



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Erika E. Pasia	Project Number J2126
Project Title Foam Home	
Abstract Objectives/Goals My objective was to determine which type of off-the-shelf insulation of approximately half-an-inch thickness, contained heat the longest - Reflective Foil, Cellulose, Polyurethane Foam, Fiberglass, Polystyrene Foam Board. Methods/Materials Six clear plastic boxes of identical shape and size to form an outer container with an inner clear plastic box. One container was used as a control or without insulation, and the other five would contain each of the sample insulation. Five of the sample insulators of uniform thickness of approximately half-an-inch were filled/molded between the outer and inner plastic container. A baby food glass jar filled with hot water as the heat source is placed inside the inner container and quickly covered with the top insulation to contain and trap the heat. 6 thermometers were then used for recording the temperature of the water inside the jars at every half-hour. Results The Polyurethane Foam maintained a consistent rate in which the temperature decreased over time, allowing for the insulation to show that it is the best insulator. Even so, the Fiberglass insulation was also a good insulator lagging only by a few degrees, whereas the 3 remaining, Reflective Foil, Cellulose and Polystyrene Foam Board were behind by a slightly bigger gap between them and Polyurethane. Conclusions/Discussion The R-Values of both the Polyurethane Foam and Fiberglass Insulators, the best insulators out of the five, are relatively high. This means that both insulators are very capable of keeping in heat, as is the purpose of R-Value numbers. This was displayed quite clearly with the results of my tests, refuting my hypothesis that the Fiberglass would do the best, but still shows its ability to hold in heat more so than others, as the Polyurethane Foam had trumped my choice.	
Summary Statement My project was to determine which of the five most common types of insulation would be the best at holding or containing in heat.	
Help Received Sandra Pasia: Mother helped prepare the holes for the thermometers and assisted in covering the baby food jars so as to trap the heat at nearly the same time.	