Name: _____   Date: _____

Track Cholera

Materials
• ruler
• centimetre grid paper or 0.5 centimetre grid paper

Even today cholera is a deadly disease. During the 1854 cholera epidemic in London, England, people did not know what caused the disease. Dr. John Snow was a medical doctor who saved thousands of lives by analysing map coordinates and figuring out how to stop the epidemic.

Dr. Snow suspected that drinking water contaminated with sewage spread the disease. In 1854, people went to neighbourhood pumps to get their drinking water. Dr. Snow mapped the streets of London, the location of each pump, and the location of homes where cholera victims had died.

You be the detective! Make up a coordinate grid to represent a portion of London city streets. Place Pump A at (−5, −5) and Pump B at (5, −5), and then map the location of each cholera victim.

Location of Victims
Single victims: (1, 1), (3, 0), (4, −5), (3, 5), (−5, 4), (−1, −1), (−6, 4) (4, −6)
Three victims: (2, −2)
Four victims: (5, −4), (4, −4)

a) Which pump do you think is causing the problem? Explain your thinking.
b) One pump gets its water supply downstream of the city. The other gets its water upstream of the city. Which pump was which? How do you know?
c) In which quadrant of the coordinate grid would you expect to see more victims if nothing were done to stop the contaminated water pump from being used? Why?
d) Which quadrant would be the safest to live in? Explain your reasoning.
e) Look at the coordinates of the victims and of the pumps. How is a resident's location related to the risk of getting the disease? Give examples to support your answer.
f) Does the data support Dr. Snow's idea that a contaminated water source is causing the spread of cholera? If not, explain why. Is there another possible explanation? Explain.
g) How is a map the same as a coordinate grid? How is it different from a coordinate grid?
h) Prepare a press release for the Mayor of London that explains the cause of the spread of the disease and what could be done to reduce its spread.
i) Look for any data points that seem unexplained. Describe possible reasons for the location of these.