



CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY

<b>Name(s)</b> Adelpha Sy Chan	<b>Project Number</b>  35284
<b>Project Title</b> Which Shower Head Saves the Most Water?	
<b>Abstract</b> <b>Objectives/Goals</b> This experiment compared the efficiency of different showerheads in removal of residue from different fluids through a shower simulation test. <b>Methods/Materials</b> Three types of representative fluids were applied to a pleather (used as #skin# because it has a gloss coat that doesn't fully absorb water) square, dried for two hours and twenty minutes. Then it was placed forty centimetres perpendicular to the centre of each showerhead, washing the fabric under the showerhead until no residue remained. Water usage and time were recorded. <b>Results</b> Showerhead 1 was found to be the most effective showerhead in using the least amount of water to clear the residue, concordant to my assumption. Assuming aerated and non-aerated showerheads have the same cleaning ability, I predicted that Showerhead 1 would be the most eco-friendly since it has the lowest advertised GPM (Gallons Per Minute). On the other hand, Showerhead 2 was shown to have the lowest measured GPM in the experimentation. <b>Conclusions/Discussion</b> Though GPM is the main eco-friendly feature advertised in the showerhead industry, it is only effective when users shower based on time. Hence, I measured both cleaning efficiency and GPM, for those who shower until they are fully clean, not based on time. Therefore, Showerhead 1 is more efficient for those who shower based on how clean they feel. While Showerhead 2 has the lowest water usage rate, making it the most water-efficient showerhead for those who shower based on time. These results of cleansing efficiency and water usage rates provide additional information for people with different showering habits when selecting the most eco-friendly showerhead. The design of the most efficient water saving showerhead needs to consider both water usage amount and rate.	
<b>Summary Statement</b> My project is about the testing of different shower heads' effectiveness, taking into account the best feature combination for different showering habits.	
<b>Help Received</b> Teacher and parents helped look over and give suggestions on improvement on the display, abstract, and report.	