

The Plague!

A Reading A-Z Level Z Leveled Book
Word Count: 1,603

LEVELED BOOK • Z

The Plague!

Connections

Writing

Research to learn more about Alexander Fleming or another scientist who discovered a medicine that helped stop the spread of disease. Write a biography to share with your class.

Social Studies

Research to learn more about the Renaissance and the rebirth of Europe after the plague. Design a poster to share your findings with your class.

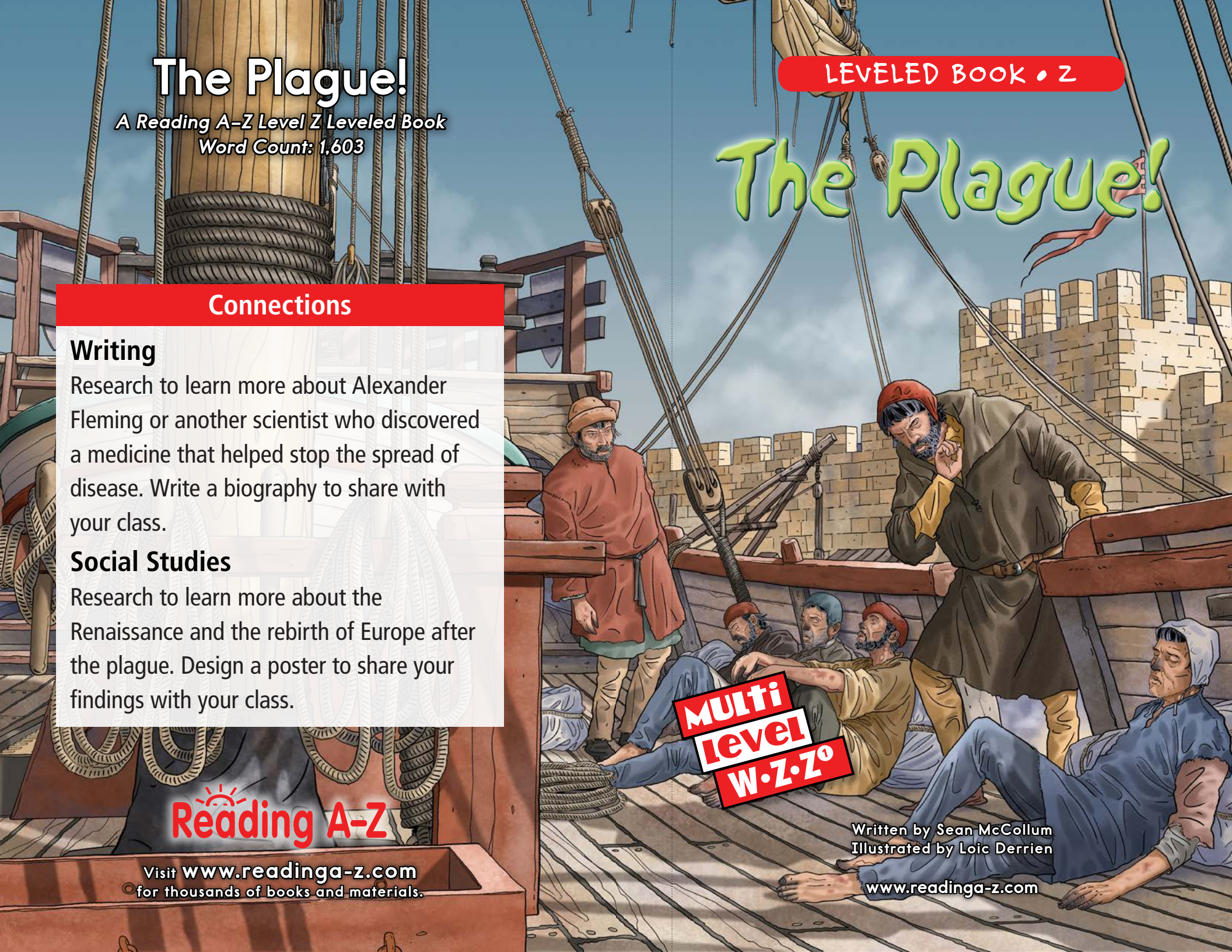
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Illustrated by Loic Derrien

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Focus Question

What was the impact of the Black Death on Europe's history?

Words to Know

bacteria	immune system
contagion	infectious
digestive	microbe
DNA	sanitation
exotic	symptoms
hygiene	viruses

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Correlation

LEVEL Z

Fountas & Pinnell	U-V
Reading Recovery	N/A
DRA	50

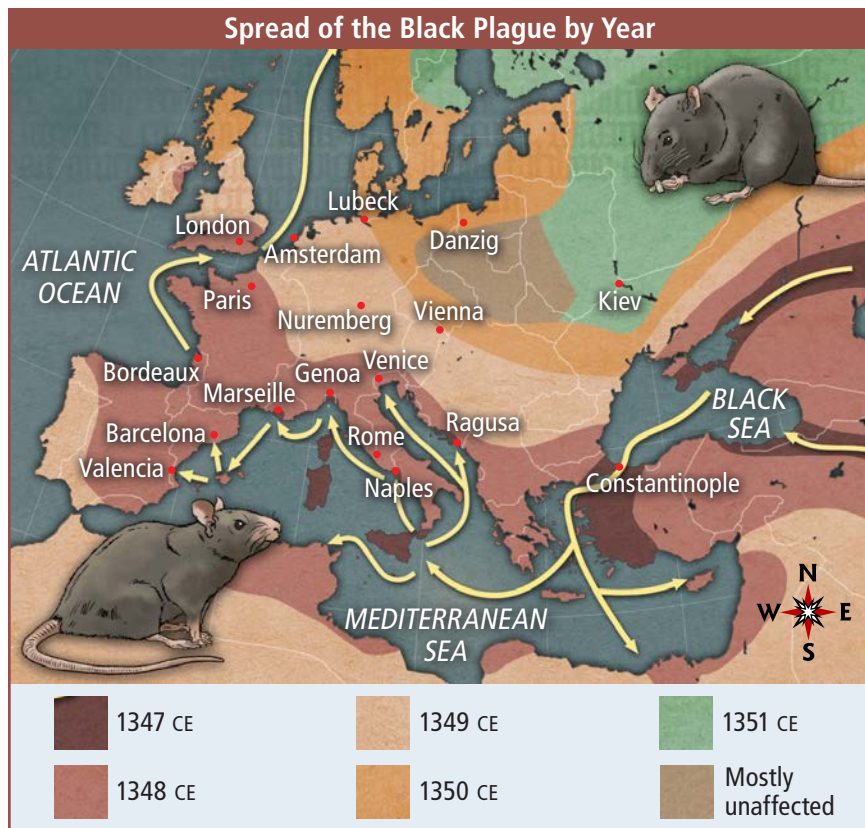


Table of Contents

The Plague Ships	4
The Fleas of Disease	5
Death Stalks Europe	8
Panic and a Prayer	9
The Aftermath	11
Rebirth	14
Glossary	16

The Plague Ships

The scene and smell must have been staggering. In October 1347, a dozen trading ships sailed into the port of Messina, Sicily—part of Italy today. The vessels had made the long voyage across the Black Sea. The arrival of the ships likely caused excitement around the docks since such ships often carried news and **exotic** goods from far-off lands.

Those who greeted them, though, got the shock of their lives and perhaps also the cause of their deaths. Most of the crew members aboard the ships were already dead. The sailors working the ropes and sails were dying, their skin oozing with open sores. People in Europe had heard rumors of a terrible disease in Asia. These ships and sailors had now brought the disease—the plague—to Europe.

The disease was extremely **infectious** and rapidly spread across Europe and North Africa. Strangers unknowingly passed it to strangers, and friends gave it to friends. Ships carried it to new ports where it found fresh victims. The plague left tens of millions of people dead. Later, it would be called the Black Death—the worst outbreak of disease that Europe has ever experienced.

The Fleas of Disease

In the 1300s, no one had yet made the connection between germs and illness. The idea that **bacteria** or **viruses** could cause a cold, the flu, or other sickness was unknown.

Many people at that time viewed disease as a supernatural event. Professors at the University of Paris blamed the plague on the alignment of planets. One doctor described how it spread as if by magic, writing, “Instantaneous death occurs when the aerial spirit escaping from the eyes of the sick man strikes the healthy person standing near and looking at the sick.”

People also hadn’t made the connection between the plague and the fleas that were actually spreading the disease. It was not until 1894—almost 550 years later—that scientists identified *Yersinia pestis*, the bacterium that probably caused the plague. These bacteria get into the **digestive** system of a type of flea that normally feeds on the blood of black rats and other rodents.

The plague killed off the rat colonies that the fleas normally lived in. The fleas were then forced to go looking for other warm-blooded animals to feed on, including humans.

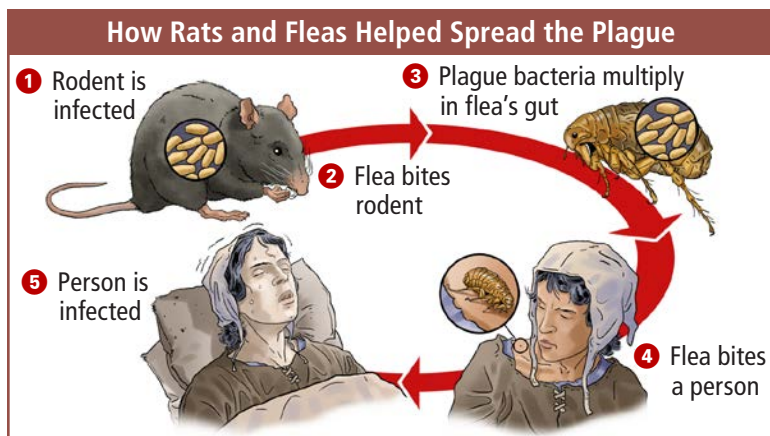


Filthy and crowded medieval towns allowed the plague to spread very quickly.

The poor public **sanitation** and **hygiene** of the 1300s did not help. Human waste and garbage were often dumped in the streets of overcrowded cities. Bugs were regular houseguests. Getting bitten by fleas and other pests was an unpleasant fact of life.

Not all researchers are convinced that fleas were the only source of the Black Death. Many other diseases could cause deadly outbreaks, including cholera and typhus. Some researchers say that the 1347 outbreak spread too fast and killed too quickly to be *Yersinia pestis*. They wonder if the Black Death might actually have been a deadlier **microbe**. However, *Yersinia pestis* remains the leading suspect, based on descriptions of the **symptoms**. Archaeologists have also found the **DNA** of these bacteria in mass burial sites from the time.

What seems clear is that humans began passing this deadly disease directly to each other. A person's pus, blood, or saliva could infect others. In other words, a simple cough or handshake could give the sickness to the next victim. At that point, it became all but unstoppable.



Death Stalks Europe

At the time, there was no effective treatment for such a serious disease. Once a person was infected, the bacteria took several days to show itself. As the illness ran its course, victims experienced headaches, fever, vomiting, swelling, and intense pain. They might die quickly or live another few days. Historians estimate that only one in five people who got the symptoms survived.

Part of what made the plague so deadly was that it could come in different forms. Bubonic plague bacteria start by attacking the lymph nodes in the neck, groin, and underarms. Lymph nodes are important organs of the **immune system**. They help the body battle disease. With plague, lymph nodes swell and blacken with poisoned blood and pus, becoming boils called *buboes*. Plague can also infect the lungs, causing them to bleed. Then a cough may be enough to infect others. Plague can also spread to the bloodstream, poisoning the body of the victim from within.

By 1348, the Black Death was spreading across Europe. Travelers and traders carried it to new areas. It often took weeks before an infected area knew something was horribly wrong. By then, it was too late to do anything about it.

Panic and a Prayer

Once people realized that plague had come to their community, many panicked. Frightened families abandoned sick loved ones. Shopkeepers shut their doors, and doctors and priests fled the places and people they served. City folk escaped to the countryside, thinking it would be safer there. By fleeing, though, they often helped spread the disease.

Few people had useful ideas about how to fight or control the disease. Desperate people tried useless cures like strapping a skinned chicken to the buboes, while others were tricked into buying potions made from “unicorn horn.” Some burned incense or wore flowers to purify the air.

Many people turned to their faith in hope of rescue. Bands of Christians called “flagellants” walked from town to town, bloodying their backs with spiked whips. They prayed this would prove to God that they were sorry for their sins and that they would be forgiven and spared.

In some areas, Christian groups wrongly blamed Jews for causing the plague. Many Jewish communities were attacked and their people driven off or killed.

The head of the Catholic Church, Pope Clement VI, issued a declaration making it clear that Jews were not at fault and should not be victimized. During the mid-1300s, though, more than two hundred Jewish villages were destroyed.

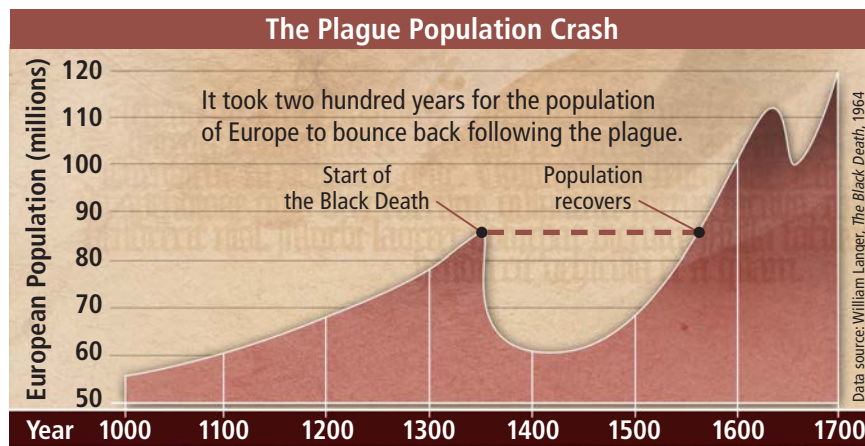
A few cities instead used common sense to try to control the disease. Port cities soon realized that visiting ships were one source of **contagion**. They began to block those that came from plague-infected areas. Some port authorities imposed regulations requiring ships to wait forty days before being allowed to dock. The waiting period, or quarantine, was meant to confirm that the ship’s crew were plague-free before allowing them to come in contact with local residents.

Officials in some areas also figured out that stopping the movement of people was the best hope of slowing the spread of the disease. Infected families were blocked from leaving their houses. Officials set limits on travel and trade to and from their cities. Work crews hurried to get victims buried as soon as possible for fear that their corpses could infect others. In some areas, though, public order had broken down, making it difficult to enforce such rules.

The Aftermath

Imagine half the people of your town or city gone. The shops are closed, and stores are empty of food. That was the experience of many of the people who survived the worst period of the Black Death.

Historians can only estimate the death count. There were about eighty million Europeans before the Black Death struck. Experts calculate that an estimated 40 to 60 percent of those people died, though the death rate varied greatly by location. In Spain and southern France, the plague may have killed 75 to 80 percent of the population. In Germany and England, the rate may have been closer to 20 percent. Cities were usually the hardest hit. The disease spread easily in crowded, dirty neighborhoods. Nearly 60 percent of Londoners died, along with half the people of Paris.



After 1351, the outbreak eased for reasons researchers are still trying to understand. Survivors may have built up immunity to the disease. The bacteria may also have changed to a less deadly form. Plague outbreaks happened again and again for the next five hundred years. None, though, ever matched the deadliness of the Black Death.

Europe was left a very different world after this health catastrophe. One result was a huge shortage of workers. The lack of skilled craftspeople and laborers caused a crisis in manufacturing. Workers were able to demand better pay and treatment.



Fields were left unplanted or unharvested without peasants to work them. Livestock died without tending. As a result, many areas in Europe suffered food shortages and starvation.

Survivors' views about society and the meaning of life changed, too. Many questioned their belief in the church, and some challenged their rulers. The authority of powerful individuals had proven useless in protecting the people they controlled.

There were many examples of significant progress. Farmers experimented with better practices and equipment to grow more food with fewer hands. Public health and medicine also saw positive changes. More communities recognized the importance of sanitation and cleanliness. They put in place better ways to handle disease outbreaks.



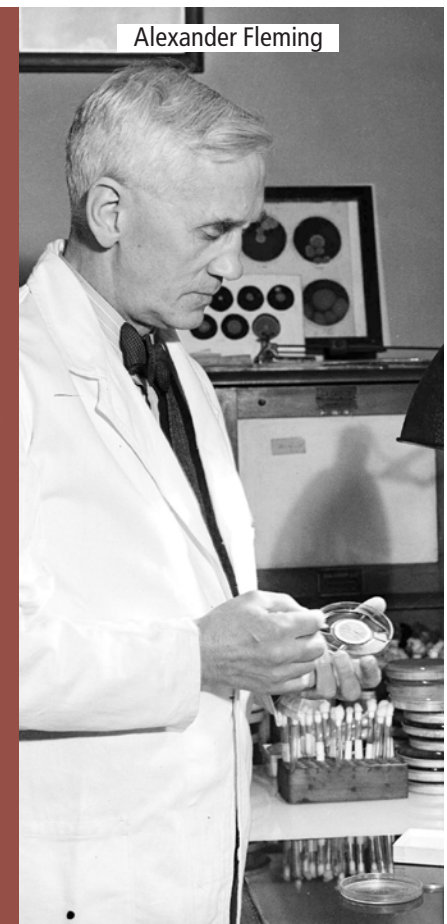
The invention of the heavy plow helped end food shortages following the plague years. It allowed farmers to till fields much faster by using horses rather than oxen to pull the plow.

Rebirth

Modern medicine has made another outbreak of the Black Death all but impossible. Plague bacteria are still out there, living in the fleas of some rodent colonies. However, modern medicines can quickly stop most outbreaks. Public sanitation and health programs also help control the spread of most forms of disease.

Antibiotics: The Miracle Drug

Antibiotics are a recent development in human history. Before the mid-1800s, some healers recognized that certain plant molds and other fungi attacked bacteria. In the 1800s, more research led to a better understanding of the link between microbes and disease. Then in the 1920s, Scottish biologist Alexander Fleming accidentally discovered a plant mold that destroyed a dangerous form of bacteria. Out of his research came the wonder drug penicillin, which is capable of killing many forms of bacterial infection. Fleming was awarded the Nobel Prize in Medicine in 1945 for his breakthrough work.



In the mid-1300s, the mystery and horror of the Black Death terrorized Europe. Many people there believed it was the end of the world. In terms of death rates, it remains the most destructive event in European history.

At the same time, some historians link the disaster to many changes for the better that followed. From the late 1300s until the 1600s was a period in Europe known as the Renaissance. It inspired great advancements in medicine, science, and art. *Renaissance* means “rebirth” in French. After the Black Death, a period of rebirth was precisely what Europe needed.

The Peasants Rise

England went through a period of economic shock in the aftermath of the Black Plague. Farmers and laborers were in such great demand that they saw their wages rise up to 40 percent from the 1340s to the 1380s. This big social shift so alarmed the upper classes and nobility that royal officials passed a law attempting to fix wages for peasants at the levels they had been before the Black Death. They passed another law to prevent peasants from leaving their home villages in search of better jobs. These crackdowns led to a major uprising known as the Peasants’ Revolt in 1381.

King Richard II faces the peasant army in 1381.



Glossary

bacteria (<i>n.</i>)	small one-celled organisms that sometimes cause infections and disease (p. 5)
contagion (<i>n.</i>)	an illness spread through direct or indirect contact or the process by which such an illness is spread (p. 10)
digestive (<i>adj.</i>)	of or relating to the action of breaking down food for use by the body (p. 5)
DNA (<i>n.</i>)	a code that carries genetic information about a living thing; abbreviation of deoxyribonucleic acid (p. 7)
exotic (<i>adj.</i>)	different because of a mysterious or unusual quality; from another country or a faraway place (p. 4)
hygiene (<i>n.</i>)	cleanliness for the purpose of staying healthy (p. 6)
immune system (<i>n.</i>)	a system that moves antibodies through the body to fight infection (p. 8)
infectious (<i>adj.</i>)	referring to diseases that can spread from one organism to another (p. 4)
microbe (<i>n.</i>)	a microscopic organism (p. 7)
sanitation (<i>n.</i>)	the act, process, or facilities used to keep a place clean or remove waste (p. 6)
symptoms (<i>n.</i>)	specific signs of illness or injury (p. 7)
viruses (<i>n.</i>)	microscopic organisms that infect the body; diseases caused by a virus (p. 5)