LAB : Did You Catch It?

Name _____ period _____ Date _____

Question*: How can disease spread?*

Hypothesis: Brainstorm a list.

1. _____
2. _____
3. _____
4. _____

Materials: test tube, dropper, 3 small vials/w lids, unknown solution, universal indicator solution

Procedure:

Your teacher will give you and everyone in the class a test tube filled with an unknown solution. This test tube will represent your body and its fluids. Some members of the class will be given solution containing a simulated virus.

Round 1:

1. Choose 2 classmates to swap solution with. To do this, extract one full dropper of solution from their test tube and add it to your solution. They in turn extract a dropper full of your solution and add it to theirs.
2. Return to your lab station. Take a dropper full of your solution and fill a small vial labeled round 1.

Round 2 and 3:

3. Repeat this procedure for 3 rounds, each time swapping solutions with different classmates. You should end up with 3 vials labeled round 1, 2, and 3.
4. Test each vial of solution with universal indicator. To do this, add 2 drops of indicator to each solution. If the solution changes color, then the virus was contracted. Record the data in the table below.
5. Add your results to the class data on the board

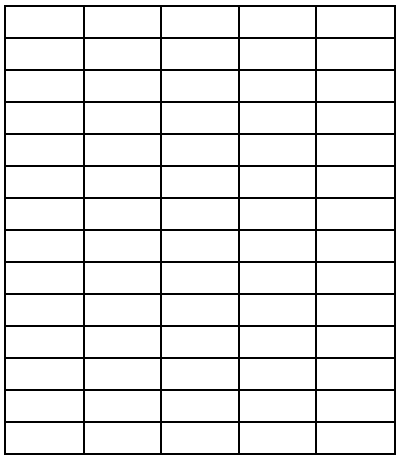
Data:

Table: Virus Detection Test

Round	Color change	Test positive(+) or negative(-) for virus	# of people testing positive
1			
2			
3			

Analysis:

1. Make a bar graph, rounds vs. # of people infected. Start by labeling and numbering each axis.



2. Determine the # of people that will be infected after any number of rounds.

Use the formula : $\mathbf{y = (n + 1)^x}$

y = the number of people infected
x = the number of rounds
n = the number of contacts per round

How many people would be infected after 4 rounds?, x = 4, n = 2

$$y = (2 + 1)^4$$

$$y = (3)^4$$

$$y = 81$$

How many people would be infected after 5 rounds?

Conclusions:

3. How does this disease spread?

4. How many rounds would it take for the whole school of 700 to be infected?

5. If everyone swapped fluids with 3 other persons per round, how many people would be infected after 4 rounds?

6. Connect this to real life. How could this disease be prevented?