Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Simulating an Epidemic of an Infectious Disease

 Ag Biology

**Purpose**

The purpose of this exercise is to simulate an epidemic of an infectious disease.[[1]](#endnote-2)

**Background**

Epidemiologists study the causes and the spread of diseases through populations. By doing this, they can help to control and prevent diseases. Though epidemiologists may study diseases not caused by microbes, the simulation you will be doing is a simple model of a microbial epidemic. You will be simulating the spread of a microbial disease by using water and a chemical whose presence in the water can be easily shown.

**Procedure**

 **Materials**

1. Cups (1 per student)
2. Water
3. Unknown: \_\_\_\_\_\_\_

**Sequence of Steps**

1. Obtain a cup of water from the supply area. All the cups for the class have water in them. One of them appears to be water but there is a chemical dissolved in it. **DO NOT DRINK THE WATER**
2. Go around the room and exchange liquids from your cup with one other person. To do this, pour ½ the volume of the liquid in your cup into the cup of a classmate. Then that person should pour the same amount of liquid back into your cup. These actions represent the transfer of microbes between persons.
3. Record the name of the person with whom you exchange liquid in the order in which you made the exchanges.
4. After you are finished with the exchanges and the students have completed their data tables, have them take their seats.
5. The problem the class must solve now is the identity of the person who started the infection. It will be like solving a puzzle. You will have to use the lists of contacts to see where each person might have picked up the infection and work backwards until you have determined who the original reservoir of infection is. This is much like the process that the epidemiologist uses to trace the outbreak of a disease.
6. When you have finished your work, answer the discussion questions.

**Observations:** Write down who you exchange fluids with after each exchange. At the bottom circle wether you were infected or uninfected.

Data Table

|  |  |
| --- | --- |
| Round | People with whom I exchanged liquid |
| 1 |  |
| 2 |  |
| 3 |  |
|  **My Result**Infected Not Infected |

**Discussion Questions**

1. Did you find the source of the infection? If so, who was it?
2. Describe briefly the process you used to trace the infection back to its source.

3. In the simulation, what does the mixing of cup contents represent and how can the pathogen be spread in real life encounters?

1. Was the epidemic a common-source epidemic or was it a propagated epidemic? Explain.
2. In this simulation, what represented the infectious agent?

6. Can someone have a disease and still appear healthy? Explain the possible negative

effects of this.

7. What are some ways that diseases can be prevented? (How can you keep yourself healthy?

1. [↑](#endnote-ref-2)