



OVERVIEW

BIG IDEA

We must recognize illnesses that are contagious and act in ways that help prevent their spread.

OBJECTIVE

5.4: Differentiate between communicable and noncommunicable disease.

AGENDA

1. Picture This
2. Communicable vs. Non Table
3. Infectious Disease at School
4. Communicable or Non?

HOMEWORK

Investigate the absence due to illness policies at a local daycare or school by interviewing a school official.

LESSON 5.4

Communicable Disease

SUMMARY:

Students will engage in an exploration of communicable vs. noncommunicable diseases. They will start the lesson by reflecting upon a picture of citizens wearing surgical masks in public. Then they will engage in a personal reflection of infectious illness in their lives. Next, they will learn the definitions, transmission modes, and examples of the two types of disease. After that, students will read an article focusing on infectious disease in schools and then work to research and classify diseases as communicable or non.

STANDARDS:

NHES 1.12.3: Analyze how environment and personal health are interrelated.

NHES 1.12.4: Analyze how genetics and family history can impact personal health.



Communicable Disease

Obj. 5.4: Differentiate between communicable and noncommunicable disease.



Picture This:

Examine the image below. Then answer the questions that follow.



1. Describe the people in the image? What do you notice that might be different from normal?
2. Why do you think some of these people are wearing surgical masks?
3. Would this be a common sight in the United States? Why or why not?



Under the Weather

Think about the last time you were sick and discuss the following questions with a partner.

- What were your symptoms?
- Do you know what kind of illness you had?
 - *If so, what was it?*
 - *If not, why didn't you know?*
- How did you get sick?

DO NOW: In Japan, for example, where this photo may have been taken, it is common for people to wear surgical masks to prevent the spread of everyday contagious illnesses. Whether a person has a sickness they are trying to contain, or whether a person is wearing one to avoid getting whatever is “going around” wearing a mask is considered the polite and socially appropriate custom.

DISCUSS: Ask students to raise hands if the last illness they had is called out. Then run through a few common illnesses: common cold, flu, “stomach flu” (which is really not flu), food poisoning, etc.



Communicable & Non-Communicable Disease

Review the chart about the differences between communicable and noncommunicable disease:

	Communicable Disease	Noncommunicable Disease
Definition	An illness caused by some specific biological agent that is transmissible (e.g., from person to person, from animal to person, etc.). These are also known as infectious diseases .	A medical condition or diseases which is non-infectious and cannot be transmitted between people or animals. Also known as non-infectious, these may be chronic disease of long duration and slow progression (e.g. osteoporosis), or they may progress rapidly (e.g. stroke)
Modes of Transmission or Methods of Acquiring	Can be transmitted from an infected person, animal, or inanimate (not alive) reservoir to a host. 1. Sneezing (airborne) 2. Unwashed hands 3. Food/Water 4. Animals	Usually occur due to genetics (heredity) or developed by lifestyle choices (e.g. smoking) or environmental exposures (e.g., air pollution), or some combination of those factors
Examples	H1N1 Flu Virus Pink Eye (conjunctivitis) West Nile Virus Common cold E.Coli infection	Heart Disease Arthritis Asthma Fractured bone Migraines

NEW INFO: Ask students to name more examples they are familiar with. Also, review the meaning of the terms chronic (long-term) and acute (short-term or fast acting), which are also often applied to disease.



Infectious Diseases at School

Read the CDC fact sheet entitled, "Infectious Diseases at School" and answer the questions below:

1. What is one of the major negative effects of infectious disease among school-aged children?
2. Why do infectious diseases spread so easily in schools?
3. What can schools do to prevent the spread of infectious diseases?
4. What is one major cause of foodborne illness? _____
5. Approximately what percentage of the U.S. population acquires the seasonal flu each year? ____ - ____%
6. What is one of the BEST ways to keep from getting sick and spreading infectious illnesses?
7. How should one cough or sneeze in order to best prevent spread of infection?

- READ: Answers**
1. Absences / lost school days
 2. They are a group setting where people are in close contact and sharing supplies and equipment
 3. Answers will vary (e.g., encourage sick students/staff to stay home)
 4. Noroviruses
 5. 5-20%
 6. Keeping hands clean
 7. Cover with tissue (throw tissue away immediately afterward) or into the arm if no tissue is available



Noncommunicable Diseases Among Schoolchildren

What common illnesses or conditions occur in school-aged children that are **noncommunicable**?



Communicable or Noncommunicable?

For each of the diseases below, conduct research to determine whether they are communicable or noncommunicable. Be sure to explain the evidence that demonstrates whether or not they are infectious.

Disease or Condition	Communicable or Noncommunicable?	Evidence
Athlete's Foot		
Ear infection		
Lyme Disease		
Asthma		
Hand, Foot, & Mouth Disease		



Your Turn!

In the space below, identify one communicable disease and one noncommunicable disease and explain one possible way they are transmitted or acquired. (Note: Do not use any illnesses already provided as examples in this lesson.)

- a. One **communicable** disease is _____, which is transmitted by...
- b. One **noncommunicable** disease is _____, which is transmitted by...

DISCUSS: Examples: Asthma, injuries (sprained ankle, broken bone, etc.), headaches, obesity (a condition), etc.

THINK: Answers:

- 1. Athlete's foot = communicable
- 2. Ear infection = noncommunicable (but often arises after a communicable illness, i.e. common cold, occurs)
- 3. Lyme disease = communicable (but transmitted by a tick, not human-to-human)
- 4. Asthma = noncommunicable
- 5. Hand, foot, and mouth disease = communicable

THINK: It is worth noting for students that science does not "know all" and especially in medicine there are still endless unknowns. While we have come a long way in our understanding of the transmission of illness, there are still mysteries. For example, some types of cancer may be triggered by viruses (i.e., HPV & cervical cancer). For a long time, some scientists suspected that all (or most) cancers were transmitted by viruses, and that it was a matter of discovering the viruses. Today we are (fairly) certain that this is not true. However, certain types of cancer and many other illnesses (i.e. multiples sclerosis, MS) still have a lot of uncertainty surrounding them.

ASSESS: Any examples that fit the definitions are acceptable. Examples: Communicable—HIV, SARS, H1N1, polio, measles, mumps; and Noncommunicable—cancer, obesity, arthritis, Parkinson's disease, Alzheimer's, etc.

**Investigation: Policies on Communicable Disease**

Challenge: You are a public health professional who specializes in creating and enforcing policies regarding infectious diseases in workplaces, schools, and public facilities. Your first assignment on this new job is to determine what policies exist in schools and daycares regarding these illnesses.

Directions: Choose one location besides your own school (e.g., a daycare, preschool, elementary, high school, or university). Ask permission to interview a school official about the policies (ensure they know your goals and purpose). Answer the following questions based on their responses:

- 1) What policies exist regarding communicable disease?

- 2) When do students need to go home?

- 3) When are they allowed back? Is a doctor's note or parent note required?

- 4) What illnesses are most commonly seen among children in this institution?

- 5) Are illness-related absences tracked? If so, how many absences on average, does each child have per year due to illness? (An estimate is okay if data is not available).

- 6) Are these policies formally written and distributed among students and parents or kept informally?

- 7) What challenges or problems does the school face regarding infectious illnesses?

- 8) Are there any policies or requirements regarding proof of immunizations?

- 9) Would you recommend changes to any of the school policies?

HOMEWORK:

The purpose of this homework assignment is to give students an opportunity to investigate how the real world deals with communicable disease. Often the policies and strategies we employ, as humans, are not perfect. But a great deal of factors—economic, social, political, etc.—go into the decisions, so we cannot always carry out the safest or most prudent measures when dealing with communicable disease.