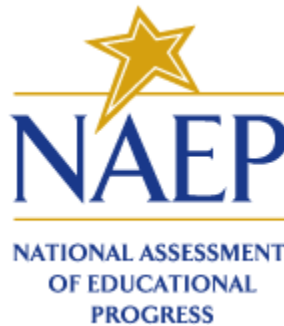


Introduction to the High School Transcript Study (HSTS)

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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

Introduction to the High School Transcript Study (HSTS)

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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

Introduction to the High School Transcript Study (HSTS)

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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

Introduction to the High School Transcript Study (HSTS)

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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

Introduction to the High School Transcript Study (HSTS)

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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

Curriculum Level	Number of Credits				
	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

Introduction to the High School Transcript Study (HSTS)**Slide 13 of 25****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

Slide 14 of 25**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

NAEP Data Explorer
 Analyze Data | Sample Questions | State Comparisons | State Profiles | District Profiles

HSTS NDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 1: Select criteria from each drop-down menu to begin. Additional options related to your selections will appear. Then select measures, jurisdictions, and years based on available data. **NDE Help**

Subject: Grade:

Mathematics
 Science
 Transcript

2. Select Variables

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HSTS NDE Step 1

NAEP Data Explorer
 Analyze Data | Sample Questions | State Comparisons | State Profiles | District Profiles

HSTS NDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 1: Select criteria from each drop-down menu to begin. Additional options related to your selections will appear. Then select measures, jurisdictions, and years based on available data. **NDE Help**

Subject: Grade:

Category	Sub Category	Measure	All Years	2009	2003
NAEP Scale Scores	Mathematics Scales	<input checked="" type="checkbox"/> Composite scale details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Algebra scale details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Data analysis, statistics, and probability scale details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Measurement and geometry scale details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Number properties and operations scale details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group	Jurisdiction	All Years	2009	2003	
<input checked="" type="checkbox"/> National	<input checked="" type="checkbox"/> National details	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

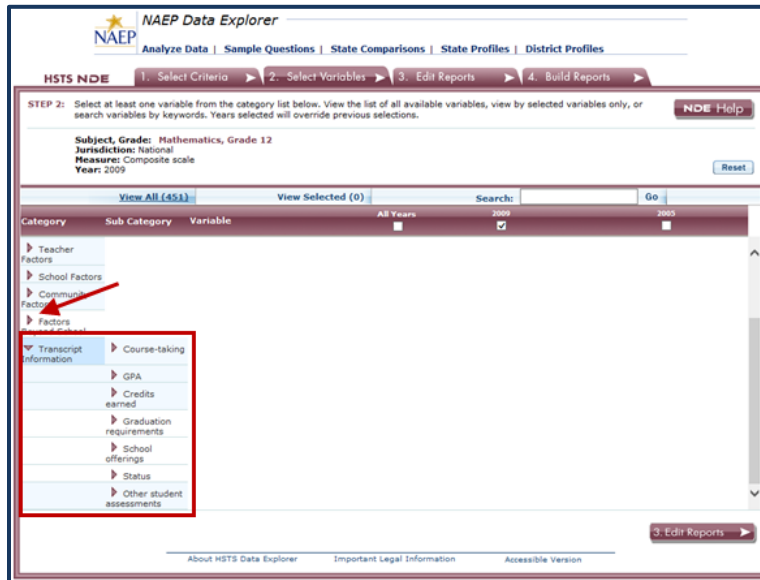
2. Select Variables

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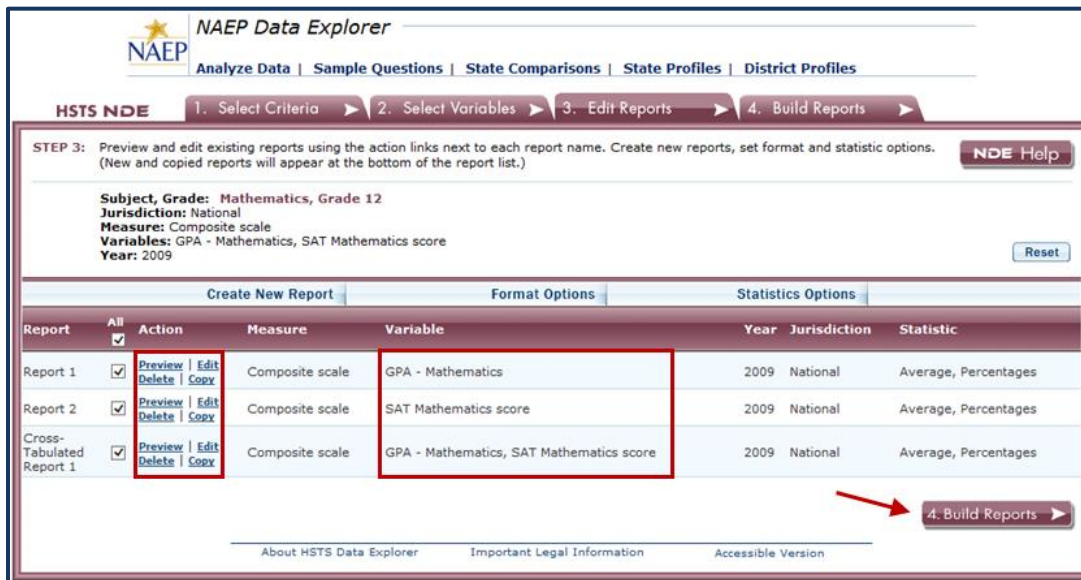
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HSTS NDE Step 2



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HSTS NDE Step 3



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HSTS NDE Step 4

NAEP Data Explorer
 Analyze Data | Sample Questions | State Comparisons | State Profiles | District Profiles

HSTS NDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 4: View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. **NDE Help**

Subject, Grade: Mathematics, Grade 12
 Jurisdiction: National
 Measure: Composite scale
 Variables: GPA - Mathematics, SAT Mathematics score
 Year: 2009

Select Report: Report 1 **Export Reports**

Table **Chart** **Significance Test** Gap Analysis

Averages and percentages for mathematics, grade 12 by gpa - mathematics [S01GPAI], year and jurisdiction: 2009

Year	Jurisdiction	0.00 - 2.49		2.50 - 2.99		3.00 - 3.74		3.75 - 4.00		Missing											
		Average	Standard Error Percentage	Average	Standard Error Percentage	Average	Standard Error Percentage	Average	Standard Error Percentage	Average	Standard Error Percentage										
2009	National	137.04	(0.498)	40	(0.7)	154.12	(0.720)	22	(0.3)	171.11	(0.828)	28	(0.5)	191.27	(0.504)	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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HSTS NDE GPA Significance Test

Table **Sig Test 3** X

Chart **Significance Test** Gap Analysis

To see how one value compares with the others, read across the row for that value. The displayed symbols indicate whether that value is significantly higher, significantly lower, or not significantly different than the value associated with that column. In some cases the significance test may have not been possible for statistical reasons.

Mathematics, grade 12
 Difference in average between variables, for gpa - mathematics [S01GPAI]
 National, 2009

	0.00 - 2.49	2.50 - 2.99	3.00 - 3.74	3.75 - 4.00
0.00 - 2.49		Diff = -17 P-value = 0.0000	Diff = -34 P-value = 0.0000	Diff = -54 P-value = 0.0000
2.50 - 2.99	Diff = 17 P-value = 0.0000		Diff = -17 P-value = 0.0000	Diff = -37 P-value = 0.0000
3.00 - 3.74	Diff = 34 P-value = 0.0000	Diff = 17 P-value = 0.0000		Diff = -20 P-value = 0.0000
3.75 - 4.00	Diff = 54 P-value = 0.0000	Diff = 37 P-value = 0.0000	Diff = 20 P-value = 0.0000	

LEGEND:
 < Significantly lower.
 > Significantly higher.
 x No significant difference.

NOTE: All comparisons are independent tests with an alpha level of 0.05 adjusted for multiple pairwise comparisons according to the False Discovery Rate procedure. For comparisons between two jurisdictions, a dependent test is performed for cases where one jurisdiction is contained in the other. For more detailed information about the procedures and family sizes please see the Help document.
 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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HSTS NDE Step 4 (Continued)

NAEP Data Explorer
 Analyze Data | Sample Questions | State Comparisons | State Profiles | District Profiles

HSTS NDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 4: View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. **NDE Help**

Subject, Grade: Mathematics, Grade 12
 Jurisdiction: National
 Measure: Composite scale
 Variables: GPA - Mathematics, SAT Mathematics score
 Year: 2009

Select Report: Report 2 **Export Reports**

Table | Chart | Significance Test | Gap Analysis

Averages and percentages for mathematics, grade 12 by sat mathematics score [SATMAT1], year and jurisdiction: 2009

Year	Jurisdiction	<= 400		401 - 500		501 - 600		> 600		Missing											
		Standard Error	Percentage	Standard Error	Percentage	Standard Error	Percentage	Standard Error	Percentage	Standard Error	Percentage										
2009	National	128.67	(1.622)	2	(0.3)	150.73	(0.996)	5	(0.4)	175.47	(0.793)	5	(0.4)	198.71	(0.986)	3	(0.4)	154.52	(0.778)	85	(1.3)

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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HSTS NDE SAT Mathematics Score Significance Test

Table | Sig Test 1 | Chart | Significance Test | Gap Analysis

To see how one value compares with the others, read across the row for that value. The displayed symbols indicate whether that value is significantly higher, significantly lower, or not significantly different than the value associated with that column. In some cases the significance test may have not been possible for statistical reasons.

Mathematics, grade 12
 Difference in average between variables, for sat mathematics score [SATMAT1]
 National, 2009

	<= 400	401 - 500	501 - 600	> 600
<= 400		Diff = -22 P-value = 0.0000	Diff = -47 P-value = 0.0000	Diff = -70 P-value = 0.0000
401 - 500	Diff = 22 P-value = 0.0000		Diff = -25 P-value = 0.0000	Diff = -48 P-value = 0.0000
501 - 600	Diff = 47 P-value = 0.0000	Diff = 25 P-value = 0.0000		Diff = -23 P-value = 0.0000
> 600	Diff = 70 P-value = 0.0000	Diff = 48 P-value = 0.0000	Diff = 23 P-value = 0.0000	

LEGEND:
 < Significantly lower.
 > Significantly higher.
 x No significant difference.

NOTE: All comparisons are independent tests with an alpha level of 0.05 adjusted for multiple pairwise comparisons according to the False Discovery Rate procedure. For comparisons between two jurisdictions, a dependent test is performed for cases where one jurisdiction is contained in the other. For more detailed information about the procedures and family sizes please see the Help document.
 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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HSTS NDE Cross-tabulation of GPA and SAT Mathematics Scores

NAEP Data Explorer
Analyze Data | Sample Questions | State Comparisons | State Profiles | District Profiles

HSTS NDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 4: View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. [NDE Help](#)

Subject, Grade: Mathematics, Grade 12
Jurisdiction: National
Measure: Composite scale
Variables: GPA - Mathematics, SAT Mathematics score
Year: 2009

Select Report: Cross-Tabulated Report 1 [Export Reports](#)

Table | Chart | Significance Test | Gap Analysis

Averages and percentages for mathematics, grade 12 by gpa - mathematics [S01GPAI], sat mathematics score [SATMAT1], year and jurisdiction: 2009

SAT Mathematics score	Year	Jurisdiction	0.00 - 2.49			2.50 - 2.99			3.00 - 3.74			3.75 - 4.00			Missing							
			Standard Error	Average	Percentage	Standard Error	Average	Percentage	Standard Error	Average	Percentage	Standard Error	Average	Percentage	Standard Error	Average	Percentage					
<= 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)	178.53	(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](#)