



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Vinisha D. Prajapati	<b>Project Number</b>  31101
<b>Project Title</b> Fragile: Handle with Care. Which Packing Material Is the Best?	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To determine which packing material is the best for protecting a fragile object.</p> <p><b>Methods/Materials</b> Five different packing materials were tested; airbags, bubble wrap, shredded newspaper, cotton balls and packaging peanuts. A box (4.5 inches x 4.5 inches x 4.5 inches) was filled to 2 inches with a particular packing material. A large egg was placed in the box, on the packing material. The box was dropped at increasing heights until the egg cracked and this height was recorded. This process was repeated 20 times for each different type of packing material. The experiment was also conducted with a different sized box and repeated again with 1/2 the packing material to see if these changes had any effect.</p> <p><b>Results</b> The packaging peanuts were the best at protecting the egg; the egg cracked after being dropped at an average height of 7.35 feet. Airbags performed the worst with the egg cracking after being dropped from an average height of 3.25 feet. The size of the box made a difference, with the egg cracking on average 3.1 feet higher with the bigger box. The amount of padding also had an effect, with the egg cracking on average 2 feet higher with 2 inches of padding than 1 inch of padding.</p> <p><b>Conclusions/Discussion</b> My conclusion is that packaging peanuts are the most effective at protecting a fragile object and airbags are the worst. I hypothesize that this may be due to packaging peanuts, by being able to move individually, are able to absorb the force of the egg better than other materials.</p>	
<b>Summary Statement</b> My project is about determining which type of packing material is the best for protecting a fragile object.	
<b>Help Received</b> My mother helped me by climbing the ladder and dropping the egg at higher heights than I could reach safely, and she helped me with cutting display papers with the paper trimmer safely.	