















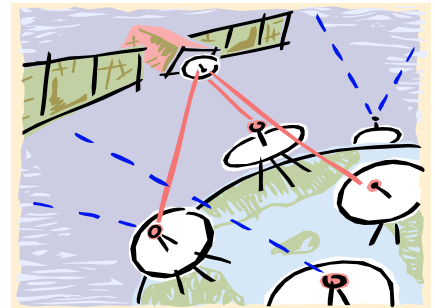






# Pre-Visit Activity 3: Global Positioning System: Where Am I?(Continued)

8. Ask the students to play the roles of “Search and Rescue Team” and ask the hiker to describe his positions. Ask the Search and Rescue Team how easy or difficult they think it would be in a real-life situation to find the lost hiker with this information.
9. Add a second landmark (another volunteer): a palm tree. Ask the “palm tree” to position her/himself 8 feet away from the lost hiker, in a way that they are not aligned and the hiker, the mountain and the palm tree form a triangle.
10. The lost hiker now has two points of reference: the mountain and the palm tree. The Search and Rescue Team asks the lost hiker to describe his location. Is the Team better able to identify the hiker’s location?
11. Finally, add a third point of reference: a big Live Oak tree 6 feet away from the hiker located in a way that the mountain, the palm tree and the Live Oak form a triangle.
12. Ask the Search and Rescue Team students to triangulate the position of the lost hiker. Ask students to think about what kind of information they need from the lost hiker and ways to communicate effectively both to locate an object and/or a person and in emergency situations. For example, in an emergency situation time is very important and communicating clearly and precisely becomes crucial. When finding a location, distances can be very helpful; for example, a distance approximation to one of the landmarks used for triangulation can make an object search significantly easier.
13. Explain to the students that this is how GPS works. Instead of mountains and trees, it uses highly-accurate satellites as points of reference. Instead of relying on vision to estimate one’s location and distance, handheld satellite receivers communicate constantly with the orbiting satellites, triangulating on at least three of them. This enables the receiver or GPS to display the approximate position of an object anywhere on Earth.



*Adapted from Global Positioning System Classroom Exercise: Where am I?*  
<http://octopus.gma.org/space1/where.html>

# Post-Visit Activity 1: Ecological Footprint

## Objectives

Students understand the impact of their decisions and behavior on the environment.

Students apply basic math skills to use collected data to create and solve real-world math problems

Next Generation Sunshine State Standards: SC.3.N.1.1, SC.3.N.1.6, LA.3.1.6.1, LA.3.1.6.7, LA.3.5.2.1, SC.4.N.1.1, SC.4.E.6.3, SC.4.E.6.5, SC.4.P.10.2, SC.4.L.17.4 LA.4.5.2.1, LA.4.5.2.4, SC.5.N.1.1, SC.5.P.9.1 LA.5.1.6.1., LA.5.5.2.1

## Vocabulary

Ecological footprint

Sustainable

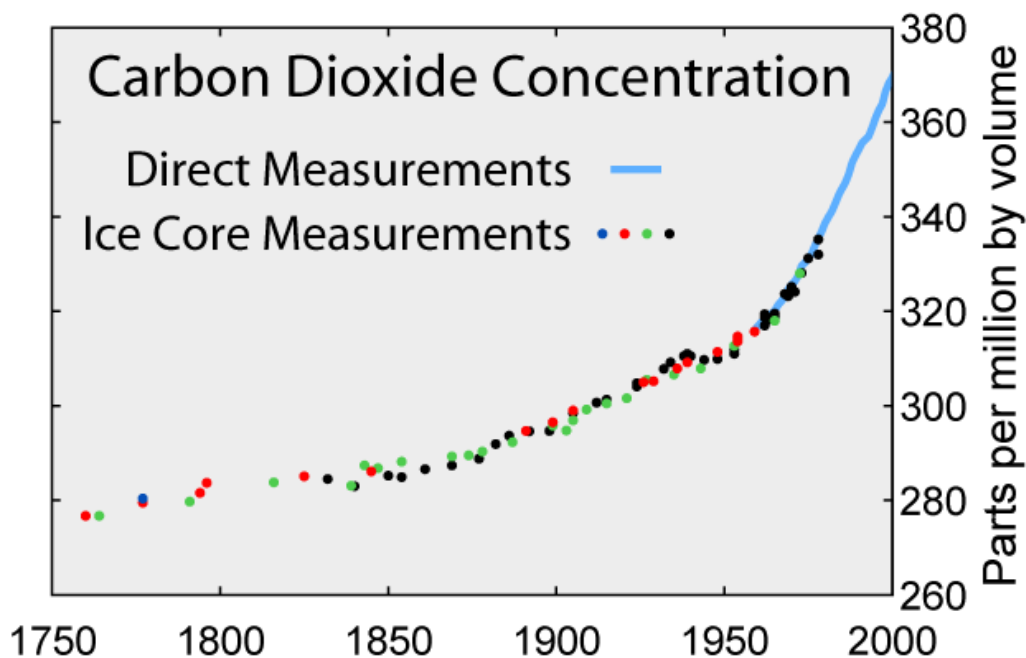
Compost

## Materials

Computers with internet access

## Procedure

1. Have students calculate their ecological footprint on a website such as:  
<http://www.kidsfootprint.org>
2. Ask students to list 3 things they and their families could do to reduce their ecological footprint.



Source: <http://www.stuffintheair.com/global-warming-carbon-dioxide.html>

3. (Optional) Print the above graph for students and ask them to answer the following questions:
  - What does this graph show us about CO2 levels over time?
  - How could you explain the steep increase in CO2 levels since 1950?

# Post-Visit Activity 2: Waste Away

## Objectives

Students can use the correct mathematical formulas to solve real-world problems. Students illustrate data using graphs. Students can explain how accumulating garbage harms the environment and identify steps they can take to reduce waste and environmental pollution.

Next Generation Sunshine State Standards: MA.3.A.1.1, MA.3.A.1.2, MA.3.A.4.1, MA.3.A.6.2, SC.3.N.1.1, SC.3.N.1.7, LA.3.1.6.1, LA.3.1.6.7., LA.3.5.2.1, SC.3.P.8.3

## Vocabulary

Compost    Decompose

## Procedure

1. Have students weigh the collective trash and recycling from their lunches.
2. Have students calculate the following:
  - a. How many pounds of garbage did we produce at lunch?
  - b. How many pounds of garbage would this become in one week of school?
  - c. Do the same calculations for the recycling.
  - d. Ask students to write a list of how they can reduce trash in their lunches [packaging, food choices, reusing, recycling].

## Resources:

<http://www.epa.gov/epaoswer/non-hw/composting/index.htm>  
<http://www.deq.state.or.us/lq/pubs/docs/sw/OregonGreen-SchoolTools.pdf> <http://www.thatdanny.com/2008/06/06/how-long-does-it-take-a-plastic-bag-or-a-glass-bottle-to-decompose/>



## Take Action!

You can take action in your school or community to help the environment! Here are some ideas:

- Start or improve a recycling program at your school, church, or home
- Educate others about the importance of reducing waste, reusing things, and recycling
- Reduce packing of school lunches and ask for healthier food choices