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One of the simplest models used in statistics is mean. Traditionally basic statistical concepts are taught entirely as a procedural knowledge. For teachers to understand how to teach with conceptual understanding, they need to have the appropriate experience in their statistical education classes. Education and Science faculty conducted introductory statistical class where basic statistical concepts were presented for students' discovery through the series of scientific analog-modeling activities. One example was the sandbox experiment where layers of color sand were put in a box with a sliding base; layers were flat initially, and then the base was moved in one direction creating the pile up of sand against the back of the box. The data reflecting deformation of layers was collected and statistically analyzed. Clear representation of mean as the initial level of sand and variance and standard deviation, as the measure allowing us to evaluate the deformation of the sand was helping students develop conceptual understanding of these statistical concepts. During presentation we will provide details about activities, examples of students' works, their reflections on the experiment, and evaluation using pre/post-test comparison of students' conceptual statistical understanding. (Received September 20, 2007)