

How Viruses Travel

Lab Partners: Mickey, Jayce and Dan

Lab Title: How Viruses Travel

Lab Date: Monday, April 23, 2007

INTRODUCTION:

(Found on page one of attachment under the heading: background)

PURPOSE:

(Found on page one of attachment under the heading: objectives)

HYPOTHESIS:

How many people do you think will be infected by the disease at the end of round three?

I hypothesize that there will be eight people infected because if one person starts out with the disease then he or she will give it to one more person then at the end of round one a total of two people will have the disease then those two people will pass it on to two more people and at the end of round two we will have four people contaminated and the exact same thing will happen ending with the result of eight people.

EQUIPMENT AND MATERIALS:

(Found on page two of attachment under the heading: what you need)

PROCEDURE:

(Found on page 3)

DATA TABLES:

(Found on page 4)

CALCULATIONS:

(Found on page 5)

QUESTIONS TO CONSIDER:

Spread of HIV

Questions To Consider:

Last week's lab looked at how a virus would spread if one person infected several others in a single "round". In this week's lab one person infected one other person in each "round". Think about the spread of real infectious diseases:

1. Describe a real life situation in which the rate of spread most closely resembles last week's lab.

One very well known disease that spread very quickly and killed a very significant amount of the population was The Black Death. Were a very fatal disease killed off around two thirds of Europe's population.

2. Describe a real life situation in which the rate of spread most closely resembles this week's lab.

HIV is a disease that spreads in the exact same way that this lab did. And as well as this weeks lab when a case of HIV is present in a small community and people come in such

close contact that they may exchange bodily fluids the end result could be that 40% of the population has HIV.

3. Suggest how you might try to contain the outbreak in each case (quarantine, immunization, education, extermination).

I think that education would be the best way to handle an outbreak because it has the least affect on people's lives. As opposed to quarantine, immunization and extermination.

(Also found on page 5 along with Calculations)

DATA ANALYSIS:

I performed the experiment to better understand how HIV spreads. This experiment also helped me understand how to prevent HIV from spreading. I also learned about how easily HIV can spread. And why it's a problem that we have to stop. In my lab one person was given a liquid that if you added the right chemical to would turn purple. The chemical that we added to see if we were infected represented the HIV test. The liquid that was in our test tube represented our bodily fluids. While we went through each round of exchanging we wrote down who we exchanged with. And at the end of round three everyone would add a few drops of the testing liquid to see if they were infected. If the liquid in your test tube turned purple than you were infected. Eight out of the twenty people were infected proving my hypothesis correct. Then we wrote down a list of the numbers of the people who were infected and all the numbers they exchanged with. Our objective was to find the person who was originally infected before we began exchanging. So we went down the list crossing out numbers who were infected but did not infect other people. We ended up with four possible subjects within that group of eight. We first went through our data again to make sure that nobody had made a mistake. After doing so we could not find a mistake so we went back to a sample that we all took of our body fluids before we exchanged them and tested them with the HIV test liquid. It turns out that I was the one who originally had the disease. I had given it to a partner so at the end of that round there were two people who had the disease, then both of us gave it to another two people so at the end of round two a total of four people had the disease. And then all of the four people gave it to another set of four people so by the end of the third round there were a total of eight people carrying the disease. The only way that this

experiment does not relate to real life is that in such a small community exchanging bodily fluids as often as we did in the experiment there is a pretty big change that you might exchange bodily fluids with someone who already has the disease and that would change the rate of spreading. Because you cant get a disease if you already have it.

CONCLUSION:

I learned how viruses travel and how easily HIV can transmit through the population without people even noticing. I was surprised that 40% of the population of our classroom was infected without anyone knowing it. I found this lab very effective.