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Hot Rocks

The purpose of this project was to find which size rock works best as a storage material for solar thermal energy.

Igneous river rock was collected and separated into three categories based on diameter: small rock (1-inch diameter), medium rock (2- to 3-inch diameter), and large rock (4- to 5-inch diameter). Three identical #10 tin cans were filled with 8 pounds of each type of igneous rock. All three cans containing rocks were placed in a 200 degree oven and heated for two hours. The containers were removed from the oven and filled with 6 cups of water at room temperature. A thermometer was placed in each container. Temperature of water was recorded every 15 minutes over a 3-hour period. Experiment was repeated two more times.

The results of all three tests were very consistent. The small, medium, and large rocks absorbed heat from the gas oven and then transferred heat to water.

The hypothesis was proven correct because the larger diameter igneous rocks were the best to store thermal energy and transfer the heat at the slowest rate to the water. The large diameter rock maintained heat for a longer period of time than the medium or the small diameter rock.