1014-U1-562 **James J Reynolds\*** (`reynolds@clarion.edu`), Mathematics Department, Clarion University, Clarion, PA 16214. *Average and Instantaneous Rates of Change.*

Using TI's Hiker Program, this demonstration gives concrete and physical meaning to the concept of function and uses class participation to establish the connection between rates of change (both average and instantaneous) and slopes. The idea of instantaneous rate and its connection to slope are firmly planted, while the need is established for a new process (limit) in order to precisely calculate these rates. This demonstration is best utilized very early in Calculus I. Its effectiveness lies in joining physical movement observed by the students with graphs (and slopes) representing that movement, in providing a real-life application of functions, and in establishing a frame of reference from which max-min and concavity (acceleration) can be discussed later. (Received September 20, 2005)