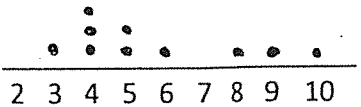


Terms: Mean, median, range, standard deviation, dot plot, left skewed, right skewed, symmetric

CENTER	SPREAD	SHAPE
<p>Where is the middle of the data?</p> <p>Mean, Median</p> <p>The <u>mean</u> is the most common average we use. It's usually what we mean when we say "average."</p> $\bar{x} = \frac{\text{add up the data}}{\# \text{ of data points}} = \frac{\sum x}{n}$ <p>Practice! Find the mean:</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10, 50</p> <p>2, 2, 2, 2, 2, 2, 2, 2</p>	<p>How spread out is the data?</p> <p>Range, Standard deviation</p> <p>The <u>range</u> is the high – low. It's one number.</p> <p>Practice! Find the range:</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10, 50</p> <p>2, 2, 2, 2, 2, 2, 2, 2</p>	<p>What does the data look like?</p> <p>Left skewed, Right skewed, Symmetric</p> <p>To decide on the shape of data, we need to make a <u>dot plot</u>.</p> <p>Example;</p> <p>3, 4, 4, 5, 5, 8, 6, 9, 10, 4</p> 
<p>The <u>median</u> is the middle number when you put the data in order.</p> <p>Practice! Find the median:</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10, 50</p> <p>2, 2, 2, 2, 2, 2, 2, 2</p> <p>In which one is the median much different from the mean? Why is that?</p> <p>We often use the median instead of the mean when we know we have a strong <i>skew</i> (more on that later in the SHAPE section).</p>	<p>The <u>standard deviation</u>, <math>s</math>, is the average distance your points are away from the mean.</p> <p>Examples:</p> <p>1, 1, 1, 1, 1 <math>s = ?</math></p> <p>1, 1, 1, 3, 3, 3 <math>s = ?</math></p> <p>1, 1, 1, 5, 5, 5 <math>s = ?</math></p> <p>Practice! Find the standard deviation using a graphing calculator:</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10</p> <p>3, 4, 4, 5, 5, 2, 6, 8, 10, 50</p> <p>2, 3, 2, 4, 3, 1, 2, 3</p>	<p>We say this data is <u>right-skewed</u> because it has a tail to the right.</p> <p>Data that has a tail to the left is called <u>left-skewed</u>.</p> <p>Data that is roughly the same on the left and right is called <u>symmetric</u>.</p> <p>Practice! Make a dot plot and describe the shape of this data:</p> <p>4, 5, 0, 7, 8, 8, 8, 10, 13, 6, 5, 6, 7, 9, 12</p>

Here's some data on highway gas mileage for model midsize cars

Model	MPG	Model	MPG
Acura 3.5RL	24	Jaguar XJR	24
Audi A6 Quattro	25	Lexus GS300	25
BMW 745i	26	Lexus LS430	25
Buick Regal	30	Lincoln-Mercury LS	24
Cadillac Deville	26	Lincoln-Mercury Sable	26
Cadillac Seville	26	Mercedes-Benz E320	27
Chevrolet Malibu	34	Mercedes-Benz E500	20
Chrysler Sebring	30	Mitsubishi Diamonte	25
Dodge Stratus	28	Mitsubishi Galant	26
Honda Accord	34	Nissan Maxima	28
Hyundai Sonata	27	Saab 9-3	28
Infiniti G35	26	Saturn L300	28
Infiniti Q45	23	Toyota Camry	33
Jaguar S-Type 3.0	26	Volkswagen Passat	31
Jaguar Vanden Plas	28	Volvo S80	28

Source: U.S. Environmental Protection Agency, Model Year 2004 Fuel Economy Guide

Do a complete analysis!

Analyze it and make some statements about **center, spread, and shape!**

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