



Think Like a Scientist: Natural Selection in an Outbreak

INTRODUCTION

You will watch a short video that explores the 2013 Ebola outbreak in West Africa. This example provides lessons that apply to other diseases and outbreaks.

PROCEDURE

Play the interactive video [Think Like a Scientist: Natural Selection in an Outbreak](#). At various points, the video will pause and ask you to think about the content. You will not be able to continue watching the video until you have answered and saved your response to the prompt. You can record your answers in this worksheet or as directed by your instructor.

As you answer the prompts, keep in mind that some questions do not have a “right answer.” You will have the opportunity to revisit your responses at the end of the video.

1. Think about when several of your friends, family members, or other people around you were infected with a virus. How did you reduce your chance of getting infected or spreading the virus?
2. Most viruses evolved to infect one type of host (for example, bats or primates). What factors might make transmission across different types of hosts more likely? Explain your reasoning.
3. It is important to stop an outbreak as quickly as possible to reduce the chances that a virus will change. How does a virus change? How does the length of an outbreak affect whether the virus will change?
4. Pardis Sabeti is a computational geneticist who studies viral evolution. What do you think an experiment looks like in her field? In your response, discuss the data she uses and how she tests hypotheses and analyzes results.
5. The two scientists featured in this film, Lina Moses and Pardis Sabeti, describe nonviral factors that contributed to the outbreak. List two nonviral factors and explain how they contributed to the spread of the virus.

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6. Unlike the flu, Ebola cannot spread through the air. However, early in the outbreak, a mutation in the Ebola virus helped it spread in people. Propose two additional characteristics that make viruses more likely to spread and cause an outbreak.

7. How has your understanding of how viruses evolve changed? Phrase your answer using the following format: I used to think _____, and now I think _____.

How could you apply what you have learned to your own behavior to avoid getting sick from a virus? What are additional actions you can take to help others globally and in your community?