



## Ewww! Don't Touch That!

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### Article

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#### PART 1

**WASHINGTON, D.C.** Does someone in your home have the sniffles? If so, watch out for doorknobs. Look out for the TV remote control, too. A new study found that cold sufferers often leave their germs around the house. The study showed that germs can live on different surfaces for two days. Sometimes they can live even longer.

The study set out to learn more about germs. It also aimed to lay the groundwork for future studies. These studies will test ways to stop germs from spreading. For this study, scientists tested surfaces in the homes of several people. These people were suffering from colds.

The study was done in two parts. In the first part, scientists gathered 30 adults. These adults showed early signs of colds. Testing later discovered that 16 of the 30 had colds. The 16 people were asked to list places in their homes that they had touched. Scientists then hunted for cold germs in those locations.

Scientists quickly found what they were looking for. Germs were everywhere. The scientists tested three salt and pepper shakers. All three tested positive for cold germs. Scientists tested bathroom faucets and dishwasher handles. Cold germs were present on most of them. Ten remote controls were tested. Scientists found that six of them tested positive for cold germs. Germs were present on 8 of 14 refrigerator handles and 4 of 7 telephones. Scientists also found that 6 of 18 doorknobs and 3 of 13 light switches harbored germs.

"We found that commonly touched areas like refrigerator doors and handles [often tested] positive," said Dr. Birgit Winther. Winther is an ear, nose, and throat expert. She helped with the study.

For the second part of the study, scientists set out to learn how long the cold germs remained on different surfaces. To do this, scientists wiped several surfaces with the people's germs. They then tested to see whether the germs stuck to their fingers. The 16 adults went about their day as usual. They turned on lights. They answered the telephone. More than half of the people got the cold germs on their fingertips. This was 48 hours after the surfaces had been wiped with the germs.

To some experts, these results were not surprising. Last year, during the cold and flu season, two doctors went germ-hunting. They examined toys in doctors' offices. They found germs on 1 of every 5 toys.

These days-old cold germs live on surfaces. They are proven to be transferable. Can they still make someone sick, though? Dr. Paul Auwaerter is a disease expert. According to Auwaerter, there is no proof that the older cold germs can make people sick. He recognizes, however, that it could be possible.

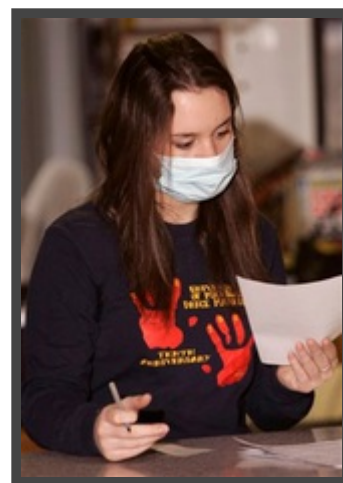


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AP Photo/Carlos Osorio

*A new study found that face covers  
can keep people from getting colds.*

Further studies need to be done. Until then, doctors say that people should try to protect themselves from germs. Some experts suggest using hand cleaners. They also suggest wearing face masks. One study, they say, showed that these measures helped.

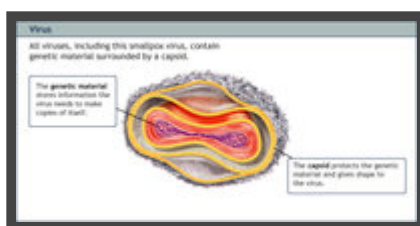
Other doctors remind people to wash their hands often. This, they say, will go a long way toward stopping the spread of germs in the first place.

*Information for this story came from AP.*

## **PART 2**

### **Dig Deeper**

Scientists have learned much about viruses. They can see viruses with special microscopes. All viruses are made of genetic material found inside a protein coat. The coat is called a capsid. This protein coat keeps the material safe. There are different kinds of protein coats. The coat of an Ebola virus is a simple tube. The smallpox virus has a protein coat with many layers. Look at the picture.



Credit: Houghton Mifflin Company

Viruses come in many shapes and sizes. But all viruses are made of a capsid and genetic material. Viruses can use living cells to copy their DNA. So, they can make new viruses. That characteristic makes them similar to living things. Their protein coat is also like a cell's outer membrane. But viruses do not grow. They do not respond to changes in their environment. So, they are not living organisms.

Viruses cannot reproduce by themselves. This is one of the ways they are different from living things. But viruses can use materials in living cells to reproduce. How does this happen? First, viruses infect host cells. Then, they make copies. Viruses are tiny. But they can do a lot of harm to other organisms.

Some viruses stay inside their hosts. Others use the host cell as a factory. They make new viruses one at a time. These viruses may not be as harmful to the infected organism. They do not kill the host cell. A host cell is not often helped by giving living space to a virus. The virus uses the cell's material, energy, and processes. Then, the virus makes many copies of itself. The new viruses burst out of the host cell. This kills it.

Harmful viruses cause big problems. Polio, smallpox, diphtheria, and AIDS are diseases caused by viruses. They changed human history. There was an influenza outbreak just after World War I. About 25 million people died.

Plant viruses can keep plants from growing. Some can even kill plants. Sometimes crop plants get viruses. What happens then? Less food grows. A lot of people lose money. Viruses can infect plants, animals, bacteria, and all other living things.

Today, scientists are looking for ways to use viruses in a good way. Scientists use viruses to put pieces of genetic material into living cells. Some marine organisms have genetic material for a chemical that makes the organism glow. Scientists can put this genetic material into tissue samples. Scientists are then better able to study the samples.

## **Dictionary**

**doorknob** (*noun*) a round handle on a door; it is used to open and close the door

**germ** (*noun*) a tiny living thing that can make people sick

**host cell** (*noun*) a cell that a virus infects; the virus uses the cell to make copies of itself

**mask** (*noun*) something that covers all or part of the face

**positive** (*adjective*) showing something (such as a disease) to be present

**virus** (*noun*) a nonliving particle that causes disease; it uses the materials inside cells to make copies of itself

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## Activity

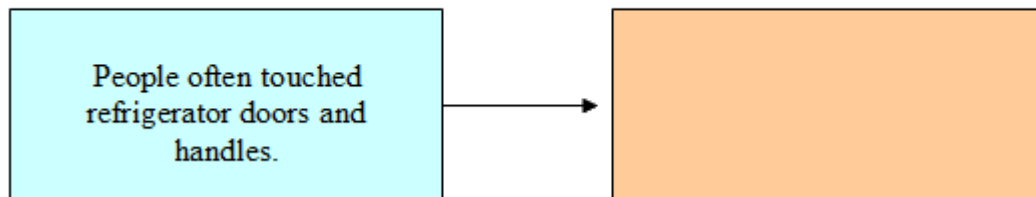
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### PART 1

#### Question 1

**Since...**

**Then...**



Which fits best in the empty box above?

- (A) They often tested positive for cold germs.
- (B) People used hand cleaners before getting food.
- (C) They held germs that were not transferable.
- (D) People wore face masks around the house.

#### Question 2

Which happened *first*?

*This question asks about when events happened. It does not ask where in the article the events appear. Look back at the article for clues, such as dates.*

- (A) Scientists found that cold germs live on surfaces for three days.
- (B) Scientists gathered 30 adults who showed early signs of colds.
- (C) Scientists hunted for cold germs in places people had touched.
- (D) Scientists wiped surfaces with germs to see how long they stayed.

#### Question 3

The article states:

**They examined toys in doctors' offices.**

Which would be the closest **synonym** for the word *examined*?

- (A) Delivered
- (B) Studied
- (C) Collected
- (D) Located

#### Question 4

What is the main idea of this article?

- (A) Scientists tested toys in doctors' offices to see if they were safe.
- (B) Scientists did a study to see how cold germs spread.
- (C) Scientists wiped germs on toys to see if children got sick.
- (D) Scientists used hand cleaners to see if they stopped germs

Question 5

The article states:

**Until then, doctors say that people should try to *protect* themselves from germs.**

Which would be the closest **synonym** for the word *protect*?

- (A) Guard
- (B) Avoid
- (C) Claim
- (D) Doubt

Question 6

Which of these is an opinion?

- (A) Doctors say that people should wash their hands often.
- (B) Cold germs stuck to people's fingers 48 hours later.
- (C) Wiping cold germs in people's houses is disgusting.
- (D) Scientists were not surprised by the results of the study.

Question 7

Which question is **not** answered by the article?

- (A) How many adults were showing early symptoms of colds?
- (B) What can people do to protect themselves from cold germs?
- (C) Why is there no proof that old germs can make people sick?
- (D) How many remote controls were tested as part of this study?

Question 8

The article states:

**Last year, during the cold and flu season, two doctors went germ-hunting. They examined toys in doctors' offices. They found germs on 1 of every 5 toys.**

The author uses these sentences mostly to help the reader to understand \_\_\_\_\_.

- A How busy doctors' offices are during cold and flu season
- B Why doctors decided to study toys during cold and flu season
- C How many germs can usually be found on children's toys
- D Why the study's results were not surprising to some scientists

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## Thought Question

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Here is a common misconception: a virus is a living thing. Why is this statement incorrect? Explain the idea correctly. Why might some people have this misconception? Give facts from the readings in your answer. Also tell what you may already know about the topic.

Write your answer in the box below.