



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Christie P. Lum	Project Number J0115
Project Title The Science behind Tsunamis: Studying the Effect of Water Depth on Wave Velocity	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project is to study the effect of water depth on wave velocity in tsunamis.</p> <p>Methods/Materials In my experiment, I simulate waves by dropping a wood block into a water tank filled with 4 different water depths (independent variable) and record their wave velocity (dependent variable). For each depth, I perform 3 trials and 10 tests per trial. In addition to my tsunami simulation experiment, I also calculate the wave velocity as a function of water depth using a math equation - velocity is the square root of the product of the acceleration of gravity (9.8 sec/m²) and the water depth.</p> <p>Results Based on my tsunami simulation experiment, the wave velocity for water depths of 0.5, 1, 2, and 3 cm were 45, 53, 62 and 70 cm/seconds respectively. Based on my math equation calculation, the wave velocity for water depths of 50, 100, 200, 500 and 1000 meters were 22, 31, 44, 70 & 99 m/seconds respectively. Both my experimental results and calculated results show similar shaped curves on a graph.</p> <p>Conclusions/Discussion The result after 120 tests supported my hypothesis that wave velocity decreases as depth reduces. I hope that by studying the science behind tsunamis, we can understand these killer waves more thus building a better warning system to save more lives.</p>	
Summary Statement My project studies the effect of water depth on wave velocity in tsunamis.	
Help Received Mom helped gather materials; sister helped do the timing and take some pictures; Home Depot donated a wood block.	