



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jeremy R. Stewart</b>	<b>Project Number</b> <b>J0417</b>
<b>Project Title</b> <b>Extracting DNA</b>	
<b>Abstract</b> <b>Objectives/Goals</b> I extracted DNA from three different foods. I weighted the DNA that I extracted from mushroom, onion and liver to see which one had the most DNA. My hypothesis was that the onion would have the most DNA because it has the most base pairs per cell. <b>Methods/Materials</b> First, I added dishwashing liquid, salt, and distilled water to the chopped foods. Next, I heated them up and cooled them down to extract the DNA. Then I placed the filtered solution in a test tube and added meat tenderizer and 95% ethanol. The DNA floated on top. In order to compare the DNA mass for each food, I filtered the content of the test tube and weighted the DNA. <b>Results</b> My hypothesis was wrong because I had predicted that the onion would have the most DNA and the mushroom would have the least DNA. However, the liver ended up having the most DNA with the mushroom having the second largest amount of DNA. The onion had the least amount of DNA. <b>Conclusions/Discussion</b> There are several possible explanations why I extracted the most DNA from the liver material. One possibility is that the liver has smaller cells. This would mean the liver has more cells per gram and, therefore, more DNA that can be extracted. In other words, a larger number of cells would produce a greater amount of DNA. Another possible explanation is that liver cells simply break down more easily. The cow liver cell, unlike the mushroom or onion cells, doesn't have a cell wall, so it might be expected to be more easily broken. Therefore, my extraction procedure was more effective in breaking down liver cells (in comparison to onion and mushroom cells) and the cells produced more DNA.	
<b>Summary Statement</b> I extracted the DNA of three different foods to see which one had the most DNA.	
<b>Help Received</b> Mr. Nuttal, my science teacher, mentored me by teaching me about DNA. Mr. Michail, our biology teacher helped me take a picture of the DNA. I used Ribet Academy's lab. My mom taught me how to make graphs and tables.	