



# Teacher Tools

## Lesson 2 Funky Food Farm



**Video Entry Topic:** Food Safety

### OVERVIEW

**Food safety:** Food can transmit disease from person to person as well as serve as a growth medium for bacteria. How can you reduce the threat of food poisoning and improve food safety?

Explain the danger and the science behind it.

Explain and/or demonstrate possible option(s) for protection and explain the science, technology, engineering and/or mathematics involved.

**Length of Lesson:** 2-3 class periods

**Subject Area(s):** Science, Health, Technology, Visual Arts, Language Arts

### OBJECTIVES

Students will:

- Research bacteria and food safety;
- Determine the conditions that promote bacterial growth in food;
- Determine the impact of bacteria on the human body;
- Determine the impact of bacteria and safe food handling to society, the economy, and lives; and
- Research and present ways to protect yourself from harmful bacteria and how to properly handle food.

## MATERIALS

- Access to the Internet
- Assorted materials to be used for insulation (Styrofoam, newspaper, cardboard, etc.)
- Thermometers/temperature probes
- Ice cubes in plastic sandwich bags
- For final project, materials will vary. May include art materials, access to multimedia presentation software, Internet and e-mail, video equipment, etc.

## PROCEDURE

1. Each year, millions of people in the United States get sick from contaminated food. Ask students what they know about food poisoning. Discuss examples of how they think food poisoning might be avoided.
2. Outdoor meals are ideal breeding grounds for bacteria. If food is not handled carefully, food poisoning can result. Group students in teams of three or four. Assemble different insulating materials such as Styrofoam, newspaper, pieces of wood, cardboard, cloth, plastic wrap, etc. The task is to build and insulate a container to keep four ice cubes from melting over an assigned period of time. Have students keep track of the temperature inside of their insulated containers. Is it cold enough to prohibit the growth of food bacteria?
3. Have students present their designs and results to the class. The presentation should include a conclusion based on the appropriate research about how to keep food from spoiling and ensure proper food handling. Have students also include the consequences if these procedures are not followed.
4. Research the topic and possible solutions using such Internet sites as:
  - [Centers for Disease Control and Prevention](http://www.cdc.gov) – Staphylococcal Food Poisoning (see <http://tiny.cc/YPkWt>)
  - [Centers for Disease Control and Prevention](http://www.cdc.gov) – Safe Food and Water (see <http://tiny.cc/TZdaQ>)
  - [FoodSafety.gov](http://www.foodsafety.gov) – from the U.S. Department of Health and Human Services
  - [HowStuffWorks.com](http://www.howstuffworks.com) – Use search terms such as “food safety” and “food preservation”
  - [3M](http://www.3m.com) – Food Safety Maximized (see <http://tiny.cc/s6SmP>)
  - [HowStuffWorks.com](http://www.howstuffworks.com) – *Using Electricity to Preserve Fresh Foods* Video (see <http://tiny.cc/gmiZT>)
  - [HowStuffWorks.com](http://www.howstuffworks.com) – *Dr. Know: Bar Snacks and Bacteria* video (see <http://tiny.cc/cobQq>)
  - [KidsHealth.org](http://www.kidshealth.org) – Food Poisoning (see <http://tiny.cc/vijrN>)

## EXTENSIONS

- Have students create a Food Safety poster that can be placed in the school's kitchen.
- Have students work in groups of three or four and create a game that outlines steps for food safety and possible hazards if the rules are not followed.

## SUPER EXTENSION!

Have your students create individual videos that showcase what they know about food safety and enter them in the 2010 Discovery Education 3M Young Scientist Challenge for a chance to win a \$50,000 U.S. savings bond. To learn more about the [2010 Challenge](#), visit [www.youngscientistchallenge.com](http://www.youngscientistchallenge.com).

## EVALUATION

You can evaluate your students on their presentations using the following three-point rubric:

- **Three points:** Presentation well researched; information clearly and logically organized; presentation interesting and lively
- **Two points:** Presentation adequately researched; information sufficiently organized; presentation could use improvement
- **One point:** Presentation insufficiently researched; information inadequately organized; presentation poorly prepared

You can ask your students to contribute to the assessment rubric by determining a minimum number of facts to be presented in a report and setting up criteria for an interesting and lively presentation.

## STANDARDS CORRELATION

The National Academy of Sciences provides guidelines for teaching science in grades K–12 to promote scientific literacy. To view the standards, visit this Web site: [books.nap.edu/html/nses/html/overview.html#content](http://books.nap.edu/html/nses/html/overview.html#content).

This lesson plan addresses the following national standards:  
Science in Personal and Social Perspectives: Personal health  
Science in Personal and Social Perspectives: Risks and benefits