



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Jad Farhat	Project Number J1806
Project Title How Does Density Affect Buoyancy?	
Abstract Objectives/Goals My goal in this project was to find the density of different liquids and the density of a boiled egg and try to predict whether the egg will sink or float. I decided to do this project to learn more about the density of liquids and how they affect whether an object will sink or float. How does the density of an object affect the buoyancy of a liquid? My goal is to prove that the liquid with lower density than the boiled egg will result in the egg sinking, and vice versa. Methods/Materials The liquids I used were fresh water, salt water, corn oil, orange juice, and milk. I calculated the volume of the boiled egg by using the water displacement method and the mass by weighing it on the electrical balance. I calculated the density of each liquid by measuring the mass using the same electrical balance and used a measuring cup to find the volume of each liquid. I then predicted whether the egg will sink or float. Then I carefully tested to confirm my predictions. Results After conducting 5 different measurements of the density for each of these 5 liquids: oil, milk, water, orange juice, and salt water. I calculated the average density of each liquid and used it for the experiment. As a result the egg has sank in all liquids except the salt water because the salt water's density was higher than the egg's density. All of the other liquids' densities were lower than the egg's density, so the egg sank in them. Conclusions/Discussion I concluded that objects with a density lower than the liquid will float, and objects with a density higher than the liquid will sink. Knowing that the density of an object will vary based on its volume and mass. So to answer a common question, "Will an object made of cement or steel object float in water?" To properly answer the question we will need to determine it's volume and mass to get it's density and compare to the liquid's density.	
Summary Statement I calculated the density of 5 different liquids and a boiled egg and predicted whether the egg will sink or float in each liquid.	
Help Received I tested and experimented on my own with the help of internet searches on density.	