

Food for Thought



“We are what we eat.” “The apple of my eye.” “The way to a person’s heart is through their stomach.” “Let them eat cake.” *Food*. Can there be a more interesting science topic? Sure, we need oxygen and water more urgently, but ideas surrounding food produce the most deep-seated responses from us all.

It is not surprising that teachers have found the science of food to be a rich and interesting topic. Several references to food appear in the *National Science Education Standards* (for example, NRC 1996, 184 and 188), and the biology of food, nutrition, and diet plays a major role in all our health curricula.

A favorite activity of my biology and chemistry students is also one of the simplest: We light a tortilla chip with a match and watch it burn. Students always are amazed at how long the chip burns and how much energy is released. This can lead to inquiry calorimetry activities that determine the energy released when various chips and nuts burn. Such activities easily progress to discussions of chemical energy, how cells and organisms use food for energy, which foods provide the most energy, and what should be included in healthy diets. Physics teachers can also use food and kitchen science activities to investigate physical science concepts such as Newton’s law of cooling (Silverman and Silverman 2000).

If all of this isn’t enough reason to consider incorporating food science in your classes, just take a look at how often food issues appear in the news and other media. For example, the media regularly address food safety concerns—from Bovine Spongiform Encephalopathy (BSE) or “Mad Cow Disease” to *Salmonella* and *Escherichia coli* (*E. coli*) outbreaks. I was surprised to learn that an estimated 76 million (not a typo!) foodborne illnesses are present in the United States each year, including 1.4 million *Salmonella* and 73,000 *E. coli* infections (CDC 2004).

Obesity is another a major concern in the United States—64.5 percent of the population is overweight and 30.5 percent clinically obese (AOA 2002). Childhood obesity is a growing concern, eating disorders are prevalent among teenagers, and healthy dietary habits seem ever more difficult in this age of fast-food restaurants and takeout.

World hunger—planet Earth’s ability to feed its growing population and our ability to distribute food equita-

bly—will become an increasingly crucial issue throughout the twenty-first century and beyond. And other issues such as the debate over genetically modified crops, the safety of irradiated foods, the safety of water supplies, and the concentration of toxins (like mercury in fish) will continue to grab headlines.

Although food issues are important and prevalent, I didn’t really appreciate the human side of the story until I was introduced to Darin Detwiler. Through conversations that more than once had me on the verge of tears, I learned the poignant account of Darin’s loss of his 17-month-old son to an *E. coli* infection that ultimately was traced to a fast-food restaurant. Detwiler’s moving commentary appears on page 10. Also be sure to read Ann Trent’s feature article, “Hamburger Science” (p. 35), for an activity that demonstrates the dangers of bacterial contamination and the importance of safe food handling. As these authors point out, teaching about food safety can bring our students a lifetime of safe cooking and eating practices.

I hope you find the articles in this issue helpful as you develop your own food science activities. For additional help, check out *Science and Our Food Supply*, a food safety curriculum jointly produced by the United States Food and Drug Administration (FDA) and NSTA. This innovative, Standards-based program offers a free curriculum kit and video. The FDA/NSTA initiative also includes a teacher professional development program in food science. For more information, visit www.nsta.org/288.

And so, “Bon appetit!” Or, even better: “To your health.”

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References

- American Obesity Association (AOA). 2002. www.obesity.org/subs/fastfacts/obesity_US.shtml.
- Centers for Disease Control and Prevention (CDC). 2004. www.cdc.gov.
- National Institute of Allergy and Infectious Diseases (NIAID). 2002. Foodborne Diseases. www.niaid.nih.gov/factsheets/foodbornedis.htm.
- National Research Council (NRC). 1996. *National Science Education Standards*. Washington, D.C.: National Academy Press.
- Silverman, M., and C. Silverman. 2000. Cool in the kitchen: Radiation, conduction, and the Newton “hot block” experiment. *The Physics Teacher* 38:2.