



**CALIFORNIA STATE SCIENCE FAIR  
2008 PROJECT SUMMARY**

<b>Name(s)</b> <b>Theodora Yoch</b>	<b>Project Number</b> <b>J0419</b>
<b>Project Title</b> <b>Chicken, Chicken, Who's Got the Chicken? A Study of How Different Tissues Affect the Amount of DNA in a Sample</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this experiment is to determine which sample of a chicken's body contains more DNA. My question is "How do different types of tissue samples affect the amount of DNA?" From these findings, one can better predict which type of tissue will provide the largest harvest of DNA, as needed for a study. I hypothesized that the skin would have the most volume and weight, because it has the most layers and sub-layers, and the highest cell density of the samples used.	
<b>Methods/Materials</b> A. One pound of chicken gizzard, heart, fat, skin, and liver was processed following a DNA extraction procedure. Samples were processed separately in a blender. A cold buffer of dishwashing liquid, meat tenderizer and salt were added to a blended and filtered liquid of each body part to break up the cells of the samples. Then, cold alcohol was added to the mixture. The alcohol condenses the DNA into a white stringy mass which is removable from a test tube by a pipette or a stick.  B. The tissue type was the manipulated variable. For relatively pure forms of each tissue, I tested samples of chicken muscle tissue (heart and gizzard), chicken connective tissue (fat), and chicken epithelial tissue (skin and liver).  C. The DNA material harvested from the tissue was viewed in the test tube to measure the volume of the sample.  D. The DNA material harvested was removed from the test tube with a pipette, viewed under a microscope and the gram weight was determined.	
<b>Results</b> The data showed the skin sample produced 3.345 grams and 4 ml of DNA material. This was more than any other sample.	
<b>Conclusions/Discussion</b> Based on the volume and weight of DNA harvested from my samples, I conclude that my hypothesis was supported since skin contained more DNA material than muscle, connective tissue, or other epithelial tissue. As expected, the quantity of DNA is highest in tissue samples with the most layers and sub-layers, and highest cell density. These results provide important information to those using DNA samples for tissue typing.	
<b>Summary Statement</b> This project uses chicken tissue to determine which type of tissue ( muscle, connective, epithelial ) will contain the most DNA material.	
<b>Help Received</b> Dr. Farone helped process the samples to determine the tare weight. Albertson's market provided all the chicken tissue samples. My mother purchased the supplies and helped with the set up of the experiment.	