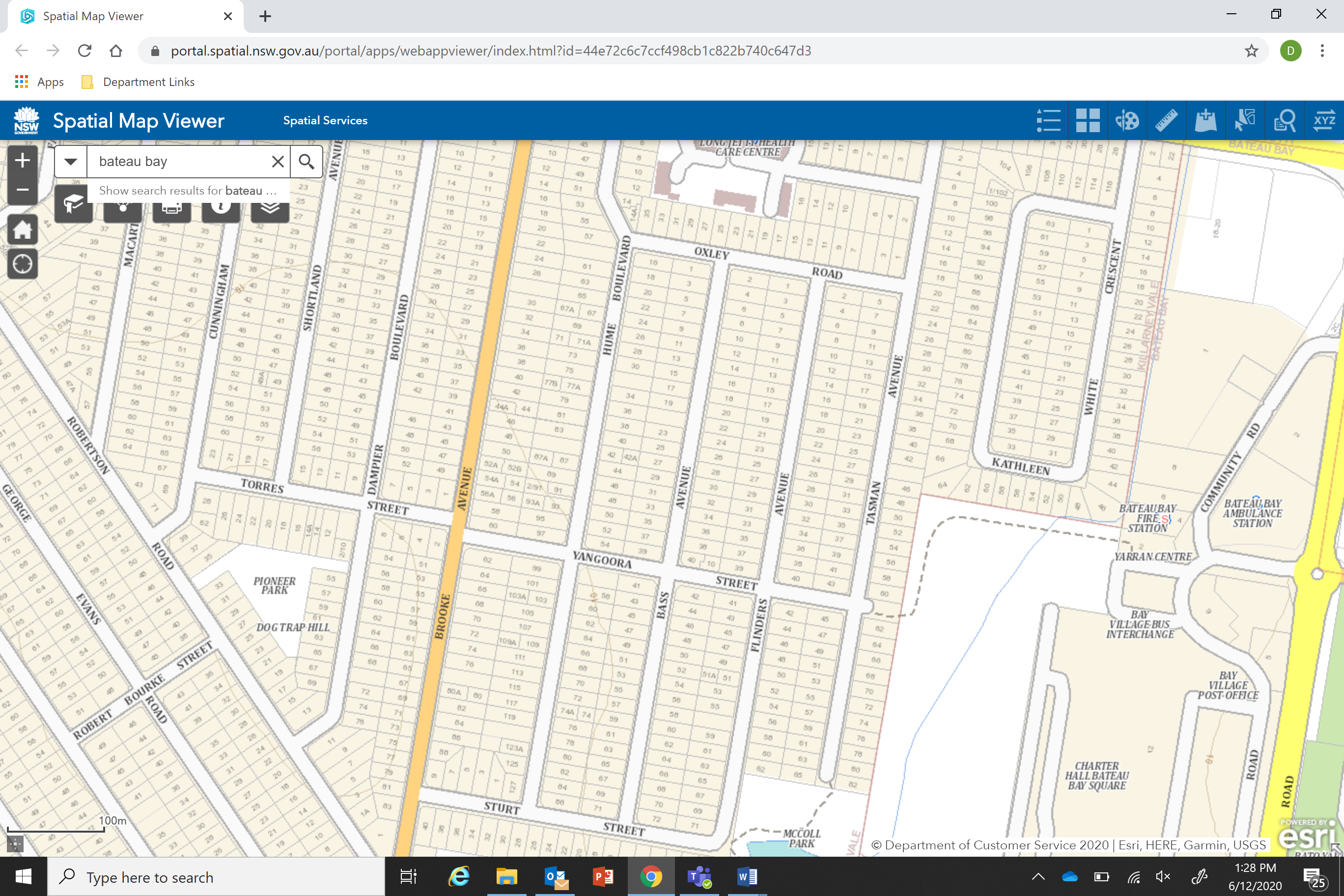
Planning a garbage collection route

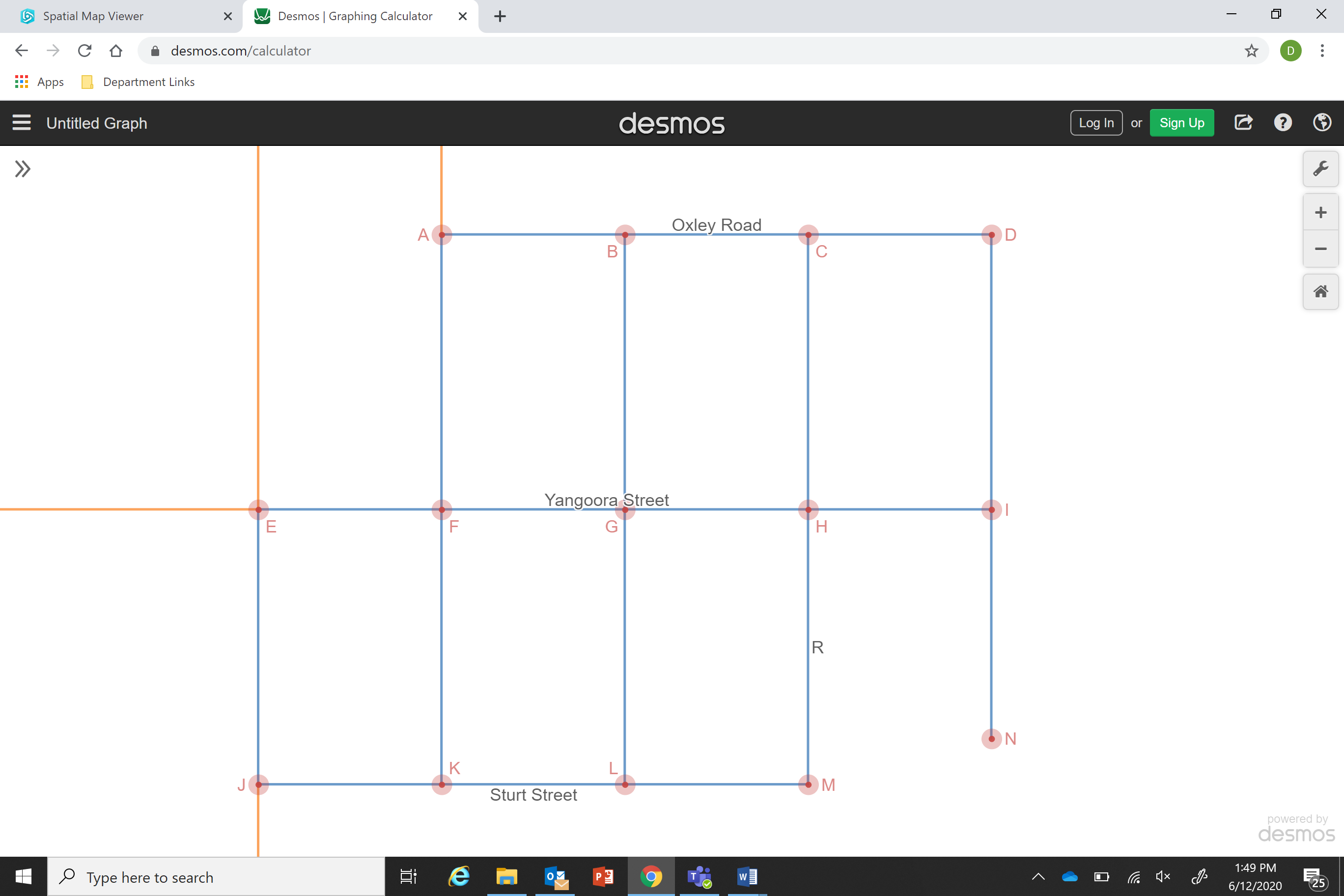
This activity allows students to examine and consider the problem of planning a garbage collection route without retracing our steps.



#### Activity

The map below shows a series of streets in Bateau Bay, NSW. On the next page, this is recreated as a network diagram.



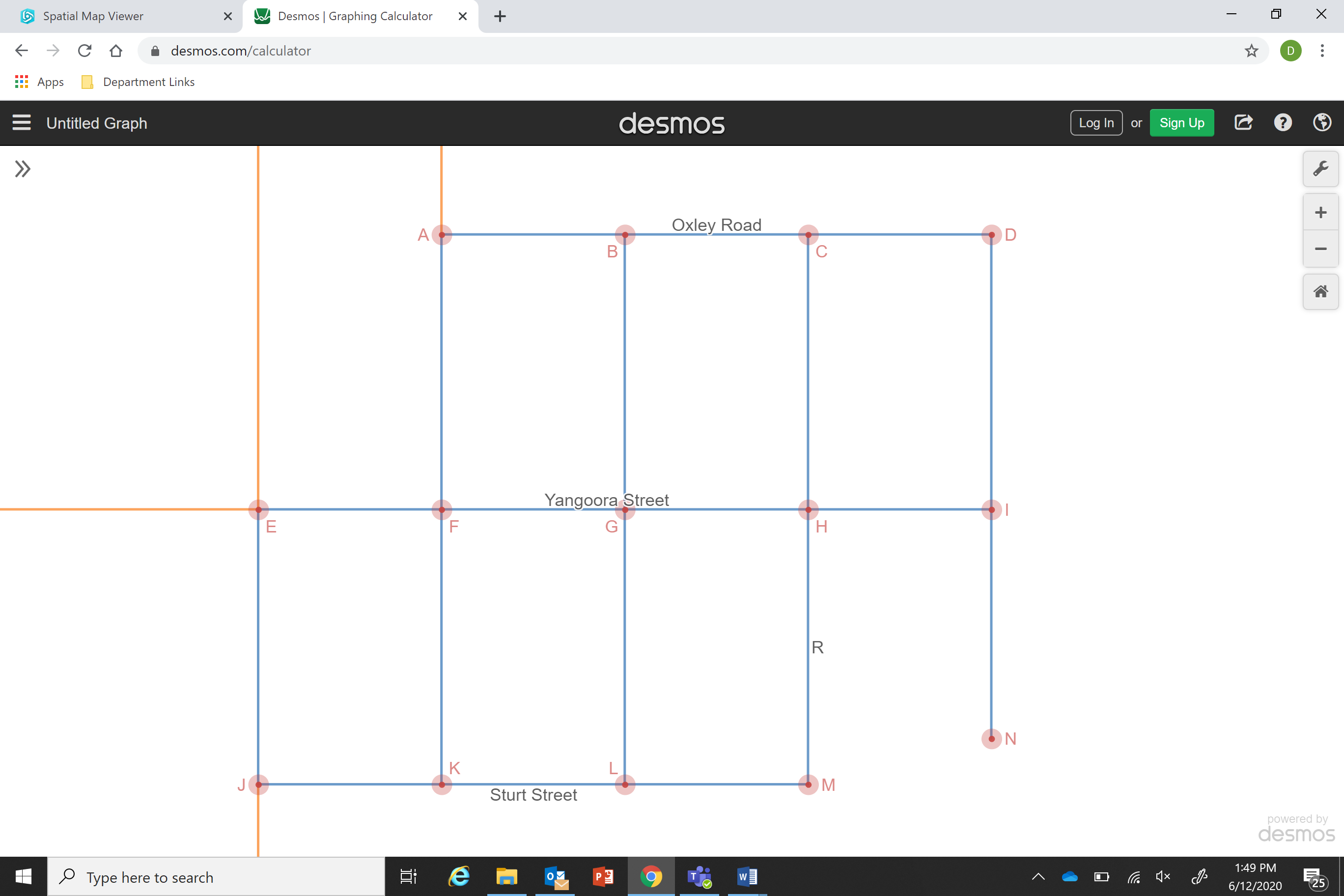


1. How many edges are there in this diagram? What do the edges represent?
2. How many vertices are there in this diagram? What do the vertices represent?
3. What does the edge marked with an ‘R’ represent?
4. Sturt Street goes from J-K-L-M. How would you describe Oxley Road?
5. The garbage truck needs to collect the bins from all of the houses. If the garbage truck begins at point N, can you draw a path for the garbage truck so that it drives through every blue edge in the network diagram?   
   Describe this path using the letter notation from question 4.
6. Compare your path with a classmate’s, or another path you can choose. Discuss which path is better and why.

### Challenge



When a garbage truck collects bins, it needs to drive both directions up and down a street to collect the bins from both sides. In the network diagram below, the arrows show the truck travelling from point D to point N, and then back to point D.



Map out a path so the truck will travel so that:

* The truck travels every street at least twice, once in each direction
* The truck travels as few streets 3 times as possible.