Module Objectives

Describe the resources available to facilitate understanding and analysis of National Assessment of Educational Progress (NAEP) data

- The Nation’s Report Card
- National Center for Education Statistics (NCES) NAEP homepage
- NAEP Data Tools
- Restricted-Use NAEP Data Files
The Nation’s Report Card

- The official site for results from the NAEP
- Informs the public about the academic achievement of elementary and secondary students in the United States through
  - Reports across all NAEP subject areas
  - Information for educators, media, parents, policymakers, researchers, and students
  - Other resources (i.e., data tools, FAQ, glossary, contacts, etc.)
- The best resource for accessing NAEP reports
Getting Started with NAEP Data

Slide 7 of 41

NCES NAEP Homepage

Slide 8 of 41

NAEP Data Tools
Data Explorer for Main NAEP (MAIN NDE)

- Provides national and state results in ten subject areas (i.e., mathematics, reading, writing, science, etc.)
- Results presented for the nation and participating states and other jurisdictions since 1990
- Results for select urban districts on a trial basis since 2002
- 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
MAIN NDE Step 1

MAIN NDE Step 2
MAIN NDE Step 4 (Continued)

Slide 16 of 41

MAIN NDE Civics Score Significance Test
MAIN NDE Civics Score Significance Test (Continued)

Sample Questions
NAEP Questions Tool (NQT)

The NAEP Questions Tool

Search NAEP Questions
- Search hundreds of questions by grade, year, and content area, and
- See actual student responses from NAEP assessments.

Try NAEP Questions
- Test yourself with actual NAEP questions.

Create Tests
Select a preformatted test or Make a customized test
- Use one of our pre-formatted assessments, or make your own customized assessment for your classroom.
- Create an account and you’ll be able to make a student roster and save your assessments for use throughout the school year.

Interactive Items

Test Yourself on an Interactive Computer Task
Select a task below. Each task will appear in a pop-up window. You can take the entire task or simply choose the option to see the correct answer and the performance data for each question.

GRADE 4
- Cracking Concrete: Predict how many days it will take to finish a sidewalk. Duration: 20 minutes
- Take the task:
- Scoring Information

GRADE 4
- Here Comes the Sun: Predict how many days it will take for the sun to pass a certain point. Duration: 20 minutes
- Take the task:
- Scoring Information

GRADE 4
- Mystery Plants: Predict how many days it will take for a seed to sprout. Duration: 40 minutes
- Take the task:
- Scoring Information
District Profiles

Restricted-Use NAEP Data Files

- In some cases, the resources described in this module may not address your specific research question.
- Some analyses may require the use of NAEP restricted-use data files.
  - These files are listed under Data Products on the NCES NAEP website.
- Refer to the Acquiring Micro-level NCES Data module to learn more about how to obtain restricted-use licenses.
The NAEP Primer

Before receiving NAEP restricted-use data, analysts can work with the NAEP Primer and the accompanying publicly accessible dataset to get acquainted with

- The NAEP primer mini-sample
- The NAEP database
- NAEP data tools
- Analyzing NAEP data
- Marginal estimation of score distributions (plausible values)
- Direct estimation using AM software
- Fitting of Hierarchical Linear Models (HLM)

Restricted-Use NAEP Data Disk Contents

- README – Text file containing brief description of disk contents
- Partitioned into directories containing specific types of files
  - DATA – Respondent data in fixed-length ASCII text files
  - CODEBOOK – File record layout and data codebook in PDF format files
  - SAS – Syntax files for converting data files into SAS system files
  - SPSS – Syntax files for converting data files into SPSS system files
  - Stata – Syntax for converting data files into STATA system files
  - AM – Syntax for converting data files into AM system files
  - CATALOG – Data field descriptions for other procedural languages
  - COMPANION – PDF document with information and guidelines on use of data; some technical documentation
  - NAEPEX and SELECT – Proprietary files used by NAEPEX programs
    - NAEPEX is the data extraction program for choosing variables, extracting data, and generating AM, SAS, SPSS, and Stata files necessary for the analysis of NAEP data
## NAEP File Naming Conventions

Across all NAEP data files, a standard 8-character file naming convention is used:

- 1st character: subject
- 2nd and 3rd characters: NAEP year
- 4th character: component
- 5th character: type of data
- 6th character: grade level
- 7th and 8th characters: sample

### 1st Character: Subject

- The Arts = A
- Civics = C
- Economics = E
- Geography = G
- Mathematics = M
- Reading = R
- Science = S
- History = H
- Writing = W
2\textsuperscript{nd} and 3\textsuperscript{rd} Characters: NAEP Year

- NAEP Year 1 was 1969
- To calculate the NAEP year subtract 1969 from the calendar year of interest
  - $2009 - 1969 = 40$

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4\textsuperscript{th} Character: Component

- National = N
- State = S
  - TUDA are part of the state file
5th Character: Type of Data

- Student = T
- School = C

6th Character: Grade Level

Grade levels are identified by cohort
- Cohort 1 = Grade 4 or 9-year olds
- Cohort 2 = Grade 8 or 13-year olds
- Cohort 3 = Grade 12 or 17-year olds
Slide 35 of 41

7th and 8th Characters: Sample

- Main NAEP = AT
- Long-Term Trend NAEP = LT
- Indian Education Sample = IE

Slide 36 of 41

Example NAEP File Names

- R40NT1IE
  - Subject: Reading
  - NAEP Year: 40 (calendar year 2009)
  - Component: National
  - Type of data: Student-level data
  - Grade level: Cohort 1/Grade 4
  - Sample: Indian education survey sample

- R36NT1AT
  - Subject: Reading
  - NAEP Year: 36 (calendar year 2005)
  - Component: National
  - Type of data: Student-level data
  - Grade level: Cohort 1/Grade 4
  - Sample: All students
Data File Structure and Contents

- Each student file contains unit record data where student is the unit of analysis
  - Identification information and sample indicators
  - Weights (population- and sample-based)
  - Reporting categories and derived variables
  - Ability estimates (plausible values)
  - Student background responses
  - Student cognitive item responses/scores
  - Students with Disabilities/English Language Learners (SD/ELL) questionnaire responses
  - Teacher questionnaire responses

- Each school file contains
  - School questionnaire responses
  - School-level sample weights

- There is also a student and school file that contains all the student file data with the school file data concatenated for analysts

NAEPEX

NAEPEX is the data extraction program for choosing variables, extracting data, and generating AM, SAS, SPSS, and Stata control statements necessary for the analysis of NAEP data

- NAEP’s Electronic Code Book (ECB)
- Select variables you need for analysis
- Produce syntax/script to generate NAEP data files
NAEP Syntax/Script

Creates a system file that contains all cases and variables specified for your specific analyses

- File definition – file name and attributes
- File data definition – data file names, positions, and formats
- Variable attributes – variable labels and formats
- Value labels – SPSS data value descriptors, SAS Proc Format, and Stata labeldef
- Missing values – optional code specifying data values to be treated as missing
- Scoring – optional code for converting cognitive item responses to scored values appropriate for IRT scaling

Module Summary

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Module Resources

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- NCES NAEP Homepage
- NAEP Data Tools
- MAIN NDE
- Sample Questions
- NAEP Questions Tool (NQT)
- Interactive Items
- Test Yourself
- Item Maps

- State Comparisons
- State Profiles
- District Profiles
- Restricted-Use NAEP Data Files
- Acquiring Micro-level NCES Data
- The NAEP Primer
- Analyzing NAEP data
- Plausible values
- NAEPEX