



Nutrition Curriculum: Calories

Connections to Curriculum Frameworks:

- 3.14 Describe how food choices are influenced by availability, individual and family preferences, media, and background, and identify healthy foods within various social groups
- 3.15 Explain the relationships among dietary intake (including nutritional supplements), eating behaviors, physical activity, and emotional health
- 3.17 Identify the effects of food preparation techniques on the nutritional value of the food
- 3.18 Identify common food-borne illnesses
- 3.19 Identify and practice resource management skills needed to maintain and improve nutritional health
- 3.21 Identify how social and cultural messages about food and eating influence nutrition choices

Connections to IGS Learning Goals:

- Appreciate the farming profession
- Know that everyone can grow food
- Understand the connection between healthy soil, healthy plants and healthy people

Overview:

Essential and Topical Questions:

- What is a calorie?
- Where does our food come from?
- Why is it important to know about our food system(s)?
- Who is making our food choices?
- What does it mean to “buy local”?
- What is an “ecological footprint”?



Activities:

- Trace your Breakfast activity: deconstruct a common food item (ingredients, transportation, etc.), calculate calories per serving,
- Calculate the amount of calories it takes to produce that food item vs. how many calories it contains
- Cost vs. Calories: Food Dollars handout. Students explore where our money goes in purchasing food, and how that relates to the calories we are gaining from food vs. the calories we are consuming from the environment.
- Hand out greenhouse gases activity
- Now what? Take action: Food Rules activity. Read food rules, have students create their own.

Definition:

a : the amount of heat required at a pressure of one atmosphere to raise the temperature of one gram of water one degree Celsius that is equal to about 4.19 joules —abbreviation *cal* —called also *gram calorie*, *small calorie*

b : the amount of heat required to raise the temperature of one kilogram of water one degree Celsius : 1000 gram [calories](#) or 3.968 Btu —abbreviation *Cal* —called also *large calorie*

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a : a unit equivalent to the large calorie expressing heat-producing or energy-producing value in food when oxidized in the body

b : an amount of food having an energy-producing value of one large calorie

How many calories does it take to produce one calorie of food?

Outline

1. Introduction to IGS
2. Connection to Nutrition
 - a. Define calorie: use “What is a Calorie” Guide
 - b. Food = energy. How is energy used to produce food?
3. Trace a food item
 - a. Hand out paper
 - b. 1st student writes down what they had for breakfast/lunch. Pass it on.
 - c. 2nd student writes down the ingredients in that meal. Pass it on.
 - d. 3rd student takes a guess at how many calories that meal contains. Pass it on.



- e. 4th student chooses one ingredient and tries to figure out where they came from. Calculate food miles. Pass it on. (Use food origins cheat sheet)
 - f. 5th student takes a guess at how many calories it took to produce those ingredients. (Use calories of food vs. calories of energy)
 - g. Share.
4. Who is making our food choices?
 - a. What is on a label?
 - i. Show nutrition label
 - b. Where does our money go?
 - i. Show food dollars
 5. Why is this information important?
 - a. Show Michael Pollan video
 - b. Nutrition – our own health = the health of our planet
 - i. Environment (soil health depleting, climate change)
 1. Show greenhouse gases graph
 - ii. Economy (food costs rising)
 - iii. Society (diabetes, obesity, hunger)
 6. Now what?
 - a. Show *Nourish* video
 - b. The information is out there – you just have to find it
 - i. Michael Pollan
 - c. Get involved with IGS
 - i. School Garden
 - ii. Harvest of the Month
 - iii. Mentorships
 - iv. Summer jobs
 - v. After school
 - vi. NHS
 - vii. Student Council
 - viii. SIGN UP
 - d. Eat.

Resources

Articles:

10 Calories In, 1 Calorie Out: <http://blogs.scientificamerican.com/plugged-in/2011/08/11/10-calories-in-1-calorie-out-the-energy-we-spend-on-food/>



The Cheapest Calories Make You the Fattest:

<http://michaelpollan.com/profiles/the-cheapest-calories-make-you-the-fattest-a-food-chain-journalist-looks-for-stories-in-our-meals/>

You are What You Grow: <http://michaelpollan.com/articles-archive/you-are-what-you-grow/>

Hidden Truths about Calories: <http://blogs.scientificamerican.com/guest-blog/2012/08/27/the-hidden-truths-about-calories/>

<http://michaelbluejay.com/veg/environment.html>

<http://suite101.com/article/meat-and-the-environment-a61306>

http://www.waldeneffect.org/blog/Calories_per_acre_for_various_foods/

<http://www.meatlessmonday.com/why-meatless/>

<http://truecostblog.com/2010/02/24/list-of-foods-by-environmental-impact-and-energy-efficiency/>

Wasting Food means Wasting Energy:

<http://www.engr.utexas.edu/features/research/wastedfood>

CNN article, *All About: Food and Fossil Fuels*:

<http://edition.cnn.com/2008/WORLD/asiapcf/03/16/eco.food.miles/>

Energy Use and Climate Change: <http://www.gracelinks.org/982/energy-use-climate-change>

Great resource for origins of food crops:

<http://www.fao.org/docrep/004/V1430E/V1430E04.htm>

Oregon State University course outline:

<http://oregonstate.edu/instruct/css/330/one/index.htm>

Videos:

<http://www.mnn.com/food/videos/michael-pollan-energy-and-climate-change>

e2 PBS series, *Food Miles*: http://www.pbs.org/e2/teachers/teacher_309.html



What is a Food Mile? (British cartoon):

<http://www.youtube.com/watch?v=b7rn5hH5XN8>

Nourish videos: Why Eat Local?

http://www.youtube.com/watch?v=DhaG_Zi6izU&list=UU0nUbbUhglWsMx7wvmgb1wg&index=23