



**CALIFORNIA STATE SCIENCE FAIR  
2012 PROJECT SUMMARY**

<b>Name(s)</b> <b>Haley B. Theaker</b>	<b>Project Number</b> <b>J0526</b>
<b>Project Title</b> <b>Jell Well or Gel Not</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My objective was to identify fruits which had protease enzymes and what treatment methods I could use to break down these fruit enzymes so that the Jello could gel. I expected that the raw, frozen, and dehydrated kiwi and mango would not gel because of the protease enzymes they contain. <b>Methods/Materials</b> I made 60 cups of Jello and added raw, frozen, dehydrated, cooked, lemon treated, and alcohol treated kiwi, mango, and apple. I also had cups that contained no fruit and cups that had meat tenderizer (a known protease, as controls). I allowed ample time for the gelatin to gel. I recorded which fruit treatments allowed the gelatin to gel. <b>Results</b> I found that the cups with kiwi that was raw, frozen, lemon treated, and alcohol (whisky) treated, did not let the gelatin gel. All the other cups gelled, with the exception of the meat tenderizer cups. <b>Conclusions/Discussion</b> I found that my hypothesis was proved partially correct with respect to the raw and frozen kiwi, but the pH changed fruit (lemon treated) and alcohol (whisky) treated kiwi did not gel either. The dehydrated kiwi still allowed the gelatin to gel. I believe that the lemon was not a strong enough acid to denature the kiwi enzyme, and the whisky I used was not strong enough to denature the enzyme either. I believe that the dehydrated kiwi allowed for gelling because the fruit dehydrator must have been hot enough to break down the enzyme. The mango gelled in all cases which disproved my hypothesis. I think, because of the time of year, the mangos may not have had enough enzyme in them to prevent gelling.	
<b>Summary Statement</b> I explored how fruit enzymes prevent gelling of gelatin and what you can do to fruit to denature their enzymes.	
<b>Help Received</b> My mother helped me put my board together & cook	