



# CALIFORNIA STATE SCIENCE FAIR 2011 PROJECT SUMMARY

<b>Name(s)</b> Connor S. Valentine	<b>Project Number</b>  31717
<b>Project Title</b> The Effects of Lateral Compression on the Folding of the Earth's Crust	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of this experiment was to test the effects of lateral compression on the folding of the Earth's Crust. The Earth's Crust is made of plates that are in constant motion. When these plates collide, an extreme amount of lateral compression is exerted onto the rock. Under the right conditions this enormous pressure can create folds in the layers of strata. The goal of this experiment was to find out if these folds are created at a linear rate or not. <b>Methods/Materials</b> For the purposes of this experiment, layers of colored sand were compressed to observe the folding that can occur in the Earth's crust. First a sandbox was built with a piston at one end. This piston was used to create the compression needed to create the distinct folds in the layers of sand. At every one cm. interval, the number of folds was counted (specific definitions of a fold were defined). <b>Results</b> It was found that the lateral compression created folds in the sand at linear rate. The average deviations of each interval never exceeded 1.3 folds. The deviations for more than half of the intervals were even as low as 0.4 folds. Overall the data was very consistent. The consistent data made analysis very easy. A linear pattern of creation was clearly shown across all of the data collected. <b>Conclusions/Discussion</b> The hypothesis that folds would be created at a linear rate was supported by the data collected. This meant that the sand could only hold up against a set amount of pressure before a fold was created to relieve some of the strain. This could mean that folds in the Earth's crust form at a predetermined rate as well. If scientist could develop a way to determine this rate, a huge step towards earthquake prediction would be made. If the northern cities of Japan had known an earthquake of that magnitude was imminent, maybe the destruction would not have been so devastating.	
<b>Summary Statement</b> The purpose of this project was to discover a trend in the way folds form in the Earth's crust.	
<b>Help Received</b> Father helped with construction of sandbox; Mother helped organize pictures taken; Mr. Antrim helped with experimental design	