

Bar Graph Help!

Part of a Series of Avoiding Graph Pitfalls

Last updated: January 17, 2019



SAINT LOUIS
UNIVERSITY



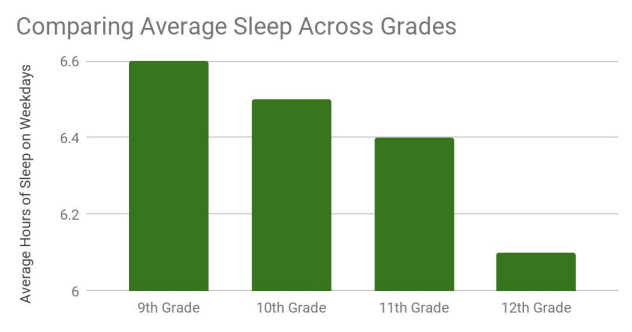
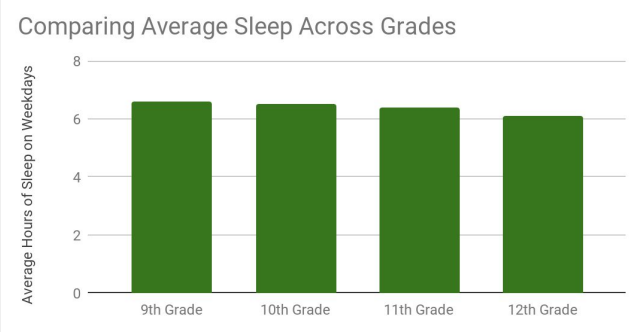
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Bar Graph Help!

By Ada Ren & Andee Rubin

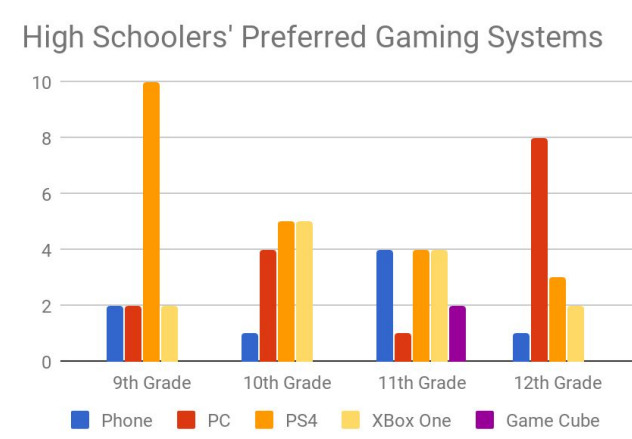
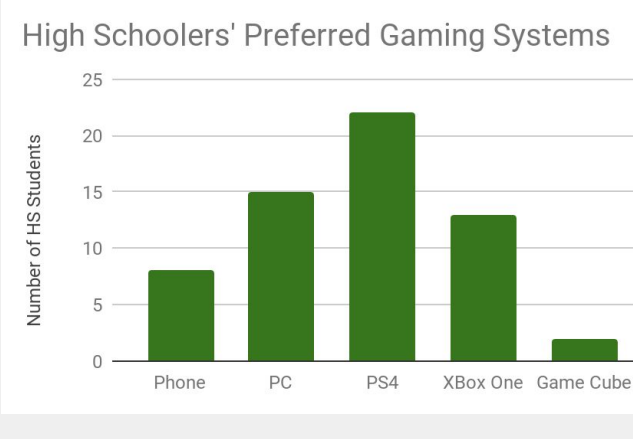
If you're reading this, it's probably because you have a bar graph that is statistically incorrect or visually misleading. Try to figure out which issue your graph has and consider the suggestions here for improving it.

Problem: Axis doesn't start at 0

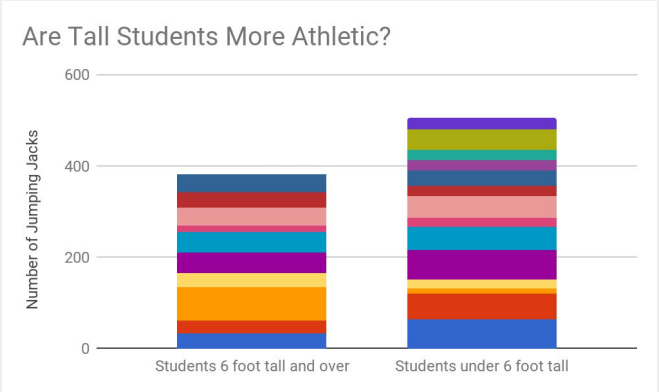
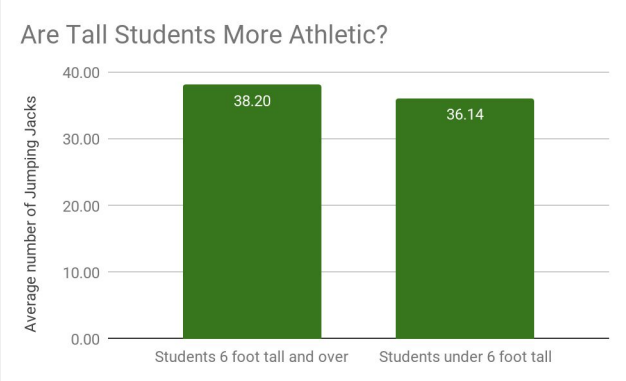
Problem	A Solution																				
<p>An axis that doesn't start at 0 can make small differences look bigger.</p>	<p>Start the axis at 0.</p>																				
<p>Comparing Average Sleep Across Grades</p>  <table border="1"><caption>Comparing Average Sleep Across Grades (Problem)</caption><thead><tr><th>Grade</th><th>Average Hours of Sleep on Weekdays</th></tr></thead><tbody><tr><td>9th Grade</td><td>6.6</td></tr><tr><td>10th Grade</td><td>6.5</td></tr><tr><td>11th Grade</td><td>6.4</td></tr><tr><td>12th Grade</td><td>6.1</td></tr></tbody></table>	Grade	Average Hours of Sleep on Weekdays	9th Grade	6.6	10th Grade	6.5	11th Grade	6.4	12th Grade	6.1	<p>Comparing Average Sleep Across Grades</p>  <table border="1"><caption>Comparing Average Sleep Across Grades (Solution)</caption><thead><tr><th>Grade</th><th>Average Hours of Sleep on Weekdays</th></tr></thead><tbody><tr><td>9th Grade</td><td>6.6</td></tr><tr><td>10th Grade</td><td>6.5</td></tr><tr><td>11th Grade</td><td>6.4</td></tr><tr><td>12th Grade</td><td>6.1</td></tr></tbody></table>	Grade	Average Hours of Sleep on Weekdays	9th Grade	6.6	10th Grade	6.5	11th Grade	6.4	12th Grade	6.1
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Exception: In rare occasions with a clearly stated reason, it may be acceptable to start the axis at a non-zero value.

Problem: Graph doesn't support claim

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<p>The infographic for this graph claims the PS4 is the most popular gaming platform. But the graph shows that 9th graders prefer PS4, and 12th graders prefer Personal Computers.</p>	<p>Combine all the grade levels into one set of bars, as below. <i>Alternate Solution: Change the claim to be about a single grade level.</i></p>																																										
<p>High Schoolers' Preferred Gaming Systems</p>  <table border="1"><caption>High Schoolers' Preferred Gaming Systems (Problem)</caption><thead><tr><th>Grade</th><th>Phone</th><th>PC</th><th>PS4</th><th>XBox One</th><th>Game Cube</th></tr></thead><tbody><tr><td>9th Grade</td><td>2</td><td>2</td><td>10</td><td>2</td><td>0</td></tr><tr><td>10th Grade</td><td>1</td><td>4</td><td>5</td><td>5</td><td>0</td></tr><tr><td>11th Grade</td><td>4</td><td>1</td><td>4</td><td>4</td><td>2</td></tr><tr><td>12th Grade</td><td>1</td><td>8</td><td>3</td><td>2</td><td>0</td></tr></tbody></table>	Grade	Phone	PC	PS4	XBox One	Game Cube	9th Grade	2	2	10	2	0	10th Grade	1	4	5	5	0	11th Grade	4	1	4	4	2	12th Grade	1	8	3	2	0	<p>High Schoolers' Preferred Gaming Systems</p>  <table border="1"><caption>High Schoolers' Preferred Gaming Systems (Solution)</caption><thead><tr><th>Gaming System</th><th>Number of HS Students</th></tr></thead><tbody><tr><td>Phone</td><td>8</td></tr><tr><td>PC</td><td>15</td></tr><tr><td>PS4</td><td>22</td></tr><tr><td>XBox One</td><td>13</td></tr><tr><td>Game Cube</td><td>2</td></tr></tbody></table>	Gaming System	Number of HS Students	Phone	8	PC	15	PS4	22	XBox One	13	Game Cube	2
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Problem: Using totals rather than averages

Problem	Solution
<p>Here, each color represents a student, and there were 14 students under 6 feet tall and there were 10 students 6 foot tall and over. It looks like like students under 6 foot tall are more athletic, but is that really true?</p>	<p>Graph the average instead, which takes into account the number of students who are in each category.</p>
	

Problem: Amounts to be compared are in the same bar

Problem	Solution
<p>The graph below compares the average hours of sleep, homework, and afterschool activities of high schoolers across grade levels. However, it's difficult to compare amounts that are in the same bar.</p>	<p>Choose the most important factor and put its amounts in separate bars to compare them.</p>
