



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Brandon C. Gribas	Project Number J1399
Project Title What Insulation Material Is the Most Efficient?	
Abstract Objectives/Goals The objective is to determine which insulation material is the most efficient using fiberglass, foam, wood shavings, llama wool and cotton. My hypothesis was that llama wool would be the most efficient insulator, and the water would stay the warmest using this as the insulation material. Methods/Materials Six identical plastic baby wipe containers, six identical small baby food jars, hot water, fiberglass, cotton, urethane foam, llama wool, and wood shavings insulation, clock watch or timer, and thermometers were used. Hot water was poured into the jars. The temperature of the water was measured to make sure that the water was 130 degrees at the beginning of the experiment. Each jar was put into a container surrounded by the insulation material. Then the lids were closed. The boxes were opened after 30 and 60 minutes to measure the temperature of the water. This experiment was repeated a second time and results were recorded on a chart. Results The first test showed that both fiberglass and foam were the most efficient with the water temperature being 101 degrees F. after 60 minutes. The second test showed that fiberglass was the most efficient with the water temperature being 102 degrees F. after 60 minutes, but only one degree F. higher than foam and cotton. The control jar of water was the lowest showing that any of the insulating materials was better than none. Conclusions/Discussion My hypothesis that llama wool would be the most efficient insulator proved incorrect. Fiberglass and foam proved to be the most effective insulation material. Hopefully, in the future, a more cost effective and environmentally friendly insulation will be found.	
Summary Statement My project is about finding an environmentally friendly, cost effective and efficient insulation material.	
Help Received My mom and dad supplied the materials, my dad took and developed pictures, my mom and nanny helped with the project chart and typing.	