



# CALIFORNIA STATE SCIENCE FAIR 2008 PROJECT SUMMARY

<b>Name(s)</b> <b>Haley R. Trenfel</b>	<b>Project Number</b> <b>J1934</b>
<b>Project Title</b> <b>Which Packing Material Is Best?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> People have been using air cushion type of insulation because they perceive it to be the most dependable insulation for fragile items. The hypothesis for this experiment is that if 5/16# bubble rolled air cushioning is used as insulation around a raw egg in a container, and then the damage to the egg shell when the container is dropped will be minimized. The most important materials for this experiment were raw eggs, plastic Chinese take-out containers, Biodegradable packing peanuts, shredded newspaper, 5/16# Bubble Wrap, and Aspen Wood Excelsior. The procedure of this experiment involved surrounding raw eggs with different types of insulation in the plastic Chinese take-out containers and dropping them from three different heights: one, one and a half, and two meters. The eggs were inspected and the damage was recorded. The results showed that the Aspen Wood Excelsior provided the best overall protection to the eggs. This did not support the hypothesis. The Aspen Wood Excelsior did a better job protecting the eggs than the Bubble Wrap because it surrounded and supported the egg better.</p> <p><b>Results</b> At 1 meter, the results showed that the Aspen Wood Excelsior, insulation proved to be the most effective, with no damage, a 0.00 average rating, to any eggs throughout all twenty trials. At 1.5 meters, the 5/16# Bubble Wrap cushioning insulation provided the best insulation for the eggs with an average damage rating of 0.55. At 2 meters, the Aspen Wood Excelsior, once again, provided the best insulation for the eggs with an average damage rating of 1.1, with the biodegradable peanuts ranking second at 1.25.</p> <p><b>Conclusions/Discussion</b> The results came out this way because the Aspen Wood Excelsior insulation surrounded the egg more evenly, allowing for more protection around the whole egg. The 5/16# Bubble Wrap had large air bubbles, which did not bend and mold easily. Maybe a smaller air bubble, the 3/16,# might have molded around the egg easier and snugger. Errors might have occurred in the experiment because some of the eggs may have been more fragile to start with. Also, the way each egg was packaged may not have been exactly the same throughout the experiment. The results may have been different if the egg was dropped in a different position, such as horizontal. And finally, the way each egg was dropped may not have been exactly the same throughout the experiment.</p>	
<b>Summary Statement</b> Determining which packing material provides the best protection for fragile items.	
<b>Help Received</b> Mom and Dad helped perform experiment and record results. Friend, Taylor, helped drop eggs.	