



Fight Germs, Stay Healthy

GRADE LEVELS:

Grades 1st – 3rd

CONCEPTS:

- pathogens
- natural defenses

OBJECTIVES:

Students will discover how our bodies protect us from germs and what we can do to keep germs from making us sick.

ACADEMIC CONTENT STANDARDS:

- Science: Life Science: 1.5, 2.2
- Science: Scientific Inquiry: 1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 1.2, 3.4
- Science: Scientific Ways of Knowing: 1.2, 1.3, 2.4, 3.4, 3.5

VOCABULARY/KEY WORDS:

Antibiotics - Any of a large group of chemical substances having the ability to inhibit the growth of or to destroy bacteria and other microorganisms.

Bacteria - One-celled organisms, various species of which are involved in infectious diseases.

Communicable - Capable of being easily communicated or transmitted.

Fungus - Any of a diverse group of eukaryotic single-celled or multinucleate organisms that live by decomposing and absorbing the organic material in which they grow.

Immune System - A complex network that protects the body from pathogens and other foreign substances, destroys infected and malignant cells, and removes cellular debris.

Mucus - A slimy substance secreted by glands lining the nasal, esophageal, and other body cavities which serves primarily to protect and lubricate surfaces.

Pathogen - Any disease-producing agent.

Phlegm - The thick mucus secreted in the respiratory passages and discharged through the mouth.

Snot - Mucus from the nose.

Vaccines - Any injection used to immunize against a specific disease.

Virus - An ultramicroscopic infectious agent that replicates only within the cells of living hosts.

EXTENSIONS AT COSI:

Life

- Visit Life to learn more about our bodies.

Progress

- Visit Progress and view the medicines available in each time period.

ADDITIONAL RESOURCES:

<http://www.cdc.gov/flu/school/>

<http://www.cdc.gov/germstopper/resources.htm>

<http://www.glogerm.com/>

http://www.educationworld.com/a_lesson/00-2/lp2189.shtml

SAMPLE TEST QUESTIONS:

Q. What can your body do to prevent you from getting sick?

- a. Make snot
- b. Sneeze
- c. Cough
- d. All of the above

Q. What is something we can do to help prevent ourselves from getting sick?

- a. Get vaccinated
- b. Get enough sleep
- c. Exercise
- d. All of the above

Q. A pathogen is an example of:

- a. An insect
- b. A machine
- c. A germ
- d. A mammal



Fight Germs, Stay Healthy Pre Visit Activities

Cover Your Mouth

Objective: Students will learn the importance of covering their mouth and nose while sneezing.

Materials:

- Talcum Powder
- Tissues
- Soap
- Water

Procedure:

1. Teach students that germs are invisible.
2. Tell them that you are going to show them what it might look like when you sneeze if you could see germs.
3. Put Talcum powder in your hand. Hold your hand in front of your mouth/nose and pretend to sneeze into it. Powder will fly everywhere, making a big visual impact.
4. Sneeze again. This time use a tissue.
5. Put more powder in your hand and shake the hand of a student.
6. Ask the students how to prevent passing germs.

What Happened?

Students will see dramatically how germs can be spread without covering your mouth when you sneeze. They will also learn that washing their hands after they sneeze will help prevent the spread of germs.



Growing Cooties

Description: Students will learn the importance of hand washing by observing mold growing on potatoes.

Materials:

- 3 clean, dry potatoes
- 3 glass jars with tight fitting lids
- Soap and water
- Individual paper towels
- Hand Sanitizer
- Warm place to store the jars
- Paper and pencil for recording results

Procedure:

1. Divide the class into three equal groups. Each group is given a glass jar with a tight fitting lid. One group is the “clean hands” group, and they label their jar “clean hands.” The next group labels their jar “dirty hands.” The last group labels their jar “hand sanitizer.”
2. Starting with the “clean hands” group, have the group move about the room touching desk tops, pencils, books, door knobs, pencil sharpener handle, anything that a lot of students handle daily. They can also cough in their hands. Next, allow the other two groups to move about the room, one group at a time, touching the SAME items.
3. After the “clean hands” group has moved around the room collecting germs, they will wash their hands with soap and water and dry their hands with individual paper towels. Next they will line up facing the class and pass a clean potato from one person to the next, being sure to handle the potato well before passing it on to the next person. The last person in the line places the potato into the glass jar labeled “clean hands,” and screws the lid on tightly.
4. After the “hand sanitizer” group has moved around the room they will clean their hands with the hand sanitizer, but they will allow their hands to air dry before handling the potato. They will also stand in a line facing the class, and pass a clean potato one to another, handling it well. The last person in the line will place this potato in the jar labeled “hand sanitizer,” and screw the lid on tightly.
5. The “dirty hands” group will follow the same procedure as the other groups, but they DO NOT wash or clean their hands. They also stand in a line facing

- the front of the class and pass the third potato from one to the other, handling it well. Again the last person places the potato into the clean jar labeled, “dirty hands” and screws the lid on tightly. (Now the “dirty hand” group should wash their hands.)
6. All three jars are placed in a warm location in the classroom.
 7. Pass out art paper (12 × 18) to the class, and have the students label their paper “Growing Cooties” at the top. Have them fold their paper to make four squares. Number each box from one to four, and write the date of each observation as it occurs. Students will draw the potato experiment in the first box and label each potato. They should look the same.
 8. At the end of each week the students will observe, draw, and label the potatoes as they change. At the end of the experiment they will have a visual representation of the changes that took place. Continue the process for three weeks. The students should see mold growing on the “dirty hands” potato. This will give the students first-hand proof that washing hands does reduce or prevent the spread of germs.

What is going on?

Germs can make you sick. Hand washing and keeping your hands clean will kill or wash away the germs.

Supplemental information

Growth of germs will depend on the warmth of the jars. Germs could grow faster if your room is warmer, and this may take less time than three weeks. Keep lids on at all times! At the end of the experiment throw everything away UNOPENED!

Mold is a plant (a fungus) and it uses water in its tissues. Unlike green plants, mold and other fungi don't photosynthesize to make their food, but feed off of materials they land on. Molds don't need sunlight to grow; they grow just as quickly in the dark. They only need sunlight for spore production. Most sources recommend growing mold in a dark, moist, and warm place. The main reason for growing molds in the dark is to keep it from drying out in sunny locations. If you put your potatoes near a sunny window for warmth, let students know that mold doesn't need sunlight to grow as other plants do.



Fight Germs, Stay Healthy Post Visit Activities

Online Activities

<http://www.amnh.org/nationalcenter/infection/>

Objective: This is a collection of online activities and games about the spread of germs, the flu, and cleanliness.

Materials:

- Computers with internet access



Hot Potato

Objective: Students will learn how easily and quickly germs are spread

Materials:

- Flour
- Sponge or sponge-like ball

Procedure:

1. Cover the ball/sponge in flour.
2. Have the students sit in a circle and pass the ball/sponge around the circle.
3. After the ball has gone completely around the circle tell the students the flour on the sponge represents germs.

Further Activity:

Ask students which of the following activities can spread germs:

- a. Sneezing
- b. Running
- c. Sharing a glass of juice
- d. Watching T.V.
- e. Coughing
- f. Kissing