



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Andrew D. Olson	Project Number S0607
Project Title The Effects of Size and Shape on the Formation of Strata in Sedimentary Rocks (Sandstones)	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To demonstrate the formation of strata in sandstone using a mixture of art sand and granulated sugar.</p> <p>Methods/Materials Mixtures of art sand and granulated sugar, art sand and a contrasting color of art sand, sand alone, or art sand and streambed sand are poured into a plexiglass frames (with or without water). The resulting angles of repose in the strata formed is measured using a protractor.</p> <p>Results Whether the sand mixtures were poured into frames containing air or containing water, the formation of strata occurred.</p> <p>Conclusions/Discussion The hypothesis of this project was that the size and shape of granules affected the formation of strata in sedimentary rocks, such as sandstones. The irregularity of grains and grain-grain interactions influence the falling behavior and settling patterns regardless of whether this occurred in air or in water. As a measure of this interaction, the angle of repose (the angle of visible layers in the sand) is recorded; the more similar in size and shape of the grains, the lower the angle of repose measured. In this project, a mixture of sand and granulated sugar resulted in an angle of repose greater than a mixture of sand and ultrafine sugar (indicating that ultrafine sugar is more similar in size to the sand than granulated sugar). A single sand source formed angles of repose lower than a mixture of two different colored sands (suggesting a size difference between the two sands). The sand and streambed sand had a very low angle of repose indicating a possible influence by the water medium versus air. The composition and characteristic qualities of granular particles affect the formation of strata in sedimentary rocks.</p>	
Summary Statement To demonstrate the effects of grain size and shape on the formation of layering (strata) in sedimentary rocks.	
Help Received Father helped in pouring the sand mixtures into the frames.	