Lesson 3, Activity 1

Being the "Host" at This Party Is No Fun (35 minutes, plus time for student research)

Section
Diseases

Investigative Questions
What is the host of an infectious disease? How does the host relate to the Epidemiologic Triangle?

Description of Content
This lesson helps students understand more about the host, or "who" of the Epidemiologic Triangle. Hosts are organisms (people, animals, and plants) that are exposed to and harbor a disease. While the host does not always become ill, it does offer lodging for the disease.

Relevant Standards
This activity fulfills science and health education standards.

Objectives
Students will:

- Define what it means to be the "host" of a disease

Materials
- Student Reproducible 1: *Infectious Diseases*

Safety
Normal classroom safety guidelines should be observed.

Procedure
Engagement (5 minutes)

1. If you have done Lesson 1, Activity 2—Working the Epidemiologic Triangle—briefly review with students the meanings of agent, host, and environment (the three corners of the Triangle).

2. If not, you can still teach this lesson. Point out that when kids get sick, usually it is an infectious disease. That kind of disease is caused by an agent (usually some kind of a microbe) that gets into their body.

3. When they get sick, they become the host for the agent/microbe. The host is where the microbe lives. In a few infectious diseases there is more than one host. For these types of diseases, usually one host does not get the disease but carries it until it is transmitted to a person. For example, in Lyme disease, the microbe is

carried by a tiny deer tick that does not get sick, but when the tick bites a person, that person gets the disease.

Exploration (10 minutes)

1. Tell students a microbe can affect the host in many ways. The ways that the host is affected are the symptoms of the disease. Ask students to think about the infectious diseases they have had and the symptoms of each. Have them work on this in small groups for 5 minutes. (If you have done Lesson 1, Activity 1 *What's our experience with infectious disease?*, students will have already listed the infectious diseases they have had. Now they will concentrate on listing the symptoms):

Infectious diseases	Symptoms of the disease

Explanation (15 minutes)

1. Ask students to share what they discussed in their small groups. Create the same two columns on the board (Infectious diseases, Symptoms of the disease). Fill in your students' responses under the appropriate heading.

2. As you put their answers on the board, discuss the following key points about infectious diseases with students:

   - <u>There may be some variation in symptoms for the same disease</u>. The same germ (microbe) affects different hosts (people) in different ways. (Some people who get chickenpox have a very bad rash and a fever; others may only get a mild rash.)

   - <u>Some categories of people are more seriously affected by a disease</u>. Those are usually children, elderly, people with compromised immune systems such as people who are undergoing chemotherapy for cancer or who have HIV/AIDS. However, sometimes it is backwards. Chickenpox is less severe in children than in adults.

   - <u>You cannot always determine the disease from the symptoms</u>. Both a cold and the flu may have the same symptoms—fever, headache, sneezing, and coughing. That is why the doctor may do a throat swab on a child who has a cold and fever. If the test results show it was caused by bacteria, then the

doctor will prescribe antibiotics. Most colds and flu are caused by another kind of microbe, a virus. Antibiotics do not work against viruses.

Elaboration (time varies)

1. Have students do research on additional infectious diseases. See Student Reproducible 1: *Infectious Diseases* for ideas of other infectious diseases they can explore. Have them complete a chart like the one in this lesson for these diseases.

Evaluation (5 minutes)

1. Ask students to give a specific example of each of the three key points above. (For instance, one student might say, "My brother got a really bad rash with chickenpox and I didn't.")

Extension

1. Students can explore the Immune Platoon on the BAM! Web site at www.bam.gov/sub_diseases/diseases_immuneplatoon.html for more information on infectious diseases and how the body fights them.

Text Correlations

Glencoe, *Teen Health, Level 1,* Chapter 5: Nutrition and Physical Activity; Chapter 12: Understanding Communicable Diseases
Glencoe, *Teen Health, Level ,* Chapter 4: Food and Nutrition; Chapter 7: Preventing Diseases
Glencoe, *Teen Health, Level 3,* Chapter 8: Nutrition for Health; Chapter 17: Communicable Diseases

Web Resources

CDC *BAM! Body and Mind*™: www.cdc.gov/bam or www.bam.gov

BAM! Body and Mind is brought to you by the Centers for Disease Control and Prevention (CDC), an agency of the U.S. Department of Health and Human Services (DHHS). *BAM!* was created to answer kids' questions on health issues and recommend ways to make their bodies and minds healthier, stronger, and safer. *BAM!* also serves as an aid to teachers, providing them with interactive activities to support their health and science curriculums that are educational and fun.

Centers for Disease Control and Prevention (CDC): www.cdc.gov

The CDC Web site provides a comprehensive overview of the latest research on infectious diseases. From research studies on infectious diseases to information for travelers, this site provides a wealth of information. Some is written for medical professionals, but much of the information is written for health care consumers.

Partnership for Food Safety Education: www.fightbac.org/main.cfm

Educational materials for educators and consumers on ways to fight food-borne illnesses.

Relevant Standards

Benchmarks for Science Literacy

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

Chapter 6, Benchmark E, 6-8: Physical Health

- 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.

National Health Education Standards

Standard 1
Students will comprehend concepts related to health promotion and disease prevention.

- Explain the relationship between positive health behaviors and the prevention of injury, illness, disease and premature death.
- Analyze how environment and personal health are interrelated.
- Describe how lifestyle, pathogens, family history and other risk factors are related to the cause or prevention of disease and other health problems.

Standard 3
Students will demonstrate the ability to practice health-enhancing behaviors and reduce health risks.

- Demonstrate strategies to improve or maintain personal and family health.

Lesson 3, Activity 1, Student Reproducible 1:

Infectious Diseases

Please discuss what diseases your family has experienced (What have you had? What have your parents had? What may your grandparents have had?) and mark these on the list below. You do not have to mark anything that you or your family might be uncomfortable sharing.

Note to parents: There are probably infectious diseases you or your parents had—for example, mumps—that kids today don't get. The purpose of this exercise is to show students some of the ways in which we have made progress in fighting the kinds of infectious diseases that used to be so common among children. Thank you for participating.

[Insert exhaustive list of infectious diseases from CDC]