



CALIFORNIA STATE SCIENCE FAIR 2015 PROJECT SUMMARY

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Project Title Going Nuts! The Energy Inside an Almond	
Objectives/Goals Just about everything has potential energy stored in it. The problem is releasing that energy to be able to do some work. A tiny almond contains stored chemical energy. When we eat them, the stored energy is converted by our bodies so we can do work. I am asking: what type of almond (raw, raw organic, dry-roasted unsalted or dry-roasted salted) contains the most stored energy (calories)? Abstract Methods/Materials almonds cork & needle two, rinsed metal cans, one large & one small hammer & drill large nail & large drill bit bbq skewer, water, & a thermometer matches, tin foil, & fire proof surface (baking sheet) Remove both ends of the large can and punch holes around the bottom. Remove top of small can. Punch 2 holes at the top, across from each other. Slide skewer through the holes. Pour room temp. water into the small can. Push 1 end of the needle into the cork and the other end into the almond. place cork and almond on baking sheet. Light almond on fire. Immediately lower the large can around the nut with small can balanced on top of the large can. Allow the nut to burn until it goes out. Record the temperature of the heated water. Repeat five times for each type of almond. Results The chemical energy stored in the almond was released and converted into heat energy. The heat energy raised the temperature of the water in the small metal can. Heat energy can be converted to caloric value. I discovered that raw organic almonds contain the most calories. A 1g, organic almond contained 13.9 calories. A 1g, raw almond contained 12.7 calories. A 1g, dry-roasted & unsalted almond contained 10.1 calories. A 1g, dry-roasted & salted almond contained 8.2 calories. The organic raw almond contain the most calories (energy) of the four almonds tested. Conclusions/Discussion My hypothesis was that the raw almond would have the most heat energy (calories) was incorrect. It turned out that organic raw almonds contain the most calories. These two almonds were close in calorie content with a difference of 1.2 calories per gram of almond. I believe the two dry-roasted almonds	
Summary Statement Organic raw almonds contained the most caloric energy of the four almonds I tested.	
Help Received My dad helped to drill the holes in the cans. He also helped supervise the lighting of the almonds on fire.	