Traditional grading schemes can sometimes fail to provide quality formative assessment of student learning, and seldom reward eventual mastery of course material. In this talk, I will describe my recent experiments with a grading scheme that addresses both of these concerns by replacing traditional numerical grades with objectives-based assessments. I will discuss both instructor and student reactions to this approach, and I will make some conjectures about its effect on student learning. (Received September 07, 2007)