

Name \_\_\_\_\_

Test Tube # \_\_\_\_\_

Per \_\_\_\_\_

### ***Disease In a Test Tube – A Simulation***

**Purpose:** To observe that a single carrier of a disease can infect large numbers of individuals because the spread of a disease such as HIV is exponential. Also, to illustrate how epidemiologists trace the original source of an infectious disease.

**Materials:** 1 test tube with simulated body fluids, an eyedropper, and Phenolphthalein (PHTH).

**Procedure:** Every member of the class will receive a test tube of liquid that represents a sample of body fluids. One of the samples (which looks just like the others) contains a certain strain of disease.

**On a signal from your instructor,** you are to exchange “body fluids” from the test tube with another classmate in the following way: *Remember your partner’s gender does not matter!*

1. Pull about **an eyedropper full** of fluid out of your test tube; your partner should do the same simultaneously.
2. Put the liquid in your eyedropper into your partner’s tube; he/she should put their liquid in his/her eyedropper into your tube.
3. **Record the Test Tube # of the person with whom you exchanged body fluids in your data table. It is important that you record your exchanges in the order in which they occurred!**

Next, find a new partner...someone you have not exchanged “body fluids” with before....**wait for the instructor’s signal, and then repeat steps 1 – 3 above.**

**When you have made 3 exchanges, test for “infection” by adding 3 drops of PHTH. A color change of “pink” in the tube means that you are infected with the disease. Record whether you are “infected” or “disease-free” on your data table. If you are “infected” then add your data to the class data table for analysis. Record class data in the table below.**

Infected Person #	Exchange #1	Exchange #2	Exchange #3



I am a soldier fighting in the war against infectious diseases.

**Data Table: Exchange of Simulated Body Fluids**

<b>Exchange Number</b>	<b><i>Test Tube # with whom I exchanged</i></b>
<b>1</b>	
<b>2</b>	
<b>3</b>	
<b>After 3 exchanges, was my body fluid sample infected with the disease? (Circle one after you added color indicator)</b>	
<b>Infected</b>	<b>Disease-free</b>

**Conclusion Questions:**

1. By careful interpretation of the class data, you are to determine the **original** “disease carrier.” Good luck and start thinking! Who do you think the original disease carrier is?

**Indicate their TEST TUBE #:** \_\_\_\_\_

2. Discuss among your classmates who is the original carrier. What methods of sharing and organizing data proved most successful in your analysis? **Be specific.**

3. Is it possible for two people to exchange fluids and, at the conclusion of the simulation, one person be “infected” while the other remains “disease-free”? **Yes or No? Explain.**

4. Is it possible to determine who is the original disease carrier? **YES or NO (circle one)**

**Indicate their TEST TUBE(s) #:** \_\_\_\_\_

5. Did all the people who became infected come in direct contact with the original disease carrier? **Yes or No? Explain.**