

## Misleading Graphs: Lesson Plan

Topic	
<p>Whether intentional or unintentional, graphs are not always made as accurate as they should be. Misleading graphs result from poorly conducted studies, cherry-picked data, graph axis manipulation, and/or poor graphing decisions. As people are often busy or distracted, they're often too quick to accept the information fed to them.</p>	
Possible subjects/classes	Time needed
Statistics, Politics, Media Literacy	45-60 minutes
Video link:	
<a href="https://academy4sc.org/video/misleading-graphs-dont-get-fooled/">https://academy4sc.org/video/misleading-graphs-dont-get-fooled/</a>	
Objective: <i>What will students know/be able to do at the end of class?</i>	
<p>Students will be able to...</p> <ul style="list-style-type: none"> <li>• Identify when a graph has been manipulated.</li> <li>• Question the intent behind a graph and its maker.</li> </ul>	
Key Concepts & Vocabulary	
Research Design, Types of Graphs (Bar, Line, Pie, etc.)	
Materials Needed	
Worksheet, <a href="#">real world examples</a> of misleading graphs, white/blackboard or projector	
Before you watch	
<ul style="list-style-type: none"> <li>• Show this misleading <a href="#">graph</a> or draw it out, making sure to label the axes' numbers and the point when Florida's Stand Your Ground Law was implemented.</li> <li>• Also show or draw out the <a href="#">accurate version</a> of that graph, but hide it from view (e.g. cover with a sheet of paper).</li> <li>• Announce that today's lesson is on interpreting graphs. Explain Stand Your Ground (law permitting you to defend yourself using force against force) and claim that since it was implemented, there have been fewer murders</li> </ul>	

by gun.

- See if anyone corrects you (because you've purposefully interpreted the graph incorrectly). If someone does, introduce today's true topic of misleading graphs and unveil the proper graph. Explain how the misleading graph's y-axis had been flipped without explanation. If no one does, reveal the proper graph, explain how your position of authority eased them into accepting incorrect information, and start the discussion.

### While you watch

1. How is it possible to reach a different conclusion from what the evidence actually shows?
2. What are two ways the y-axis can be manipulated?
3. What is the issue with going against graphing standards?
4. Why is it easy to fall for a misleading graph?

### After you watch/discussion questions

1. Have you ever questioned a graph? Have you ever even thought of questioning a graph?
2. Are misleading graphs made purposely or accidentally? Is one worse than the other?
3. What are some possible societal consequences of falling for misleading graphs?

### Activity Ideas

- Have students group up and assign each group one [real world misleading graph](#). Have them figure out the way(s) the graphs are misleading and share their findings with the class.
- Imagine that your friend has fallen for a bad graph. How would you explain their mistake without offending them? What do you recommend they look out for to avoid this mistake in the future? Brainstorm with a partner and share your answer with the class.

### Sources/places to learn more

1. Hickey, W. (2012, November 28). EXPOSED: Here Are The Tricks That Fox News Uses To Manipulate Statistics On Its Graphics. *Insider*. <https://www.businessinsider.com/fox-news-charts-tricks-data-2012-11>

2. McCready, R. (2020, April 17). *5 Ways Writers Use Misleading Graphs To Manipulate You [INFOGRAPHIC]*. Venngage.  
<https://venngage.com/blog/misleading-graphs/>
3. Mehta, R., & Guzmán, L. D. (2018). Fake or Visual Trickery? Understanding the Quantitative Visual Rhetoric in the News. *Journal of Media Literacy Education, 10*(2), 104-122. <https://eric.ed.gov/?id=EJ1198646>
4. TED-ed. (2017, July 6). *How to spot a misleading graph - Lea Gaslowitz* [Video]. Youtube.  
[https://www.youtube.com/watch?v=E91bGT9BjYk&ab\\_channel=TED-Ed](https://www.youtube.com/watch?v=E91bGT9BjYk&ab_channel=TED-Ed)