InFLUenza

A Reading A–Z Level T Leveled Book
Word Count: 1,368

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LEVELED BOOK • T

InFLUenza

Written by Ned Jensen

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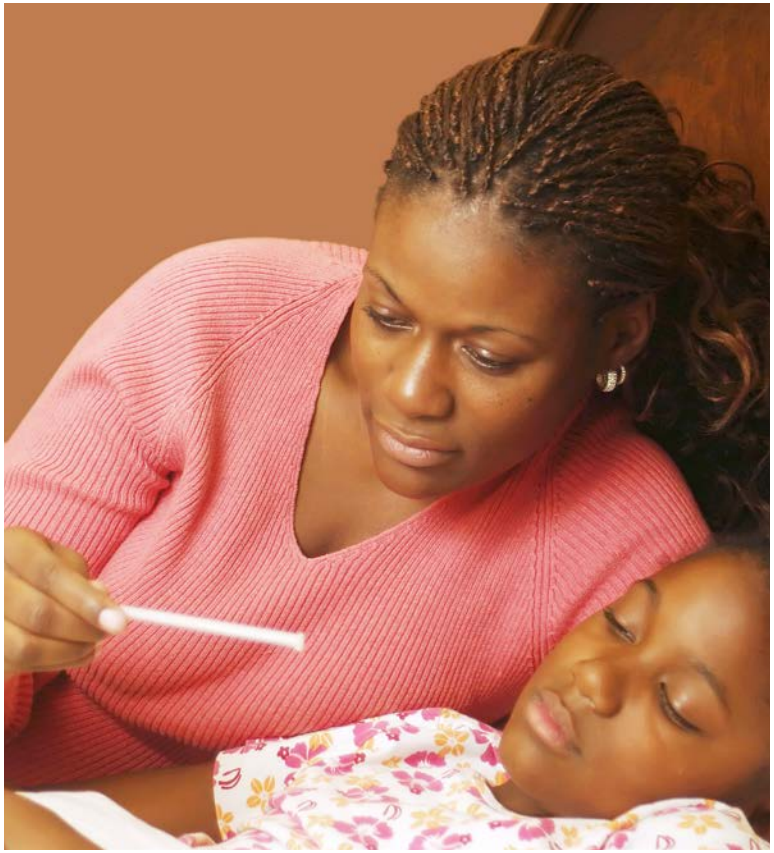
InFLUenza



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Level T Leveled Book

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Correlation

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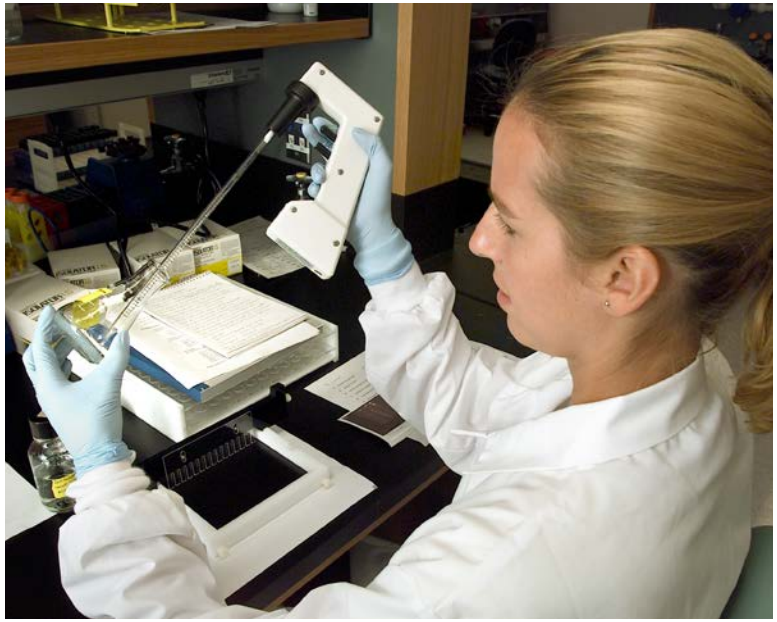

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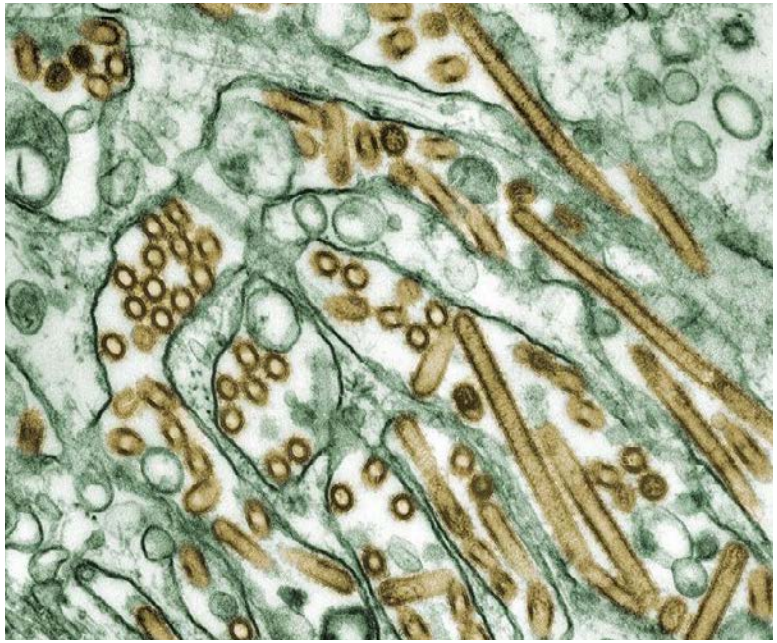
Introduction

Have you ever had a sore throat and a headache with a fever? Did your body hurt so much that you just wanted to sleep? You may have had flu **germs** in your body. By learning about the flu—what it is, what causes it, what its symptoms are, and how to treat it—you can fight back and stay healthy.

A water bottle and a blanket can help when you have the flu.

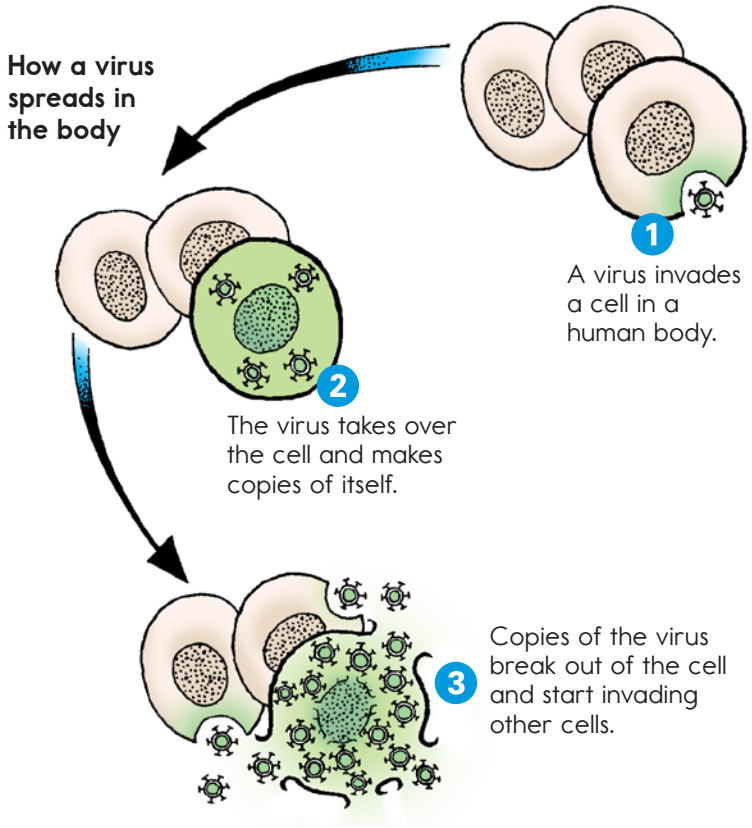


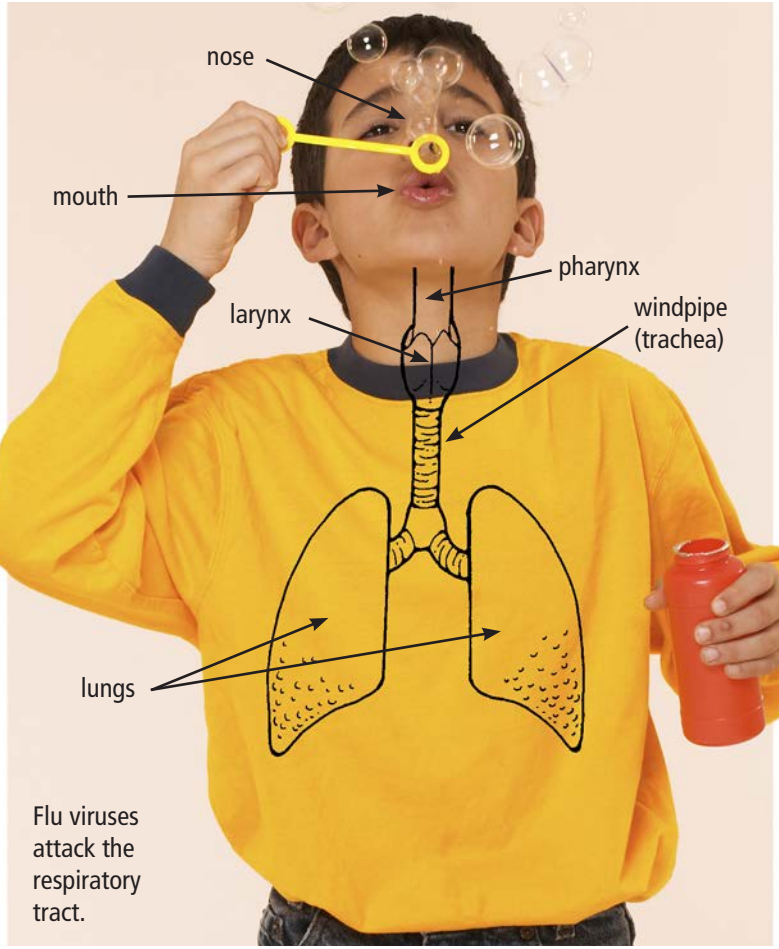
Avian influenza virus

What Is the Flu?

The flu, or **influenza** (in-floo-EN-zah), is caused by a **virus**. A virus is a tiny **microorganism**—a **microbe**, or germ—that is invisible to the naked eye. Scientists use strong microscopes to see viruses magnified to a thousand times their original size. Microbes are so small that hundreds of thousands of them can fit on the head of a pin. Although they're small, viruses are dangerous and can spread from one person to another very quickly.

Viruses are everywhere, but only certain types of viruses are harmful to humans. These viruses, which include influenza, enter the cells of human beings and rapidly make copies of themselves. The flu spreads as influenza viruses move from one person to another. Washing your hands and covering your mouth when you cough can help keep viruses from spreading. Coughing sends germs into the air, and those germs can easily infect other people who breathe them in.





Flu viruses attack the respiratory tract.

Different viruses cause the many different kinds of flu. However, the symptoms are similar from one kind of flu to another. Flu is an infection of the **respiratory tract**, but it can affect your whole body. Influenza usually makes you feel achy, feverish, tired, and sick to your stomach.

Influenza has three basic types: Influenza A, Influenza B, and Influenza C. Influenza A, which can cause serious illness in humans and other animals, is usually responsible for large outbreaks. Influenza B is milder, causes smaller outbreaks, and affects only humans (mostly children). Influenza C usually causes only mild illness in humans.


Tiny drops of saliva and mucus fill the air when you sneeze.

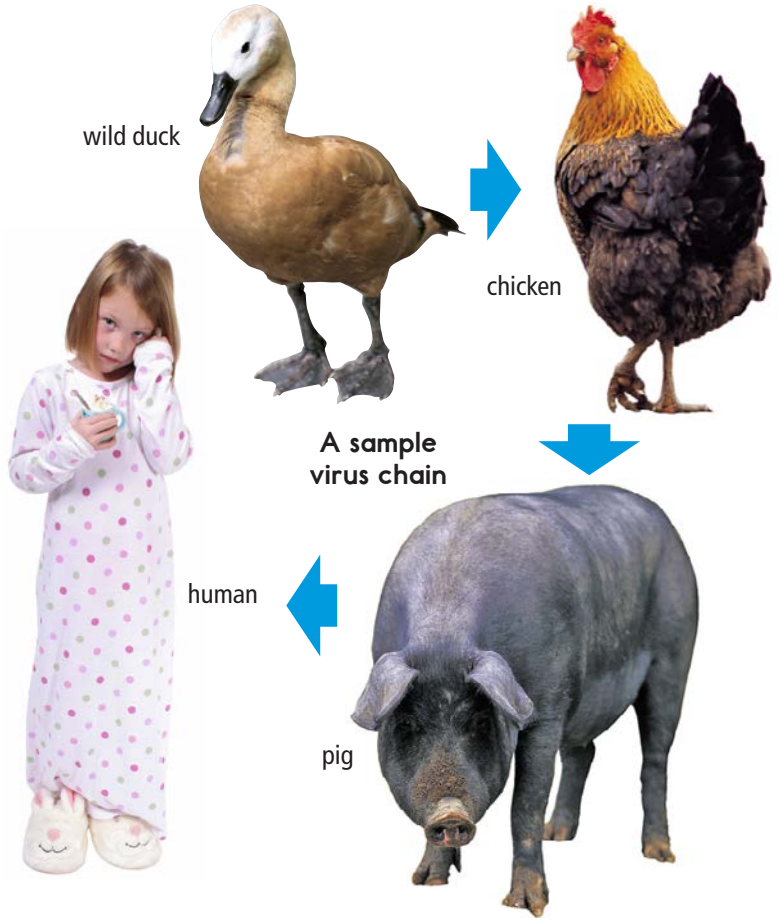
All types of influenza can be passed from a sick person to a healthy person through the air or on things like cups and forks. The flu virus is carried in an infected person's saliva and mucus, so it can travel if it is sneezed or coughed into the air.

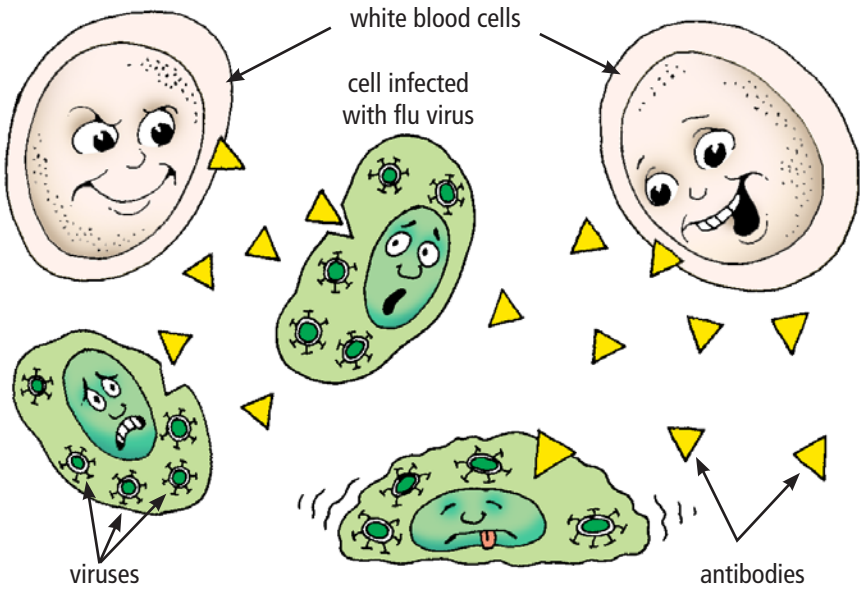
Wild birds (above) often pass viruses to farm chickens (right), which come into more contact with people.

Changing Viruses

Viruses can change, or **mutate**, and flu viruses can change more than most other viruses. Each mutation creates a new **strain** of the virus. Many influenza viruses start in wild animals, often in birds. These viruses can mutate into strains that infect ducks and chickens on farms. Once viruses have infected birds on farms, they can mutate into strains that infect animals such as pigs and humans.

Viruses can spread between many different animals, even animals as different as dogs and whales. Since humans and other animals live close together on farms, the spreading and mixing of viruses can be deadly. Sometimes viruses take a shortcut, such as the avian virus of 1997, which jumped directly from birds to humans.





The human body can fight flu viruses. Our immune systems protect us from harmful microbes by making chemicals called **antibodies**. Antibodies travel in the blood, looking for microbes that don't belong there. When they find one, they attack and destroy any cells that contain the virus.

However, if the body's immune system is weak, viruses can reproduce faster than antibodies can destroy them. When this happens, the body comes down with flu symptoms. Infected people feel sicker and sicker, and may need to see a doctor.

Preventing the Virus from Taking Over

Common sense can help to prevent a flu virus from entering your body. Get plenty of rest and eat well. Don't touch things that sick people have used to eat or drink. Wash your hands often and keep your fingers out of your mouth. Avoid people who have flu symptoms, such as sneezing and coughing.

Washing your hands often will help keep you from getting the flu.

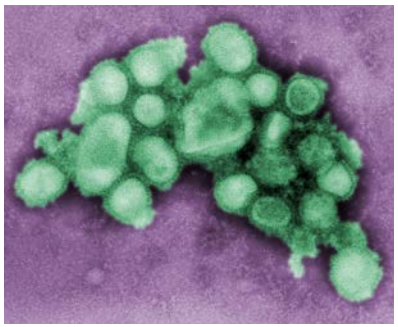
Scientists study ways to help your body fight the flu.

But even the most cautious people can become infected. Fortunately, scientists invented **vaccines** to keep the flu virus from taking over your body. Vaccines are weak or dead flu viruses that are injected into a person's body in a "flu shot." These weakened viruses cause the body to produce many more antibodies. When a person's body has enough antibodies, it can successfully attack stronger viruses. If you get a flu shot before you are sick, your body will likely be able to defend you if any flu viruses come along.

Each strain of a virus requires a different vaccine. Sometimes flu vaccines include several strains in a single shot. Each strain causes the body to make a particular antibody. If you receive one of these vaccines, your body is ready to defend against many strains of viruses that doctors think might be present during flu season.

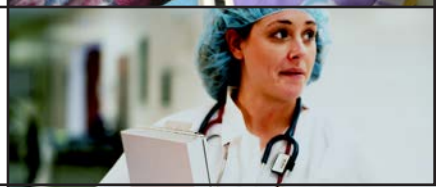
Vaccines usually have an eighty-percent prevention rate, which means that eighty percent of the time, you won't get sick from a strain you have been vaccinated against. That's pretty high, but it's not perfect, so you might still get the flu. But if you've had the vaccine, your symptoms will be milder—you won't ache so much, and your fever will be lower.

Not everyone has the same risk of catching the flu. Some people get sicker than others. People who are very young, very old, or already sick are more likely to catch the flu.



Swine flu virus

High-Risk Populations

People over 65	
Babies and very young children	
Pregnant women	
People with diabetes	
People with heart and lung disease	
People who are sick and exhausted	
Healthcare workers	

Do You Know?

I bet you didn't know that many vaccines are made in hundreds of millions of specially grown chicken eggs! Can you imagine that many eggs? They would fill up about fifty football fields.

Scientists and doctors begin by separating viruses to isolate the selected virus. Then, as you might expect, they kill or weaken the virus and combine it with two other dead virus strains that have been similarly grown in chicken eggs. Then they combine the dead and weakened viruses to make a vaccine to protect you from each strain.

Treating the Flu

You can't always stop the flu, but if viruses infect your body, there are still things you can do. Certain medicines can take away the achy feelings or lower a fever. Drinking lots of fluids (such as water or juice) when you have the flu can also help your body's defenses. You should also get plenty of rest because your body has to work very hard to fight viruses.

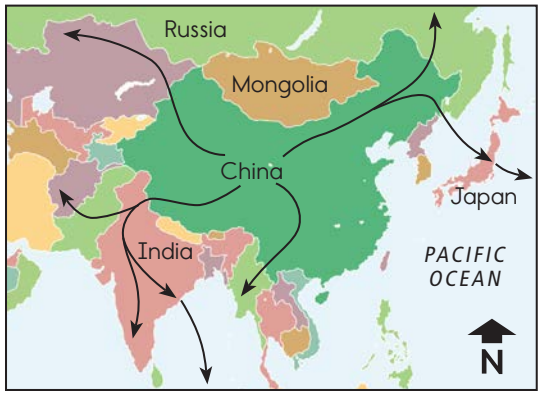
A doctor gives a child a shot of flu vaccine in 1941.

History of the Flu

Many outbreaks of influenza have taken place throughout history. Some have been mild and have affected only small groups of people. Others have been severe, killing millions of people around the world. Once a flu virus infects a few people, it can spread rapidly and become an **epidemic**.

The history of any influenza outbreak begins with a single person. On March 11, 1918, a man in the U.S. Army woke up with a fever, a sore throat, and a headache. Many other soldiers at his base soon developed the same symptoms. In one week, the Army hospital treated more than five hundred sick soldiers. Within a few weeks, forty-eight of those people had died. No one knew why until scientists learned that the illness was caused by a strain of the influenza virus.

In total, the strain of influenza known as the Spanish flu killed more than 600,000 Americans and 25 to 40 million people worldwide. An outbreak of this size is called a **pandemic**—a disease that spreads rapidly around the world.



This map shows an example of how pandemics, such as the Asian flu of 1957–1958, might spread from one area to many others.

The pandemic of 1918 was not the only major influenza outbreak in history. The Asian flu, which appeared in 1957, caused about 70,000 deaths in the United States. It got its name because it first appeared in China before coming to the United States in June 1957. Another strain of flu, the Hong Kong flu, was first seen in Hong Kong, China. In 1968, this virus caused another pandemic, killing 34,000 people in the United States—as many people as live in a small city. And in 2009, the H1N1 swine flu became the first pandemic in 41 years, infecting people in over 70 countries.

Historic Influenza Pandemics	
1917 to 1919	The Spanish flu, the most deadly influenza pandemic ever, kills more than 20 million people.
1957 to 1958	The Asian flu appears in southwest China in February 1957 and then spreads throughout the Pacific. It affects 10 to 35 percent of the population but kills many fewer people than the Spanish flu.
1968 to 1969	The Hong Kong flu claims 700,000 lives worldwide, with 34,000 in the United States.
2009	H1N1 swine flu becomes a pandemic.

Other outbreaks, such as the Russian flu in 1977 and the avian flu in 1997 and 1999, caused worldwide concern but did not become pandemics. Both of these strains began in China and spread to other countries. Doctors are always looking for major outbreaks. If doctors can recognize outbreaks quickly enough, they can often keep them from becoming pandemics.

Masks that fit around the nose and mouth are sometimes worn to help prevent the spread of viruses. However, the masks do not work all the time.

Conclusion

Influenza has been around for thousands of years. Because flu viruses can change and develop into new strains, influenza may never be wiped out. When you have the flu, the most important thing you can do is take care of yourself and keep others from getting sick. Wash your hands often and be careful not to cough or sneeze on other people. Drink water like a camel and sleep like a bear. Get vaccinated if you can. Most importantly, remember to attack back! Good food and rest will help the healthy cells in your body win the battle.

Glossary

antibodies *(n.)* chemicals produced by the body that attack invading germs (p. 11)

epidemic *(n.)* the rapid spread of a disease within a community (p. 18)

germs *(n.)* microorganisms that often cause sickness or disease (p. 4)

influenza (flu) *(n.)* an infection of the respiratory tract, caused by viruses, that can spread rapidly (p. 5)

microbe *(n.)* See *microorganism* (p. 5)

microorganism *(n.)* a microscopic organism such as a virus or single bacterial cell (p. 5)

mutate *(v.)* to change into a different form (p. 9)

pandemic *(n.)* the rapid, worldwide spread of a disease (p. 19)

respiratory tract *(n.)* the passages in the nose, mouth, throat, and lungs through which air travels during breathing (p. 7)

strain *(n.)* a group of microbes of the same type (p. 9)

vaccines *(n.)* medicines made of weak or dead viral strains that teach the body to fight stronger viruses of the same type (p. 13)

virus *(n.)* a microorganism that infects the body; a disease caused by a virus (p. 5)