

The activity I chose to review is called *Graphing Global Temperature Trends* (<https://www.jpl.nasa.gov/edu/teach/activity/graphing-global-temperature-trends/>) from the Jet Propulsion Laboratory website. The activity has two different procedures, one for students in upper elementary and another which is scaffold for high school students. The overall theme of this lesson is for kids to review and graph the global temperature data collected by NASA and draw their own evidence based conclusions about whether global temperatures are rising. The NASA data can be found at this link: ([https://www.jpl.nasa.gov/edu/pdfs/global\\_monthly\\_temp\\_anomalies\\_1880-2016.txt](https://www.jpl.nasa.gov/edu/pdfs/global_monthly_temp_anomalies_1880-2016.txt))

Since I teach both grades 8 and 10, I chose to carry out the *Grade 8 and High School* procedure. This activity relates to science in that it establishes that the Earth is in fact warming, this is a useful introductory lesson to the effects that this warming has on other systems such as wind, ocean currents, and precipitation patterns. Although the background information of this activity discusses climate change and increasing levels of CO<sub>2</sub> in Earth's atmosphere, I think this lesson could be used as a phenomena to drive inquiry about the cause and effects of increasing global temperatures. Additionally, it may lead students to wonder how we gather this data and its reliability. Mathematically, it addresses themes in statistics such as trends and variation as well as honing graphing skills. In addition to enriching their spreadsheet software skills, this lesson also challenged students to analyze the data they graphed and draw evidence based conclusions.

Since my 10th graders are finishing up a unit about climate change, I carried this take out with them. Even though we have already reviewed global temperature graphs created by NOAA, and the IPCC; having students create their own graphs was much more impactful. By manipulating the data into a spreadsheet, ensuring their axes were properly labeled, and adding a trendline, students had a better understanding of what they were observing. It also provided them with a deeper understanding of how much data is illustrated in this one graph.

I can see myself using this lesson as a way to begin my unit on climate change next year. However, I think that kids should have a firm understanding of how climate and weather differ before embarking on this lesson. Also, I can envision myself rewriting the directions for several steps; specifically if I have some students graph average global temperatures and others graph temperature anomalies. Kids encountered a couple of challenges with trying to graph just the average temperature and year. For example, adding an additional column for the year (column D) caused the axes on the graph to flip and required some troubleshooting on my part. Luckily, I had several students in my class who were proficient in utilizing google spreadsheets and could help those who were struggling. While most of my students were familiar with the term anomaly, I found it helpful to show this video: <https://www.youtube.com/watch?v=-Zcy58ARTGc> as a summary to the lesson because it addresses any questions students had regarding how we measure global temperatures and the way we analyze this data.

