



FDA/NSTA Symposium: Teaching Science with Food Safety
Friday, November 13, 2009
1:00 – 5:30 pm

1:00 PM – 1:30 PM

Welcome, Introductions, Goals for the Symposium

Flavio Mendez, Acting Assistant Executive Director, Gov't Partnerships and e-Learning, NSTA
Louise Dickerson, Project Officer for FDA's Professional Development Program in Food Science
Paul Tingler, Acting Senior Director, The NSTA Learning Center, NSTA

- About NSTA Symposia
- Agenda/Goals/Forms/Logistics/Introductions

Sherri McGarry, Director, Division of Public Health and Biostatistics

Dr. Sufian Alkhaldi, Research Microbiologist, DNA Microarray Laboratory, CFSAN, FDA

Alan Tart, Regional Retail Food Specialist, FDA's Southeast Regional Office, Atlanta, Georgia

Ken Bingman, Master Teacher – High School Science

Mimi Cooper, Master Teacher – Middle School Science

Elena Stowell, Master Teacher – High School Science

1:30 PM – 2:10 PM

Food: It Shouldn't Be a Mystery...

Alan Tart

Learning Outcome:

After participating in the presentation,

- Participants will name two microbiological risks to foods, and one thing that can be done to reduce the risk from each.

2:10 PM – 3:00 PM

Outbreak Investigations in Foodborne Illness

Sherri McGarry

Learning Outcomes:

After participating in the presentation, participants will be able to:

- Participants will describe a network of public health officials, laboratories, and health professionals who work together in foodborne disease surveillance
- Participants will name one of the most frequent pathogens associated with foodborne outbreaks
- Participants will briefly describe how the type of pathogen helps investigators narrow the source of contamination
- Participants will briefly describe how one known outbreak originated

3:00 PM – 3:15 PM

Break



3:15 PM – 4:10 PM

Activity: Blue's the Clue

Mimi Cooper, Ken Bingman, and Elena Stowell

Learning Outcomes:

After participating in the activity,

- Participants will define pasteurization.
- Participants will describe one method of detecting the presence of bacteria in a liquid.
- Participants will explain how some types of milk can stay fresh and safe without being refrigerated.
- Participants will describe how an indicator, such as methylene blue, is used in food science.

4:10 PM – 4:50 PM

Chasing Down the Source of the Smoking Gun of the Pepper Outbreak in 2008

Dr. Sufian Alkhaldi

Learning Outcomes:

After participating in the presentation,

- Participants will learn how to conduct a real microbiological sampling in food outbreak investigation.
- Participants will learn how to recognize Pulsed Field Gel Electrophoresis patterns used to identify the source of bacteria.
- Participants will learn how to find clues for water and farm contamination.

4:50 PM – 5:05 PM

Panel Discussion – Q & A's

Sherri McGarry, Dr. Sufian Alkhaldi, Alan Tart, Mimi Cooper, Ken Bingman, and Elena Stowell

5:05 PM – 5:30 PM

Final Words

- Post-assessment form
- Evaluation form/Survey/Credit info
- NSTA Web Seminars
- Drawing of prizes; Deliver Handouts



Benchmarks and National Science Education Standards Addressed:

From the *Benchmarks for Scientific Literacy* Grades 6 through 8

Chapter 5 The Living Environment

By the end of 8th grade, students should know that

Flow of Matter and Energy

- ◆ Food provides molecules that serve as fuel and building material for all organisms. (5E/M1a)

Chapter 6 The Human Organism

By the end of 8th grade, students should know that

Human Identity

- ◆ Like other animals, human beings have body systems for obtaining and deriving energy from food and for defense, reproduction, and the coordination of body functions. 6A/M1

Basic Functions

- ◆ For the body to use food for energy and building materials, the food must first be digested into molecules that are absorbed and transported to cells. (6C/M2)

Physical Health

- ◆ The amount of food energy (calories) a person requires varies with body weight, age, sex, activity level, and natural body efficiency. (6E/M1a)
- ◆ Viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions. A person can catch a cold many times because there are many varieties of cold viruses that cause similar symptoms. (6E/M3)

The Designed World

By the end of 8th grade, students should know that

Health Technology

- ◆ Sanitation measures such as the use of sewers, landfills, isolation, and safe food handling are important in controlling the spread of organisms that cause disease. Improving sanitation to prevent disease has contributed more to saving human life than any advance in medical treatment. (8F/M1)



From the *National Science Education Standards*

Content Standards, 5-8

Content Standard C:

Life Science

As a result of their activities in grades 5-8, all students should develop an understanding of

Structure and Function in Living Systems

- ◆ Cells carry on the many functions needed to sustain life. They grow and divide, thereby producing more cells. This requires that they take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or an organism needs. #3
- ◆ Disease is a breakdown in structures or functions of an organism. Some diseases are the result of intrinsic failures of the system. Others are the result of damage by infection by other organisms. #6
- ◆ All living organisms must be able to obtain and use resources, grow, reproduce, and maintain stable internal conditions while living in a constantly changing external environment. #12

Content Standard F:

Science in Personal and Social Perspective

As a result of their activities in grades 5 – 8, all students should develop an understanding of

Personal Health

- ◆ Food provides energy and nutrients for growth and development. Nutrition requirements vary with body weight, age, sex, activity, and body functioning. #5

Risks and Benefits

- ◆ Students should understand the risks associated with natural hazards (fires, floods, tornadoes, hurricanes, earthquakes, and volcanic eruptions), with chemical hazards (pollutants in air, water, soil, and food), with biological hazards (pollen, viruses, bacterial, and parasites), social hazards (occupational safety and transportation), and with personal hazards (smoking, dieting, and drinking). #14