

Sustainability and Conservation in the Amazon

Calculating Ecological Footprints Teacher Notes

Openers:

- Photos - Chris Jordan's "Intolerable Beauty: Portraits of American Mass Consumption"
<http://www.chrisjordan.com/gallery/rtn/#plastic-bags>
<http://www.chrisjordan.com/gallery/intolerable/#cellphones2>
- Video - How Recycling Works:
<https://www.youtube.com/watch?v=b7GMpJx2jDQ#action=share>

Tragedy of the Commons – fishing game:

- Play online here: <https://cloudinstitute.org/fish-game>
- Or play using goldfish crackers:
http://earthwatch.org/Portals/0/Downloads/Education/Lesson-Plans/Go_Fish.pdf
- Consider following up with Elinor Ostrom's "8 Principles for Managing a Commons":
 - <http://www.onthecommons.org/magazine/elinor-ostroms-8-principles-ma...>
 - http://wtf.tw/ref/ostrom_1990.pdf

Possible student readings:

- ***Pursuing a Decent Life for All on a Sustainable Planet***
<https://news.mongabay.com/2017/09/pursuing-a-decent-life-for-all-on-a-sustainable-planet-commentary/>
- ***Living by the Lessons of the Planet: How can human societies thrive within Earth's physical and biological limits?*** by Jon Foley
http://www.sciencemagazinedigital.org/sciencemagazine/21_april_2017_Main?pg=35#pg35
- ***Responsible Consumption & Production: Why It Matters***
<https://www.un.org/sustainabledevelopment/sustainable-consumption-production/>

Calculate ecological footprints:

An ecological footprint is the area of land required to sustain a population at a specified level of consumption and using current technology. It includes water and energy use, uses of land for agriculture, forests and other resources, and land needed for waste disposal.

DRAFT FOR REVIEW: Please send feedback or questions to Dr. Nancy Trautmann (nmt2@cornell.edu)

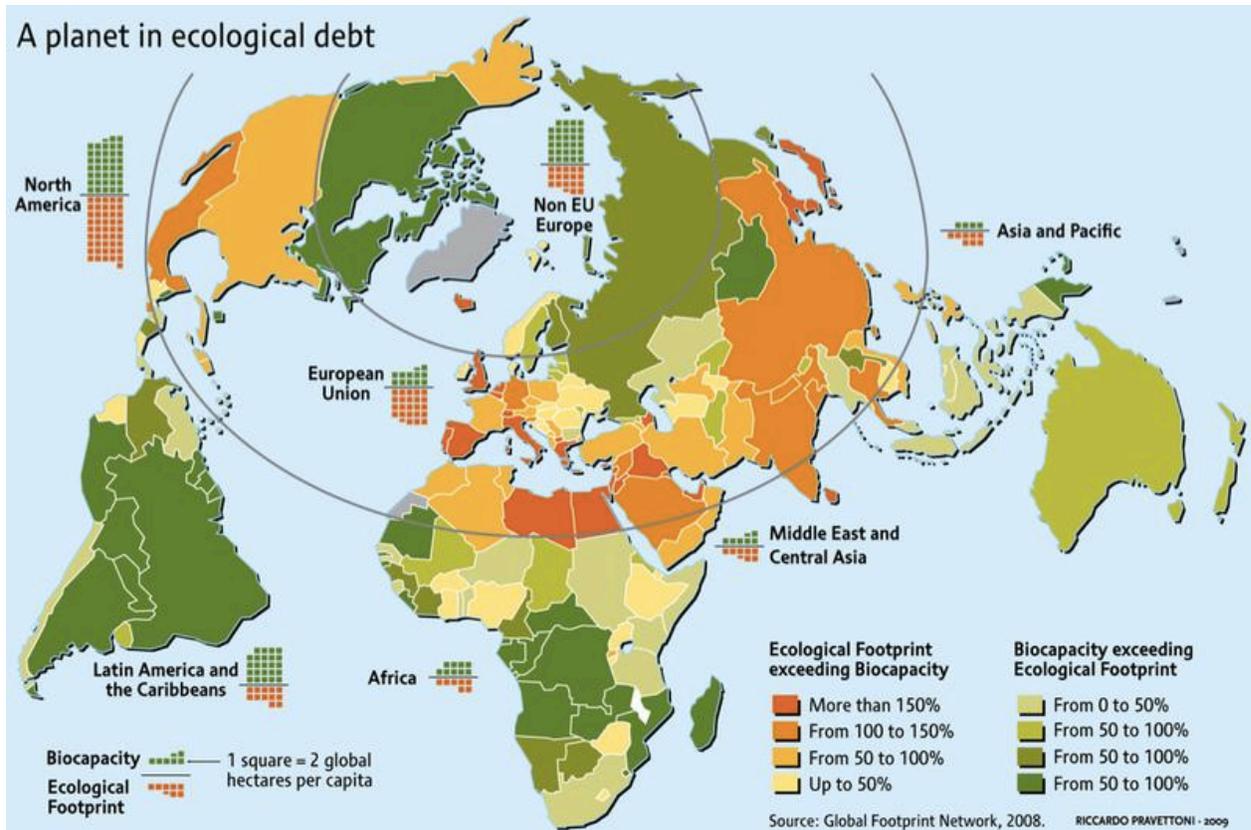


Image source: <http://uwcm-geoq.wikispaces.com/Patterns+in+resource+consumption>

Vanderbilt University provides this useful overview – **Teaching with Ecological Footprints:**
<https://cft.vanderbilt.edu/guides-sub-pages/teaching-sustainability/#foot>

Footprint calculators – here are some options:

- Global Footprint Network: <https://www.footprintnetwork.org/resources/educational-resources/>
- Earth Day – “When is your personal overshoot day?": <https://www.earthday.org/take-action/footprint-calculator/>
- My Footprint: <http://myfootprint.org/> (used in “Shrinking our Footprints” article in The Science Teacher)

Follow-up: How can we reduce our footprints? What changes can we can make to make our lifestyles more sustainable?

- Student reading: “So, What Can I Do?” provides ideas about food, water, and energy, by Jon Foley: <https://globalecoquy.org/so-what-can-i-do-bfd03e46974e>

An alternate approach is to calculate carbon footprints:

A carbon footprint represents the sum of carbon emissions attributable to your transportation, diet, housing, and other lifestyle options – focusing on carbon because of its key role in global climate change.

- Climate Generation’s review of carbon calculator options:
<https://www.climategen.org/blog/carbon-calculators-reviewed/>
- International Student Carbon Footprint Challenge (from Stanford University, with downloadable worksheets): <http://web.stanford.edu/group/inquiry2insight/cgi-bin/i2sear2b/i2s.php?page=iscfc>
- NY Times’ carbon budget model. This climate simulator lets you explore **more than 8,100 climate scenarios**, based on a [model](#) developed by Climate Interactive and the M.I.T. Sloan School of Management:
<https://www.nytimes.com/interactive/2017/08/29/opinion/climate-change-carbon-budget.html>
- NASA’s carbon offset game for kids: <https://climatekids.nasa.gov/offset/>
- A college-level lesson, with downloadable spreadsheet, for calculating the carbon footprint of a typical American breakfast:
<https://serc.carleton.edu/sisl/2012workshop/activities/68532.html>

A global view of emissions and impacts:

- Carbon maps – an interactive map that portrays by country various ways of looking at responsibility for carbon emissions and vulnerability to climate change:
<http://www.carbonmap.org/>