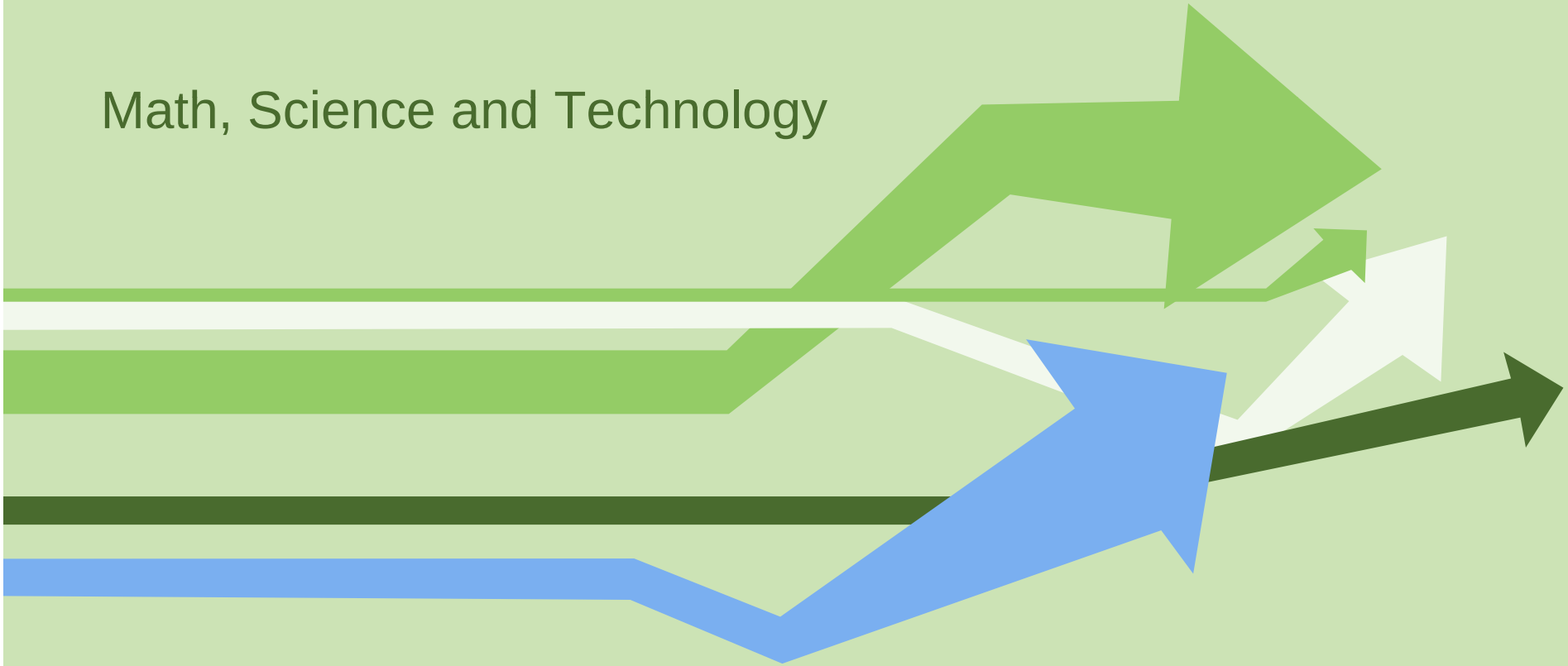
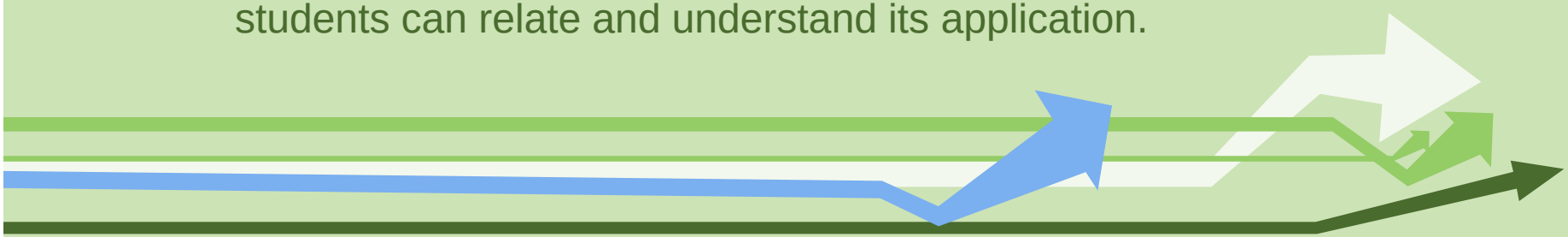
Integrating Environmental Science

Math, Science and Technology



Environmental Science

- Why to integrate
  - The integration of mathematics, science, and environmental education permits the students to gain from all three areas simultaneously.
    - Science encompasses the art of questioning, investigating, hypothesizing, and discovering.
    - Mathematics is the language that provides clarity, objectivity, and understanding.
    - Technology provides the tools to increase productivity and provide manipulatives for implementation
  - Many of the major contemporary issues involve societal issues stemming from advancements in science (Wiebe, Ecklund, & Hillen, 1986).
  - By increasing awareness and making a more effective use of classroom time we may get closer to producing information that students can relate and understand its application.



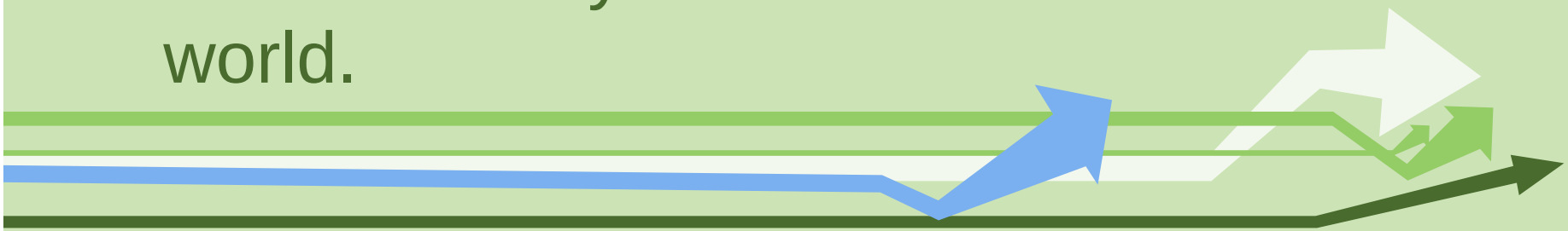
Alignment to standards

1. Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate to pose questions, seek answers, and develop solutions.
2. Students will access, generate, process, and transfer information using appropriate technologies.
3. Students will understand mathematics and become mathematically confident by communicating and reasoning mathematically, by applying mathematics in real-world settings, and by solving problems through the integrated study of number systems, geometry, algebra, data analysis, probability, and trigonometry.
4. Students will understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.
5. Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.
6. Students will understand the relationships and common themes that connect mathematics, science, and technology and apply the themes to these and other areas of learning.
7. Students will apply the knowledge and thinking skills of mathematics, science, and technology to address real-life problems and make informed decisions.

Google Earth

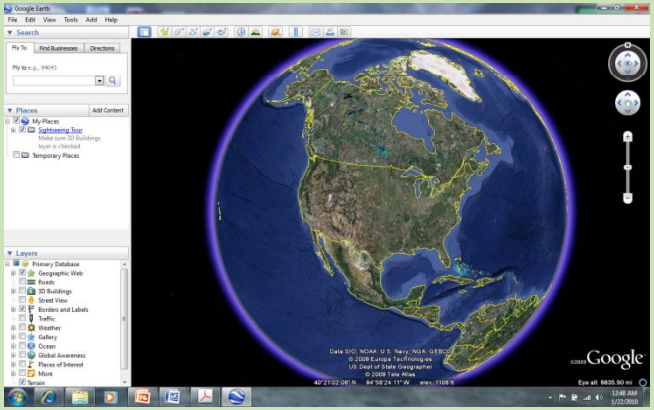
Earthquake! USGS & Google Earth

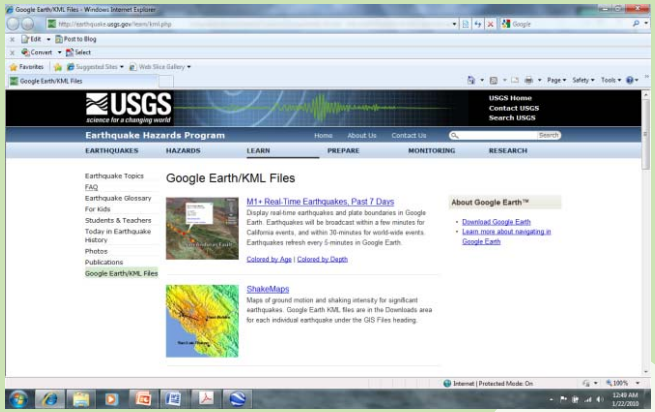
- Introduce students to plate tectonics with the multimedia elements in the Google Earth tours created by the United States Geological Survey. Students explore, analyze and create scenarios as they learn about seismic activity both past and present in the San Francisco Bay Area and around the world.



Earthquake! USGS & Google Earth

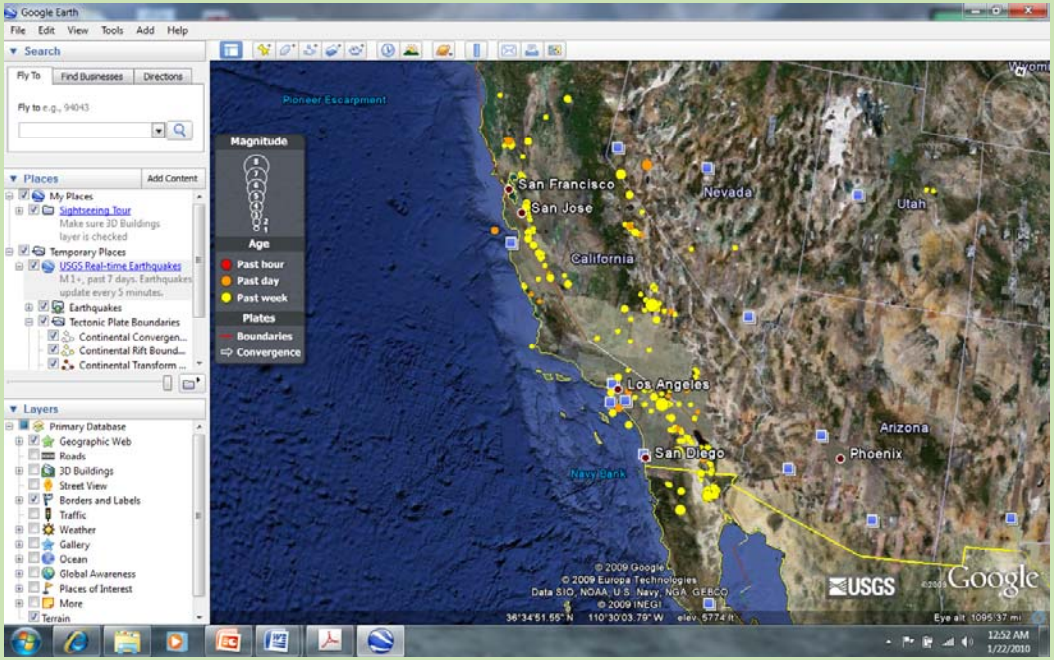
- **Start with USGS Earthquake Hazards Program in Google Earth**
  - http://earth.google.com/
  - http://earthquake.usgs.gov/research/data/google_earth.php
- Set up a series of questions to start the initial exploration of the USGS Google Earth tours.





Earthquake! USGS & Google Earth

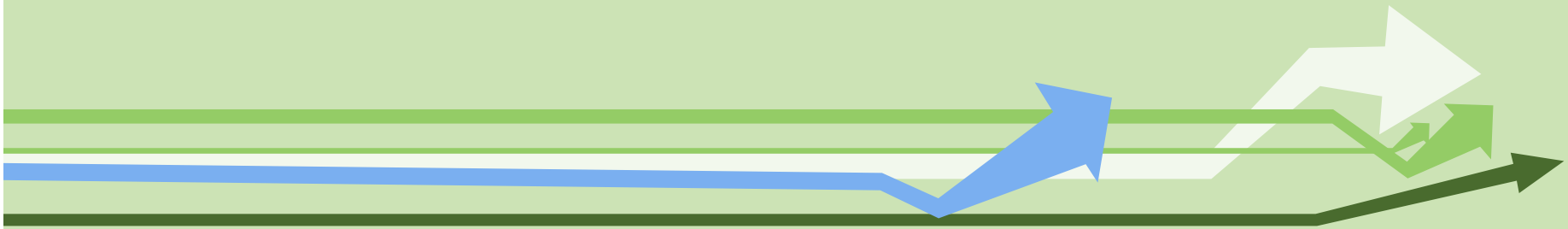
- USGS Real Time Data
  - http://earthquake.usgs.gov/eqcenter/catalogs/eqs7dayage.kmz



eqs7day-age.kmz

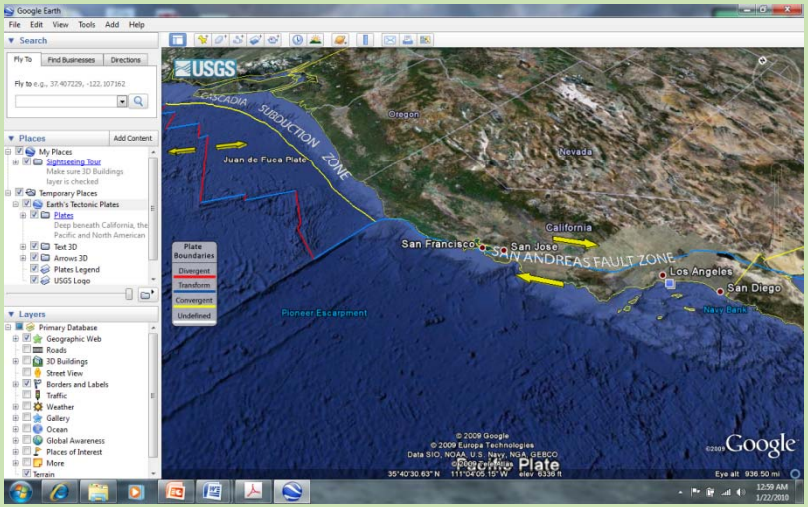
Earthquake! USGS & Google Earth

- Analysis questions
  - In the last seven days locate the largest and smallest earthquake in California.
  - How many EQs within the last day?
  - How many EQs within the last hour?
  - How many EQS within the last week?



Earthquake! USGS & Google Earth

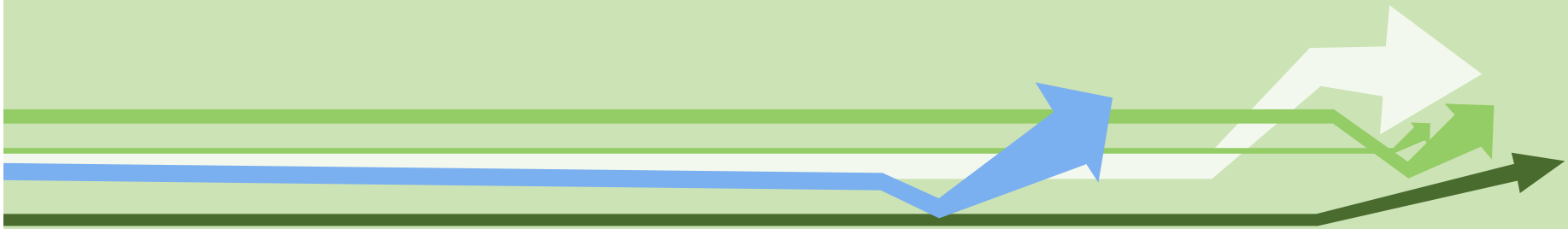
- Earth Tectonic Plates
  - http://earthquake.usgs.gov/regional/nca/virtualtour/kml/Earths_Tectonic_Plates.kmz
  - Why are some plate boundaries undefined?
  - What is plate subduction?



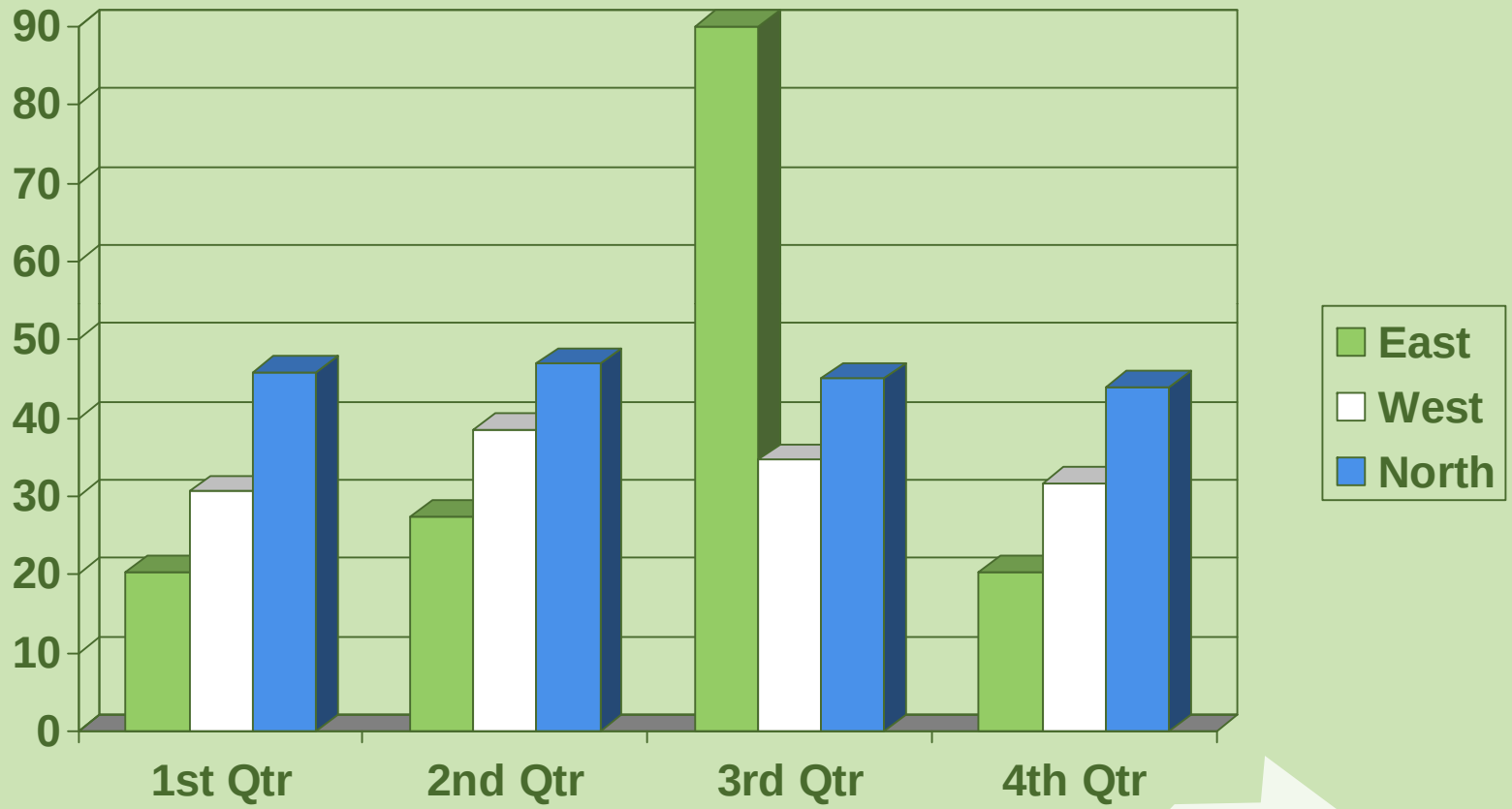
Earths_Tectonic_Plates.kmz

Example of a table

Title	Title
Data	Data

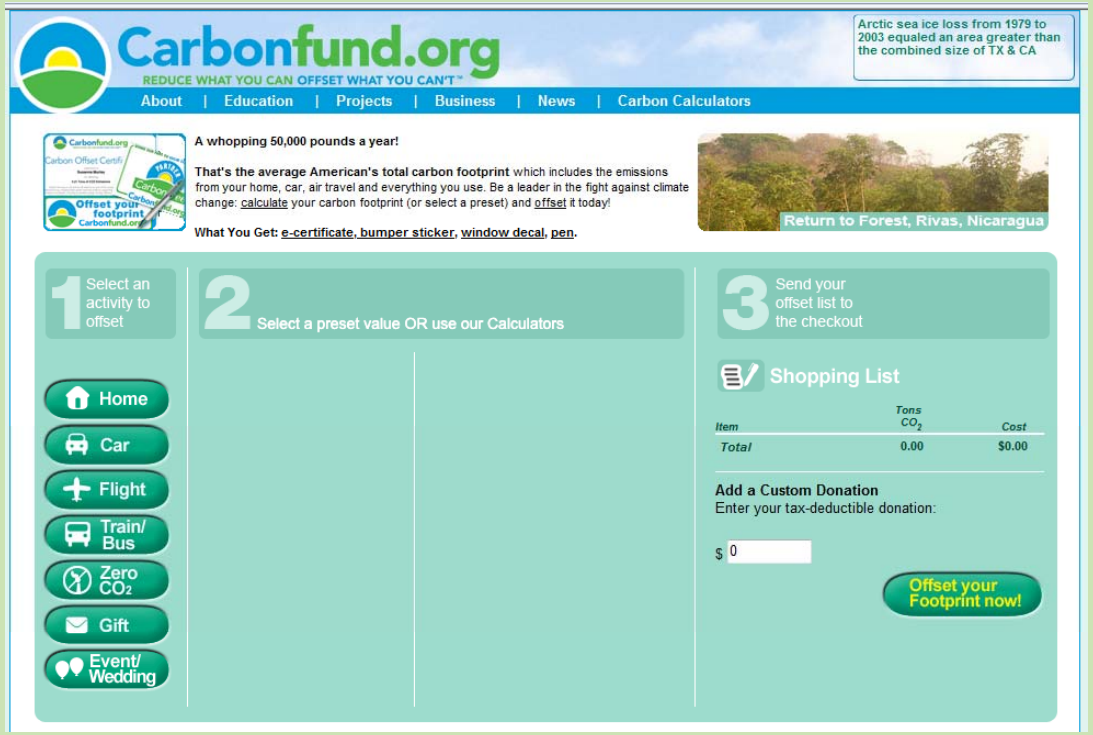


Sample Graph (3 colours)



Carbon Footprint – Carbonfund.org

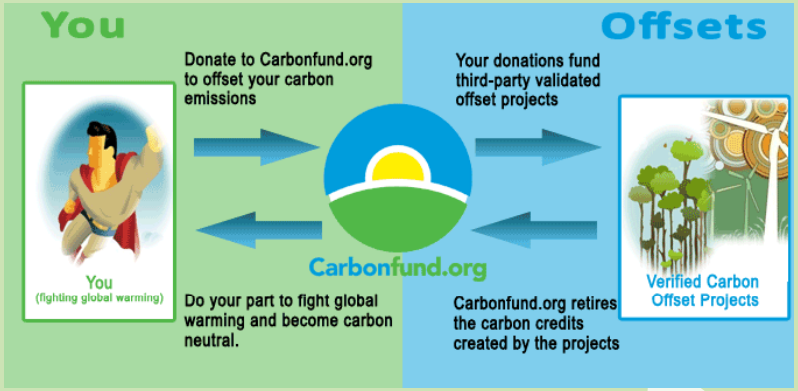
- Individual Carbon Offsets



Carbon Footprint – Carbonfund.org

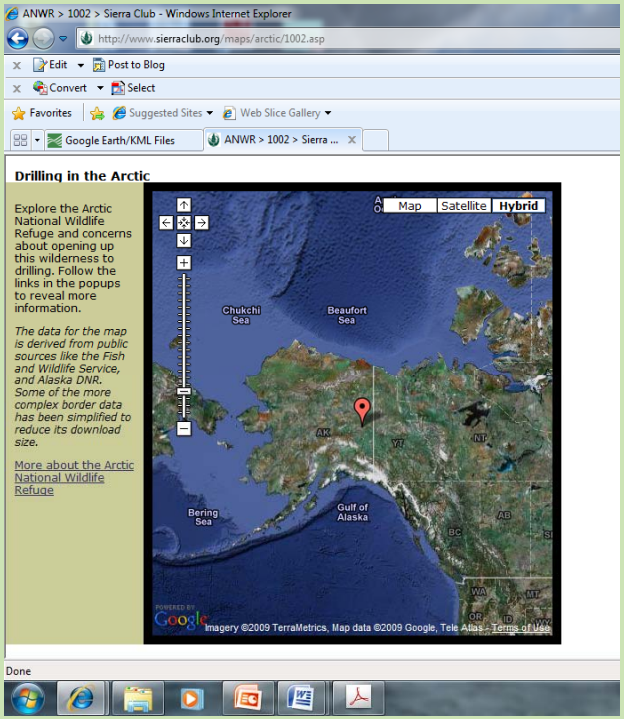
- A carbon offset represents a reduction in emissions somewhere else like a renewable energy or a reforestation project to balance out the emissions you cannot reduce.
- Also, carbon offsets are the only way to get your carbon footprint to zero today.

- You Calculate and Offset your Carbon Emissions.
- Use carbon calculator to figure out your carbon footprint or choose from one of our preset options.

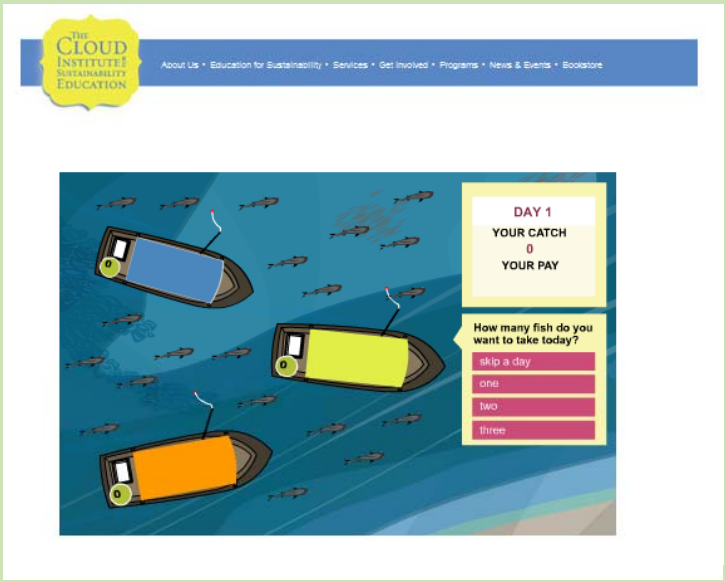


Projects

- Explore the Arctic with Google Earth

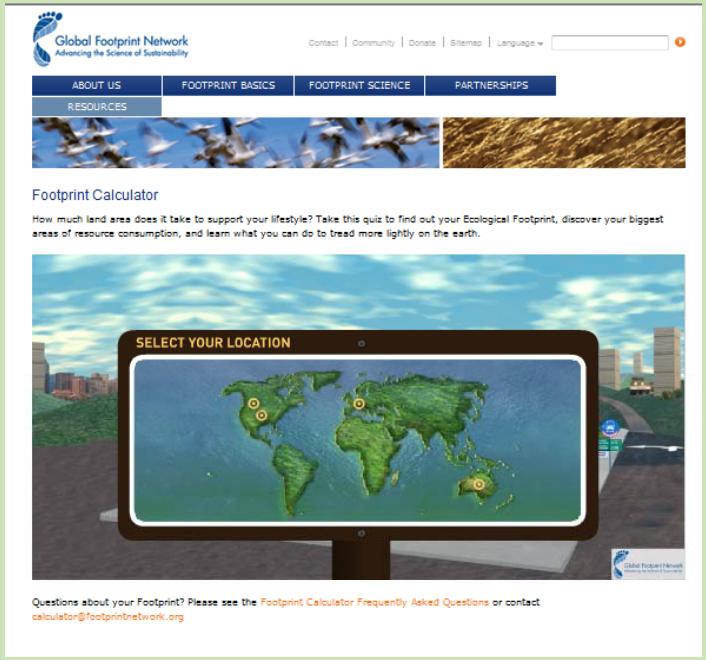


- Play the Fish Game



Projects

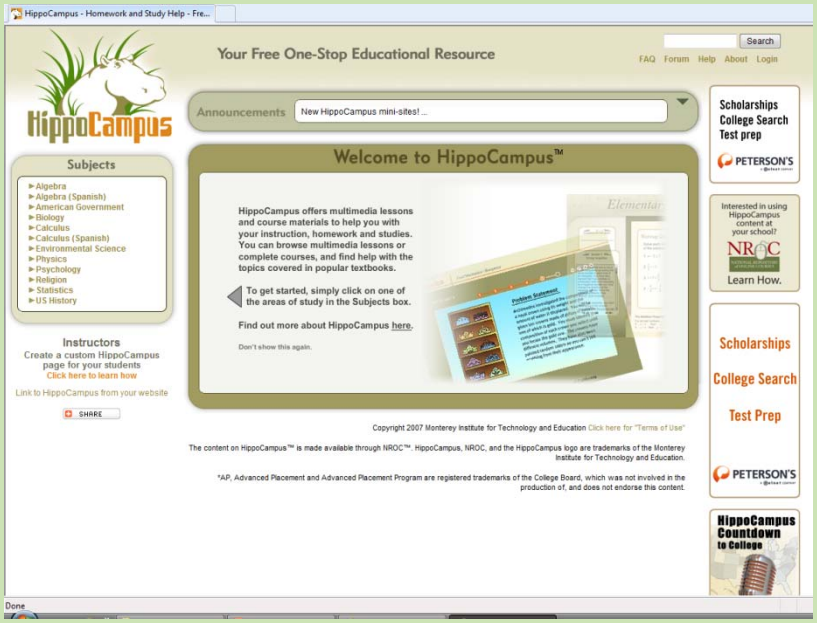
- Carbon Footprint



- Power Up

Projects

- Hippocampus



- Monterey Institute

Thank you!

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