**How Big is Your Carbon Footprint?**

**Essential question:** How can I understand my impact on the environment and our collective impact on the Earth?

**Overview:**

The ecological footprint concept is a way to roughly measure the impact of a person’s daily and long-term choices on the environment. People have become so accustomed to their diet, cars, homes, and energy usage that they don’t realize that the Earth will not be able to provide the needed resources indefinitely. When students go online to calculate how many Earths it would take if everyone on the planet lives the way that they do, they will be astonished. For many students, it is the beginning of increased awareness about the delicate balance of the planet.

**Materials:**

* Computers
* Graph paper
* Calculators

**Procedure:**

1. Go online to the URL [www.footprintcalculator.org/](http://www.footprintcalculator.org/).  This site has 13 questions that must be answered. From your answers, the site calculates the number of acres needed to sustain you! The site will convert the acres into the number of Earths needed to sustain the planet’s population if everyone lived in the same manner as you.
2. When you have arrived at the number of acres and Earths, you will need to share your data with the class. Each person must write your value on the board.
3. Next, calculate the mean number of planets needed, and the mean number of acres needed to sustain the members of the class. Once these calculations are complete, prepare a graph of the data, either in bar graph form, a number line, or a stem and leaf plot. Identify the high and low values for the class. How is the mean affected by these values?

**Discussion:**

1. What is the average number of acres for the students in the class? What is the average number of Earths needed?
2. Which statistic would you use if you wanted to point out the lack of awareness of the environment? Which statistic would you use if you did not want to alarm the public?
3. What is the biggest factor that contributes to a high number of acres? Or, which area do you think could conserve the most of the earth’s resources?
4. Suppose you were to calculate the mean again eliminating the highest 3 values. Is the mean still greater than one Earth? What does that mean for future generations? Is it enough to change only the extreme lifestyles? Or does everyone need to change if we are to get the number down to below one Earth needed? What are the next steps? How can we carry this message to other people?

**Extensions:**

1. Advertise your findings using shock-value propaganda.
2. Create a report comparing the average carbon footprints of countries worldwide. You must choose at least 4 other countries, besides the US, to report on. Once you collect the data, analyze the data using basic statistics for the report. This would be a great project that could be nicely summarized on a poster board. These kinds of reports often appear in newspapers and journals. An easy source of information is <http://carbonfootprintofnations.com/> which is an online calculator that will give you the per capita carbon footprint of all countries.
* You MUST complete ONE of the extension activities.