



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Kayley A. Bryan	Project Number J2005
Project Title Which of Four Flour Products Has the Most Gluten in It?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project is to determine how much gluten is present in four different types of flours bough at the local grocery store. A second objective of this project is to see if one of the flours, the gluten free flour, which is also a control, is really gluten free as the product claims.</p> <p>Methods/Materials I purchased four different types of flour from a local grocery store. I then measure out 1 cup of each flour to mix with 2/3 cup of water. After mixing each flour and kneading the dough, I let each of them sit for 10 minutes to allow the two proteins, gliadin and glutenin, to bond and form gluten. After this I rinsed the balls of dough with warm water to remove all extra by-products. This step leaves the gluten behind because gluten, once formed, is not water soluble. The gluten was then weighed on a scale to see how much was present in each type of flour.</p> <p>Results The results showed that whole wheat flour contains the highest amount of gluten compared to the cake flour and self-rising flour. These two flours had about half of the amount of gluten as the whole wheat flour. The gluten free flour proved to be gluten free as the product suggested.</p> <p>Conclusions/Discussion Many people have gluten allergies or even gluten sensitivities. Since flour and wheat products are widely used in breads, desserts, sauces and many other products in the food industry it is important for consumers to know how much gluten is really in the products they buy. The data from this experiment suggests that products that are closer to the original wheat form have a higher amount of gluten in them. The whole wheat flour is not as processed as the other flours. And the gluten free flour is highly processed to remove all of the proteins which form gluten. People with a gluten sensitivity can learn which products have a minimal amount of gluten it them and can be consumed safely.</p>	
Summary Statement The project is about discovering the amount of gluten present in four flour products sold at a local grocery store.	
Help Received My advisor helped me choose a project and where to do some of the research. My mother helped me purchase all the products needed for the experiment, helped take pictures while I did the experiment and helped me check my spelling and typed the report.	