

## Spread of a Disease Laboratory Activity

Lesson Title: Viruses/Infectious Diseases: What's Really Bugging You?

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Name: \_\_\_\_\_



(Contributed by science teacher Mr. Pena, Pelham High School, Pelham, N.Y.)

### INTRODUCTION

The way in which a disease spreads through a population demands the careful collection and analysis of data. When an outbreak of a serious disease occurs, scientists must track down the disease and determine its origin. In this investigation, you will simulate the spread of an infectious disease and determine the original carrier of the disease.

### PROBLEM

How can you simulate the spread of disease within a community?

**Construct a model** for the simulation.

### MATERIALS

- One cup filled with stock solution
- One pipette

### PROCEDURE

1. Select one plastic cup with a stock solution provided by your teacher. Record your name in Data Table 1.
2. Obtain a pipette from your teacher.
3. **At your teacher's signal**, begin walking around among your classmates until the teacher tells you to stop. Using the pipette, exchange a pipette full of your solution with the person closest to you. Make the exchange by putting a pipette full of solution from your clean plastic cup into the clean plastic cup of the contact. You should also receive a pipette full of the solution from your contact's plastic cup. Record the name of that person as Contact 1 in the data table.

### Data Table 1

| Your Name | Contact 1 | Contact 2 | Contact 3 |
|-----------|-----------|-----------|-----------|
|           |           |           |           |

4. Repeat step 3 and record the name of this person as Contact 2.
5. Repeat step 3 and record the name of this person as Contact 3.



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### OBSERVATIONS

1. How many individuals were infected by the end of the simulation? How many were not infected?
  
2. How many infected individuals were there at the end of the first round of contacts?

### ANALYSIS AND CONCLUSION

1. Using the class data, eliminate the names of those who were not infected. From this, try to find the original source of the infection by examining the remaining sequence of contacts.
  
2. Were you able to identify the original carrier of the disease? If not, specify what information or test is required to identify the original source.
  
3. In the space provided on this sheet, make a diagram of the transmission route.
  
4. Suppose you came into contact with as many people as possible during a specified period of time. What effect would this have on the outcome of this simulation?
  
5. Who is the original carrier of the transmittable disease in your class?