In November of 2007, the New York City Department of Education assigned each elementary and middle school a letter grade (A to F) as part of a new accountability system. Grades were based on continuous numeric scores derived from levels and changes in student achievement and other school environmental factors such as attendance, and were linked to a system of rewards and consequences for schools and principals. We use the discontinuities in the assignment of grades to estimate the impact of accountability in the short run. Specifically, we examine student achievement in English Language Arts and mathematics (measured in January and March of 2008, respectively) using school level aggregate data. Although schools had only a few months to respond to the release of accountability grades, we find that receipt of a low grade significantly increased student achievement in both subjects, with larger effects in math. We find no evidence that accountability grades were related to the percentage of students tested, implying that accountability systems can cause real changes in school quality that increase student achievement over even a short time horizon. We also find that parental evaluations of educational quality improved considerably for schools receiving low accountability grades. However, these schools also experienced a larger increase in survey response rates, holding open the possibility of selection bias in these complementary results.