General Trends in Mathematics NAEP Results at the Elementary (grade 4) and Middle School (grade 8 and age 13) Levels

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• Although there are limitations in what is assessed by NAEP, it is easily the best source of information on student performance in the U.S.

• There is substantial improvement in performance since the 1970s at the elementary (age 9 and grade 4) and middle school (age 13 and grade 8) levels
  – performance in fraction computation at the middle school level may be decreasing
  – high school (age 17 and grade 12) data are limited school but suggest relatively minimal gain relative to the lower levels
• Greatest gains appear to be in areas with biggest increase in emphasis since the 1970s
  – data analysis, probability, and statistics
  – algebraic thinking
  – geometry
• Even with substantial gains, current performance levels are generally considered low
• Gaps in achievement by race/ethnicity and by SES are HUGE.
  – some argue the gaps are closing, but current patterns indicate it will take decades to close them fully
  – it is difficult to look at differential performance by race/ethnicity at the item level because items that exhibit differential performance by race/ethnicity are normally eliminated
• There is a large pool of released items and that makes talking about item-level trends easier although performance on secure items is still important

• Shifts of more than a couple of percentage points on an item from one administration to the next are rare.

• Items that appear to require similar content knowledge sometimes have very different performance indicating that contextual factors can have substantial impact on item difficulty
• A ceiling effect explains lack of gain on some items but there are other items where initial performance was low yet performance changed little over time.

• The Common Core State Standards may affect the nature of NAEP and the types of research that should be done using NAEP data. How the CCSS will affect the need for and design of NAEP is not clear at this point.