

Name _____ Period _____ Date _____



Flu Transmission

STEM Sims

Lesson 3: Which is Better: Wearing a Mask or Taking Antibiotics?

After a year of wearing masks due to the coronavirus, you most likely know that mask wearing helps to reduce the spread of some viruses. So, which is better, wearing a mask or taking antibiotics to prevent the spread of the flu?

Here are some definitions to help you in your investigation.

Virus -	a small collection of material that make up genes that can infect and damage cells
Influenza (flu) -	a virus that attacks the lungs, throat, and nose
Antibiotic -	a drug that slows down the spread of infections due to bacteria
Bacteria -	small, single-celled organisms that can spread disease while others can help other organisms

Doing the Science

1. Start the Flu Transmission Simulation by clicking on the "Simulation" tab.
2. Click on the "Masks" button under the Factor menu on the left-bottom of the screen.
3. Click on the "Run" button at the bottom center of the screen.
4. Note the Progress bar, which shows time running for a six-week period.
5. Click on the "1" icon on the Progress bar.
6. Count and record in Table 1 the number of infected students at the end of the first week of the flu outbreak.
7. Click on the "2" icon on the Progress bar.

8. Count and record in Table 1 the number of infected students at the end of the second week of the flu outbreak.
9. Repeat this process until you have counted and recorded data for all six weeks.
10. Click on the "Antibiotics" button under the Factor menu on the left-bottom of the screen.
11. Repeat steps 3 - 9, only enter your data in Table 2.

Table 1. Mask Wearing Data

Week	Infected	Uninfected	Week	Infected	Uninfected
1			4		
2			5		
3			6		

Table 2. Antibiotics Data

Week	Infected	Uninfected	Week	Infected	Uninfected
1			4		
2			5		
3			6		

Do You Understand?

1. Was the use of antibiotics better or not as good as wearing a mask to reduce the spread of the flu? Please support your response with evidence.
2. Compared to your results from your previous lesson, how did wearing a mask affect the spread of influenza in the school compared to any other factors you tested?

3. One of the first things many people do when they first feel sick is to go to their doctor and ask for an antibiotic. Should this request for an antibiotic always be honored by the doctor?
4. Based on your mask wearing data, how do you think most flu viruses infect the human body?
5. Malaria is a different virus. Malaria is spread by mosquito bites. Would you expect wearing a mask to be effective in stopping the spread of malaria? Please support and explain your answer.
6. Look at the simulation image of the cafeteria with all of the students. Why do you think there were lots of flu infections at the end of six weeks even with the use of masks and other factors?