

ZOMBIES

READING INSTRUCTIONAL GUIDE FOR HIGH-INTEREST ARTICLE

UNIT ESSENTIAL QUESTION

How does the popularity of zombies relate to fear and the outbreak of infectious disease?

BEFORE READING

Looking at the Words: Structure and Meaning

Complete the Unit Vocabulary Assessment as a pretest before vocabulary instruction.

As you read the article, complete the following vocabulary chart.

Words to Study	Syllables	Prefix	Root Word	Suffix	Origin	Meaning in Context
acknowledge	ac-knowl-edge	n/a	ack knowledge	n/a	(Old English) <i>oncnawan-</i> know <i>leche-</i> knowledge	(v.) to recognize as true
attribute	at-trib-ute					
hieroglyph	hi-er-o-glyph					
incoherent	in-co-her-ent					
inconclusive	in-con-clu-sive					
intimidation	in-tim-i-da-tion					
neurotoxin	neu-ro-tox-in					
recovery	re-cov-er-y					

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Words to Study	Syllables	Prefix	Root Word	Suffix	Origin	Meaning in Context
revive	re-vive					
sorcerer	sor-cer-er					

Activating Background Knowledge and Setting a Purpose for Reading

Anticipation Guide

Indicate “Agree” or “Disagree” for the following statements before beginning the unit of study. You will have the opportunity to revisit these statements after reading the text. You will then fill in the text reference column with the applicable evidence from the text that has either confirmed or challenged your views.

BEFORE READING		AFTER READING	
Statement	Agree/ Disagree	Agree/ Disagree	Text Reference/Paragraph #
Zombies transcend the worlds of religion and fantasy.			
The reign of zombies rests on exploiting the fears of ordinary people.			
It's reasonable for modern-day people to believe that there could be a zombie invasion.			
The prominence of the zombie movie genre has greatly influenced the public's historical interest in zombies.			
The historical and cultural significance of zombies has intensified the popularity of zombies across generations.			

Introduction to Unit Essential Question

After completing the Anticipation Guide, participate in an initial small- or whole-group discussion of the unit essential question:

How does the popularity of zombies relate to fear and the outbreak of infectious disease?

DURING READING

- Skim the passage and questions that follow.
- Read the article closely, marking words or phrases that are unfamiliar. Question, summarize, clarify, and predict, making marginal notes for each paragraph or section.
- Determine the meaning of unknown words by interpreting words and phrases within the context of the passage.
- Examine elements within the text that shape it, including structure, point of view, style, and relationships between ideas.
- Reread the article to determine central themes, marking textual evidence.
- Complete the graphic organizer in order to integrate and evaluate ideas within the article.

AFTER READING

What words, if any, are you still confused about after reading the article? Try using decoding strategies, word structures, and context clues to read the unfamiliar words. Then revisit the Anticipation Guide to see if your views have changed after reading the text. Record evidence from the text to support your answers.

Text-Based Discussion Questions

Use specific evidence from the text to support your claims and keep your discussion connected to the article.

1. According to the article, what was the original culture from which zombies came?
2. Using the information in the article, explain how different cultures developed the zombie myth.
3. Based on the article, how have zombies developed in type and model over time?
4. What original qualities made zombies fearsome for moviegoers?
5. What qualities of the zombie make them fearsome for us today?

ZOMBIES

HIGH-INTEREST ARTICLE

THE ORIGIN OF ZOMBIES

They shuffle past you, moaning and confused. Their weakened brains have made it nearly impossible to think clearly. But if they spot you, it's all over. Unaware of how slowly they are moving, they hunt you down at all costs. They are zombies. They are undead. And they are hungry!

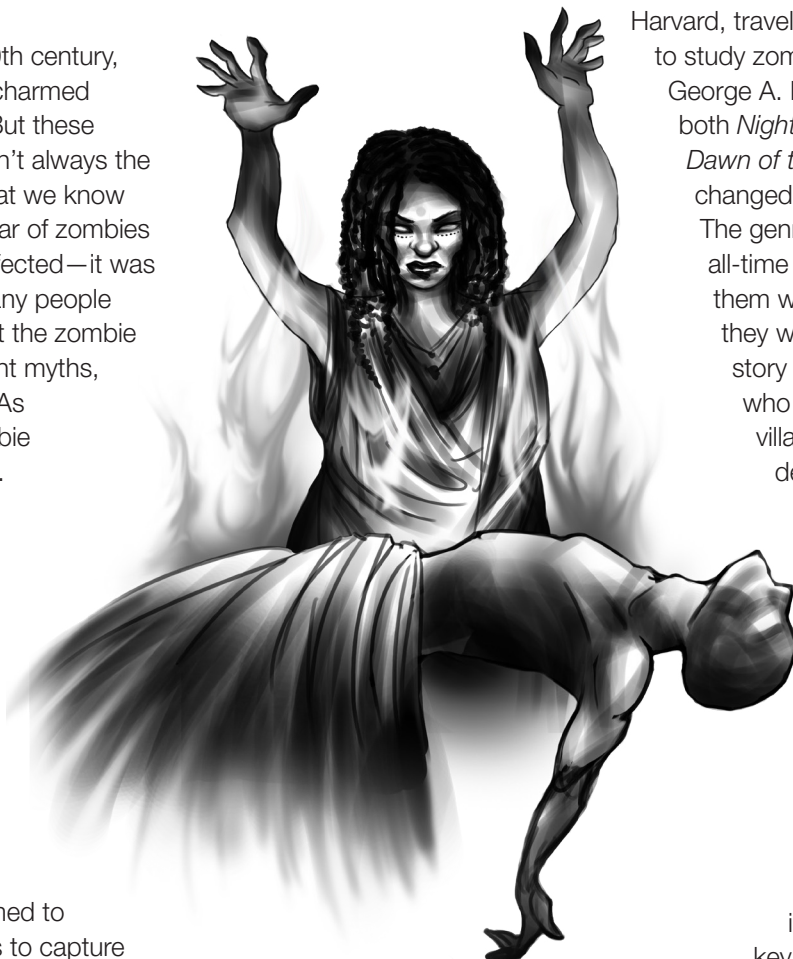
Ever since the early 20th century, zombie films have both charmed and scared audiences. But these mindless creatures weren't always the flesh-eating monsters that we know today. At one time the fear of zombies wasn't being bitten or infected—it was becoming one. What many people don't realize today is that the zombie shows up in many ancient myths, beginning with Voodoo. As part of Voodoo, the zombie has existed for centuries. And unlike our modern-day counterparts, they weren't brutal, blood-thirsty, or even **incoherent**.

The zombie began in the Haitian tradition of the *bokor*, or Voodoo **sorcerer**. Bokors specialized in political and social **intimidation**. They claimed to use their magical abilities to capture the souls of others and steal their bodies as slaves. People feared becoming zombies because this meant unending bondage to a bokor for life. When these myths began, much of the Caribbean and Haitian culture was enslaved on sugar cane plantations by colonists. This slavery left many dead and others beaten into submission. This cruelty fostered a white-hot fear of

becoming an eternal-slave zombie to a bokor, and explains much of why zombies are feared today. The thought of eternal slavery was so terrifying that bokors held much political power over those who did not practice sorcery.

Dr. Wade Davis, an ethnobotanist from Harvard, traveled to Haiti in the 1980s to study zombie science. By this time, George A. Romero had released both *Night of the Living Dead* and *Dawn of the Dead*. These movies changed the zombie movie genre. The genre's popularity was at an all-time high, and interest about them was widespread, whether they were real or mythological. The story of Clairvius Narcisse, a man who reportedly appeared in his village after being pronounced dead nearly 20 years before, caught the attention of Dr. Davis. Davis studied the theory of zombification in Haiti and made a groundbreaking discovery. In order for bokors to be effective in **reviving** a corpse, they needed a special zombie powder, unique to the sorcerer using it. Despite the differences in each, Davis noticed one key similarity in all "zombie powder." Each included a special

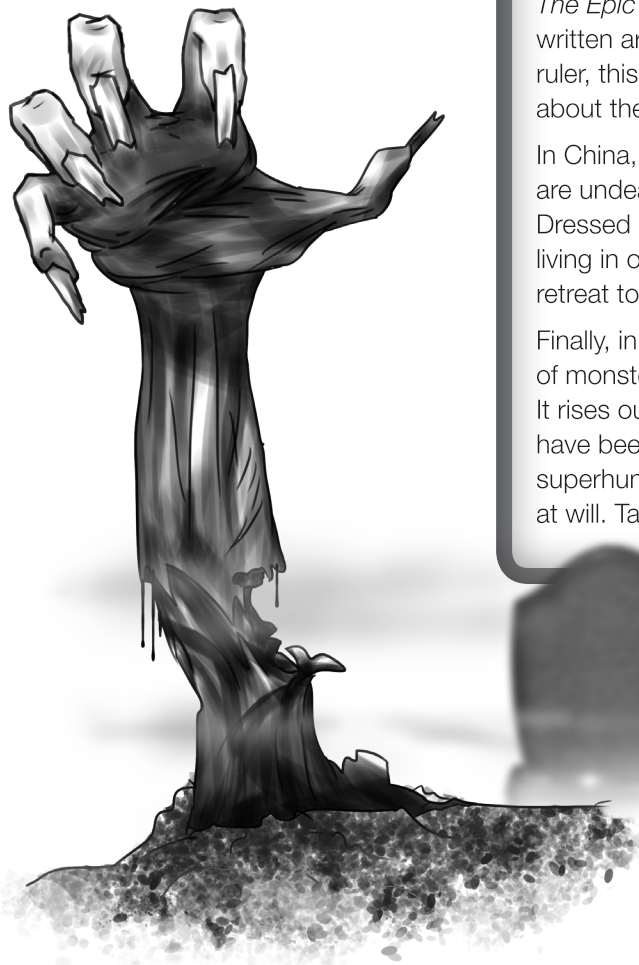
neurotoxin derived from pufferfish. When used in the proper amounts, Davis believed this neurotoxin could simulate a death-like state, followed by a slow but total **recovery**. This supported the locals' belief in Narcisse's story, and explained the mythological belief that zombies



could return to normal after slavery.

Unfortunately, Davis's research was **inconclusive**. Many doctors argued against his claims, and his laboratory findings weren't enough to make a legitimate claim. Despite his failures, Davis is recognized for his research on zombie history and culture, and he is **acknowledged** as an expert.

After Davis's findings were published, the face of the zombie in pop culture changed. Rather than the pathetic slaves of a bokor master, the undead were assigned the **attributes** of evil but mindless creatures. In addition, rather than being the product of Voodoo, zombies in the 21st century were regarded as the product of infection. Humans feared being infected by a contagious disease or psychosis. In fact, few zombies today are seen as the returning dead. Zombies are now the result of an infected human. Some are infected by viruses similar to rabies, while others are infected by mold spores that slowly infect the brain. Though there is no evidence that zombies are real, they continue to inspire fear and the unanswered question, "What if ...?"



Zombies in Other Cultures

Though Haitian Voodoo (properly spelled *Vodou*) is credited with the creation of the zombie myth, the undead have been a part of many different cultures spanning thousands of years. Some believe that **hieroglyphs** discovered on Easter Island depict a zombie outbreak. In that event the population was devastated, leading to the carving of the Easter Island heads. Sound crazy? It only gets weirder.

In Ireland, the fear of vampires was more widespread than that of zombies. There were several burial rituals performed into the medieval era that were designated to prevent vampires from coming back to life. However, scientists have recently discovered bodies buried around the 8th century with stones wedged in their mouths. They believe that these bodies were thought to be in danger of "zombification." The stones were placed to prevent them from rising up out of the ground and biting others.

The Epic of Gilgamesh is a Mesopotamian epic poem written around 1700 BC. Although the story discusses a ruler, this work references zombie-like behavior and talks about the dead re-awakening to attack the living.

In China, the undead are referred to as *Jiang-Shi*. These are undead humans who come back to attack the living. Dressed in Qing Dynasty attire, these creatures kill the living in order to absorb their *qi*, or life force. They then retreat to caves or coffins during the daytime.

Finally, in Scandinavia, an 8th-century myth tells of a kind of monster called the *draugr* (one who walks after death). It rises out of the grave to protect the valuables that may have been buried alongside him. These undead possess superhuman strength and are able to change their size at will. Talk about a scary zombie!



READING COMPREHENSION

After reading “The Origin of Zombies,” select the responses that best answer questions 1–9. Then read question 10 and construct a short response that is supported by textual evidence.

1. Part A

Based on what you learned from the High-Interest Article, how have zombies throughout history impacted the public perception of zombies?

- A. Zombies as magical creatures is a common theme throughout all genres and legends.
- B. Religious and mythical stories of zombies have created a culture of fear and intrigue concerning zombies.
- C. Zombies in the movies are nothing like their historical counterparts.
- D. Present-day tales of zombies are much scarier than the mythical zombies from other cultures.

Part B

Select two pieces of evidence from the article that support the answer to Part A.

- A. This cruelty fostered a white-hot fear of becoming an eternal-slave zombie to a bokor, and explains much of why zombies are feared today.
- B. This supported the locals’ belief in Narcisse’s story, and explained the mythological belief that zombies could return to normal after slavery.
- C. In Ireland, the fear of vampires was more widespread than that of zombies.
- D. Finally, in Scandinavia, an 8th-century myth tells of a kind of monster called the *draugr* (one who walks after death). It rises out of the grave to protect the valuables that may have been buried alongside him.

2. Which statement best reflects the central idea of the third paragraph of the article?

- A. Bokors were violent slave drivers.
- B. The terror surrounding zombies in Haiti began as political fear mongering exercised by bokors threatening eternal slavery.
- C. Most of the Haitian culture was enslaved by threat of “zombification” at one point.
- D. Bokors created the zombie myth in order to make people believe that they were, in fact, magical.

3. Closely reread the three paragraphs discussing the work of Dr. Wade Davis (paragraphs 4–6). According to the information presented, how did his research impact the public perception of zombies?

- A. Davis’s research led to an all-time high interest in zombie culture.
- B. Davis’s research was largely disregarded by the public.
- C. Davis’s research definitively discounted the existence of zombies in Haiti.
- D. Davis’s research led to a shift in public perception of zombies, from helpless slave to mindless, wicked creatures.

4. Reread this sentence from the article.

“This cruelty fostered a white-hot fear of becoming an eternal-slave zombie to a bokor, and explains much of why zombies are feared today.”

The term *white-hot* in this sentence serves

- A. to emphasize the terror felt by Haitians at the prospect of becoming a zombie.
- B. as a comparison of the mild fear of those who were already slaves.
- C. to explain how bokors exercised their power over potential slaves.
- D. as a descriptor of fear that reinforces the zombies’ pale appearance.

5. What is the purpose of the text box “Zombies in Other Cultures?”

- A. to explain why zombies are so popular in movies
- B. to provide evidence that zombie myths have existed across continents and generations
- C. to show that zombies are a very real threat in many cultures
- D. to explain why zombie diseases are feared in popular culture

6. Part A

Which of the following statements speaks to the author's purpose in suggesting that the fear of zombies is deeply ingrained in past cultures and societies?

- A. Their weakened brains have made it nearly impossible to think clearly.
- B. The thought of eternal slavery was so terrifying that bokors held much political power over those who did not practice sorcery.
- C. What many people don't realize today is that the zombie shows up in many ancient myths, beginning with Voodoo.
- D. And unlike our modern-day counterparts, they weren't brutal, blood-thirsty, or even mindless.

Part B

Select two pieces of evidence from the High-Interest Article that support the answer to Part A.

- A. This cruelty fostered a white-hot fear of becoming an eternal-slave zombie to a bokor, and explains much of why zombies are feared today.
- B. The zombie began in the Haitian tradition of the bokor, or Voodoo sorcerer.
- C. By this time, George A. Romero had released both *Night of the Living Dead* and *Dawn of the Dead*. These movies changed the zombie movie genre.
- D. This supported the locals' belief in Narcisse's story, and explained the mythological belief that zombies could return to normal after slavery.

7. Read the following excerpt from "The Story of the Zombi in Haiti" from *Man: A Record of Anthropological Science in 1945*.

"The theory on which the belief in Zombis is based is that some Haitian medicine-men (Nganga) have the power to bring dead and buried people back to life again. These resurrected human beings are the Zombis, the living dead. It is also believed that during the night some people have the power to fly through the air with a big red flame under their arms: these are the werewolves. In the vodu dances, the Haitian peasants become furious and are supposed to be possessed of spirits. When one falls into this state, the medicine-man is said to be able to predict the incidence of catastrophe, birth, or death; to tell how a person can win immense fortunes; to describe what happens in his home when a man is away from his family, and many other things which a person may always have been eager to know. The medicine-man is also supposed to have power over fate and to avert any ill fortune that the future holds in store for a victim."

How does this statement work along with the information presented in the article to give the reader a better understanding of the zombie culture in Haiti?

- A. It depicts an example of the bokor, or "medicine-man's" abilities concerning the fate and life of the dead or possessed.
 - B. The excerpt shows that zombies weren't the only mythological creature in Voodoo, but werewolves targeted citizens too.
 - C. The article and passage work together to debunk the mythological zombies.
 - D. The passage depicts death by zombie as a glamorous way to join the afterlife.
8. Which statement from the article provides the best evidence that Haitian bokors may not have had magical powers as they claimed?
- A. Bokors specialized in political and social intimidation.
 - B. This slavery left many dead and others beaten into submission. This cruelty fostered a white-hot fear of becoming an eternal-slave zombie to a bokor, and explains much of why zombies are feared today.
 - C. Despite his failures, Davis is recognized for his research on zombie history and culture, and he is acknowledged as an expert.
 - D. When used in the proper amounts, Davis believed this neurotoxin could simulate a death-like state, followed by a slow but total recovery.

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9. Read closely the following quotation from Zora Neale Hurston, a researcher of Haitian folklore.

“What is more, if science ever gets to the bottom of Voodoo in Haiti and Africa, it will be found that some important medical secrets, still unknown to medical science, give it its power, rather than gestures of ceremony.”

How does the view presented in this quotation relate to the central idea presented in the article about Wade Davis’s research?

- A. Davis and Hurston would disagree that Haitian voodoo was based in reality.
- B. Hurston’s view that zombies held medical secrets reinforces Davis’s idea of the “zombie powder” he proposed the bokors used.
- C. In Hurston’s eyes, Davis’s research was flawed because it couldn’t be corroborated by medical science.
- D. Davis and Hurston would agree that bokors held little social influence.

10. Closely reread the text box of the High-Interest Article. What does this passage reveal about the similarities among zombies across cultures?

SORTING THE EVIDENCE

Directions: Closely reread the unit High-Interest Article, “The Origin of Zombies.” As you reread, take notes under the appropriate headings about zombies—background, traditions, research, and modern-day zombies. Under each heading, write three supporting details from the text.

 DIAGNOSIS

Zombie Background:

- _____
- _____
- _____

Voodoo Traditions:

- _____
- _____
- _____

Dr. Wade Davis:

- _____
- _____
- _____

Modern Zombies:

- _____
- _____
- _____



READING INSTRUCTIONAL GUIDE FOR TECHNICAL ARTICLE

BEFORE READING

Looking at the Words: Structure and Meaning

As you read the article, complete the following vocabulary chart.

Words to Study	Syllables	Prefix	Root Word	Suffix	Origin	Meaning in Context
abnormality	ab-nor-mal-i-ty	ab	normal	ity	(Latin) ab- not normalis- normal	(n.) state of irregularity
deflate	de-flate					
deplete	de-plete					
dysfunction	dys-func-tion					
inconsistent	in-con-sis-tent					
incubation	in-cu-ba-tion					
phenomenon	phe-nom-e-non					
plausible	plau-si-ble					
potential	po-ten-tial					
specificity	spec-i-fic-i-ty					

Activating Background Knowledge and Setting a Purpose for Reading

Anticipation Guide

Indicate “Agree” or “Disagree” for the following statements before reading the Technical Article. You will have the opportunity to revisit these statements after reading the text.

BEFORE READING		AFTER READING	
Statement	Agree/ Disagree	Agree/ Disagree	Text Reference/Paragraph #
It is realistic that a zombie-like pathogen will spread.			
The symptoms of rabies are likely the closest to zombie-virus symptoms that humans can experience.			
It’s believable that we will see a zombie virus in our lifetime.			
A zombie-like disease that spreads rapidly is just a scientific hypothesis.			
It’s plausible that if ants can be infected with a zombie-creating fungus, other species can as well.			

Graphic Organizer

Work in small groups to brainstorm about infectious disease, recalling anything previously learned and any prior experience with the subject. Use ideas generated to create a title and complete the graphic organizer.

TECHNICAL ARTICLE

The Science of ZOMBIE VIRUS



Although it entered the world through witchcraft, the zombie as we know it today is becoming less associated with sorcery and more closely related to the outbreak of disease. In fact, many of the undead seen in pop culture now don't even die before they become zombified. All it takes is a bite and a short **incubation** time, and you have an entire army of infected people. In recent films like *World War Z*, *28 Days Later*, and even the wildly popular video game *The Last of Us*, the enemy is the disease, not the zombies themselves. So, could this disease become a real **phenomenon**? Is zombification real? Or, much like the films they come from, is it all just an exaggerated work of fiction?

The closest virus known today that could be associated with the living dead would be rabies. Max Brooks's best-selling *World War Z* features a zombie virus first mistaken for rabies. Because it's a viral infection spread through saliva, all it takes is one bite to infect the victim. Once you start showing symptoms, it may be too late. This particular virus attacks the brain and is characterized by psychological and physical symptoms. Hallucinations, agitation, and a fear of water accompany the physical symptoms, which include fever, excessive drooling, and headaches. Rather than being a source of fear and pandemic, rabies is curable, though deadly if not caught. Untreated, it kills its host quickly, leaving no opportunity for zombification. Hollywood still loves to increase hype over the **potential** of a rabies mutation, as in *World War Z*.

Science actually seems to **deflate** the theory of a zombie virus altogether. Avid researcher of the Ebola virus, Kartik Chandran, says that a hybrid of the rabies virus could mimic zombism. However, those viruses (for instance, a combination of rabies and Ebola) wouldn't

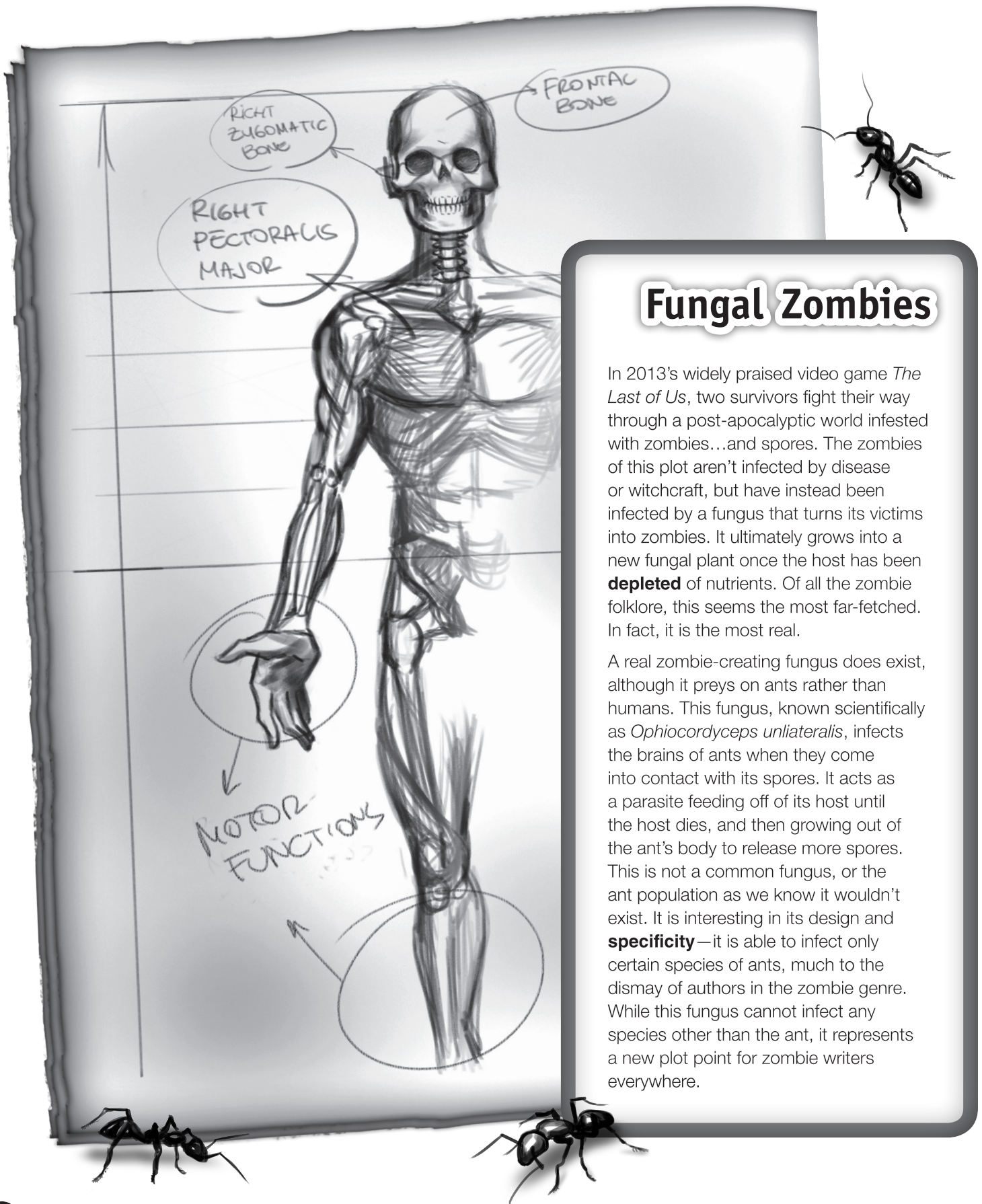
be functional because the viruses aren't closely enough related. Among other potential viruses are those that mutate into stronger strains and eventually overpower other viruses. The problem with this is that it is most common with the influenza virus—hence diseases like swine and bird flu—and does not happen very often.

So, what is this virus that the zombies of the big screen all seem to contract? Are their symptoms altogether **plausible**? Or are they simply part of the on-screen drama?

Dr. Steven Schlozman of Harvard Medical School sought to answer these questions with his book *The Zombie Autopsies: Secret Notebooks from the Apocalypse*. In it, he breaks down the behavior and movements of zombies, associating them with actual medical conditions. He says most of the undead's behavior has its basis in a **dysfunction** of the brain. The shuffling walk of many zombies can be attributed to damage to the cerebellum. The lack of clear thought can be linked to **abnormalities** in the frontal lobe, which is also responsible for impulse decisions. This would explain a zombie's eagerness to bite its victims. As for how the virus spreads, Schlozman contends that because most viruses are airborne, a zombie illness would need to start out in our atmosphere. This is **inconsistent** with the model of zombification, which requires infection through saliva. Altogether these symptoms make for an illness that is completely unlikely.

Or is it?

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Fungal Zombies

In 2013's widely praised video game *The Last of Us*, two survivors fight their way through a post-apocalyptic world infested with zombies...and spores. The zombies of this plot aren't infected by disease or witchcraft, but have instead been infected by a fungus that turns its victims into zombies. It ultimately grows into a new fungal plant once the host has been **depleted** of nutrients. Of all the zombie folklore, this seems the most far-fetched. In fact, it is the most real.

A real zombie-creating fungus does exist, although it preys on ants rather than humans. This fungus, known scientifically as *Ophiocordyceps unilateralis*, infects the brains of ants when they come into contact with its spores. It acts as a parasite feeding off of its host until the host dies, and then growing out of the ant's body to release more spores. This is not a common fungus, or the ant population as we know it wouldn't exist. It is interesting in its design and **specificity**—it is able to infect only certain species of ants, much to the dismay of authors in the zombie genre. While this fungus cannot infect any species other than the ant, it represents a new plot point for zombie writers everywhere.

READING COMPREHENSION

After reading “The Science of Zombie Virus,” select the responses that best answer questions 1–9. Then read question 10 and construct a short response that is supported by textual evidence.

1. Closely reread this paragraph from the article.

“Science actually seems to deflate the theory of a zombie virus altogether. Avid researcher of the Ebola virus, Kartik Chandran, says that a hybrid of the rabies virus *could* mimic zombiism. However, those viruses (for instance, a combination of rabies and Ebola) wouldn’t be functional because the viruses aren’t closely enough related. Among other potential viruses are those that mutate into stronger strains and eventually overpower other viruses. The problem with this is that it is most common with the influenza virus—hence diseases like swine and bird flu—and does not happen very often.”

This excerpt serves to illustrate that

- A. rabies is unlikely to join forces with another virus in order to create a super-zombie virus.
 - B. it’s possible to combine viruses and create a new virus.
 - C. researchers are constantly trying to understand the scientific causes of zombification.
 - D. viruses have the potential to take on a life of their own.
2. Part A
- Which statement best reflects the central idea of the article?
- A. It is likely that a zombie-like superbug will attack civilization in our lifetime.
 - B. Medical researchers have almost cracked the zombie code, explaining the mystery behind zombification.
 - C. Zombies are almost certainly created through viral symptoms.
 - D. A zombie-causing virus is a popular fictional story-line, but unlikely in reality.

Part B

Select three pieces of evidence from the Technical Article that support the answer to Part A.

- A. The problem with this is that it is most common with the influenza virus—hence diseases like swine and bird flu—and does not happen very often.
 - B. Untreated, it kills its host quickly, leaving no opportunity for zombification.
 - C. Hallucinations, agitation, and a fear of water accompany the physical symptoms, which include fever, excessive drooling, and headaches.
 - D. This is inconsistent with the model of zombification, which requires infection through saliva.
 - E. Or does it?
3. Part A
- According to the article, what impact have works of fiction had on peoples’ perceptions of zombies?
- A. The media turned public attention away from witchcraft toward pandemic diseases as the cause of zombies.
 - B. The media has created widespread public fears of a zombie-like attack.
 - C. The media has turned zombie folklore into a profitable, yet accurate, industry.
 - D. The media has revealed the problems in research into zombie-like diseases.

Part B

Select two pieces of evidence from the Technical Article that support the answer to Part A.

- A. Although it entered the world through witchcraft, the zombie as we know it today is becoming less associated with the sorcery and more closely related to the outbreak of disease.
- B. A real zombie-creating fungus does exist, although it preys on ants rather than humans.
- C. Rather than being a source of fear and pandemic, rabies is curable, though deadly if not caught.
- D. In recent films like *World War Z*, *28 Days Later*, and even the wildly popular video game *The Last of Us*, the enemy is the disease, not the zombies themselves.

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4. Reread the following sentence from the article.

“While this fungus cannot infect any species other than the ant, it represents a new plot point for zombie writers everywhere.”

The choice of the phrase *plot point* to describe the fungus serves to

- A. frighten those reading the newest zombie novel.
 - B. minimize its danger, likening it only to a movie plot.
 - C. exaggerate the claim that it can kill from the inside out.
 - D. explain the parasitic tendency of the fungus.
5. Why does the author include the paragraph about Dr. Steven Schlozman’s research?
- A. to show why a zombie-like pandemic is viewed as plausible by many
 - B. to highlight the medical conditions that can lead to a zombie scare
 - C. to explain why zombies are so feared
 - D. to provide a clear, medical explanation of zombie behaviors
6. What does the author’s choice to include information about *Ophiocordyceps unilateralis* reveal about her point of view?
- A. The author likely believes that a zombie-like pandemic is unlikely based on scientific evidence.
 - B. The author likely believes that zombies are a trivial part of current pop culture.
 - C. The author likely believes that it is possible for a virus to mutate to a zombie-creating pandemic.
 - D. The author likely believes that zombies were once a real part of ancient cultures.
7. Look at this picture of a zombie.



Which statement from the article discussing Dr. Schlozman’s research does NOT relate to this picture?

- A. The shuffling walk of many zombies can be attributed to damage to the cerebellum.
- B. This would explain a zombie’s eagerness to bite its victims.
- C. As for how the virus spreads, Schlozman contends that because most viruses are airborne, a zombie illness would need to start out in our atmosphere.
- D. The lack of clear thought can be linked to abnormalities in the frontal lobe, which is also responsible for impulse decisions.

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8. Which of the following statements from the article provides the best evidence that *Ophiocordyceps unilateralis* is not likely to become a zombie pandemic?
- A. It acts as a parasite feeding off of its host until the host dies, and then growing out of the ant's body to release more spores.
 - B. A real zombie-creating fungus *does* exist, although it preys on ants rather than humans.
 - C. It is interesting in its design and specificity—it only is able to infect certain species of ants, much to the dismay of authors in the zombie genre.
 - D. Of all the zombie folklore, this seems the most far-fetched.

9. Closely reread this excerpt from the High-Interest Article.

“After Davis’s findings were published, the face of the zombie in pop culture changed. Rather than the pathetic slaves of a bokor master, the undead were now seen as evil but mindless creatures. In addition, rather than being the product of Voodoo, zombies in the 21st century were regarded as the product of infection. Humans feared being infected by a contagious disease or psychosis. In fact, few zombies today are seen as the returning dead. Zombies are now the result of an infected human. Some are infected by viruses similar to rabies, while others are infected by mold spores that slowly infect the brain. Though there is no evidence that zombies are real, they continue to inspire fear and the unanswered question, “What if...?”



How does this excerpt relate to a zombie pandemic as it is presented in the Technical Article?

- A. The returning dead theory of zombies will be resurrected in another culture.
 - B. Davis’s research disproved the mythological idea of zombies, leading the public to take on the view of disease-ridden zombies.
 - C. The excerpt reveals that zombies will continue to be a part of literature even after the pandemic theory is debunked.
 - D. Victims of zombification in literature are often looked at as weak for succumbing to infection.
10. According to the article, how does rabies compare to zombification?

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TECHNICAL WRITING PROMPT

You are a public relations specialist for the Centers for Disease Control and Prevention (CDC). Recently, there has been a massive public outcry over a rabies outbreak in the Midwest, with fears that it may be a more virulent strain that could lead to zombiism. Your task is to write a press release to deter public fear by outlining the curability of rabies and why residents should not fear a zombie outbreak. Use at least four specific details from the Technical Article to convey your ideas clearly and accurately.



A large rectangular area containing horizontal lines for writing, intended for the student to compose their press release.

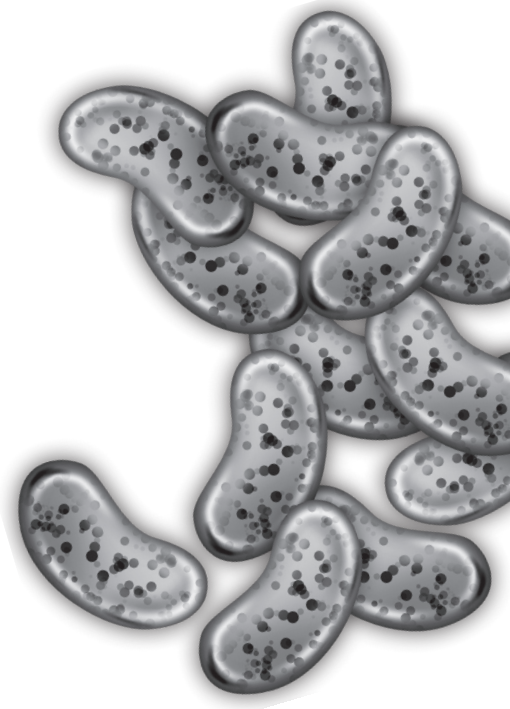
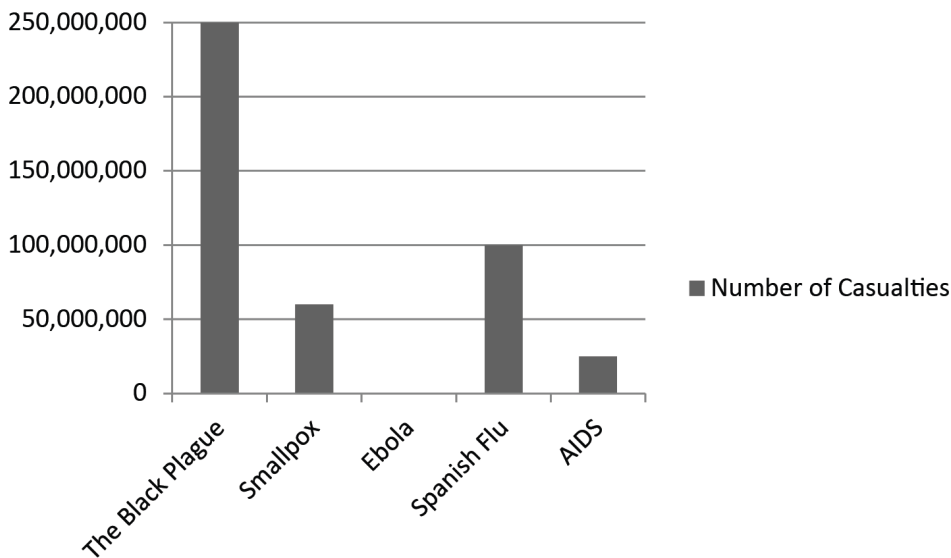
INTERPRETING THE DATA

Part I

How have infectious diseases affected world populations in the past?

Many years ago, with little knowledge of germs or cellular processes, there were no medicines or preventative measures taken against disease. Many of these pathogens, in fact, only died out as the result of time—resulting in high casualty rates. Let's take a look at some of the most dangerous diseases in history and their effects on our world population over time.

Figure 1. Total number of casualties from 5 of the deadliest diseases



- Rank the diseases in Figure 1 by the number of deaths and write the total number of deaths for each disease. (Use Figure 1 to estimate where necessary. The number of Ebola deaths is provided below.)

- _____
- _____
- _____
- _____
- Ebola: 160,000

- At the time of the Black (Bubonic) Plague, there were an estimated 450 million people living on the planet. If 250 million were killed by this disease, approximately what percent of the population was killed by the disease? Round your answer to the nearest hundredth.



Table 1. Influenza deaths by year and age group

Year	Total deaths	Age 14 and under	Age 15–64	Age 65 and above
1998	1,724	23	110	1,591
1999	1,665	36	133	1,496
2000	1,765	30	189	1,546
2001	257	25	59	173
2002	727	24	66	637
2003	1,792	136	213	1,443
2004	1,100	49	107	944
Total:	9,030	323	877	7,830

3. Which age range has the highest mortality rate? Which age group shows the greatest immunity?

4. The CDC releases a yearly report highlighting groups they consider to be “at risk” for contracting the influenza virus. On this list are young adolescents and all persons age 50 and older. These groups have priority for getting the flu vaccine. Does the data in Table 1 support these recommendations? Explain.

Part II

How does a disease spread?

Epidemiology is the study of diseases and how they spread, and an epidemiologist is called a “disease detective.” But just as much as it is a science, the study of disease is mathematical. Based on a pathogen’s characteristics, scientists are constantly developing new formulas for tracking its spread.

Let’s take a look at a virus and how it spread. Ebola hemorrhagic fever is a severe and fatal disease in humans and nonhuman primates. This virus has been spread through monkeys, gorillas, chimpanzees, and humans. There is no cure for this virus, but some people do recover from it. So far, the virus has only been found in a few monkeys in the United States, and they were quarantined; however, some countries have not been as lucky.

Complete Table 2 by calculating the percentage of deaths.

Table 2. Ebola hemorrhagic fever outbreak, 2001 – 2013

Year	Country	Human Cases	Reported Deaths	% of Deaths
2001	Uganda	425	224	$224/425 = 53\%$
2002	Gabon	65	53	5.
2002	Republic of Congo	57	43	6.
2003	Republic of Congo	143	128	7.
2004	Sudan	17	7	41%
2007	Republic of Congo	264	187	71%
2008	Uganda	131	42	8.
2008	Philippines	6	0	0%
2009	Republic of Congo	32	15	9.
2011	Uganda	1	1	100%
2013	Uganda	24	16	67%
2013	Republic of Congo	10	6	10.

11. Based on the information in Table 2, which country has had the most deaths resulting from Ebola hemorrhagic fever?

12. What two years had the most reported cases? Were the two most reported cases from the same country? If not, list the countries who had the most cases.

ZOMBIES

Reread this passage from the Technical Article:

“In fact, Max Brooks’s best-seller *World War Z* features a zombie virus initially mistaken for rabies. As a viral infection spread through saliva, all it takes is one bite to infect the victim; and once you start showing symptoms, it may be too late.”

Now compare the preceding passage from the Technical Article to the following passage from the CDC on Ebola hemorrhagic fever:

“After the first case-patient in an outbreak setting is infected, the virus can be transmitted in several ways. People can be exposed to Ebola virus from direct contact with the blood and/or secretions of an infected person. Thus, the virus is often spread through families and friends because they come in close contact with such secretions when caring for infected persons. People can also be exposed to Ebola virus through contact with objects, such as needles, that have been contaminated with infected secretions.”

13. Based on both of the statements, how are these viruses spread?

According to the Technical Article, Kartik Chandran says, “a hybrid of the rabies virus could mimic zombiism.” Rabies is a viral disease that is transmitted through a bite from an infected animal.

Let’s look at the symptoms of rabies and Ebola.

Symptoms of the rabies virus:

Weakness, discomfort, fever, headache, anxiety, confusion, agitation, followed by insomnia, anxiety, confusion, slight or partial paralysis, excitation, hallucinations, agitation, hypersalivation, difficulty swallowing, and hydrophobia

Symptoms of Ebola virus:

Fever, headache, joint and muscle aches, sore throat, weakness, followed by diarrhea, vomiting, stomach pain, a rash, red eyes, hiccups and internal and external bleeding

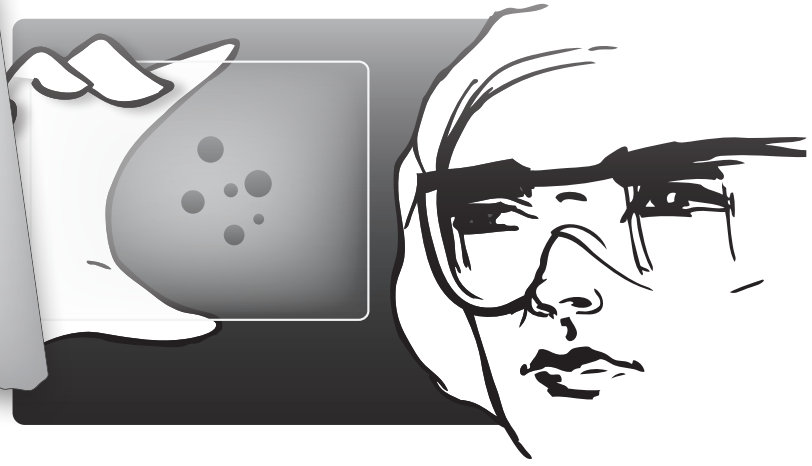
14. How are these two viruses similar and dissimilar? Without more advanced scientific knowledge, how could the preceding information alone lead some people to fear that a hybrid of the rabies and Ebola viruses could cause a zombie outbreak?

ZOMBIES

COLLEGE AND CAREER ARTICLE

HELP WANTED

High school student for internship with CDC Pathways Internship Program. This internship will take you inside the CDC and begin your federal career with mentoring, career development, and improved opportunities for progress.



Do you love science? Do microbes, germs, and bacteria interest you? Do you find yourself curious about illnesses, how they work, and how we can cure them? Then the CDC may have a career for you!

The United States **Centers for Disease Control** deals in some of the world's most dangerous illnesses. The CDC experiments with different strains, crossing and formulating vaccinations. The CDC's scientists work hard to understand what makes us sick and what can cure us. With state-of-the-art technology, they wage war against pathogens that affect our population, and even some that don't yet exist! Medical technicians work hard at determining the causes of disease and formulating vaccinations that work so that our population remains protected from these microscopic killers. Does this sound interesting to you?

While a medical career in the CDC *does* require broad medical training, there are many other job opportunities that are just as important and interesting. You can even begin some of them straight out of high school. The CDC's STEP Program (Student Temporary Employment Program) helps teenagers break into the world of disease control, and offers career training that can skyrocket you into a full-time job! After beginning here, you can be promoted through the federal government's employment system. You may have opportunities to work different jobs with the objective of preventing widespread infection. Some of these roles include public health advisor, public health analyst, medical technician, and epidemiologist. Some of these jobs require higher education, and there are several federal scholarships and opportunities for paid education provided by the CDC. Top earners in these career positions can expect to earn

up to \$130,000 a year! You have to start somewhere, and what better place than with the CDC's Pathways Internship Program? Completion of the program is relatively easy and has the following requirements for full-time employment:

"Program Completion and Conversion

Interns may be converted to a permanent position (or, in some limited circumstances, to a term position lasting 1-4 years) within 120 days of successful completion of the program. Prior to this, interns must complete the following:

- Complete at least 640 hours of work experience acquired through the Internship Program
- Complete their degree or certificate requirements
- Meet the qualification standards for the position to which the Intern will be converted
- Meet agency-specific requirements as specified in the Participant's Agreement, and
- Perform their job successfully.

Agencies may waive up to 320 of the required 640 hours of work for Interns who demonstrate high potential as evidenced by outstanding academic achievement and exceptional job performance."

So what are you waiting for? If you've got a passion for public service, this once-in-a-lifetime opportunity may be just what you need. Apply today!



UNIT VOCABULARY ASSESSMENT

Selected Response

Select the response that best answers each question.

1. Read this sentence from the High-Interest Article.

“Unfortunately, Davis’s research was inconclusive.”

Which word best replaces the word *inconclusive* in this sentence?

- A. unexplained
B. reclusive
C. concrete
D. indecisive
2. Read this sentence from the High-Interest Article.

“Rather than the pathetic slaves of a bokor master, the undead were assigned the attributes of evil but mindless creatures.”

Which word best replaces the word *attributes* in this sentence?

- A. atrocities
B. characteristics
C. curses
D. explanations
3. Reread this sentence from the High-Interest Article.

“Bokors specialized in political and social intimidation.”

Which word is the best antonym for the word *intimidation* in this sentence?

- A. fundraising
B. excitement
C. encouragement
D. bullying
4. Read this sentence from the Technical Article.

“So, could this disease become a real phenomenon?”

Which word is the closest in meaning to the word *phenomenon* in the context of this article?

- A. thrill
B. sorcery
C. incident
D. marvel
5. Read this sentence from the Technical Article.

“The lack of clear thought can be linked to abnormalities in the frontal lobe, which is also responsible for impulse decisions.”

Which word or phrase from the sentence best helps the reader understand the meaning of *abnormalities*?

- A. lack of clear thought
B. responsible
C. frontal lobe
D. impulse
6. Read this sentence from the Technical Article.

“It ultimately grows into a new fungal plant once the host has been depleted of nutrients.”

Read the following structural clues.

de is a prefix that means “from.”

plenus is a Latin root that means “full.”

What is the best meaning of the word *deplete*?

- A. to decrease supply
B. to grow into
C. to infect with
D. to increase exponentially

ZOMBIES

Synonyms and Antonyms

Choose the word that best answers each question.

7. Which word is a synonym for *inconsistent*?
A. unvaried
B. unreliable
C. professional
D. steady
8. Which word is a synonym for *plausible*?
A. unbelievable
B. applauded
C. possible
D. incredible
9. Which word is an antonym for *incoherent*?
A. confused
B. inarticulate
C. lucid
D. cruel
10. Read this sentence from the Technical Article.

“Science actually seems to deflate the theory of a zombie virus altogether.”

Which word could be chosen as an antonym of the word *deflate* in this sentence?

- A. expose
B. verify
C. explain
D. inflate

Sentence Completion

Choose words from the word bank that best fill in the blanks in each sentence.

WORD BANK

acknowledge

hieroglyphs

incubation

neurotoxin

recovery

revive

sorcerer

11. A _____ claimed the ability to _____ the dead, thus creating a zombie, although Dr. Davis believed they used a special _____ to create the death-like state.
12. Rabies has a very fast _____ period, thus leaving little chance of _____ if left untreated.
13. _____ found on Easter Island led historians to _____ the idea that zombies have been a myth of many generations and locations.

Sentence Composition

Correctly use each given vocabulary word in a sentence.

14. dysfunction

15. potential

16. specificity



AUTHENTIC ASSESSMENT

Students will work on a collaborative project using the unit “Zombies.”

Instructions for Outbreak!

1. **Selection.** Students will be assigned to groups of 3 to work on this project.

In Max Brooks’s book *World War Z*, one of the key ingredients for surviving the zombie outbreak was having a strong governmental prevention plan. For this activity, students will individually choose neighboring countries, research them, and come up with a collaborative plan for protecting their nation’s population from Zombie Outbreak.

In the planning stages, the students should analyze a world map and carefully select their three nations. They must be neighboring, but they do not need to be allied, as long as an alliance is created and presented as a part of their Prevention Plan.

2. **Research and planning.** Students will spend time researching their individual nations. Important details to cover include:

- Population
- Natural resources
- Geographic elements (For instance, the Rocky Mountains provide a significant natural barrier.)
- Wealth
- Military resources

Using the information gathered about their respective nations, students will come up with a plan in which they achieve the following:

- Containment of the outbreak
- Acquirement or development of a vaccine
- Protection of the population
- Maintaining government control

The students’ projects should be presented on a poster board, including at least one map displaying the three chosen countries.

3. **Presentation.** After researching and collaborating successfully, students will present their plans to the class, describing in detail how they plan to use their collective nation’s resources and capabilities to protect their populations and contain the infection. Students’ projects should be able to answer the following questions:
 - Did you successfully eradicate the virus?
 - How did you develop or import a vaccine?
 - How did you utilize your nation’s natural resources and geography while formulating your plan?
 - Did your government remain stable and in power through the epidemic, or did a new government take its place?
 - Did your nations remain sovereign and protected? Or did you merge to make protection easier?
4. **Assessment.** Work will be assessed using the Authentic Assessment Rubric.



RUBRICS

Reading Short-Response Rubric

2 points	The student fully understands what is being asked for. The student's answer is correct, complete, and addresses all aspects of the assigned task. The student provides detail and support from the text in order to support his/her answer. Any additional information provided by the student is related to the assigned task and acts as support for his/her response.
1 point	The student partially understands what is being asked for. The student's answer is correct; however, it is generalized and not specific enough. The student is missing any specific details and support from the text that would prove his/her full understanding of the text and the assigned task.
0 points	The answer is completely incorrect, has nothing to do with the assigned task, or no answer is provided.

Interpreting the Data Short-Response Rubric

2 points	The student fully understands what is being asked for. The work is completed correctly and efficiently. There is a full demonstration of the know-how necessary to accurately answer the problem provided. If applicable, the explanations and interpretations are clear, complete, concise, and based on provided data. Any small mistakes do not take away from the overall display of understanding.
1 point	The student seems to understand what is being asked for, but the answer is only partially correct and shows limited understanding of the provided data. The answer may be correct, but it is apparent that there is a lack of full awareness in the know-how necessary to complete the problem. Or there is a full awareness of the know-how necessary to complete the problem, but the answer is incorrect.
0 points	No answer is provided, the answer is completely incorrect, or there is absolutely no demonstration of the know-how necessary to complete the problem (even if the answer provided is correct).

Character Education Extended-Response Rubric

4 points	The student makes a reasoned and compelling claim about character, providing relevant evidence from the text and using appropriate tone for the audience.
3 points	The student makes a reasoned and arguable claim about character, providing textual evidence, and using appropriate tone for the audience and task.
2 points	The student makes a somewhat reasoned and emerging claim about character, providing some textual evidence and demonstrating little awareness of tone for the audience and task.
1 point	The student makes an unidentified or unsupported claim about character, providing little textual evidence, and/or using inappropriate tone for the audience or task.



Integrate and Evaluate Extended-Response Rubric

4 points	The student skillfully integrates and evaluates content presented in diverse formats and media, and produces clear and coherent writing with development, organization and style appropriate to the prompt. The student supports his or her analysis and reflection by using an abundance of relevant facts from the text.
3 points	The student competently integrates and evaluates content presented in diverse formats and media, and produces mostly clear and coherent writing with development, organization and style appropriate to the prompt. The student adequately supports his or her analysis and reflection by using relevant facts from the text.
2 points	The student insufficiently integrates and evaluates content presented in diverse formats and media, and then produces somewhat clear and coherent writing. The development, organization and style may be unsuitable for the task at hand. The student writes inaccurate or incomplete statements that rely on few relevant facts from the text.
1 point	The student does not integrate and evaluate content presented in diverse formats and media, and then produces unclear writing with development, organization and style that is unsuitable for the task at hand. The student writes inaccurate statements that do not rely on facts from the text.

Technical Writing Extended-Response Rubric

4 points	The student clearly and concisely conveys complex ideas and information in a way that shows a keen understanding of the specific audience/purpose and supports general statements with an abundance of relevant facts from the text.
3 points	The student communicates complex ideas and information in a way that shows a general understanding of the specific audience/purpose and supports statements with a sufficient number of relevant facts from the text.
2 points	The student communicates ideas and information in a way that is unclear, shows limited understanding of the audience/purpose, and/or uses few relevant facts from the text.
1 point	The student communicates ideas and information in a way that is unclear, shows minimal understanding of the audience/purpose, and/or uses very few facts from the text.

Looking Forward Extended-Response Rubric

4 points	The student draws evidence from information texts in order to write clear and coherent (1) arguments to support claims, (2) informative texts to convey complex ideas and/or (3) narratives. The student supports his or her analysis and reflection by using an abundance of relevant facts from the text.
3 points	The student draws evidence from information texts in order to write mostly clear and coherent (1) arguments to support claims, (2) informative texts to convey complex ideas and/or (3) narratives. The student supports his or her analysis and reflection by using many relevant facts from the text.
2 points	The student writes somewhat clear and coherent (1) arguments to support claims, (2) informative texts to convey complex ideas and/or (3) narratives with little evidence from the text. The student is limited in support of his or her writing, using many few facts from the text.
1 point	The student writes unclear (1) arguments to support claims, (2) informative texts to convey complex ideas and/or (3) narratives with no evidence from the text. The student does not support his or her writing with relevant facts from the text.



Authentic Assessment Rubric				
Requirement	Exceptional- 3	Proficient- 2	Emergent- 1	Score
Comprehension and Collaboration	The student collaborates effectively with others, and is able to integrate and evaluate information successfully.	The student collaborates sufficiently with others, and adequately integrates and evaluates information.	The student has difficulty collaborating with peers, and/or is not successful integrating and evaluating information.	
	The student successfully evaluates others' viewpoints, reasoning and evidence presented.	The student adequately evaluates peers' viewpoints, reasoning and evidence.	The student insufficiently evaluates others' viewpoints, reasoning and evidence.	
Presentation of Knowledge and Ideas	The student's presentation includes abundant supporting evidence with effectual organization, development and appropriate style of speech and/or writing.	The student's presentation includes sufficient supporting evidence. The organization, development and style are generally effective and appropriate.	The student's presentation is lacking in supporting evidence. It is missing key elements of organization, development, and/or uses style not suited to the audience or task.	
	The student successfully uses digital and visual media where appropriate.	The student makes effective use of digital and visual media where appropriate.	The student's use of digital and visual media is lacking or not appropriate to the task or audience.	

Essential Question Extended-Response Rubric	
4 points	The student proficiently synthesizes knowledge learned from unit texts in order to write a clear and coherent response to the essential question. The student skillfully supports his or her analysis with relevant facts from the text.
3 points	The student synthesizes knowledge from unit texts in order to write a mostly clear and coherent response to the essential question. The student adequately supports his or her analysis and reflection with relevant facts from the text.
2 points	The student minimally synthesizes knowledge from unit texts in order to write a somewhat clear response to the essential question. The student offers limited support for his or her analysis, using few facts from the text.
1 point	The student does not synthesize knowledge from unit texts and/or writes an unclear response to the essential question. The student does not support his or her writing with relevant facts from the text.

ZOMBIES

NOTES

High-Interest Article

Unlike the undead...: Radford, Benjamin, "A History of 'Real' Zombies," Discovery News, June 4, 2012, <http://news.discovery.com/history/history-zombies-12-6-4.htm>.

And unlike our...: Radford.

As a source...: Radford.

When the myths...: Estes, Adam Clark, "A Brief History of Zombies," The Wire, October 31, 2012, <http://www.theatlanticwire.com/entertainment/2012/10/brief-history-zombies/58574/>.

The thought of...: Radford.

Enter Dr. Wade...: Radford.

In order for...: Wilson, Tracy, "How Zombies Work," <http://science.howstuffworks.com/science-vs-myth/strange-creatures/zombie1.htm>.

However, despite the...: Wilson.

Davis believed that...: Wilson.

This would not...: Wilson.

Davis's research was...: Radford.

In Ireland, then (text box)...: Wilson.

They attest that (text box)...: Wilson.

Despite being a (text box)...: Radford.

In China, the (text box)...: Radford.

Finally, in Scandinavia (text box)...: Radford.

High-Interest Reading Comprehension Questions

Question 7 quotation...: "The Story of the Zombie in Haiti," from Man: A Record of Anthropological Science in 1945, <http://www2.webster.edu/~corbetre/haiti/voodoo/mars-zombi.htm>.

Question 9 quotation...: "Zora Neale Hurston Interview: Famous Author Discusses Zombies (VIDEO)," Huffington Post, January 8, 2013, http://www.huffingtonpost.com/2013/01/08/zora-neale-hurston-zombies-_n_2431526.html.

Technical Article

This particular virus...: "Rabies," Centers for Disease Control and Prevention, "<http://www.cdc.gov/rabies/>.

Hallucinations, agitation, and...: "Rabies."

Rather than being...: "Rabies."

Avid researcher of...: Dell'Amore, Christine, "World War Z: Could a Zombie Virus Happen?" National Geographic News, Pop Omnivore, <http://newswatch.nationalgeographic.com/2013/06/25/world-war-z-could-a-zombie-virus-happen/>.

Among other potential...: Dell'Amore.

The problem with...: Dell'Amore.

Dr. Steven Schlozman...: Gannon, Megan, "Behind the Undead Apocalypse," LiveScience, August 8, 2013, <http://www.livescience.com/38753-dr-zombie-science-behind-the-undead-apocalypse.html>.

He says most...: Gannon.

The shuffling walk...: Gannon.

This is inconsistent...: Gannon.

Fungal Zombies (text box)...: "Deadly Fungus Turns Ants into Zombies," Discovery News, March 3, 2011, <http://news.discovery.com/animals/endangered-species/zombie-ants-fungus-amazon-110303.htm>.

Technical Article Reading Comprehension Questions

Interpreting the Data

Figure 1...: "Top 10 Worst Diseases," ListVerse, November 15, 2007, <http://listverse.com/2007/11/15/top-10-worst-diseases/>.

Table 1...: "Flu Myths," SailHome.org, http://www.sailhome.org/Concerns/Vaccines/Flu_Myth.html.

Table 2...: "Known Cases and Outbreaks of Ebola Hemorrhagic Fever, in Chronological Order," Special Pathogens Branch, Centers for Disease Control, <http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/ebola/ebolatable.htm>.

Question 13...: "What are the signs and symptoms of rabies?" Centers for Disease Control and Prevention, "<http://www.cdc.gov/rabies/>.

"Questions and Answers about Ebola Hemorrhagic Fever," Centers for Disease Control, Special Pathogens Branch, <http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/ebola/qa.htm>.

College and Career Article

Article: http://www.cdc.gov/employment/menu_student.html

Salary figure: <https://www.usajobs.gov/GetJob/ViewDetails/333542400>

Copied Intern Requirements: <http://www.opm.gov/policy-data-oversight/hiring-authorities/students-recent-graduates/#url=intern>