



# CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

<b>Name(s)</b> Kyley A. Linn	<b>Project Number</b>  35192
<b>Project Title</b> Stovetop Madness	
<b>Objectives/Goals</b> The objective is to distill 200 ml of pulp free orange juice and receive a pH of 7 (neutral). <b>Abstract</b> <b>Methods/Materials</b> Materials: deep-cooking pot, lid for pot, 2000 ml of pulp free Simply Orange, 20 Micro Essential Laboratory pH strips, gas stovetop burner and 100 ml graduated cylinder. Methods: 1: Measure, pour, and heat 200 mL pulp free orange juice in distillation apparatus (picture of apparatus in paper and on display board). 2: Boil the juice for 10 minutes. 3: After the time is over save the collected juice in the bowl (distillate). 4: Test the distilled juice for its pH. 5: Compare the test strip with pH chart. 6: Test the non-distillated orange juice for its pH. 7: Compare the test strip with the pH chart. 8: Record data and repeat procedure for 10 trials. <b>Results</b> In tests four-eight the pH went up to 7 for the distilled juice and the orange juice pH still stayed the same. From test eight to nine the pH of the distilled juice went down two. In that same test (nine) the orange juice still had the same pH as the first eight tests. The last test was ten and the distilled juice had a pH of 7 (neutral). In test ten the orange juice had a pH of 4. The average of the orange juice 4 and the distilled juice had a pH of 6.4. <b>Conclusions/Discussion</b> My hypothesis was that the distilled juice would have a pH of 7 (neutral). Some of my results support my hypothesis and some don't. Six out of ten tests support my hypothesis because the distilled juice had a pH of 7. However four of the tests don't support my hypothesis because they were lower than the pH of 7. The results also don't support my hypothesis because the average pH of all the distilled liquid tests were 6.4. I think all the tests went well, but I think the main reason for the pH going down to 5 in two of the tests was because the orange juice in the bottom of the pot caramelized. I think I didn't put the heat on medium exactly, but a bit higher. In the future I would have a heat source that can be set at a certain number of degrees. This experiment applies to the world in many different ways. One way is that distillation is used to make dehydrated food such as dehydrated fruits and vegetables. Another way is that pH can be used to see if a body of water is safe for sea life to live in it. It is also used to see if the water is safe for land animals to drink out of it.	
<b>Summary Statement</b> To distill pulp free orange juice and test the pH of both the distilled liquid and non-distilled juice.	
<b>Help Received</b> Joel Linn helped with pH formula.	