

**Team ID:** BMES204

**School Name:** Barranca Mesa Elementary School

**Area of Science:** Epidemiology

**Project Title:** Code versus Cholera

**Project Proposal Body:**

My research problem is trying to find the infected water pump that caused the 1854 cholera outbreak in London using code. I will use a Voronoi graph around the pumps and then compare the area in which people are sick to the output of each segment of the graph. Then the area that matches up is the area with the infected pump.

The procedure that I will follow is as follows.

1. Download python 3 and scipy
2. Get the code for making a Voronoi graph.
3. Print the map of the area in which the outbreak was occurring that also has the pumps shown on it.
4. Label the pumps with a bright colored pen.
5. Find the coordinates of the pumps relative to the bottom corner of the map.
6. Put the coordinates into the Voronoi graph coding.
7. Run the code to make the Voronoi graph.
8. Then match the area in which people are infected to each of the areas around a pump. The area around a pump that matches the area of the infected people is the infected pump.

**Team Members**

Andrew Morgan

**Sponsoring Teacher(s)**

None

**Project Mentor(s)**

Nathaniel Morgan