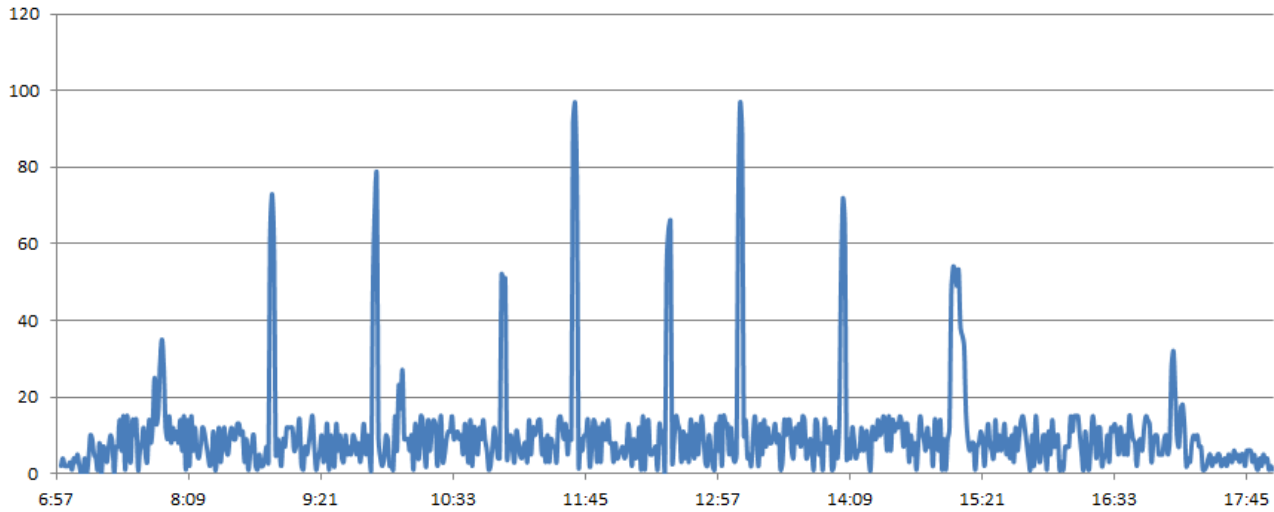


### Exploratory Challenge

#### Water Consumption in a Typical School Day



- a. For what purposes do you think is water mostly used at the school?
- b. What could be the reason for the spikes in the graph?

#### More Information About the School

- Regular school day hours: 8:00am - 3:04pm
- After school activities: 3:15pm - 5:15pm
- Around 10am there is a 13min advisory/homeroom period.

- c. What features of the graph support this information? Why?
- d. What do you think the lunch schedule is like at this school? Why?

More Information about How the Researchers Collected the Data

The water meter shows the total amount of water (in gallons) that has left the school since the time the meter was last reset. Since the researchers do not know when the meter was last reset, they measured how the meter reading increased over the next minute of time.

a. For the period from 10:00am - 10:01am, how much water flowed out of the school?

b. The bulk of water usage is due to flushing toilets. Each flush uses 2.5gal of water. A researcher estimates that 2% of the school population uses the bathroom 10:00am and 10:01am, right before homeroom. What is a good estimate of the population of the school?

<p><u>Percentages</u></p> $\frac{\textit{is}}{\textit{of}} = \frac{\%}{100}$
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c. Assume there are 80 toilets in the school. Make a guess as to what percentage of students may use the bathroom at break times between classes, just before school, and just after school. Are there enough toilets for the number of students who want to use them at these times?

d. Let's say the break time between classes is 5min, and each person who wants to use it only needs 1min. Are there enough toilets for the number of students who want to use them, given this consideration? In a given minute during break time, how many flushes would you expect?

e. Assume each flush uses 2.5gal of water. Estimate the amount of water being used during a given minute of break time.