

HOW STATE MATHEMATICS CURRICULA RELATE TO NAEP MATHEMATICS

For each NAEP assessment, the Governing Board’s congressionally mandated responsibilities include developing assessment objectives and test specifications. To inform discussions about future NAEP assessment framework updates, the Governing Board awarded a contract as a result of a competitive bidding process in August 2017 to the American Institutes for Research (AIR) to gather and analyze mathematics content standards used across the country. This review develops a descriptive and detailed picture of how mathematics curricular content across states relates to what NAEP assesses in mathematics at grades 4 and 8.

AIR collected mathematics content standards for grades K through 8 from all 50 states, the District of Columbia, and the Department of Defense Education Activity. Using a combination of external experts and mathematics specialists within AIR, state mathematics content standards were compared with 2017 NAEP Mathematics Framework objectives. The AIR project team compiled individual ratings from the external experts, and discussions at an in-person meeting focused on coming to consensus to finalize aggregate ratings.

Ratings describe the conceptual match between NAEP and state math objectives as *not aligned*, *complete*, *partial*, or *extended*, thereby identifying whether students have had the opportunity to learn what NAEP assesses based on each state’s standards. For matches rated as partial, the comparison process captured “Missing Content”, i.e., content covered in NAEP objectives but not covered in the state standards. For matches rated as extended, the rating process noted “Extra Content” that state standards included but were not included in NAEP objectives. As a follow-up to this rating process, AIR specialists searched for the Missing Content in each state’s mandated subject-area standards outside of mathematics. Together, the analyses provide:

- a state-by-state picture of the coverage of NAEP objectives by state mathematics standards
- NAEP content that is not covered in state mathematics standards (Missing Content) and the extent to which it may be covered in the curricula of states’ other mandated subjects
- a set of consolidated state mathematics content standards that are not reflected in the NAEP framework and the extent to which these are covered across states (Extra Content)

Results will be presented by AIR Task Leaders Tad Johnston and Beth Ratway, who each hold extensive content expertise from teaching, analysis, development, and implementation of mathematics standards. AIR Project Director Maria Stephens has provided day-to-day leadership, reflecting her deep experience leading previous content comparison studies on NAEP and international assessments.