



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Joseph Samuel	Project Number J1318
Project Title Which Roofing Material Gives the Best Thermal Insulation for a House?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project is to save energy and help environment by studying different roofing materials and how the different roofing materials properties help it thermally insulate a house.</p> <p>Methods/Materials Built a thermal insulation prism with a packing card board box. A model home with 4 walls. Six different roofing materials. A 300 watt incandescent light to heat up the prism and the model home. Acu-Rite thermometer to measure the temperature inside the model home and outside the model home(prism) in 5 minutes interval. Used aluminum covered wood, white painted wood, cornstarch gel covered wood, porcelain, blank painted wood, and asphalt shingles for roofing materials. Took the readings for each roofing material for two iterations, each iteration had 100 minutes for each roof type.</p> <p>Results Through the testing, I found how different materials affected the temperature inside the house. Even though the aluminum covered wood was the most effective roofing, but for the real world having the roofs colored white would be the most practical choice to save energy.</p> <p>Conclusions/Discussion I could prove the hypothesis that the aluminum covered wood, would reflect the light and helps the roof type thermally insulate. Also, the physical theory of white color reflects more light compared to the black that absorbs the heat.</p>	
Summary Statement At the end of my project I realized if every home is having a white roof the amount of energy that can be saved is enormous and it will also help the environment in a very big way.	
Help Received I designed and built the model and took the hours of reading, testing, and charting all by myself. Mrs. Susan Tu my science teacher from Rancho Del Rey Middle School was my guidance.	