

Fourth Grade Lesson Plan Communicable and Non-Communicable Diseases

Health SOL 4.4a, b, c: The student will demonstrate an understanding of health concepts and behaviors that prevent illness of self and others. Key concepts include:

- a) The body's defenses
- b) The spread of germs (viruses, bacteria, and fungi)
- c) The difference between communicable and non-communicable diseases

Interdisciplinary SOLs:

This lesson can be implemented as a PE Lesson; see 4th grade SOLs for PE or discuss with the Physical Education teacher in your school how best to implement this activity.

Rationale:

Students must be able to identify the differences between communicable and non-communicable diseases, and the treatment methods for each, so that they may make healthy decisions for themselves in the future. A focus on the difference between viruses and bacteria, and the treatment of each is important so that students can recognize when the use of an antibiotic is appropriate.

Goal:

Students will apply the information they learned about the immune system, germs, and diseases to a physical activity in which the object is to select the correct method of treating an illness.

Objectives: *The student will be able to...*

- Name the ways our body naturally protects us from illness (antibodies, bronchi, stomach acid, white blood cells, villi, and skin), and identify what each part does (vocabulary)
- Define the difference between a virus and a bacteria
- Choose an appropriate method of treatment for a virus and for a bacteria (for a virus, the body's natural defenses are best; for bacteria, an antibiotic is appropriate)
- Know the appropriate usage of antibiotics

Materials:

- 3 pieces of red construction paper labeled "virus", "vaccines", and "bad bacteria"
- 8 pieces of green construction paper labeled "antibodies", "bronchi", "good bacteria", "stomach acid", "antibiotic", "white blood cells", "villi", and the "skin"
- Photographs of viruses and bacteria (if available, may opt to look at them through a microscope)
- Marker Flags (orange or other bright color)

- Type definitions of each of the vocabulary words (used on red/green paper), and cut into strips so that you can pass them out to students in your class

Before the Lesson:

- 1) Make strips with definitions of each vocabulary word to pass out to some students

Time: 2 Days, 1 hour per lesson

Vocabulary:

Antibiotic - Medicine that will kill bad bacteria in the body.

Antibodies - Chemicals made by white blood cells that destroy or weaken bad bacteria and viruses

Bad Bacteria - Bacteria in or on the body that makes you sick.

Bronchi - A tube by your lungs that may catch germs and cough them out.

Good Bacteria - Bacteria in or on the body that does not make you sick.

Immune System- The immune defense system is a body-wide network of organs, tissues, cells, and proteins that fights against foreign invaders.

Skin - The first line of defense for the body. It keeps germs and bacteria out of our organs.

Stomach Acid - Acid in the stomach that may kill germs that enter the mouth.

White Blood Cells - Cells that fight against germs in the body.

Villi - Tiny hairs in the nose that catch germs, dust and dirt.

Virus - A single-celled organism that must have a living host for it to survive (like our bodies). Can make us sick if they reproduce quickly in our bodies, but there are no medicines to cure it.

Day 1/Hour 1

Advance Organizer/Set: (10 minutes)

- 1) Pass out one vocabulary strip per student. Some students may not have a strip. Ask them to be the coaches during the activity
- 2) Have students study the definition of their word for a minute. Ask them if they think they understand what their word means.
- 3) If some students don't understand their word, tell them that its OK, they are going to find out soon.

Procedure: (25 minutes)

- 1) Ask the students who have "virus", "vaccine", and "bad bacteria" to stand in 3 corners in the room.
- 2) Tell the students who have the "immune defense" words to go stand with the person whom they think their defense will help fight the germs (for example, an antibiotic would stand with a bacteria, a white blood cell might stand with a virus, or be undecided). The students who did not receive a definition can help any of the students who are confused about what their definition might mean.
- 3) There might be some students whose body part would help fight against both a bacteria and virus. Explain that those parts are very important to our immune system because often they help us get well before we even know we're sick!
- 4) Ask students to defend why they chose to stand with their "cause" for illness. Ask the class if they agree with the group choices. If they do not agree, ask them to explain and reorganize the groups so that they are correct.

Closure:

(20 minutes)

- 5) Ask students to sit at their desks and collect the definitions.
- 6) Show students pictures/slides of viruses. Be sure to stress that viruses can not be cured by antibiotics, so when they go to the doctor for a cold, they should not get a prescription medication. The best thing for them to do is rest and drink plenty of fluids.
- 7) Show students pictures of bacteria. Explain that bacteria are cured by antibiotics. When they take antibiotics, they should always finish the entire bottle of medication, and should never share or take old antibiotics.
- 8) Ask students critical thinking questions below (either in a class discussion or for homework on paper):

Questions:

- 1) Why is it important to make sure that your immune system stays healthy? (because if it is not healthy, your body cannot fight germs and you could become sicker)
- 2) How can you make sure you do not get sick or make others sick around you? (by washing your hands, taking baths regularly, not sharing food or drinks)
- 3) When you have a virus, what can you do to get healthy? (rest and drink plenty of fluids like water and orange juice so your body has a chance to make itself well)
- 4) What do you do if you have a bacterial infection? (take an antibiotic until it is completely finished, even if you feel better; do not share antibiotics with family or friends; do not take old/expired antibiotics)
- 5) (Extra Credit) There are good bacteria in your body. Do you know how people use good bacteria in other ways? (in food: to make yogurt and cheese, to make medicines like penicillin)

Assessment:

- 1) The definition-matching activity is an opportunity to assess prior knowledge. You can use this as a base-line for teaching the topic.
- 2) Use the critical thinking questions as an assessment of students' understanding of the difference between viruses and bacteria, and the methods of treatment for both.

Day 2, 1 hour

Before the Lesson:

1. On the day of the outdoor activity, predetermine an open area large enough for the entire class to move freely in the space, and use the marker flags to outline the area for the class to use.
2. Label the 3 pieces of red construction paper "virus", "vaccines", and "bad bacteria"
3. Label the 8 pieces of green construction paper "antibodies", "bronchi", "good bacteria", "stomach acid", "antibiotic", "white blood cells", "villi", and the "skin".

Advance Organizer/Set: (15 minutes)

1. Before going outside, tell students that the flags mark the boundaries of the "game field", and represent the body. They will be acting as germs or body parts inside the body.
2. Choose 11 students as the initial "bad guys" and "good guys". The remaining students will act as the "body". Give the 3 "bad guys" the red signs, and the 8 "good guys" the green signs.

Procedure: (30 minutes)

1. Outside, have the entire class stand inside the boundaries of the "body". Choose a loco-motor movement for the class to perform (running is not recommended; instead use crab walk, skip, crawl, hop, etc.).
2. Explain that the object of the game is not to tag as many people as possible, or to escape being tagged. This is for the safety of the students as well as the purpose of the lesson.
3. The "body" actors should perform the loco-motor movement until they are gently tagged by a "bad guy". When they have been tagged, they must stand/sit still until they have each been tagged.
4. When every "body" has been tagged, have them take turns choosing which "good guy" will help them get better, based on the type of "bad guy" that tagged them. (For example, if a virus tagged them, they could choose from an antibody, white blood cells, bronchi, villi, or skin—if they said "antibiotic", they are incorrect because antibiotics cannot treat a virus)
5. Repeat the game until everyone in the class has had a chance to fill at least 2 different roles.

Closure: (15 minutes)

1. Take the class back inside, and give them the attached matching “quiz” to assess their knowledge. Reiterate that the quiz is just to see how much they learned from the lesson, not for a grade.

Assessment:

1. Observe the game—once the first game was played, did the students “get” the point of the game? Did they make the connection between the body, germs, and the immune system?
2. The quiz should give you an idea of knowledge gained since the lesson from Day 1. The quiz should test knowledge of vocabulary terms as well as the proper usage of antibiotics

Differentiation

The lesson is designed with students in mind who learn well while moving. The opportunity to use loco-motor and bodily-kinesthetic skills increase student interest and engage them in a fun learning experience.