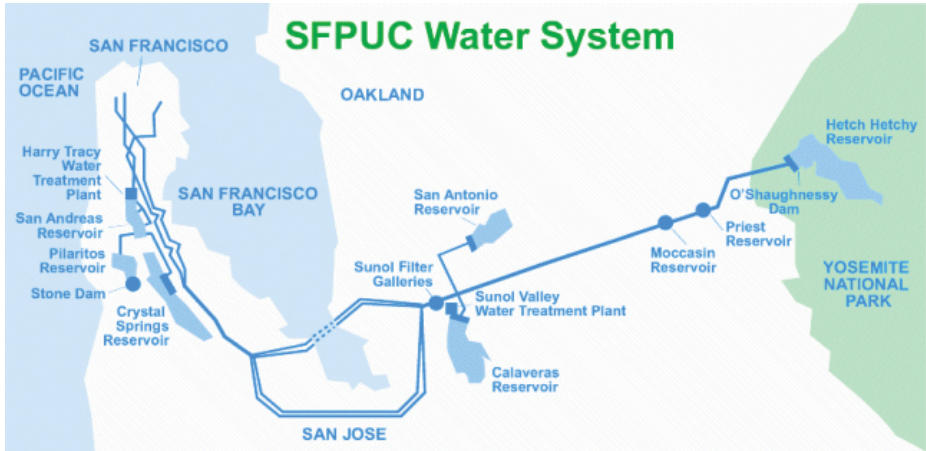


Name	Stephanie Hanson
Lesson Title	Graphing Water Consumption
Grade and Subject	9th grade, Algebra 1
Standard	S.ID.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).
Objective	Students will create box plots and histograms of water usage averages (based on monthly data) comparing SF and one other Bay Area County.
Outline	Warm Up: Students will create a 5 number summary and a box plot from a given set of data. Launch: Students will be briefly introduced to water production and consumption in the Bay Area - Hetch Hetchy, groundwater, and potential move to black water retreatment. Show Resources: Map of water flow   Collect questions: What questions or concerns do you have about

	the sustainability of this model? - Give students think time and time to talk with their groups then generate a class list on the whiteboard Potential Questions: • Will the Hetch Hetchy water supply last forever? • How do population increases affect this? • Will climate change affect water levels in Hetch Hetchy? • How does sea level in the Bay area affect the local water systems? • How much water are people in the Bay area consuming? Task: Students will compare consumption of SF residents to residents of other Bay area municipalities using data from 2016. Students will complete a poster with their findings. Poster Requirements: ☐ Names ☐ Title ☐ 5 number summary for SF data and other county ☐ Histograms for SF data and other county ☐ Box Plots for SF data and other county ☐ Written analysis of findings using academic language regarding shape, center, and spread ☐ Axes and units labeled ☐ Questions or concerns regarding the data Bonus: Does your group have any ideas about how SF could minimize consumption or increase production? Be creative and express your thoughts using words, numerical expressions, or pictures!
Assessment	Students will present their posters as a group to the class and present their analysis. If time is limited posters could be placed around the room and students could take notes on other posters in a “gallery walk” format.
Materials/Resources	Graph Paper Posters Markers Water Usage Data: SF monthly consumption averages http://projects.scpr.org/applications/monthly-water-use/san-francisco-public-utilities-commission/ Other counties:

	Alameda: https://projects.scpr.org/applications/monthly-water-use/alameda-county-water-district/ Contra Costa: http://projects.scpr.org/applications/monthly-water-use/contra-costa-water-district/ San Jose: http://projects.scpr.org/applications/monthly-water-use/san-jose-water-company/ Marin: http://projects.scpr.org/applications/monthly-water-use/marin-municipal-water-district/
Challenges	Without in-class technology students may need to use smartphones to collect data.