Introduction to the High School Transcript Study (HSTS)

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Module Objectives

- Introduce the National Assessment of Educational Progress (NAEP) High School Transcript Study (HSTS) and describe the study's
  - Design
  - Target population and sample design
  - Data collection, sources, and methods
- Highlight the topics for which data are available for analysis
- Demonstrate how to use the NAEP Data Explore (NDE) for HSTS data

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High School Transcript Study (HSTS)

- NAEP coordinates a number of special studies that often involve
  - Special data collection procedures in the field
  - Secondary analyses of NAEP results
  - Evaluations of various technical procedures
- HSTS is one of the NAEP special studies that
  - Periodically surveys the curricula being followed in our nation's high schools and the coursetaking patterns of high school students through a collection of transcripts to provide information about
    - The types of courses that graduates take
    - How many credits they earn
    - Their grade point averages
    - The relationship between coursetaking patterns and achievement, as measured by the NAEP

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Design of the NAEP HSTS

- Nationally representative sample of students and high schools
- From summer through fall, transcripts are collected for graduates from public and private high schools that were sampled for the NAEP assessments in 12th grade
- The sample of schools is nationally representative of all schools in the United States
- The sample of students is representative of graduating seniors from each school
- Coursetaking patterns can be linked to academic performance, as measured by NAEP

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Sample Sizes Over Time

Data collected from the schools include

- Transcripts for each student
  - Course information
    - Courses taken, grades earned, course types (e.g., honors, exceptional, and special education), and credits earned
  - Student background information
    - Gender, race/ethnicity, type of diploma earned, and grade point average
- School information form
  - Provides general information about class periods, credits, graduation requirements, and other aspects of school policy
- Course catalog or list of courses offered for four consecutive years (e.g., 2005-2006 through 2008-2009)
- In some cases, transcripts are collected for students whose schools did not participate in NAEP
  - NAEP School Questionnaires are completed by a school official to provide information about school, teacher, and home factors that might relate to student achievement

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Classification of Courses

- High school courses across the country vary by content and level even when the course titles are similar
- HSTS uses a system called the Classification of Secondary School Courses (CSSC) to compare the transcripts collected from different schools and to ensure that each course is uniquely identified
  - Now includes more than 2,200 course codes

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HSTS Courses and Credits

- HSTS identifies three types of courses
  - Core academic (English, mathematics, science, and social studies)
  - Other academic (fine arts, foreign languages, and computer-related studies)
  - Other (vocational education, personal health, and physical education)
- To standardize the reporting of coursetaking, NCES uses the Carnegie definition of a credit
  - 120 hours of classroom instruction
- HSTS reports on the average course credits earned, as well as grade point average

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Calculation of Grade Point Average (GPA)

- Requires both grade and credit information that varies among schools, districts and states
- Standardized credit information is based on the Carnegie unit (a course with 120 hours of instruction)
- Grades are reported as letters, numbers, or other symbols on a variety of scales

Number Grade Conversion

Numeric Grade	Standard Grade	Grade Point Average
90-100	A	4.0
80-89	B	3.0
70-79	C	2.0
60-69	D	1.0
Less than 60	F	0.0

SOURCE: U.S. Department of Education, Institute of Education Science, National Center for Education Statistics, The 2009 High School Transcript Study.

- HSTS uses this four-point grade scale to standardize each student's GPA
- The GPA represents the average number of grade points a student earns for each graded high school course
- Courses in which a student does not receive a grade (i.e., pass/fail, and audited courses) do not factor into the GPA calculation

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Reporting HSTS Data

The data collected from HSTS are typically reported in three ways

- The distribution of graduates by coursetaking and demographic characteristics
- The mean number of credits (in Carnegie units) that graduates earned in major subject fields and by student demographic categories
- The relationship of NAEP scores with various graduate characteristics

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2009 HSTS

- Nationally representative sample of 2009 high school graduates
  - 37,600 graduates and their transcripts
  - 740 public and private schools
  - Collected from June 2009-January 2010
- Transcripts were collected from seniors who graduated in 1987, 1990, 1994, 1998, 2000, and 2005
  - Facilitates analysis of trends in coursetaking over time

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HSTS 2009 Coursetaking

- Curriculum Levels
  - Standard
  - Midlevel
  - Rigorous
- Science, Technology, Engineering, and Mathematics (STEM) coursetaking
  - Advanced mathematics
  - Advanced science and engineering
  - Technical

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Target Population and General Sample Design

Considers how many academic credits a graduate takes during high school, as well as the type of academic courses taken

	Number of Credits				
Curriculum Level	English	Social Studies	Mathematics	Science	Foreign Languages
Standard	4	3	3	3	0
Midlevel	4	3	3, including geometry and algebra I and II	3, including at least two in either biology, chemistry, and/or physics	1
Rigorous	4	3	4, including pre-calculus or higher	3, including at least two in either biology, chemistry, and/or physics	3

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HSTS 2009 Coursetaking: STEM Coursetaking

Considers how many academic credits a graduate takes during high school, as well as the type of academic courses taken

	Courses
STEM Advanced Mathematics	Algebra II, trigonometry, statistics, pre-calculus, and calculus
STEM Advanced Science and Engineering	Advanced biology, chemistry, advanced environmental/earth science, physics, and engineering
STEM-related Technical	Engineering/science technology, health/science technology, and computer science

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HSTS NAEP Data Explorer (NDE)

- Provides data such as coursetaking and grade point average for students who graduated high school in 1990, 2000, 2005, and 2009
- For 2005 and 2009 graduates, these data are also linked to NAEP grade 12 mathematics and science results
- A tutorial and quick reference guide are available from the NDE homepage
- The NDE help button is available at the top of every page within the NDE

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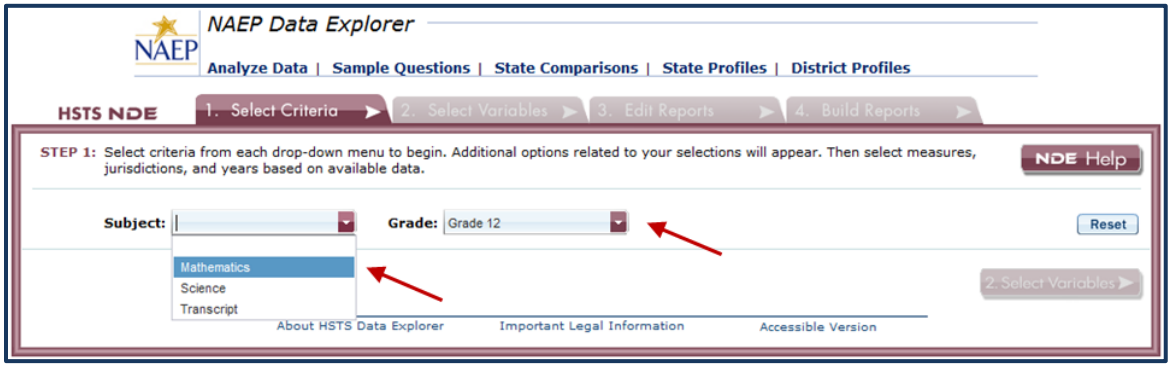
HSTS NDE



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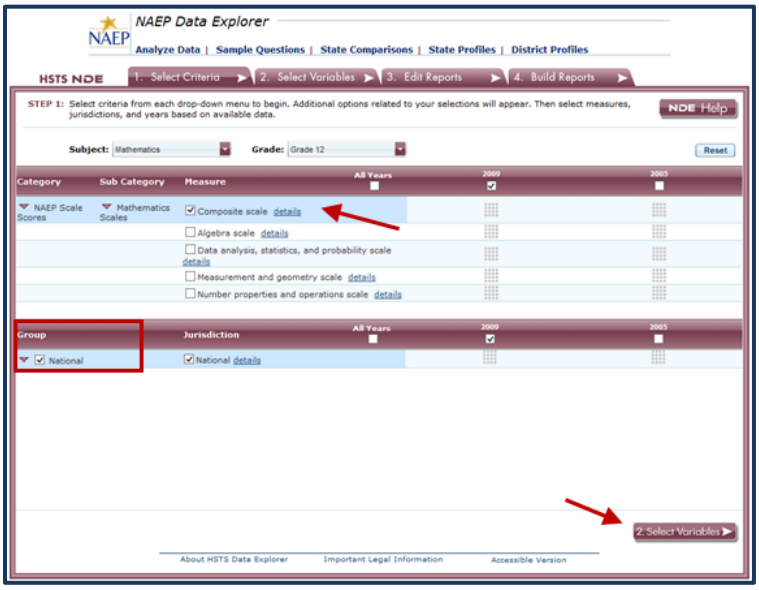
HSTS NDE Step 1



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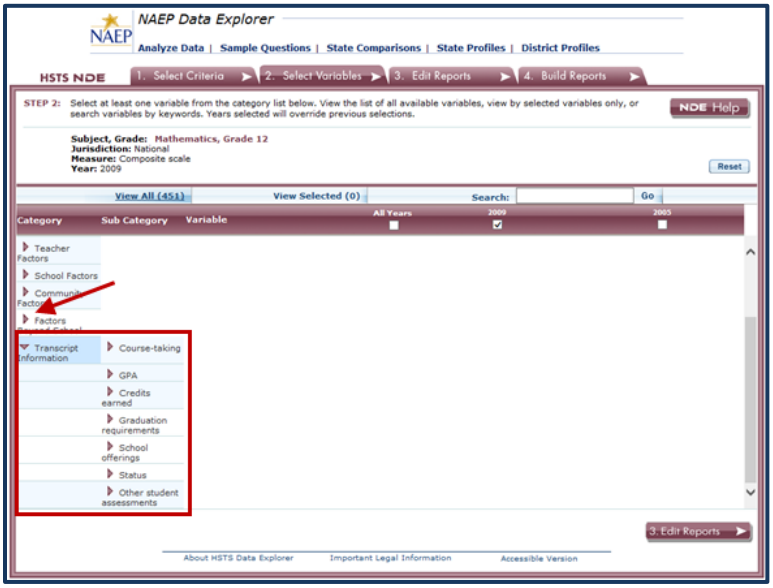
HSTS NDE Step 2



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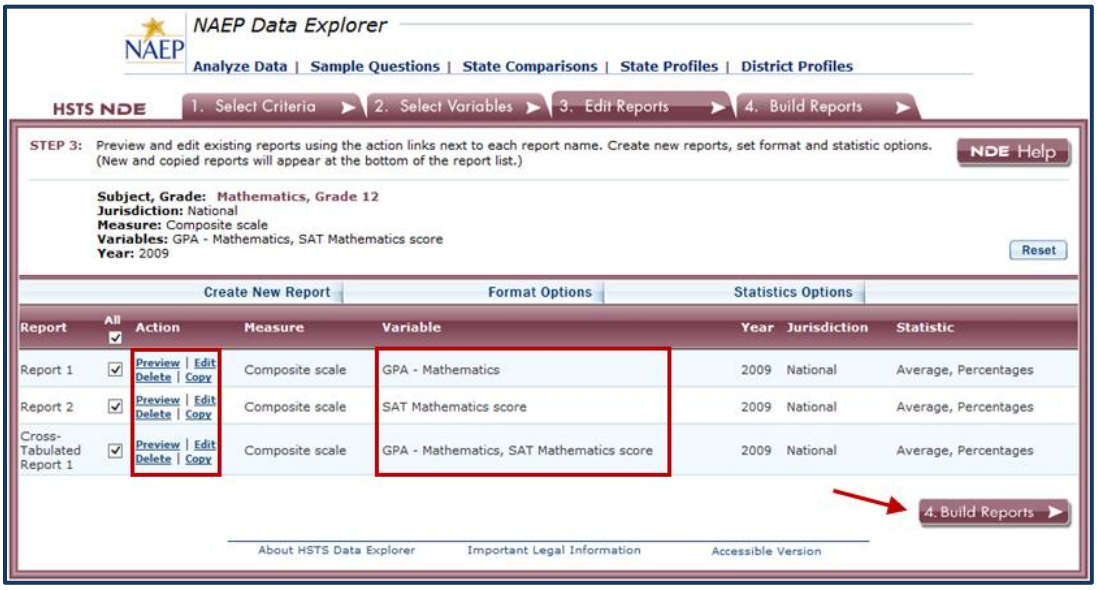
HSTS NDE Step 3



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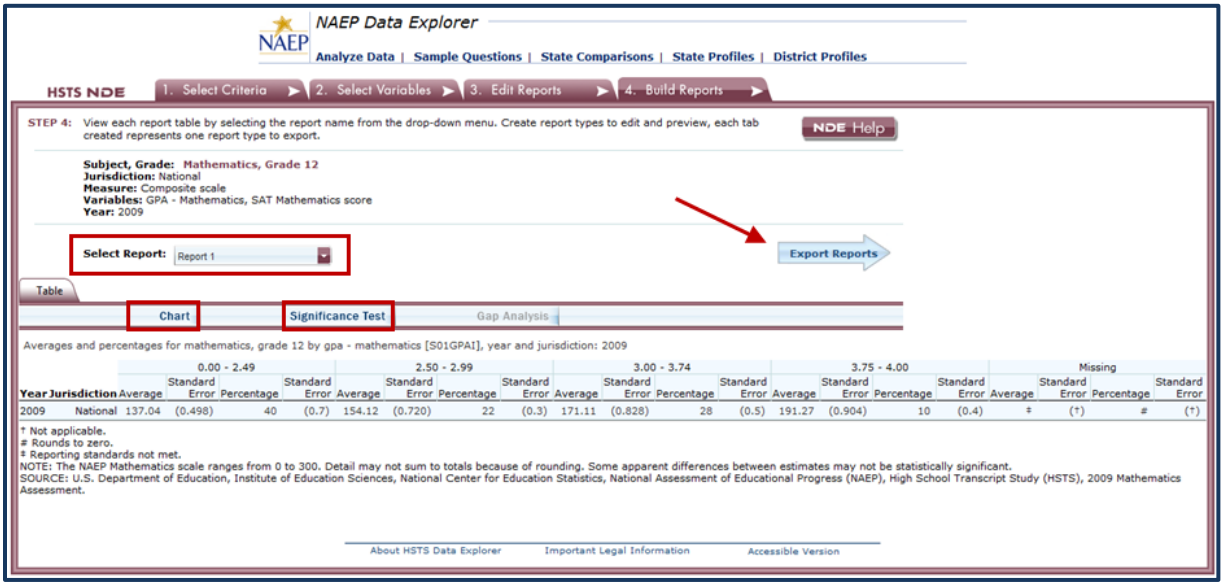
HSTS NDE Step 4



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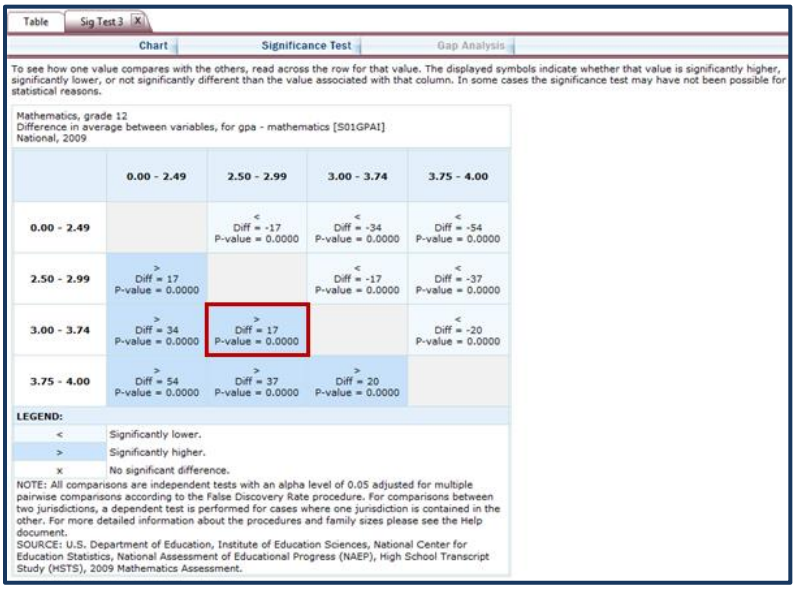
HSTS NDE GPA Significance Test



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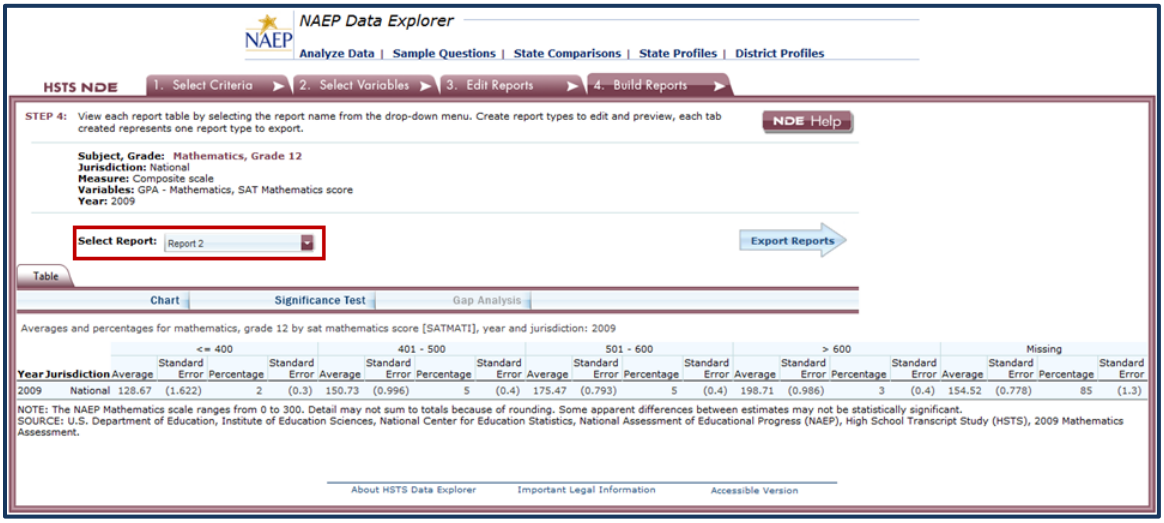
HSTS NDE Step 4 (Continued)



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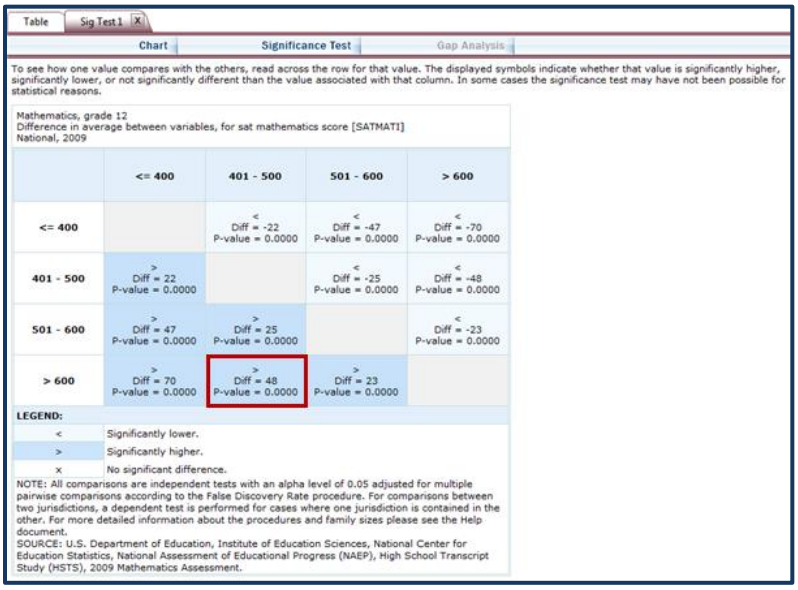
HSTS NDE SAT Mathematics Score Significance Test



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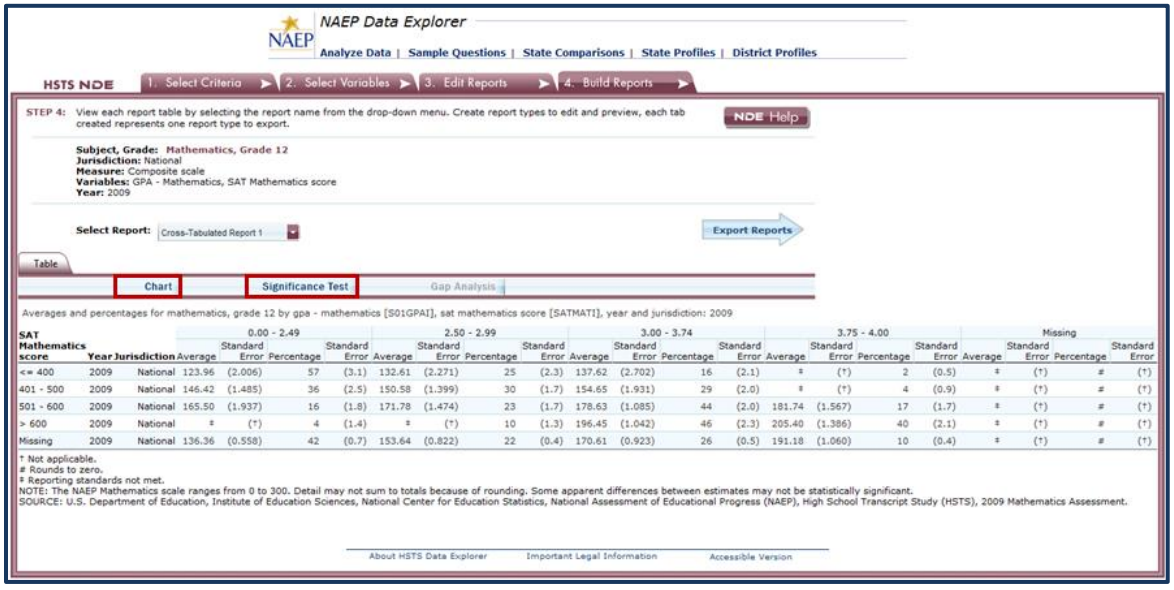
HSTS NDE Cross-tabulation of GPA and SAT Mathematics Scores



SAT Mathematics score	Year	Jurisdiction	0.00 - 2.49 Average	Standard Error	Percentage	Standard Error	2.50 - 2.99 Average	Standard Error	Percentage	Standard Error	3.00 - 3.74 Average	Standard Error	Percentage	Standard Error	3.75 - 4.00 Average	Standard Error	Percentage	Standard Error	Missing Average	Standard Error	Percentage	Standard Error
<= 400	2009	National	123.96	(2.006)	57	(3.1)	132.61	(2.271)	25	(2.3)	137.62	(2.702)	16	(2.1)	‡	(†)	2	(0.5)	‡	(†)	#	(†)
401 - 500	2009	National	146.42	(1.485)	36	(2.5)	150.58	(1.399)	30	(1.7)	154.65	(1.931)	29	(2.0)	‡	(†)	4	(0.9)	‡	(†)	#	(†)
501 - 600	2009	National	165.50	(1.937)	16	(1.8)	171.78	(1.474)	23	(1.7)	178.63	(1.085)	44	(2.0)	181.74	(1.567)	17	(1.7)	‡	(†)	#	(†)
> 600	2009	National	‡	(†)	4	(1.4)	‡	(†)	10	(1.3)	196.45	(1.042)	46	(2.3)	205.40	(1.386)	40	(2.1)	‡	(†)	#	(†)
Missing	2009	National	136.36	(0.558)	42	(0.7)	153.64	(0.822)	22	(0.4)	170.61	(0.923)	26	(0.5)	191.18	(1.060)	10	(0.4)	‡	(†)	#	(†)

† Not applicable.
# Rounds to zero.
‡ Reporting standards not met.
NOTE: The NAEP Mathematics scale ranges from 0 to 300. Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be statistically significant.
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), High School Transcript Study (HSTS), 2009 Mathematics Assessment.

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Module Summary

- Introduced the National Assessment of Educational Progress (NAEP) High School Transcript Study (HSTS) and described the study's
  - Design
  - Target population and sample design
  - Data collection years, sources, and methods
- Highlighted the topics for which data are available for analysis
- Demonstrated how to use the NAEP Data Explore (NDE) for HSTS data

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Module Resources

- High School Transcript Study (HSTS)
- Classification of Secondary School Courses (CSSC)
- Calculation of Grade Point Average (GPA)
- HSTS NDE