Summer 2013

Contagion Lesson Plan

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Teacher(s): Nicole Scipione; George Fadden
Date: 7/26/13 **Course**: Biology/Algebra **Unit/Theme:** Bacteria & Viruses/Rates
Time: approximately 45 minutes
CCSS Standard(s):

Science:

- S1.2a Independently formulate a hypothesis
- S2.1b Conduct an experiment designed by others
- S3.2c Evaluate the original hypothesis in light of the data
- S3.2f Make predictions based on experimental data
- S3.2c Evaluate the original hypothesis in light of the data
- S2.2e Choose appropriate sample size and number of trials
- S2.2 Use models to study processes that cannot be studied directly (e.g., when the real
- process is too slow, too fast, or too dangerous for direct observation)
- S5.2 Observe patterns of change in trends or cycles and make predictions on what might happen in the future

Mathematics:

- A.PS.3 Observe and explain patterns to formulate generalizations and conjectures
- A.PS.4 Use multiple representations to represent and explain problem situations (e.g., verbally, numerically, algebraically, graphically)
- A.RP.2 Use mathematical strategies to reach a conclusion and provide supportive arguments for a conjecture
- A.CM.4 Explain relationships among different representations of a problem
- A.CN.5 Understand how quantitative models connect to various physical models and representations
- A.CN.6 Recognize and apply mathematics to situations in the outside world
- A.CN.7 Recognize and apply mathematical ideas to problem situations that develop outside of mathematics
- A.R.1 Use physical objects, diagrams, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts

Essential Question(s): 1. How do we properly apply the scientific method to a real-life problem? 2. Which is more contagious (which has a higher rate of infection), a viral disease or a bacterial disease? **Assessment:** Ticket out the door: response to Essential Question #2 with reasoning.	
Materials	-**Worksheet:** Applying the Scientific Method **-Computers:** 1 computer for every 2 students **-AgentSheets Model**
Work Time:	**-**There will be a set of directions at every computer and a list of pairings on the board. -Upon entrance, each student will obtain a Worksheet and will split off into the assigned pairs (1 pair of students per computer). -Following the given set of directions, students will complete the pre-assessment portion of their worksheets. -When both students are finished with the pre-assessment portion of their worksheet, the pair will follow the directions to run the Contagion simulation. -As stated in the directions, the students will create their own graphs/charts for the rates of infection. -Students will then respond to the activity portion of their worksheets. -Upon completion of the activity portion of the worksheet, students will thoughtfully respond to the post-activity portion of their worksheets. -When students have completed the worksheets, they will complete the ticket out the door (see below). -If a pair of students finishes ahead of the rest of the class, they will be instructed to explore vaccines and antibodies (to be introduced the next class period).
Closing:	-Each student will complete his/her own Worksheet (to be handed in at the beginning of the following class.

	-Ticket out the door: On a piece of lined paper, each student will respond to Essential Question #2 (Which is more contagious, a viral disease or a bacterial disease?) complete with the reasoning behind their response.