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Version 6 of Mathematica includes a command called "Manipulate" that enables parameters to be varied, continuously, in a calculation or graphic. This provides numerous opportunities to have students explore the effects of changing a constant in a function or a parameter in an applied problem. In some cases, the benefit is primarily enhanced visualization of relationships, in other cases the benefits extend to a first understanding of the role of a constant in a problem. Projectile motion is explored in the "lab" portion of the second semester of calculus. Using Mathematica, the effects of changes in launch angles are explored and visualized in a variety of situations. Launches on flat ground and sloped ground are explored, as well as what happens when air drag and Magnus forces are included. A variety of sports applications are explored. (Received September 20, 2007)