

## MEMO #4

TO: CMS Students

FROM: Centers for Disease Control

RE: SCHOOLPOX

Thank you for your continued work on controlling the SCHOOLPOX epidemic! We have found your work to be very impressive and would like for you to study several different combinations of vaccination rates and quarantine rates (although nothing over 25%). Please find a suitable combination that you would recommend that schools put into practice once a SCHOOLPOX outbreak has occurred in their system.

With your recommendation, it would be helpful to have a graph that illustrates the number of student vaccines need for a school of any size (populations ranging from 50 to 2000) based upon your recommendations.

Your recommendation needs to be supported by your research and trials you have already completed and your work for all should be included and be legible. As a reminder, here are the things that you have thus far discussed that need to be included in your final recommendation write up:

We studied the following:

- A 50% quarantine of SCHOOLPOX.
- A 25% quarantine of SCHOOLPOX.
- A 20% vaccination of SCHOOLPOX.
- A combination of 25% quarantine and 20% vaccination of SCHOOLPOX.
- **Several** combinations of 25% quarantine and (your choice)% vaccination of SCHOOLPOX.

Your report should include general ideas of our research, what was effective in stopping the spread of the disease and what was not (if not, what happened – did it help much in slowing the spread of the disease or not). We discussed several things as a class; transmission rates (what affects transmission), use of vaccinations (what are the concerns?), use of quarantine (what are the concerns), what combination would be good to stop the spread of the disease – there is not necessarily one correct answer, what do you recommend to the CDC and justify why you chose this recommendation? Your report needs to discuss how any transmission rate can be found (your linear function and how you found it). Back your ideas with things that we discussed and studied. Based off of your vaccination/quarantine rate recommendation, it would be helpful to have a graph that illustrates the number of student vaccines needed for a school of any size (populations ranging from 50 to 2000) based upon your recommendations. The CDC will use your report to help develop a plan if SCHOOLPOX is ever a threat to National security/health.

Good Luck and thanks for your continued help!

Teacher note: Your report should be well written and legible (if not typed), you may want to include your charts or make ones on the computer – remember is a report you are preparing for the CDC. And although you may not enjoy this assignment, it is important that you understand how mathematics is used in the real world – not just grocery store mathematics or shopping mall mathematics, but upper-level mathematics in the real world. And it is highly likely that none of you will grow up to work for the CDC, but more than likely, you will sometime in your life have to prepare a report or give a presentation based on data that you have collected or studied. Be sure to have a introduction that discuss the disease and what we studied and a conclusion that pulls everything together. Write this so that someone not from our class (your principal or parent) could sit down and understand the disease, the tasks we preformed and your recommendation.