

Biology of Flu

How does a deadly infectious disease like avian flu spread? In 1918, a flu virus swept the world, killing an estimated 30–50 million people. In a controversial move, scientists have recently revived this deadly virus in order to study it. It turns out that it's a lot like the avian flu virus that's cropping up in Asia.

PROCEDURE

- 1 Ground rules for today's simulation of how a virus spreads through a population:
 - In each round, move slowly, quietly, and calmly around the room.
 - If someone puts a sticker on your arm or hand, make sure it stays in place.
 - Don't actively avoid or seek out the virus carrier.
- 2 Fill in the Tables and Graphs handout with the data from rounds 1 and 2. Then, on each axis, sketch a line to represent how quickly you think a virus would spread through a population if there were just one virus carrier infecting people (i.e., Round 1) versus multiple virus carriers (i.e., Round 2). Take your best guess at what the shapes of these lines would be.
- 3 List some differences between Rounds 1 and 2. Write your answers on a separate piece of paper.
- 4 Does Round 1 or 2 more closely approximate the spread of a real-life epidemic? Explain your reasoning on a separate piece of paper.
- 5 Fill in the data table on the Tables and Graphs handout from Rounds 2-6. Then, on the axes, draw a bar graph of these data. Note that Round 2 serves as the control because no one was inoculated.
- 6 Break into small groups and discuss the questions on the right.

Researchers are hoping to understand this very contagious virus before it becomes able to infect large numbers of people. In this activity, you will model different ways that viruses spread through a population and what happens if inoculation is introduced.

QUESTIONS

Write your answers on a separate sheet of paper.

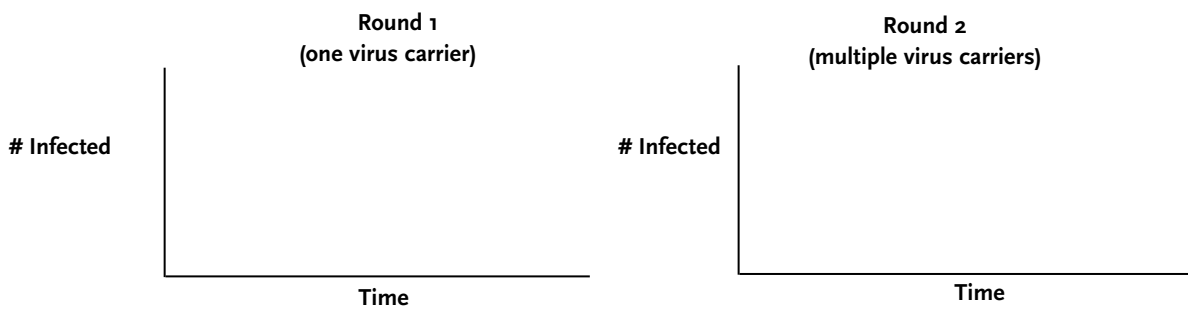
- 1 Which of the game rounds more realistically represents an epidemic? Explain.
- 2 How do different levels of inoculation affect how a virus spreads through a population?
- 3 How could you change the game to make it more realistic?
- 4 List any methods that might help prevent an epidemic from spreading.
- 5 How do inoculations compare to other preventive measures, such as wearing a mask or washing hands, when it comes to reducing infections?
- 6 This activity represents one kind of model used in science teaching—a simulation of how a virus spreads. List some other examples of models used in science. Why do people use models?

Tables and Graphs

DATA TABLE FOR ROUNDS 1 AND 2

	Game Round 1	Game Round 2
Number Infected		

GRAPHS OF THE GENERAL INFECTION PATTERNS IN ROUNDS 1 AND 2



DATA TABLE FOR ROUNDS 2 AND 6

Round	Percent Inoculated	Number Inoculated	Number Infected
2	0%	0	
3	20%		
4	40%		
5	60%		
6	80%		

GRAPH OF DATA FROM ROUNDS 2-6

