

LESSON V-7: Signs and Symptoms of Illness

Student Learning Objectives:

- V-18. Students will list signs and symptoms of common communicable diseases.
- V-19. Students will name microbes as the cause of communicable diseases.

Preparation

- Gather the needed materials.
- Make sure you have ten agar-filled petri dishes for Activity 3. Your high school's science department may have some for you to use, or you can order them from the following sources if they are not provided in your box of materials.

Nebraska Scientific
3823 Leavenworth Street
Omaha, Nebraska 68105
1-800-228-7117

Fisher Scientific
9403 Kenwood Road, Suite C-208
Cincinnati, Ohio 45242
1-800-766-7000

Both of these sources offer petri dishes and agar, which you purchase separately. Their prices are comparable. Nebraska Scientific also offers a variety of agars in disposable plastic petri dishes sealed to prevent contamination and desiccation.

- Duplicate enough copies of the Student Worksheet, How to Be Healthy, so that each student will have one.
- Select the "Disease Organisms" transparency from the book, *Diseases and Health*. If the book is not available, make a transparency of the Transparency Master, Disease-Causing Organisms.
- Decide how you will divide the class into five groups for Activity 3.

Materials

Equipment

- Overhead projector
- Filmstrip projector (optional)
- Cassette player (optional)

Resources

- Book: *Diseases and Health* (1969 edition), transparency book (OR Use the Transparency Master listed below)
- Transparency Master: Disease-Causing Organisms
- Student Worksheet: Diseases of the Respiratory System (from Lesson V-5)
- Student Worksheet: How to Be Healthy
- Teacher Key: How to Be Healthy
- Teacher Reference: Communicable Disease Terminology (from Lesson V-5)
- Filmstrip: *How to Be Healthy* (10 minutes) (optional)
- Cassette: *How to Be Healthy* (10 minutes) (optional)

Realia

- Pencils or pens
- Cotton swabs
- Agar-filled petri dishes (ten)
- Transparency

Time: 30 minutes, not including the Optional Activity

Lesson Procedure

Introduction: 3 minutes

Connect this lesson on signs, symptoms, and causes of communicable disease with the previous lesson on respiratory diseases.

1. Ask the students to refer to their Student Worksheets from the previous lesson, Diseases of the Respiratory System. Review by saying:

We have been studying diseases of the respiratory system. Who can tell me what we call those diseases that can be caught from an infected person? [communicable] Let's list a few of the communicable diseases from your worksheets.

Write the students' suggestions on the chalkboard.

Now, let's try to think of some other communicable diseases that aren't on our worksheets.

Write the students' suggestions on the chalkboard. Some possible responses might include HIV/AIDS, head lice, measles, chicken pox, etc.

2. State:

Today we will find out what causes communicable diseases and how to tell if someone is sick.

Activity 1: 4 minutes

Define the terms "sign" and "symptom," and generate examples.

1. Write the words "sign" and "symptom" on chalkboard.

Here are two words we often hear when someone is sick. Can anyone tell me what they mean and what the difference between them is?

Help the students define the words:

- Signs are body signals that indicate illness which can be verified by outside observers. They can be measured or observed. Some examples are fever, redness, swelling, a broken bone, etc.
- Symptoms are subjective feelings experienced by the ill person that cannot be verified by outside observations or tests. They must be reported by the person who is ill. Some examples are dizziness, nausea, feeling hot, etc.

Teacher's Note: Refer to the Teacher Reference on Communicable Disease Vocabulary from Lesson V-5 for additional information.

2. Briefly have the students name some indicators that a person is sick. Ask them to classify them as either a sign or a symptom.

3. Remind the students:

Signs and symptoms of illness should be reported to a parent or another adult caretaker so that they can make sure you get the proper care and treatment that you need to get well and feel better.

Activity 2: 10 minutes

Introduce the causative agents of communicable disease.

1. Distribute a Student Worksheet, How to Be Healthy, to each student.
2. Call on students to read items 1 through 4 out loud to the class. Explain:

All communicable diseases have a common cause. They are all caused by something called a microbe. A microbe is a microscopic germ that causes illness.

3. Show the transparency called “Disease Organisms” from the transparency book *Diseases and Health* or show the transparency of the Transparency Master, Disease-Causing Organisms.

Briefly overview the microbes called bacteria, viruses, and protozoa.

| |
|---|
| Teacher’s Note: If you have the filmstrip and cassette, <i>How to Be Healthy</i> , available, you may show it instead of giving the following mini-lecture. |
|---|

4. Instruct the students:

Listen carefully to find out more about microbes and what they do as I read some information to you. As you listen, try to write down the answers to the first four questions on your Student Worksheet.

Read the following information to the students:

Communicable diseases are caused by tiny organisms called pathogens, or germs, or microbes. Microbes may be viruses, bacteria or protozoa, as we saw on the transparency. These microbes are so small that they can only be seen with a microscope.

Microbes are all around us at all times. Some microbes are helpful. Some microbes cause cheese to age and fruit juice to ferment into wine. Microbes in the soil help plants to grow. Other microbes are used to make medicine.

Some microbes cause illnesses in plants and animals. We will find out more about these in the next lessons.

In order for microbes to grow and multiply, they need special conditions. They grow best when it is dark, warm, and moist.

5. Ask the students to get into pairs or triads and share their answers to items 1 through 4 on their worksheets.
6. After the students have completed items 1 through 4, call on students to share their answers with the class. Save the worksheets for use with the next lesson.

Activity 3: 10 minutes

Do an experiment to show that germs are everywhere and which conditions they need for growth.

1. Divide the class into five groups and give each group a cotton swab and two petri agar dishes.
2. Explain:

Germs are on everything. Let's find out where we might find germs by doing an experiment. Each group will decide where you think there are lots of germs. Then, your group will wipe a cotton swab on that area and rub the cotton across the agar in both petri dishes to make two cultures. One culture will be kept in a warm, dark, moist area, while the other will be kept in a light, cool, dry area. We will compare how well they grow.

3. Ask each group to decide where to take a sample. Some interesting areas might be a door knob, someone's pencil, the faucet handle in a bathroom, a tongue, the bottom of a shoe, etc. Try to choose locations that the students contact frequently.
4. Ask each group to tell you their choice before taking the sample. This will avoid duplication.
5. Instruct the groups to:
 - Rub the cotton swab across the area; then rub it thoroughly across the agar in both dishes and replace the lids.
 - Label each petri dish with the date and the location where the sample was taken.
 - Set one sample from each group in a warm, moist, dark location.
 - Place the other samples in a bright, cool, dry area.
6. Check the dishes daily to see what happens. Compare the amount of germs that grow under various conditions.

Closure: 3 minutes

- Summarize by asking:

Who can remember the names for the three kinds of microbes? [bacteria, viruses, protozoa]

Ask the students to name some signs that a person might be sick with a communicable disease. Then have them name some symptoms of illness.

- State:

The next health lesson will focus on how our body defends against disease and what we can do to help it.

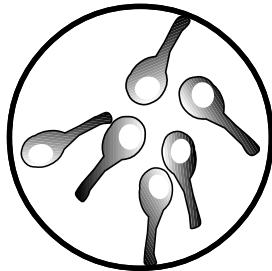
Integration Ideas

Science

- Culture samples of swabs taken from various animals to compare the microbes they carry.
- Grow specimens from the same location under varying conditions to see which conditions are most favorable for the growth of microbes.
- Rub some of the specimens with antibacterial soap, some with bleach, and others with regular soap. Compare the specimens to see how their growth is affected.

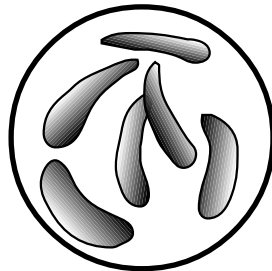
DISEASE-CAUSING O

ALIAS: GERMS, MICROBES, PATHOGENS

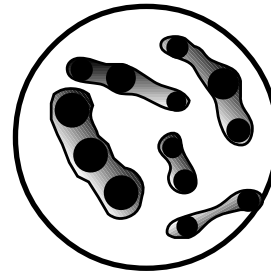


Tetanus

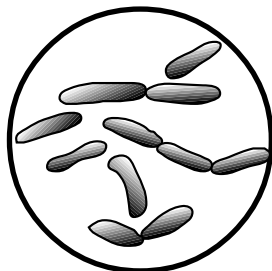
BACTERIA



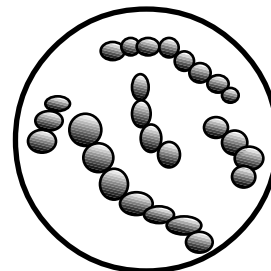
Tuberculosis



Diphtheria

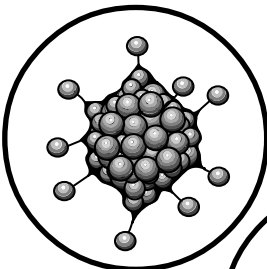


Food Poisoning



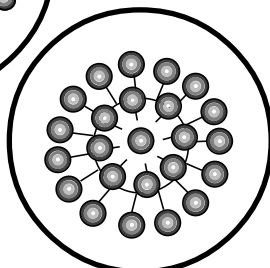
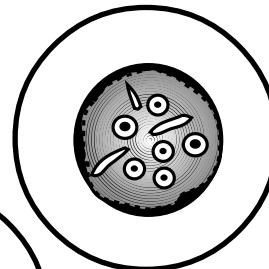
Strep Throat

VIRUSES

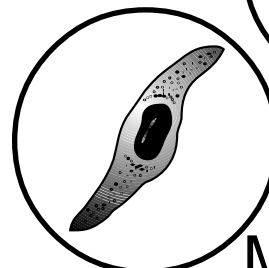


Cold

Dysentery



HIV



Malaria