Student	Number	Mean	Difference	Square
1.					
2.					
3.					
4.					

Sum of squares:

Mean of squares:

Square root of mean of squares:

Calculations: