

PE Instructions for grades 6, 7, and 8

Fill out your fitness log! We want you to get one hour of activity 5 days a week! Get active and have fun! You can take a picture of the fitness log and email it or text it to our email.

Read Chapter 12, Lesson 1 in Health pg. 332-335. When you are finished answer questions 1-6. You can email the answers to us!

Mrs. Mathews jmathews@northmasonschools.org

Mr. Smethers dsmethers@northmasonschools.org

Mr. Lee alee@northmasonschools.org

Lesson

1

Causes of Communicable Diseases



Quick Write

What do you think it means to “catch” a cold? Jot down one or two sentences to explain your answer.



LEARN ABOUT...

- types of germs that can cause disease.
- what an infection is.
- how germs are spread.

VOCABULARY

- disease
- communicable disease
- germs
- pathogens
- infection
- viruses
- bacteria
- fungi
- protozoa





Germs and Disease

If you have ever had a cold or the flu, then you have had a disease. A **disease** is any condition that interferes with the proper functioning of the body or mind. Diseases are either communicable or noncommunicable. A **communicable** (kuh·MYOO-ni·kuh·buhl) **disease** is a disease that can be spread to a person from another person, an animal, or an object. A cold is a communicable disease.

All communicable diseases are caused by **germs**, organisms that are so small that they can be seen only through a microscope. The environment is filled with many different types of germs, most of which are harmless and some of which are helpful. *The germs*

FIGURE 12.1

PATHOGENS AND THE DISEASES THEY CAUSE

Pathogens	Diseases
 <p>Viruses</p>	AIDS, chicken pox, colds, hepatitis, herpes, influenza, measles, mononucleosis, mumps, polio, rabies, smallpox, viral pneumonia
 <p>Bacteria</p>	bacterial pneumonia, diphtheria, most foodborne illnesses, gonorrhea, Lyme disease, pinkeye, strep throat, tuberculosis
 <p>Fungi</p>	athlete's foot ringworm
 <p>Protozoa</p>	amebic dysentery malaria

that are responsible for causing disease are known as **pathogens**. An **infection** is a condition that occurs when pathogens enter the body, multiply, and damage body cells. If the body is not able to fight off the infection, a disease develops.

Types of Pathogens

All pathogens are not alike. Types of pathogens include viruses, bacteria, fungi, and protozoa. **Figure 12.1** on the previous page shows some of the diseases caused by these four types of pathogens.

Viruses (VY·ruh·suhz), the smallest and simplest disease-causing organisms, cause a wide range of health problems. Fortunately, scientists have developed ways to prevent many of the diseases caused by viruses. Bacteria are another common kind of pathogen. **Bacteria** are tiny one-celled organisms that live nearly everywhere. Many bacteria are harmless, and some are actually helpful. For example, bacteria in your intestines aid digestion. However, certain bacteria are harmful and can cause disease. **Fungi** (FUHN·jy) are primitive life-forms, such as molds or yeasts, that cannot make their own food. Most fungi are harmless, but some can cause health problems. **Protozoa** (proh·tuh·ZOH·uh) are one-celled organisms that have a more complex structure than bacteria. While many are harmless, some types are harmful and can cause serious diseases. These diseases are less common in the United States than in many other parts of the world.

How Pathogens Are Spread

Knowing how pathogens can be spread can help you protect yourself from them. This will reduce your risk of contracting communicable diseases. Pathogens can be spread in several ways:

- **Direct contact with others.** You can get pathogens on your skin through direct contact with another person. For example, suppose someone who has a cold coughs into his or her hand. If you then shake hands with that person, the cold pathogens will be transferred to your hand. If you touch your eyes or nose, the pathogens can enter your body.
- **Indirect contact.** When people sneeze, they expel pathogens into the air. Other people in the area then breathe in these pathogens. This is one way in which indirect contact leads to the spread of diseases such as colds, flu, and tuberculosis. How often have you taken a sip out of a friend's glass? That is another way you can pick up pathogens: by sharing drinking glasses, food, eating utensils, and other personal



Reading Check

Understand word parts. Use a dictionary to identify the meanings of each part of the word *communicable*.

By using tissues you can prevent pathogens from spreading through the air.



items. Pathogens may also be spread when you touch a surface—a doorknob or a telephone receiver, for example—that is contaminated with another person's germs.

- **Contact with animals or insects.** Animal and insect bites can also spread pathogens. For example, the bite of a rabid animal spreads rabies. The bite of a deer tick may transmit Lyme disease to humans and animals.
- **Contaminated food and water.** A mountain stream or rare burger can look pretty inviting. However, pathogens can be spread through contaminated water or raw or undercooked food. Illnesses that result from eating unsafe food are known as foodborne illnesses.

Hands-On Health

OBSERVING BACTERIA

You cannot see an individual bacterium (singular of *bacteria*) without a microscope. However, given the right nutrients, bacteria will increase in number until they form a group or colony that can be seen with the unaided eye.

WHAT YOU WILL NEED

- three petri dishes filled with agar
- sterile swabs
- labels
- disinfectant soap

WHAT YOU WILL DO

1. Choose two places to collect samples of bacteria, such as your unwashed hands, doorknobs, floors, or furniture.
2. Wipe the object with a sterile swab and touch the swab to the agar.
3. Cover the dish immediately. On a label, write down exactly where you collected the sample. Attach the label to the dish.
4. Wash and dry your hands.
5. Repeat the procedure with the second sample.
6. For the third sample, wash your hands carefully with disinfectant soap and dry them on a paper towel. Then press your fingers against the agar in the third dish.

7. Cover the third dish and label it "Clean Hands."

8. Keep dishes in a warm, dark place for five days. For safety reasons, do not remove the lids.

IN CONCLUSION

1. Which container shows the greatest growth of bacteria? Which shows the least?
2. What conclusions can you draw from your observations?



For example, *E. coli* bacteria, found in raw or undercooked ground meat, can cause severe illness and even death.

- **Contact with someone else's blood.** Certain viruses, such as HIV, can be transmitted through contact with an infected person's blood. This contact can occur through sharing needles that are used to inject drugs. Donated blood is screened carefully to prevent such infections from being transmitted.
- **Sexual contact.** Certain diseases are transmitted through sexual contact. You will learn more about these diseases in Lesson 4.



To prevent Lyme disease, wear long-sleeved shirts, light-colored clothing, and high boots when hiking through deer habitats. Tucking your pants into your boots or socks and using tick repellent will also help.

Lesson 1 Review

Using complete sentences, answer the following questions on a sheet of paper.

Reviewing Terms and Facts

- 1. Vocabulary** Define the terms *disease* and *communicable disease*.
- 2. Describe** What is a *pathogen*? Identify four types of pathogens, and list their characteristics.
- 3. Identify** List two diseases caused by each of the four kinds of pathogens.
- 4. Recall** What are six ways in which pathogens are spread?

Thinking Critically

- 5. Explain** Suppose that you were hiking with a friend who wanted to drink water from a stream. What would you tell your friend?
- 6. Evaluate** Is it more difficult to protect yourself from pathogens that are spread through direct contact or indirect contact? Explain your answer.

Applying Health Skills

- 7. Advocacy** Use library resources and the Internet to learn more about Lyme disease. Create a pamphlet to educate others about how they can protect themselves from Lyme disease.

Fitness Activities Menu

*Try to include your family members in your activities!

Jogging	Walking	Cycling	Dance
Rugby	Cross Fit	Soccer	Basketball
Baseball	Hiking	Zumba	Cross Country Skiing
Volleyball	Weights	Jump Rope	Vacuuming
Kickboxing	Mowing the Lawn	Splitting/Stacking Wood	Football
Karate	Clean House	Tennis	Walk the Dog
Yard Clean up	Aerobics	Work out Video	Swimming
Pickleball	Badminton	Wrestling	Free Choice