



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

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Project Title Human Behavioral Impact on Water Conservation with the Use of a Water Meter	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals We are experimenting whether the use of a water meter which displays water usage and a corresponding website to record and analyze the data will psychologically impact its user to conserve water. We hypothesize that the use of a water meter in showers will cause a significant decrease in its participant's water usage because they will be more self conscious of how much water they are using and will therefore gradually decrease their water usage.</p> <p>Methods/Materials Informed consent was obtained from randomly selected individuals of varying gender and age. We purchased a garden water meter and customized it using adapters for use in a shower. During the control phase, the water meter is covered so that the participants cannot view the readings displayed on the water meter during their showers. After each shower, the human participant then logs onto the Water 4 All website that we have developed and enters the data under the Control Section. During the experimental phase, the cover on the water meter is removed to test so that the participants can view their water usage while showering. The participant then enters the data into the experimental section of our website which contains graphs and goals of the past water usage of that participant.</p> <p>Results From the data collected from our first group of participants over 8 days, there was an average of over a 20% decrease from the control phase compared to the experimental phase. During our analysis, we also discovered that the participants using an average of over 10 gallons saved an average of around 3.5 gallons on average while the participants using an average of less than 10 gallons saved an average of around 1.5 gallons.</p> <p>Conclusions/Discussion Our results support our hypothesis because on average, participants conserved over 20% of water usage based on the averages of their respective control and experimental phases. Therefore, our experiment shows that the participants were more water conscious of their water usage. If this water usage meter is implemented in the showers of a significant number of households, we believe that this will cause the public to significantly save water which may solve water scarcity issues and cause them to become more water conservation minded.</p>	
Summary Statement We found that when the human participants had access during their showers to view their water meter readings which displays water usage, it significantly caused a decrease in their water usage compared to when they did not have access.	
Help Received We designed, built, and performed the experiments ourselves. Our parents helped us purchase the materials and drove us around so that we could install the water meter in different homes.	