

NRC Data Service API

I. Basics

Location/Path

<https://www.nationsreportcard.gov/DataService/GetAdhocData.aspx>

Response Format

```
{"status":200,"result":[<1st result>, <2nd result>, ...]}
```

- If the request returns a successful response, status is 200
- A successful response will have a result that is an array
- Depending on the request, the result array may have more than 1 element

Gaps

- Gaps in the return are the score or percentage differences in NAEP results between different student groups, different jurisdictions, or different assessment years.
- Gaps in the return can also mean differences in other previously calculated differences as mentioned above.

II. Request Types and Their Returns

A. Overview

- Main URL – nationsreportcard.gov
- Query String Parameters
 - Type – what kind of data to return
 - Subject – e.g., mathematics or reading
 - Grade – e.g., grades 4, 8, and 12
 - Subscale – For example, in addition to the composite mathematics scale (MRPCM), NAEP mathematics has five subscales, which are MRPS1: Numbers and Operations, MRPS2: Mathematics Measurement, MRPS3: Mathematics Geometry, MRPS4: Mathematics Data Analysis, Statistics, and Probability, MRPS5: Mathematics Algebra and Functions.
 - Variable – student demographic groups (e.g., GENDER) or survey question variable or index.

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- ComparisonValues – allows you to choose specific variable categories (e.g., for GENDER, 1 is male and 2 is female)
- Jurisdiction – national, state, and district
- Stattype – different type of statistical estimates (e.g., mean or percentages)
- Year
- StackType
 - Values
 - ColThenRow (default)
 - RowThenCol
 - Determines the order of returns
 - ColThenRow will group the returns based on the first variable (e.g., for SDRACE+GENDER, the return will be group by white+male, white+female, black+male, black+male ...)
 - RowThenCol will group the returns based on the second variable (e.g. for SDRACE+GENDER, the return will be group by white+male, black+male, hispanic+male, asian+male ...)
- There are many data points. Each data point also contains the query information. For example, if you select 2 years, 1 jurisdiction, TOTAL (all students) and a composite scale, you will get 2 data points. Each data point contains information indicating the year that the data point represents.
- See section III for more details for all parameters.
- Significance indicates if the focal value is significantly higher or lower, or not significantly different than the target value.

B. Examples of basic data request and returns

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=data&subject=writing&grade=8&subscale=WRIRP&variable=GENDER&jurisdiction=NP&stattype=MN:MN&Year=2011>

- Type – data
- Important return: value – the statistic you are looking for.

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=data&subject=mathematics&grade=8&subscale=MRPCM&variable=SDRACE%2BGENDER&categoryindex=2%2B1,2%2B2,3%2B1,3%2B2&jurisdiction=NP,CA&stattype=MN%3AMN&Year=2013,2015&StackType=RowThenCol>

- Type – data
- StackType

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- ColThenRow (default)
- RowThenCol
- Must have 2 variables (here is SDRACE and GENDER)
- Important return: varValue – the category value within each student group (e.g., for GENDER, 1 is male and 2 is female)

C. Example of significance gap across years

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=sigacrossyear&subject=mathematics&grade=8&subscale=MRPCM&variable=TOTAL&jurisdiction=NP&stattype=MN%3AMN&Year=2015,2013>

- Type – sigacrossyear
- Used to return whether there is a significant difference in values between two or more years. The example shown here will return the comparison results between assessment years 2013 and 2015 in the average mathematics scores for public school students in the nation (NP).
- Must have more than one year, separated by commas
- Important returns
 - focalValue – value for focal year
 - targetValue – value for target year
 - gap – difference between focalValue and targetValue

D. Example of significance gap across jurisdictions

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=sigacrossjuris&subject=mathematics&grade=8&subscale=MRPCM&variable=GENDER&jurisdiction=NP,CA&stattype=MN%3AMN&Year=2015,2013>

- Type – sigacrossjuris
- Must have more than one jurisdiction, separated by commas
- Important returns
 - focalValue – value for a focal jurisdiction
 - targetValue – value for a target jurisdiction
 - gap – difference between focalValue and targetValue

E. Example of significance gap across variable values

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=sigacrossvalue&subject=mathematics&grade=8&subscale=MRPCM&variable=GENDER&jurisdiction=NP,CA&stattype=MN%3AMN&Year=2015>

- Type – sigacrossvalue

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- Variable must be a non "TOTAL" value (e.g., GENDER in the example here)
- Important returns
 - focalValue – value for variable focal category value (e.g., Male)
 - targetValue – value for variable focal category value (e.g., Female)
 - gap – difference between focalValue and targetValue

F. Example of significance gap across variable (with crosstab)

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=sigacrossvalue&subject=mathematics&grade=8&subscale=MRPCM&variable=SDRACE%2BGENDER&jurisdiction=NP,CA&stattype=MN%3AMN&Year=2015>

- Type – sigacrossvalue
- A crosstab will allow you to compare the relationship between two variables. You can examine the significance gap between specific demographic groups (e.g., White/Male versus White/Female, White/Male versus Black/Male, etc.)
- If the ComparisonValues parameter is not set, all variable categories from each variable will be compared to each other.
- If the ComparisonValues parameter is set, you can return just the specific demographic groups you are interested in.
- You may even choose up to three variables when performing crosstabs.

G. Example of gap between year and jurisdiction

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=gaponeyearacrossjuris&subject=mathematics&grade=8&subscale=MRPCM&variable=TOTAL&jurisdiction=NP,CA&stattype=MN%3AMN&Year=2015,2013>

- Type – gaponeyearacrossjuris
- Must have 2 years
- Important returns
 - Innerdiff1 – difference between stattype values between 2 years for focal jurisdiction
 - Innerdiff2 – difference between stattype values between 2 years for target jurisdiction
 - Gap – difference between innerdiff1 and innerdiff2

H. Example of significance of gap of two variable category values across years

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=gaponvaracrossyear&subject=mathematics&grade=8&subscale=MRPCM&variable=GENDER&jurisdiction=NP,CA&stattype=MN%3AMN&Year=2015,2013>

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- Type – gaponvaracrossyear
- Must have 2 or more years
- Must have a non "TOTAL" variable with 2 or more category values (e.g., GENDER, SDRACE)
- Important returns
 - Innerdiff1 – difference of statype values between variable values (e.g., between male and female students) for focal year
 - Innerdiff2 – difference of statype values between variable values for target year
 - Gap – difference between innerdiff1 and innerdiff2

I. Example of significance of gap of two variable category values across jurisdictions

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=gaponvaracrossjuris&subject=mathematics&grade=8&subscale=MRPCM&variable=GENDER&jurisdiction=NP,CA&statype=MN%3AMN&Year=2015,2013>

- Type – gaponvaracrossjuris
- Must have 2 or more jurisdictions
- Must have a non "TOTAL" variable with 2 or more category values (e.g., GENDER)
- Important returns
 - Innerdiff1 – difference of statype values between variable category values (e.g., between male and female students) for focal jurisdiction
 - Innerdiff2 – difference of statype values between variable category values for target jurisdiction
 - Gap – difference between innerdiff1 and innerdiff2

J. Example of significance of gap of two variable category values and two years across jurisdictions

<https://www.nationsreportcard.gov/Dataservice/GetAdhocData.aspx?type=gaponvarandyearacrossjuris&subject=mathematics&grade=8&subscale=MRPCM&variable=GENDER&jurisdiction=NP,CA&statype=MN%3AMN&Year=2015,2013>

- Type – gaponvarandyearacrossjuris
- Must have 2 or more jurisdictions
- Must have 2 or more years
- Must have a non "TOTAL" variable with 2 or more category values (e.g., GENDER)
- Important returns

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- innerdiff1 – difference of statype values between variable category values (e.g., between male and female students) in focal jurisdiction for focal year.
- innerdiff2 – difference of statype values between variable category values (e.g., between male and female students) in focal jurisdiction for target year.
- innerdiff3 – difference of statype values between variable category values (e.g., between male and female students) in target jurisdiction for focal year.
- innerdiff4 – difference of statype values between variable category values (e.g., between male and female students) in target jurisdiction for target year.
- yeardiff1 – difference between innerdiff1 and innerdiff2
- yeardiff2 – difference between innerdiff3 and innerdiff4
- Gap – difference between yeardiff1 and yeardiff2

III. Parameter Values

- **Subject and Subscale**
 - **Civics**
 - CIVRP – Civics scale
 - **Economics**
 - ERPCM – Composite scale
 - ERPS1 – Market scale
 - ERPS2 – National scale
 - ERPS3 – International scale
 - **Geography**
 - GRPCM – Composite scale
 - GRPS1 – Space and place scale
 - GRPS2 – Environment and society scale
 - GRPS3 – Spatial dynamics scale
 - **Mathematics 1990R2**
 - MRPCM – Composite scale
 - MRPS1 – Number properties and operations scale
 - MRPS2 – Measurement scale
 - MRPS3 – Geometry scale
 - MRPS4 – Data analysis, statistics, and probability scale
 - MRPS5 – Algebra scale

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- **Mathematics 2005R3**
 - MWPCM – Composite scale
 - MWPS1 – Number properties and operations scale
 - MWPS2 – Measurement and geometry scale
 - MWPS3 – Data analysis, statistics, and probability scale
 - MWPS4 – Algebra scale
- **Music**
 - MUSRP – Music scale
- **Reading**
 - RRPCM – Composite scale
 - RRPS1 – Literary experience scale
 - RRPS2 – Gain information scale
 - RRPS3 – Perform a task scale
 - RRPS4 – Gain and use information scale
- **Science 1990R2**
 - SRPCM – Composite scale
 - SRPS1 – Physical science scale
 - SRPS2 – Earth science scale
 - SRPS3 – Life science scale
- **Science 2005R3**
 - SRPUV – Overall science scale
- **TEL**
 - TRPUN – Overall scale
 - TRPP1 – Communicating and collaborating practice scale
 - TRPP2 – Developing solutions and Achieving goals practice scale
 - TRPP3 – Understanding Technological Principles practice scale
- **History**
 - HRPCM – Composite scale
 - HRPS1 – Democracy scale
 - HRPS2 – Cultures scale
 - HRPS3 – Technology scale
 - HRPS4 – World role scale
- **Visual Arts**
 - VISRP – Visual arts scale
- **Vocabulary**
 - VOCRP – Meaning vocabulary scale
- **Writing**
 - WRIRP – Writing scale

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- **Grade**
 - 4
 - 8
 - 12
- **Year**
 - <Year>R2 e.g., 1990R2 (R2 stands for accommodations not permitted sample)
 - <Year>R3 e.g., 2016R3 (R3 stands for accommodations permitted sample)
 - If R2 or R3 is not indicated, default is R3
 - Base, Current, and Prior are keywords
 - Base – first assessment year
 - Current – most recent assessment year
 - Prior – second most recent assessment year
- **StatType**
 - MN:MN – Mean
 - RP:RP – Row Percent
 - ALD:BA – Discrete achievement level – At Basic
 - ALD:PR – Discrete achievement level – Proficient
 - ALD:AD – Discrete achievement level – At Advanced
 - ALC:BB – Cumulative achievement level – Below Basic
 - ALC:AB – Cumulative achievement level – At or above Basic
 - ALC:AP – Cumulative achievement level – At or above Proficient
 - ALC:AD – Cumulative achievement level – At Advanced
 - SD:SD – Standard Deviations
 - PC:P1 – 10th Percentile
 - PC:P2 – 25th Percentile
 - PC:P5 – 50th Percentile
 - PC:P7 – 75th Percentile
 - PC:P9 – 90th Percentile
- **CATEGORYINDEX**
 - Not required, if omitted all the values are returned
 - For example, for SDRACE, White = 1, Black = 2, Hispanic = 3
 - For example, for GENDER+SDRACE, 1+3 returns male Hispanic, 2+2 returns female Black, encode as 1%2B3,2%2B2

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- **Variable**

- Student demographic groups (e.g., TOTAL, GENDER, SDRACE, etc.) or survey question variable or index.
- Details about variable code used in the query string can be found in [NAEP Data Explorer](#). In the "Select Variables" sections, a pull down menu containing the variable code appears when you click details, circled below by ○.

The screenshot displays the 'VARIABLE' section of the NAEP Data Explorer. At the top, there is a 'JURISDICTION' header with a 'SHOW' dropdown. Below it is the 'VARIABLE' header with a 'HIDE' dropdown. A search bar labeled 'Search variables' is present. Underneath, there are two dropdown menus: 'SELECT A CATEGORY:' set to 'Major Reporting Groups' and 'SELECT A SUBCATEGORY:' set to 'Student Factors'. There are also buttons for 'CREATE CROSSTAB' and 'COMBINE VARIABLE CATEGORIES'. Two variable categories are listed:

- All students [\[hide details\]](#)
All students
ID: TOTAL
All students
AVAILABLE YEARS: 2017 2015 2013 2011 2009 2007 2005 2003 2000 2000' 1996 1996' 1992' 1990'
- Race/ethnicity used to report trends, school-reported [\[hide details\]](#)
School-reported race/ethnicity (supplemented in some cases by student self-reported data) used in NAEP reports since 2002; in 2011, the 'unclassified' category was relabeled 'two or more races' to be consistent with OMB guidelines.
ID: SDRACE
White

At the bottom, there is a 'STATISTIC' header with a 'SHOW' dropdown.

IV. Assessment Year and Subject Combinations

Not all year and subject combinations have data. Below are the most common year and subject combinations when nation is being selected as the jurisdiction. For information about state and district assessment year and subject combinations, see <https://nces.ed.gov/nationsreportcard/about/state.aspx> for states and <https://nces.ed.gov/nationsreportcard/tuda/> for districts. You can also look at the [NAEP Data Explorer](#) for the full list of combinations.

R2 sample	1990R2	1992R2	1994R2	1996R2	1998R2	2000R2	2001R2
Civics							
Economics							
Geography			✓				✓
Mathematics	✓	✓		✓		✓	
Music							
Reading		✓	✓		✓	✓	
Science				✓		✓	
TEL							
U.S. History			✓				✓
Visual Arts							
Vocabulary							
Writing							

R3 sample	'96	'98	'00	'01	'02	'03	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Civics		✓						✓				✓								✓
Economics								✓						✓						
Geography				✓								✓				✓				✓
Mathematics	✓		✓			✓	✓		✓		✓		✓		✓		✓		✓	
Music										✓								✓		
Reading		✓	✓		✓	✓	✓		✓		✓		✓		✓		✓		✓	
Science	✓		✓				✓				✓		✓				✓			
TEL																✓				✓
U.S. History				✓				✓				✓				✓				✓
Visual Arts										✓								✓		
Vocabulary											✓		✓		✓		✓			
Writing		✓			✓				✓				✓						✓	