


Statistics for YOUR 21st Century Middle School

Grades 6-8

Welcome, Please place your height and shoe size in the appropriate chart.




	Pink	Red	Blue	Purple	TOTAL
Boys	2	10	10	3	
Girls	8	2	3	7	
TOTAL					

@MathProjects

1

How Tall is Our Class?

Statistical questions anticipate variability.

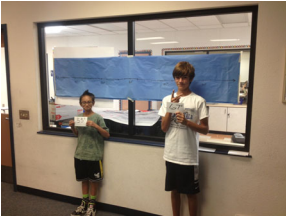


Which measure (mean, median or range) shall we use for our guess?

2

Who is Our Typical?

Center and spread can be represented by 1 number.



Will our 3rd person's height be powerful enough to affect the:

- Mean?
- Median?
- Range?

4b) Three heights with a large range and none of the heights is the mean.

3

How Far Off Center Are We?

Mean Absolute Deviation

What does the word *deviate* mean?
depart from the norm

What does the phrase *absolute value* mean?
distance from the zero (either side)

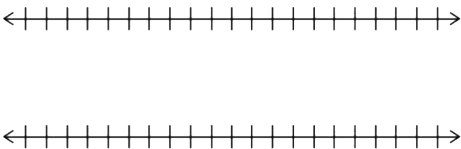
What does *absolute deviation* mean, then?
distance from the norm (either side)

So what does *mean absolute deviation* mean?
average of all the absolute deviations

4

How Far Off Center Are We?

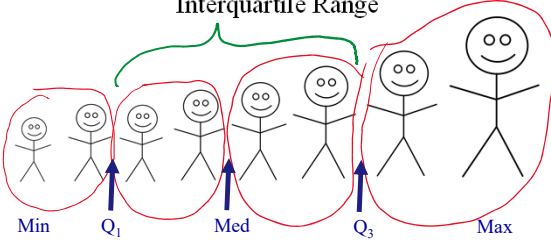
Mean Absolute Deviation



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How Wide is Our Middle?

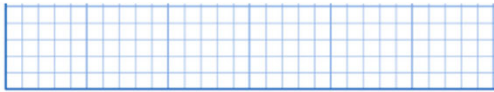
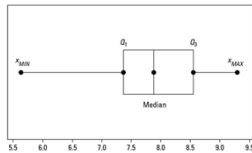
Interquartile Range



What will adding a ninth person do to these values?

6

Are We Evenly Distributed?

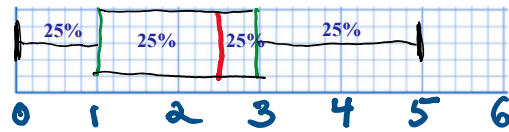
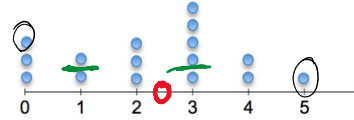


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What is the Shape of Our Heights?

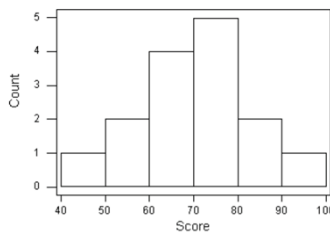


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Of Which Group Do We Have the Most?



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How Tall Are the Boys & Girls?

Group Activity
for Boys Data with Notes

Individual Assessment
for Girls Data with Boys Results

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Two-Way Frequency Tables

	Lived	Died
Male	367	1364
Female	344	126

What do you Notice & Wonder?

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Titanic



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Titanic

	Survived	Did Not Survived	Total
First Class Passengers	201 +	123	324 +
Second Class Passengers	118	166	284
Third Class Passengers	181	528	709
Total Passengers	500 +	817	1317 +

What is the probability,...
if one of the passengers is randomly selected, that the passenger was:

- i) in **first class**? $324/1317 = 24.6\%$
- ii) **survived**? $500/1317 = 40.0\%$
- iii) in **first class and survived**? $201/1317 = 15.3\%$

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Titanic

	Survived	Did Not Survived	Total
First Class Passengers	201 +	123	324 +
Second Class Passengers	118	166	284
Third Class Passengers	181 +	528	709
Total Passengers	500 +	817	1317

What is the probability,...

- iv. if one of the passengers is randomly selected from the **first class** passengers, that this passenger **survived**? ("survived, given first") $201/324 = 62.0\%$
- iv. if one of the passengers who **survived** is randomly selected, that this passenger was in **first class**? $201/500 = 40.2\%$
- vi. if one of the passengers who **survived** is randomly selected, that this passenger was in **third class**? $181/500 = 36.2\%$

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Titanic

Was surviving the sinking of the Titanic independent of being in first class?

$$P(A) = P(A|B)$$

Chance of surviving: $P(S) = 40\%$

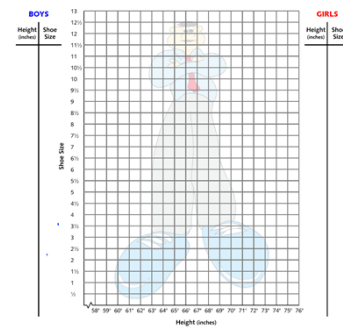
Chance of surviving, given first class: $P(S|F) = 62\%$

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Cool Shoes



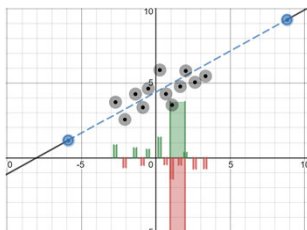
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Cool Shoes

<http://bit.ly/RegressionButler>



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Cool Shoes



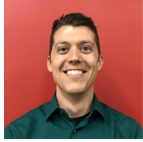
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Statistics for Middle School

Call to Action



Fail Grandly
No Real Risk



2-Week Rule

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Use How Tall, Titanic & Cool Shoes

...with the faith that they can learn it,
and that we can teach it to them,



...so you can change this world,
one math lesson at a time.

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