1077-O1-554   **Elton Graves*** (`graves@rose-hulman.edu`), Rose-Hulman Institute of Technology, CM 131, Terre Haute, IN 47803. *Demonstrations That Work in the Mathematics Classroom.*

Over the years we have developed several "hands on" demonstrations which help our students to visualize the mathematics they are learning in our calculus and differential equations courses. This paper will present several of these demonstrations including the use of the cycloid curve and brachristochrone problem, Newton's Law of Cooling, directional derivatives, Lagrange multipliers, centers of mass, spring mass systems, and others as time permits. By having students participate in demonstrations the students in these mathematics courses actually see how mathematics is used and applied to "real world" situations. The students come away with a better sense why and how the mathematics they are learning is important and how the techniques they are learning relate to real or physical situations. (Received September 07, 2011)