



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Kira F. Anderson	Project Number J1801
Project Title Super Boats: How to Make Non Floating Solids Float	
Abstract Objectives/Goals The objective of this study is to determine what allows boats made of steel or other non floating material to float. Methods/Materials Materials: polymer clay, graduated pitcher, scale, water, rolling pin, oven, cutting board, computer, internet. Looked up research on this topic, discovered Archimedes principle. Tried to float polymer in its block state. Created two different designs of boats, they floated and then measured the displaced water to see the application of Archimedes principle. Results Several shapes of the solid were tested to see if they float. Once the volume of the displaced water was converted to mass, it was evident that when the mass of the boat is less than the mass of the displaced water, the boat will float, therefore proving Archimedes' principle. Conclusions/Discussion In simple terms, Archimedes' principle states that the mass of the water displaced by the object must be greater than the mass of the object in order for the object to float. So, my models were able to float because by putting sides on the model, they were able to take up more space therefore displacing more water to allow it to float. My hypothesis was correct, it does have to do with the shape...and so much more!!	
Summary Statement I showed that if the shape of an object that does not float is modified, that it can be made to float.	
Help Received I designed and built the boats by myself. I got help understanding Archimedes' principle from my grandpa, a kayak instructor. I got help in understanding how to use ratios to convert volume to mass from my mom.	