



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Sean S. Haas</b>	<b>Project Number</b> <b>J0910</b>
<b>Project Title</b> <b>Pure Water Produced by Solar Distillation</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of my project is to see if it is possible to find a simple and inexpensive way to purify water. I feel this would best be achieved with a solar still that has a reflective back and a dark inner tray to hold the water. I think that it would be possible for people in areas that need clean drinking water and do not have the luxury of expensive complicated materials to be capable of constructing this device out of simple, readily accessible, possibly recycled materials. <b>Methods/Materials</b> Using recycled materials I constructed a solar still with a sheet of plastic shaped around two wooden disks used as end caps. This was taped together and a clear tray filled with two cups of colored water that represents polluted water was put in the cylinder. A drain tube was inserted in one end for draining the collected water. The still was put under a heat lamp for twelve-hours to replicate the sun. Then after a twelve-hour cooling period, the water from the condensation was measured. This process was repeated with a foil-backed still, a black-backed still and a clear-backed still as my control. The entire process was then repeated with a black tray inside the cylinder. <b>Results</b> I found that a foil backed still with black tray would yield .75 ounces more than the clear backed still. I believe that this occurs because the foil reflects the light and heat onto the black tray, which then absorbs the heat causing the water, which is at a higher temperature to evaporate with a higher yield. I believe this shows that it is not only possible to create pure water in a very simple manner, but to optimize production using reflective material. <b>Conclusions/Discussion</b> My hypothesis was proven correct; the foil backed still yielded 1.75 ounces of clean, distilled water from the two cups I started with, making this the greatest water yield in my experiments. This expands upon our knowledge of ecological engineering by showing an example of an inexpensive solar distillation method that could be used to help millions of people the world over. This method is also possible to use for desalinization process.	
<b>Summary Statement</b> I wanted to see if I could purify water using an inexpensive solar still made out of simple recycled materials, which could possibly be built and used by people the world over.	
<b>Help Received</b> My mother helped as inspiration and in gathering materials; my father helped with ideas for shapes of still; Bart Orlando showed me alternative ways for creating energy.	