

Primary Health & Safety:
Germs & Disease

Teacher's Guide

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Produced by

COLMAN COMMUNICATIONS CORP.

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CONTENTS

	Page
Program Overview	4
Intended Audience and Uses	4
Program Synopsis	4
Student Objectives	5
Suggested Lesson Plan	6
Introduction	6
Previewing Activities	6
Post-viewing Activities	6
Purposes of Handout Material	7
Answer Key	7
Transcript of the Video	7
Web Resources	15

Primary Health & Safety:
Germs & Disease

Time: 12 minutes

PROGRAM OVERVIEW

Intended Audience and Uses

This video is intended to be used with youngsters, ages 6-8. The program has been designed to be used in primary health and science classes.

Program Synopsis

Jimmy McManus is seen playing with several friends in the park. Suddenly, he feels ill and goes home. Jimmy's mother takes his temperature, discovers that he has a fever and mentions that he must have "come down with a bug." The narrator explains that "bugs," in this context, are really germs – probably bacteria or viruses. Viewers

then see various kinds of bacteria and viruses and learn that not all bacteria cause illness. Some help us digest food, others are used to make medicines and still others are used to make foods such as yogurt. When food is shared, germs may be passed from one person to another. Germs are also passed by coughing and sneezing, failing to wash wounds, and by touching an infected area of another person and then rubbing one's eyes or eating finger foods. Viewers are cautioned to wash their hands to prevent germs from spreading. Properly cooking and cooling foods is also discussed. The program then discusses what happens when germs get inside a person's body. Viewers see how the body's immune system attacks pathogens. Students then see how cells known as *phagocytes* grind up germs, and then learn how *antibodies* are sent in to fight infections that have spread. Viewers also learn the symptoms of infection and how they can take personal responsibility for fighting germs, including drinking plenty of liquids when they're sick. The program discusses how *vaccines* work and then ends on a brief explanation of genetic diseases.

STUDENT OBJECTIVES

After viewing this video and participating in the suggested activities, students should be able to do the following:

1. Describe bacteria and viruses and tell what they do.
2. Name four ways germs can be spread.
3. Tell how the body's natural defenses fight bacteria.
4. Name seven symptoms of viral and bacterial infections.

5. Explain how vaccines work.
6. Tell how to get better when one is infected with germs.
7. Define ten scientific terms commonly associated with germs and disease.

SUGGESTED LESSON PLAN

1. Introduction

Ask members of your class to describe what it feels like when they're sick. Does anyone know why people become ill? Why don't people stay sick? Do we always need medicine to help us get well?

2. Previewing Activities

Tell the class they are now going to see a video about germs and disease. Pass out *Germ & Disease Words*. Do this as a class exercise. If your students are non-readers, or beginning readers, you will need to read the information aloud. Be certain to explain each term (although each is carefully defined in the video). Tell the class that they should also look for the following information:

- What germs look like and what they do inside our bodies
- The different ways germs may be spread
- How our bodies fight germs
- How we feel when we become infected with germs
- What we can do to get better when we're sick

3 Post-viewing Activities

Conduct a discussion about the video based on the

items listed in the previewing activities. Clarify and expand as needed. Hand out *When We Get Sick*, *How Germs Are Spread*, and *How To Stay Well*. Have your students complete these handouts as individual seat work, or as class exercises.

PURPOSES OF HANDOUT MATERIAL

Germ & Disease Words – Familiarizes your students with the scientific terms used in the video

When We Get Sick – Reviews common symptoms of bacterial and viral infections

How Germs Are Spread – Reviews the prevalent ways germs are spread

How To Stay Well – Presents information on the most common ways of maintaining good health

ANSWER KEY

When We Get Sick – Feeling droopy and tired, sore throat, coughing, stomach cramps, nausea

How Germs Are Spread – Possible answers include eating another person's food; drinking from another person's glass or cup; sharing silverware; cutting yourself and failing to wash the wound; touching someone who is infected and then rubbing your eyes or eating a finger food; eating food that hasn't been cooked properly or hasn't been refrigerated or kept cool.

TRANSCRIPT OF THE VIDEO

NARRATOR: One day, several weeks ago, Jimmy McManus -- on the right, in the blue shirt -- was playing with some

friends at the park, when all of a sudden, he felt sick.

JIMMY: Hold on, guys. I've got to sit down.

NARRATOR: Jimmy's friend, Tony, could see that Jimmy wasn't his normal, peppy self.

TONY: What's wrong?

JIMMY: I don't know. I feel tired. I'm going to go home.

TONY: Okay. See you later.

NARRATOR: On the way, Jimmy's throat began to hurt.

As soon as he walked into his mom's office, she could tell he had come down with something.

MOM: You look like you've got a fever. Come here, let me see. Oh, you're really warm.

NARRATOR: Sure enough, Jimmy did have a fever.

MOM: Must be that bug that's going around.

NARRATOR: Have you ever heard that saying, that "...there's a bug going around"?

Well, it's not a real bug, of course - not an insect. It's one of the many kinds of germs that cause us to get sick. Scientists tell us that often these germs are either bacteria or viruses.

Most germs are so small that it takes a special instrument called a microscope to see them.

Some germs are shaped like short, little sticks.

Some are round, like balls. Others are spiral-shaped. Still others have no regular shape at all.

You may be surprised to know that not all germs are harmful. Some are even good for us.

There are bacteria that we need to break down the food we eat, for example. When food is broken down, its vitamins - and other nourishing things in it - can then move into our bloodstream, where they're taken to all parts of our bodies. Those vitamins keep us healthy.

Moreover, powerful medicines known as antibiotics are made from certain types of bacteria.

People may take antibiotics when they have a serious infection - when a bad kind of germ gets into their bodies. The antibiotic usually makes them well.

And if you eat yogurt, you can thank good bacteria for its tangy taste.

But, as we've mentioned, you can get sick from other types of bacteria, which you can get from another person.

Zack's brother, for instance, has the kind that causes a sore throat, but he doesn't know it yet.

BROTHER: Can I have a taste?

ZACK: Sure. Here.

NARRATOR: When Zack's brother eats the yogurt, some of that "sore throat" bacteria is left on the spoon.

When Zack puts the spoon back into his mouth, the bacteria is passed on to him. There's a good chance both he and his brother will come down with a sore throat now. Diseases are often spread by sharing food and drinks.

There are other ways, too. If someone sneezes or coughs in your direction, the germs can travel through the air, and you could breathe them in. Or they could go into the area around your eyes.

Another way to become ill is to cut yourself and not wash the wound. The germs on the scissors or knife could go into your body through the cut.

Germs can be spread by touching, too. If someone coughs on his hand and you touch it, the germs can be passed on to you. And if you rub your eyes or touch your food without first washing your hands, the germs can get into your body.

That's why it's so important for you always to wash your hands before you eat. And, for the same reason, that's why it's not a good idea to rub your eyes.

Still another way that germs get into our bodies is by eating food that isn't properly cooked or hasn't been stored properly. That's because germs, usually bacteria, are found in food, and can grow very fast if it hasn't been kept cold or if it hasn't been thoroughly cooked.

Heating food until it's completely cooked kills the bacteria.

And keeping foods, like potato salad, cold holds down the number of bacteria so they won't cause illness. Most bacteria can't grow when the temperature is low.

Now, what happens when bacteria get inside your body?
Well, let's take a look.

We'll say someone sneezes and you breathe in some bacteria carried in the spray.

The germs move down your air passage, into your lungs, where it's warm and moist – perfect growing conditions for bacteria.

So they begin to make copies of themselves, feeding on the lungs as they do. If something doesn't stop the bacteria, they'll completely eat up your lungs.

Fortunately, special parts of our bodies that act somewhat like soldiers protect us from outside invaders, such as bacteria.

Scientists call them "phagocytes," and they're really like tiny, squishy meat grinders. They surround each invader and then grind it up.

Sometimes, however, the germs make copies of themselves too fast for the phagocytes to fight.

When that happens, your body makes special chemicals called "antibodies." The antibodies are sent to where the germs are and wipe them out. It may take several days –

even more than a week – for the antibodies to be made.

So you may feel pretty sick until that happens – until you get well.

Besides feeling all droopy and tired, you may have a temperature. You may have a headache, too. Coughs, sore throats, stomach cramps and nausea are still other signs that your body is fighting an infection of bacteria, viruses or other kinds of germs.

Finally, some people get a rash when they have an infection.

With many kinds of infections, you can take some medicine to speed up the healing process, to make you feel better quicker.

Another thing you can do is drink plenty of liquids, not only when you take your medicine, but throughout the day. When you do, you wash the germs out of your body.

And you should do your normal activities unless you're very, very sick. Then you should stay in bed.

But for awhile, you shouldn't go to school or be around other people because you can pass on your germs. It's not thoughtful to get others sick!

For some illnesses, it's possible to get a vaccine, a medicine that prevents the disease. Sometimes you get a vaccine with a shot. Sometimes you can drink the vaccine.

Babies often get vaccines soon after they're born. The vaccines prevent a number of diseases. After several years,

children often get more vaccines, called "boosters," to make sure they're still protected.

Vaccines are a lot like germs, but part is missing; that way, they won't cause the disease.

Yet, when a vaccine goes into a person, his body believes real germs have invaded, so those antibodies we talked about a few minutes ago are made.

But since the body isn't really infected, not with real germs, there's nothing to fight. The antibodies, however, stick around. So if the real germs do come along, the antibodies already have been made, and are ready to destroy them immediately.

Some people become sick not because they're infected with germs, but rather because tiny parts of their bodies, called genes, don't work correctly. The person who has one of these "genetic" diseases can't pass it on to other people by sneezing or coughing on them, or by touching them. Their disease isn't "catching."

Not too long ago, a person with a genetic disease had little hope of being cured. But now scientists are discovering the secrets of many genetic illnesses, and more and more people with these diseases know that the day will come when they, too, can be cured.

In short, then, the two kinds of germs that cause the most illnesses are bacteria and viruses which are found in different shapes and are so small they can be seen only with the help of a microscope.

We can get germs into our bodies by sharing food and drinks,

by being sneezed or coughed upon, by cutting ourselves and not washing the wound, by touching someone and failing to wash our hands – or by rubbing our eyes.

We also can get germs into our bodies by eating foods that haven't been properly cooked or kept cold.

Our bodies have special ways to protect us against germs that get inside our bodies.

Another way we protect ourselves against germs is by getting vaccinations.

Some diseases aren't caused by germs, but scientists, working with new information every day, are finding possible cures.

Bacteria, viruses and disease are unpleasant parts of life.

But if we understand germs and know how to keep them away from us, we can make our lives happier and better!

Web Resources

Online Children's Dental Care Magazine

Features games, puzzles and adventure stories – all about dental care

<http://www.magicalos.com/kid.html>

Kids Food Cyber Club

An excellent site with first-rate information on good nutritional practices

http://www.kidsfood.org/kf_cyber.html

James John School Germ Project

Students at James John School in Portland, Oregon share with us their experiences with germs.

<http://buckman.pps.k12.or.us/sail/jamesjohn/germs/germs.1>

Benny Goodsport

Features games, puzzles and stories about fitness

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

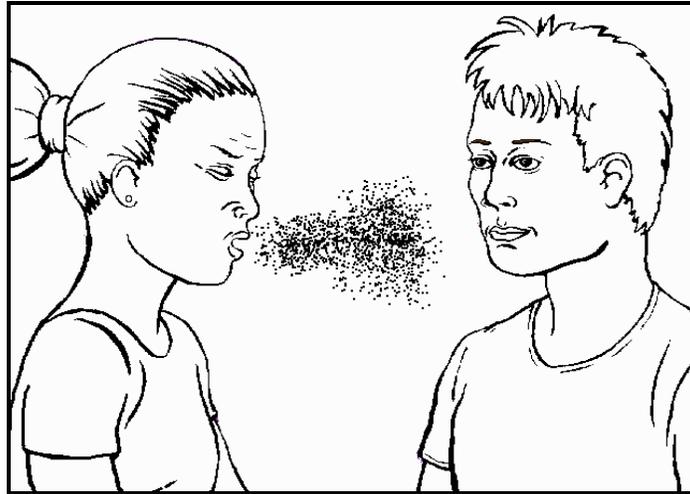
OTHER PROGRAMS IN THIS SERIES

Feeling Good with Good Hygiene
I Can Be Safe

Name _____

HOW GERMS ARE SPREAD

Directions: You saw that germs can be spread when someone sneezes. Color the picture. Then, below the picture, tell other ways germs can be spread.

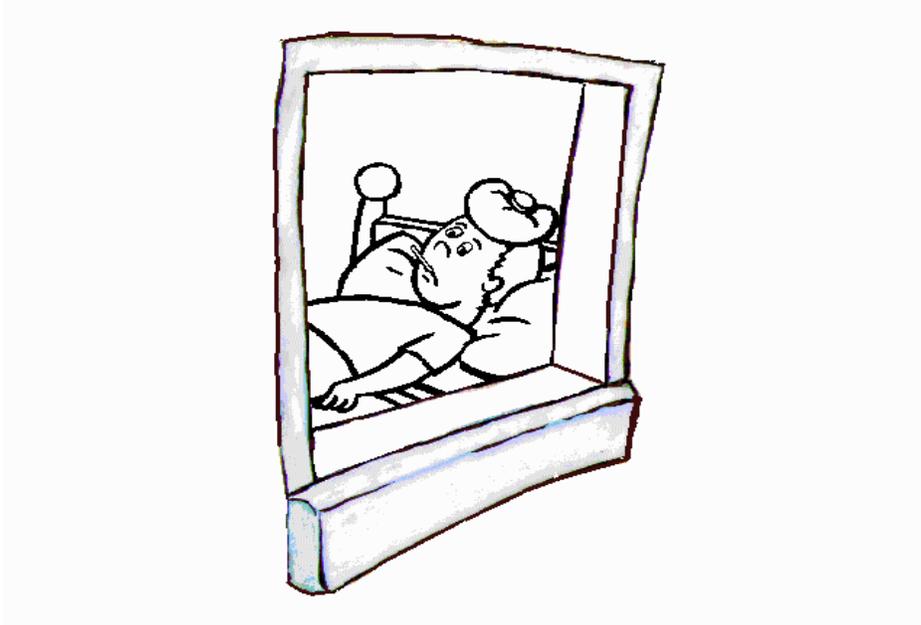


Other Ways Germs Can Be Spread

Name _____

WHEN WE GET SICK

Directions: The boy in the picture has a fever. His head hurts, too. These things tell him he has bad germs in his body. You saw other ways people know they have become infected with germs. Color the picture, then list five other ways people can tell they are ill.

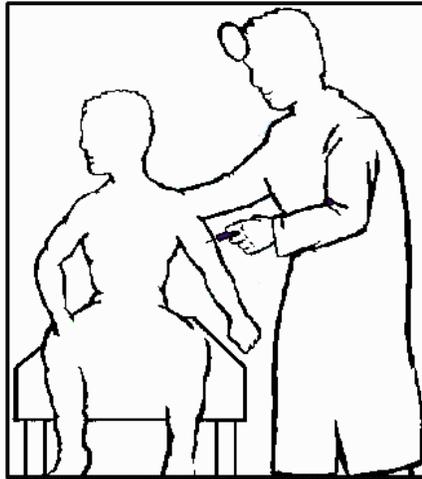


How People Feel When They Are Sick

Name _____

HOW TO STAY WELL

Directions: Getting vaccines is one way we can stay well. Finish drawing the picture and color it. Then, below, check the ways you stay well.



Do I do these things to stay well?

Eat healthful foods, stay away from junk food?

YES NO

Wash my hands before eating?

YES NO

Wash my hands after using the washroom?

YES NO

Bathe or shower daily?

YES NO

Get at least eight hours of sleep each night?

YES NO

Name _____

GERM & DISEASE WORDS

Directions: When people get germs, they sometimes say they have “gotten a bug.” In the video, you will see some people, like the one below, who are “bitten by a bug.” They get sick. But that’s not really what happens. The video uses some science words to explain what does happen. The words are listed below, along with their meanings. Color the picture. Then study the words and what they mean.



Germ and Disease Words Used By Scientists

Antibody (AN-tee-BOD-ee): Germ-fighting chemical inside our bodies

Antibiotic (AN-tee-BY-OT-ik): Medicine that kills some kinds of germs

Bacteria (BAK-TEER-ee-yuh): Kinds of germs

Booster (BOO-stur): Medicine that helps other medicines work longer

Infection (in-FEK-shun): Many bad germs inside our bodies

Microscope (MY-kro-SKOPE): Device used to see germs

Phagocyte (FAG-oh-site): Part of the body used to fight germs

Vaccine (vak-SEEN): Medicine that prevents disease

Virus (VY-rus): Very small germ

Vitamin (VY-tah-min): Chemical in food that helps us stay healthy