



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Alexandra B. Olivar	Project Number J1420
Project Title Testing the Insulation Properties of Different Jacket Materials	
Abstract Objectives/Goals The objective of this experiment is to find out which jacket material out of cotton, Sherpa, Mylar, neoprene, and feathers is the most effective in retaining heat. Methods/Materials Timer, thermometer, refrigerator, insulation materials (waterfowl feathers, cotton, Sherpa, Mylar, and neoprene), external and internal pouches made of polyester. I placed one insulation material in between the external and internal pouches. I then measured the temperature of the air inside the internal pouch after it had been in the fridge for a specified amount of time. I repeated this process with the other insulation materials using the same external and internal polyester pouches. Results After testing all of the insulation materials, I found the waterfowl feathers to be the most effective insulator, as the thermometer in the pouch with the feathers had the highest temperature after coming out of the fridge. The Sherpa was the second best insulator, followed by the cotton, then the Mylar, and lastly, the neoprene. Conclusions/Discussion I concluded that the waterfowl feathers are significantly better than the other materials in terms of insulation. With the knowledge gained from this experiment, I can look at the material that a jacket is made of and determine whether or not it will be effective at keeping me warm. Others can also benefit from my experiment because they will be able to determine the value of the jacket based on the material, which will help them decide which jacket to buy.	
Summary Statement After testing the insulation properties of various jacket materials, such as cotton, Sherpa, Mylar, neoprene, and feathers, I found that feathers are the most effective in retaining heat.	
Help Received While I did design and perform the experiment by myself, my mother helped me construct some of the necessary materials.	