



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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| Name(s) Amanda M. Allen | Project Number J1801 |
| Project Title Shake, Rattle, and Roll | |
| Abstract Objectives/Goals In Shake, Rattle, and Roll, I tested three different shaped structures: a tower, a rectangle, and a pyramid, to answer the scientific question: Which shaped structure can survive an earthquake the best? I hypothesized that the pyramid would have the least structural damage. Methods/Materials I built the structures the same height using all the same materials. To make the models react more like a real building, I added a vertical load weight to each structure. I built a shake table to test my structures. For each trial, I shook each structure thirty seconds at a mild, moderate, and severe quake level. During each ninety second trial, observations were noted. Three trials were completed. Results The tower and the rectangle swayed during a mild quake and had structural damage after stronger quakes. The pyramid did not sway or tilt during any of the trials. Conclusions/Discussion I conclude that my hypothesis was correct and the pyramid structure survived the earthquakes the best. The pyramid structure's wide base and less vertical load on the upper floors was effective against the shaking of the quakes. | |
| Summary Statement My project is about how different shaped buildings react during an earthquake. | |
| Help Received Dad worked the power saw and drill; Mom watched the clock, noted by observations, and took pictures. | |