



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Therese A. Santiago</b>	<b>Project Number</b> <b>J1223</b>
<b>Project Title</b> <b>Harder to Breathe</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project is to see if there is a difference in peak flow between Filipino children and adolescents and the Caucasian standard reference chart.</p> <p><b>Methods/Materials</b> Methods: 1.Healthy Filipino children(both Filipino parents) between 8-18 years old living in Fresno were recruited. 2.Parent consent for their child's enrollment in the study was obtained. 3.Health questionnaire was filled out by the parents.Children with known asthma, cough, cold, chest pain and shortness of breath were excluded from the study. 4.The height was obtained using a Stanley(tm) metal tape measure. 5.The Peak Flow was obtained using Philips Respironics Personal Best Peak Flow Meter(tm). 6.Each participant was asked to do the following: A.Stand up straight, B.Move the marker on the peak flow meter to zero, C.Take a deep breath and make sure your lungs are filled to the maximum, D.Place the device into your mouth with a good seal, E.Blow into the device as hard and as fast as possible, F.The first attempt of the participant is to orient on the peak flow meter use and will not be recorded, G.Once participant is oriented, the second attempt is done, H.Write down the number that the marker has hit, I.Repeat this process a total of three times, J.Record the values of the last 3 attempts numbers, K.The highest value will be compared to the predicted peak flow. Materials: About 30 Philips Respironics Personal Best Peak Flow Meters(tm), Stanley(tm) Metal Tape Measure, Paper, Pen, Camera, Consent Form, Health Questionnaire.</p> <p><b>Results</b> 25 out of the 29 participants had a peak flow number lower than the Caucasian standard reference chart. Only 4 of the participants had a peak flow higher than the predicted values. The average peak flow values on the 29 Filipino participants was 84% which is 16% lower than the predicted values.</p> <p><b>Conclusions/Discussion</b> The results of this test have shown that there was a difference in peak flow between the predicted Caucasian standard values and the Filipino children and adolescents. The peak flow numbers of the Filipino children and adolescents were lower than the Caucasian standard reference chart. So, my hypothesis was supported. Based on this study, there may be a need for adjustments on Filipino children and adolescents normal peak flow values. If I can get enough data in the future, I could help make a reference chart for Filipino children and adolescents.</p>	
<b>Summary Statement</b> This project compares the peak flow values of Filipino children and adolescents to the Caucasian predicted values.	
<b>Help Received</b> Parents helped fix science fair board; Parents contacted Filipino subjects' parents about the the experiment.	