

What Are the Literacy and Numeracy Skills of Adults in Your State and County?

Exploring the PIAAC Skills Map

2020 ACE Annual Conference

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October 7, 2020

Presentation Outline

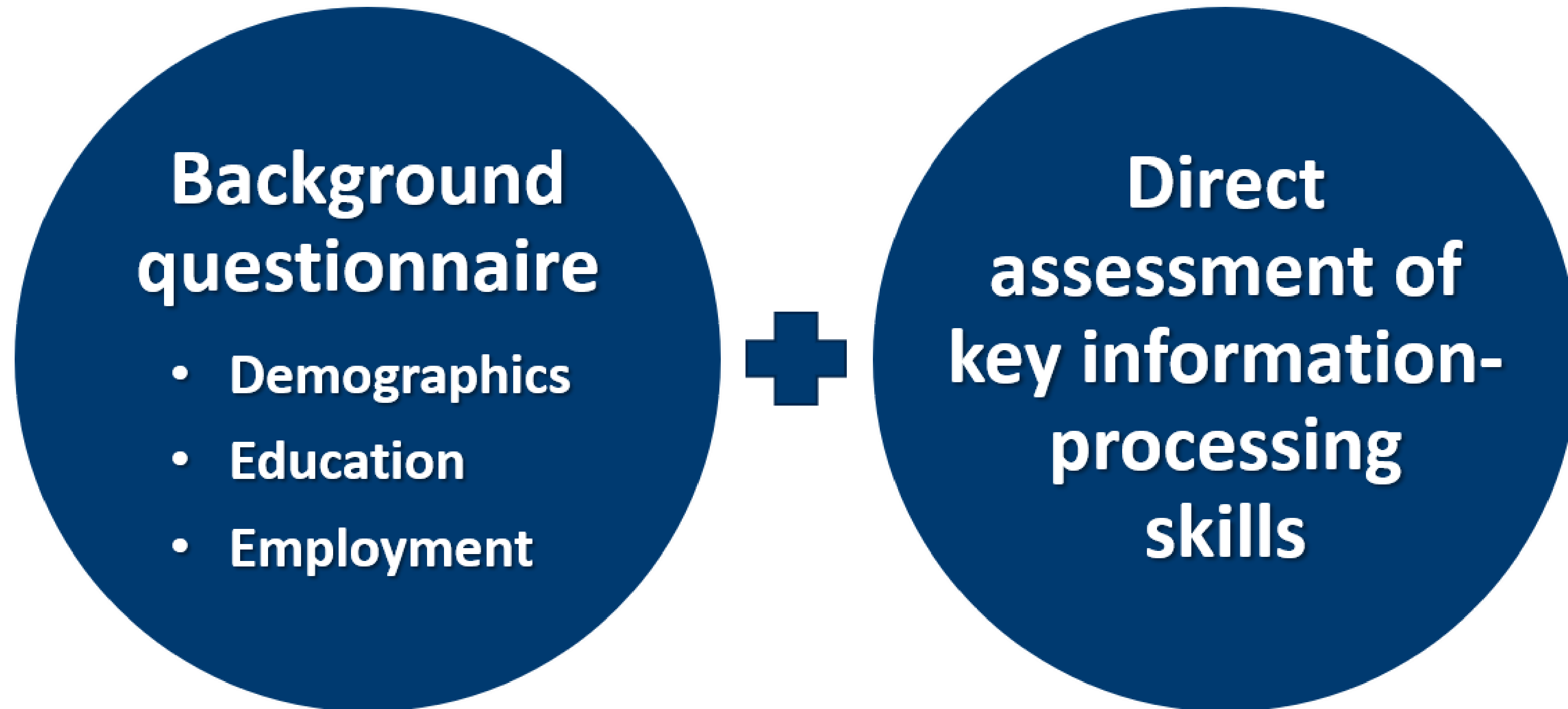
1. What is PIAAC?
2. What are the major findings from PIAAC?
3. What is the PIAAC Skills Map?
4. What are the skills of adults in Florida?
5. How can the PIAAC Skills Map be used to inform your work?
6. Where can you find the PIAAC Skills Map and other information?
7. What's next for PIAAC?

What is PIAAC?

What is PIAAC?

- The **Program for the International Assessment of Adult Competencies (PIAAC)** is a cyclical, large-scale assessment first administered in 2011-12 in 24 countries including the United States
- Developed by the Organization for Economic Cooperation & Development (OECD)
- The goal of PIAAC is to assess and compare the basic cognitive and workplace skills needed for successful participation in 21st-century society and the global economy.
- Administered to a nationally representative sample of 16- to 65-year-olds, residing in each country, irrespective of nationality, citizenship, or language status.

PIAAC Main Components




PIAAC Domains and Definitions






- ***Literacy** is understanding, evaluating, using and engaging with written texts*
 - *to participate in society,*
 - *to achieve one's goals, and*
 - *to develop one's knowledge and potential.*
- ***Numeracy** is the ability to access, use, interpret, and communicate mathematical information and ideas, in order to engage in and manage the mathematical demands of a range of situations in adult life.*
- ***Digital Problem Solving:** involves using digital technology, communication tools and networks to acquire and evaluate information, communicate with others and perform practical tasks.*

Mode of the Assessment

Laptop computer  or Paper-and-Pencil 

Two main Assessment components:

- Background Questionnaire (45 minutes) 
 - Conducted either in **English or Spanish**
- Assessment Items (60 minutes, conducted only in **English**)

- Literacy  
- Numeracy  
- Digital Problem Solving Only 

Reporting PIAAC results:

- **Average Scores:** reported on a scale of 0-500 for all domains.
- **Proficiency Levels:** reported as the percentages of adults scoring at six performance levels (from below level 1 to level 5) in **literacy** and **numeracy** and at four performance levels in problem solving in technology-rich environments (from below level 1 to level 3).

For description of PIAAC levels check: <https://nces.ed.gov/surveys/piaac/measure.asp>

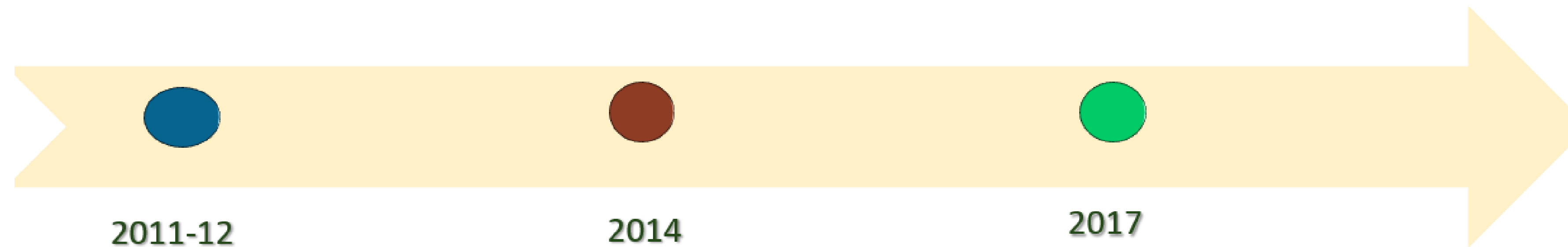
Proficiency Levels: Literacy

Level	Description
Level 1 or below <i>(Below 226 points*)</i>	Adults at this level range from functionally illiterate to those who have difficulty using or comprehending basic written material.
Level 2 <i>(226–275 points*)</i>	Adults at this level are nearing proficiency but may still struggle to perform tasks using text-based information.
Level 3 or above <i>(Above 275 points*)</i>	Adults at these levels can work proficiently with information and ideas in texts.

Proficiency Levels: Numeracy

Level	Description
Level 1 or below <i>(Below 226 points*)</i>	Adults at this level may range from functionally innumerate to those that have difficulty using and comprehending numeric information.
Level 2 <i>(226–275 points*)</i>	Adults at this level are nearing proficiency but may struggle to work with some numeric information.
Level 3 or above <i>(Above 275 points*)</i>	Adults at this level can work proficiently with mathematical information and ideas.

U.S. Cycle 1 National Data Collections



PIAAC International Cycle 1: 2011-2017 (38 countries or regions, including the US)

- Round 1 – Household sample of adults (5,010) Ages 16-65
- Round 2 – Household sample of adults (3,660) Ages 16-65, and 66-74
- Round 3 – Household sample of adults (3,660) Ages 16-65, and 66-74

What are the major findings from PIAAC?

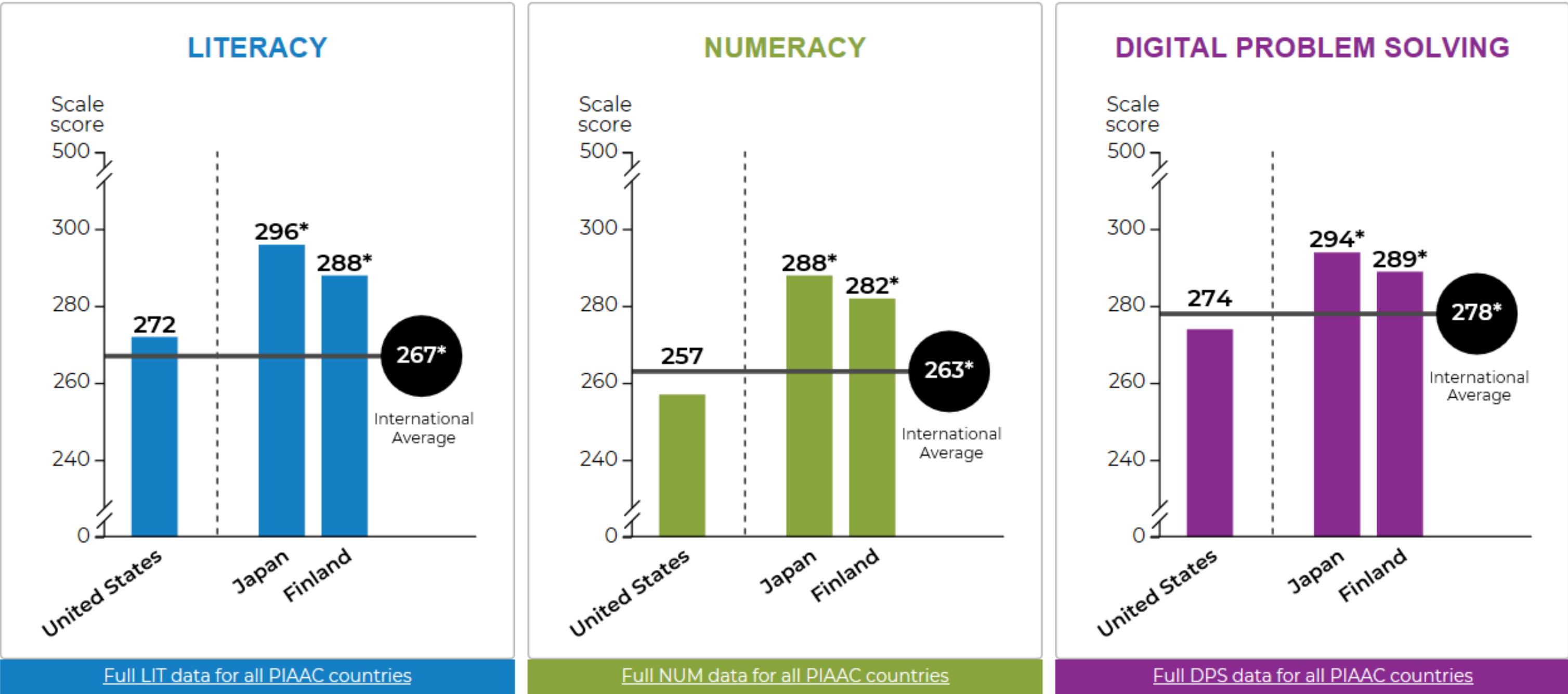
How do U.S. adults compare internationally?

For more results, check:

https://nces.ed.gov/surveys/piaac/current_results.asp

U.S. adults scored higher in literacy than the PIAAC international average; however, they scored lower in both numeracy and digital problem solving.

Figure 1-A. Average scores on PIAAC literacy, numeracy, and digital problem solving for adults age 16 to 65 for the United States and highest-performing countries: 2012–15



* Significantly different ($p < .05$) from the United States.

NOTE: LIT = Literacy. NUM = Numeracy. DPS = Digital problem solving. Average scores for the United States are compared to the PIAAC international average and highest-performing countries. Results for 23 of the countries were gathered in 2011–12, and an additional 9 participated in 2014–15. The two highest-performing countries are shown, in descending order from left to right within each domain. Results for the United States are shown on the far left within each domain to highlight that comparison.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Organization for Economic Cooperation and Development (OECD), Program for the International Assessment of Adult Competencies (PIAAC), 2012–15.

What are the major findings from PIAAC?

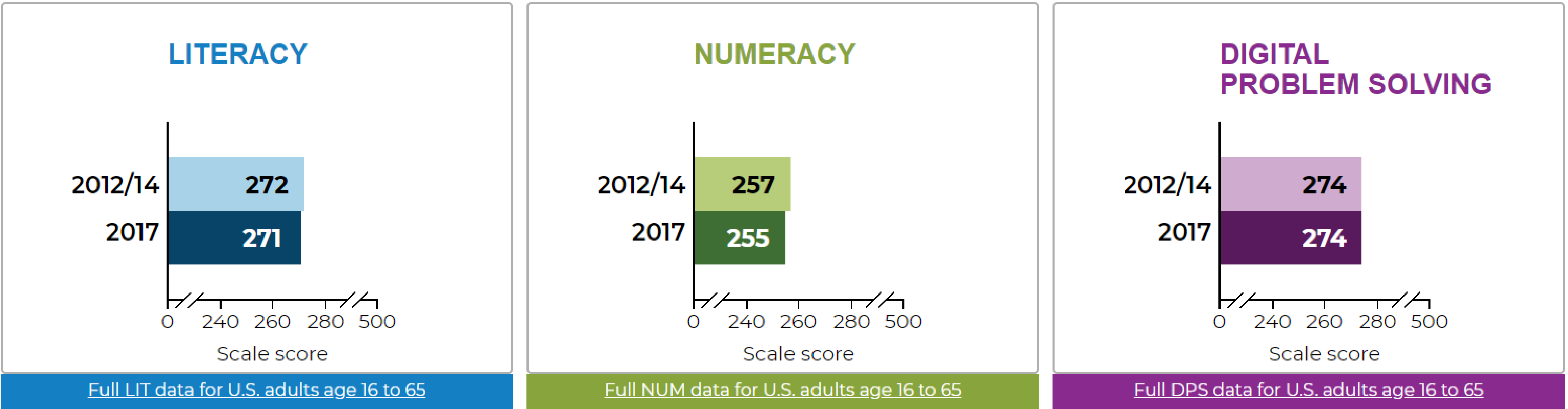
What are the major U.S. national findings between 2012/14 and 2017?

For more results, check:

https://nces.ed.gov/surveys/piaac/current_results.asp

There was no measurable improvement in overall literacy, numeracy, or digital problem-solving skills of U.S. adults age 16–65 in 2017 compared to 2012/14

Figure 1-A. Average scores on PIAAC literacy, numeracy, and digital problem solving for U.S. adults age 16 to 65: 2012/14 and 2017



NOTE: LIT = Literacy. NUM = Numeracy. DPS = Digital problem solving. The PIAAC literacy, numeracy, and digital problem solving scales range from 0 to 500. Some apparent differences between estimates may not be statistically significant. Only statistically significant differences between years are marked with an asterisk. Users may explore other differences via the full data links and using the International Data Explorer tools.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Program for the International Assessment of Adult Competencies (PIAAC), U.S. PIAAC 2017, U.S. PIAAC 2012/2014.

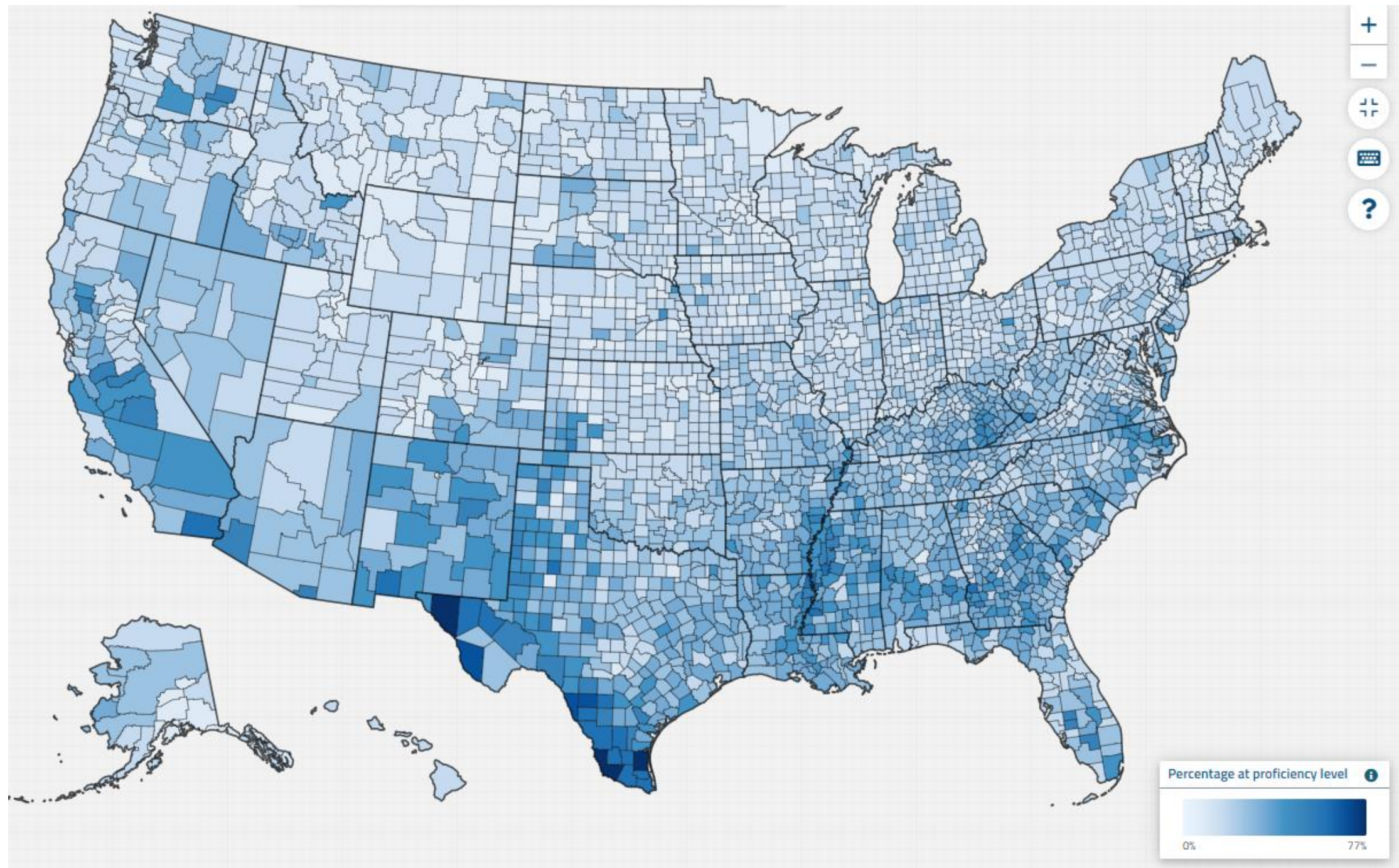
Other major findings

Between 2012/14 and 2017:

1. Hispanic adults' average scores improved in both literacy and digital problem solving, while the average scores for Whites did not change across any of the three skill areas
2. Non-native born adults in the United States scored higher in both literacy and digital problem solving. No measurable change in the averages of native-born adults
3. Although the average adults' amount of schooling has increased, there was a decrease in the average literacy and numeracy scores of those with only a high school education

What is the PIAAC Skills Map?

The U.S. PIAAC Skills Map: State and County Indicators of Adult Literacy and Numeracy



NCES' new Skills Map is an online tool that provides the most comprehensive data on the literacy and numeracy skills of adults age 16–74 in all 50 states, the District of Columbia, and for all 3,141 counties.*

Where do Skills Map data come from?

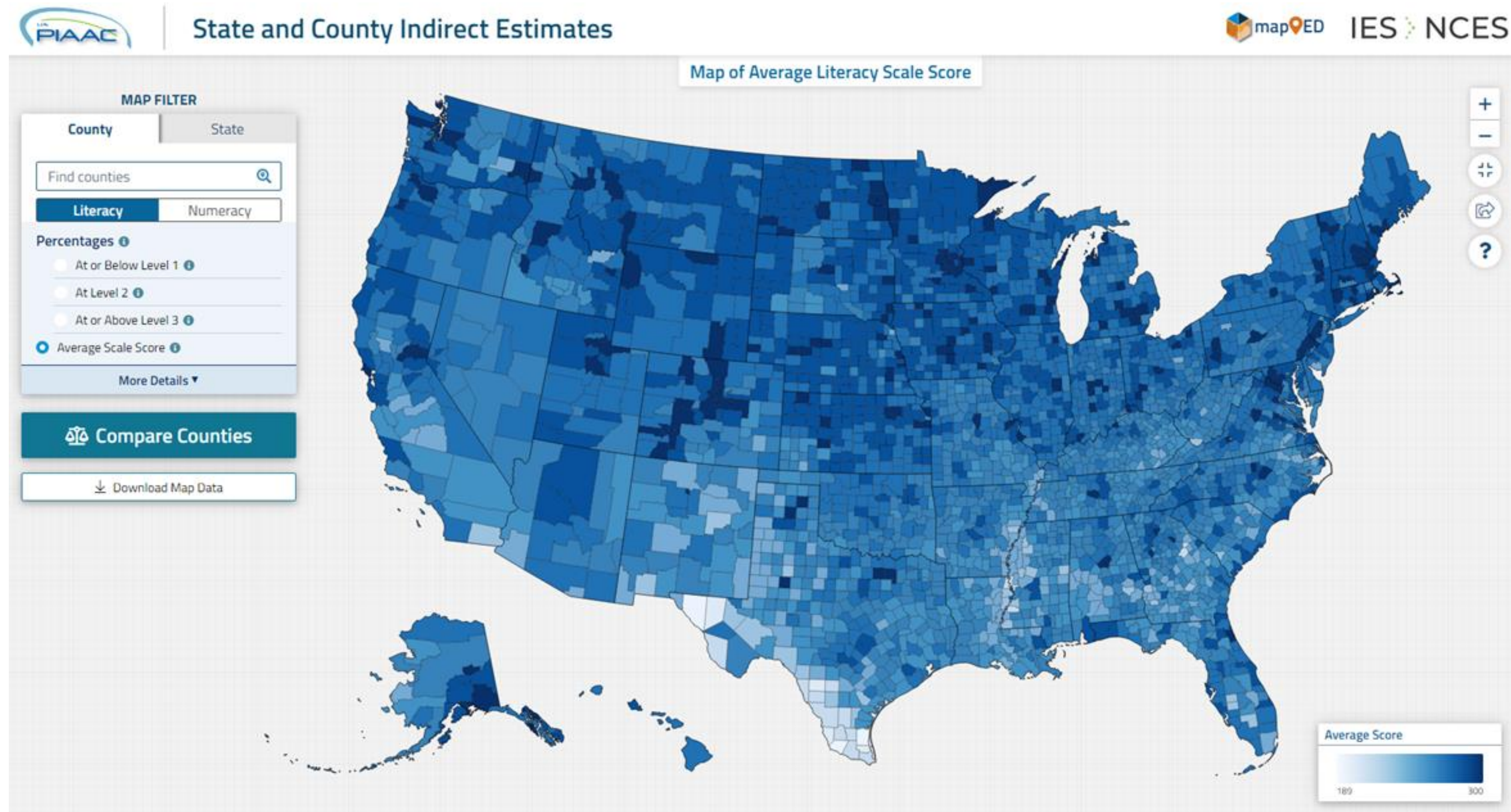
- The data in the tool are estimates for geographic areas where survey data are inadequate for direct estimation.
- The data were produced using an advanced statistical method generally referred to as small area estimation (SAE).
- To produce reliable estimates NCES developed a statistical model relying on:
 - Combined PIAAC data collected in 2012, 2014, and 2017
 - Data from the American Community Survey (ACS) 2013-17

How reliable are these estimates?

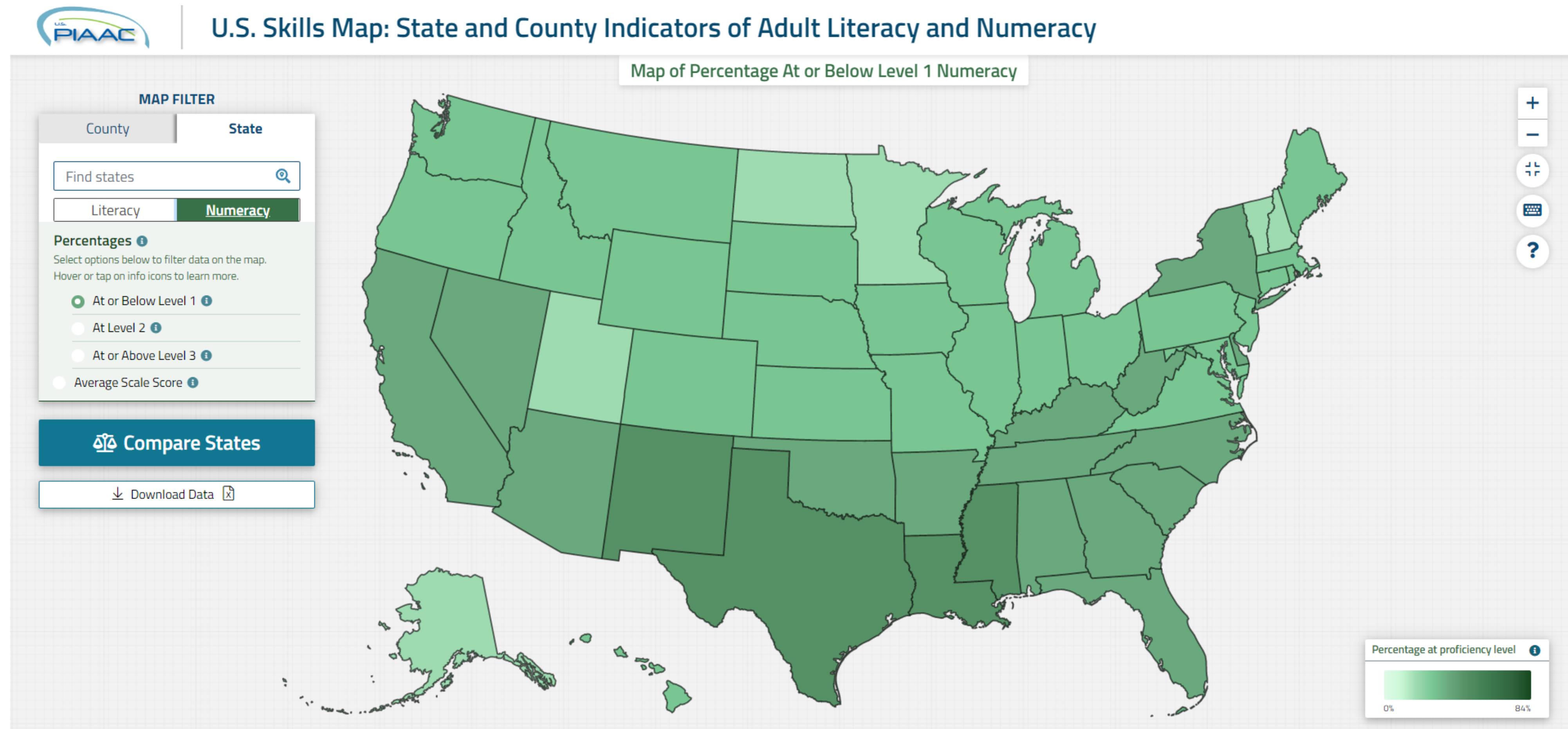
- As this is a sophisticated model for small area estimation, NCES consulted with a panel of experts to ensure it reflected the most recent research.
- NCES used a variety of methods to validate the model fit. Results were found to be consistent across varying scenarios.
- NCES used the direct (or actual) PIAAC results to validate the model's indirect estimates. The small area (county) estimates and direct results were found to be comparable.

What information is available in the PIAAC Skills Map?

Literacy and numeracy proficiency data including average scores and...



.... percentages of adults at the lowest, medium, and highest levels for both counties and states



Demographic data from ACS

U.S. SKILLS Map: State and County Indicators of Adult Literacy and Numeracy

State Summary Card

Select up to 8 variables

Download Variable List PDF

Gender

☐ % Male

☐ % Female

Race/Ethnicity

☐ % White

☐ % Black

☐ % Hispanic

☐ % Asian

☐ % American Indian/ Alaska Native

☐ % Native Hawaiian/ Other Pacific Islander

☐ % Other Race/ Ethnicity

Education

☐ % Less Than High School

☐ % High School/ GED

☐ % More Than High School

English Speaking Ability

☐ % Speak English Not Well/ Not at All

Foreign-Born Population

☐ % Foreign-Born Entered U.S. in 2010 and After

☐ % Foreign-Born Entered U.S. 1990-2009

☐ % Foreign-Born Entered U.S. Before 1990

☐ % Foreign-Born Population

Poverty

☐ % Below 100% of Poverty Level

☐ % Below 150% of Poverty Level

☐ % SNAP/ Food Stamps

Employment Status

☐ % Employed

☐ % Unemployed

☐ % Not in Labor Force

Occupation

☐ % Management/ Professional Occupation

☐ % Service Occupation

☐ % Sales/ Office Occupation

☐ % Natural Resources/ Construction/ Maintenance Occupation

☐ % Military Occupation

☐ % Production/ Transportation/ Moving Occupation

Health

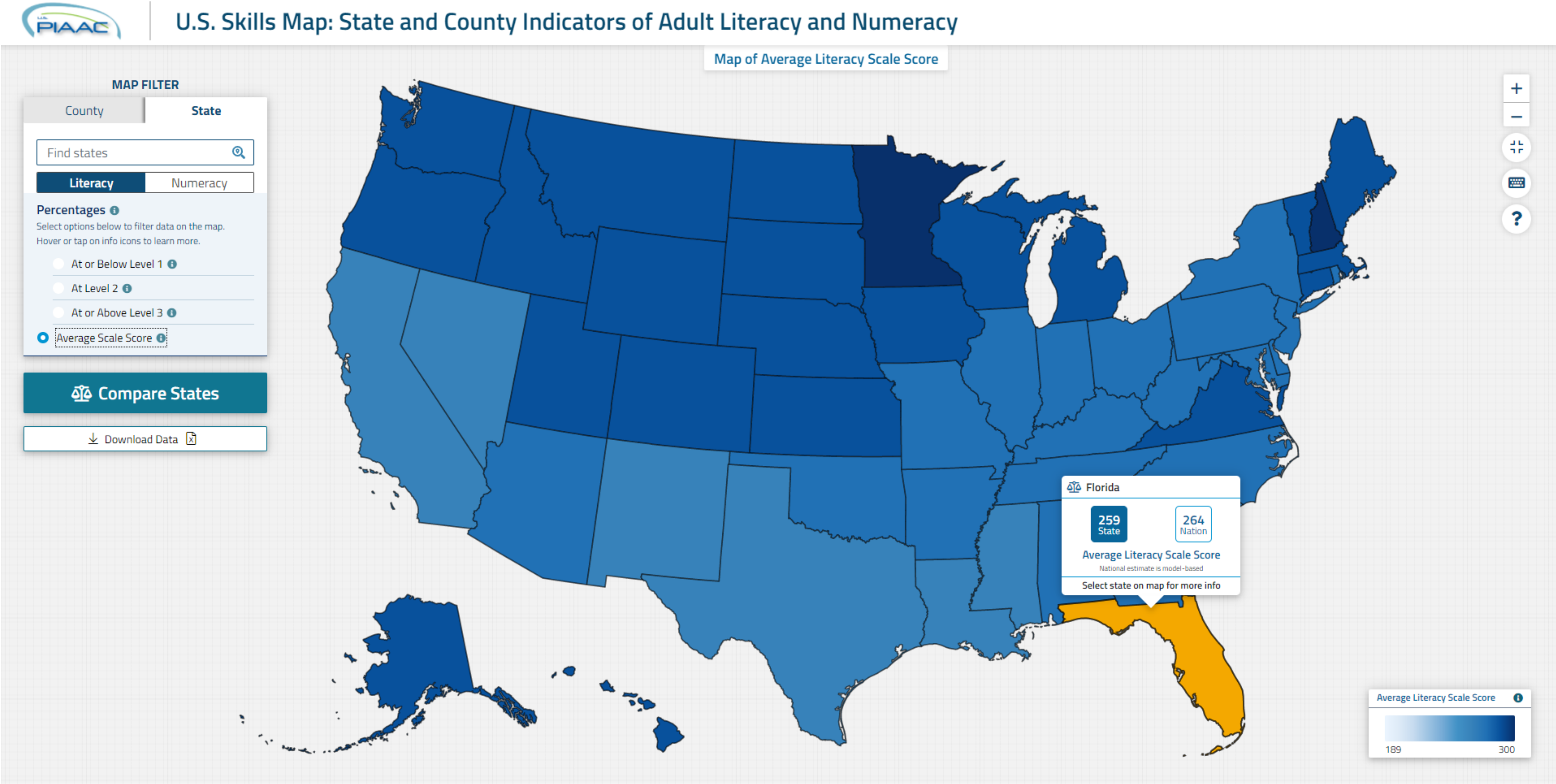
☐ % No Health Insurance

SUBMIT (0)

CLEAR ALL

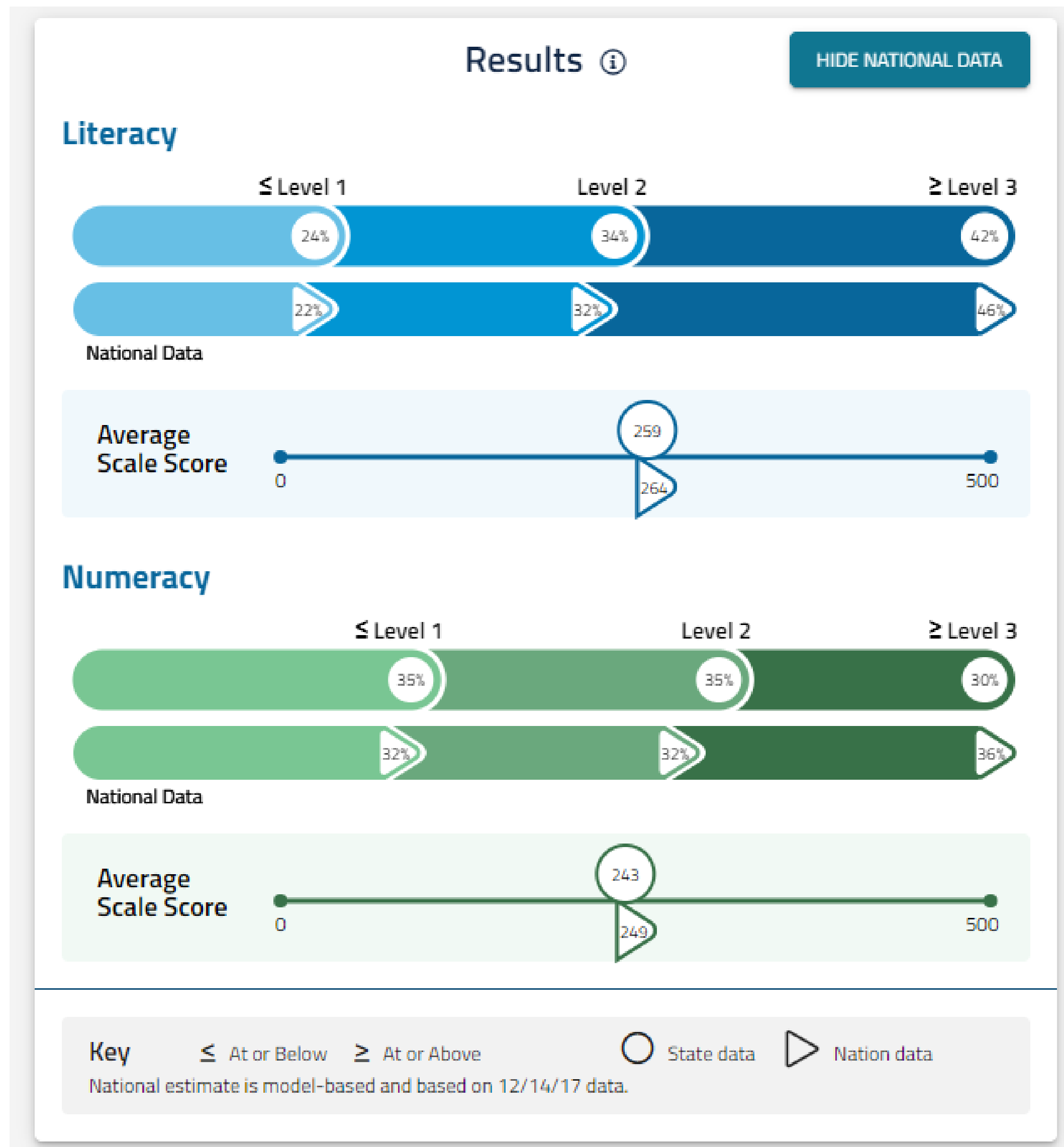
What are the skills of adults in Florida?

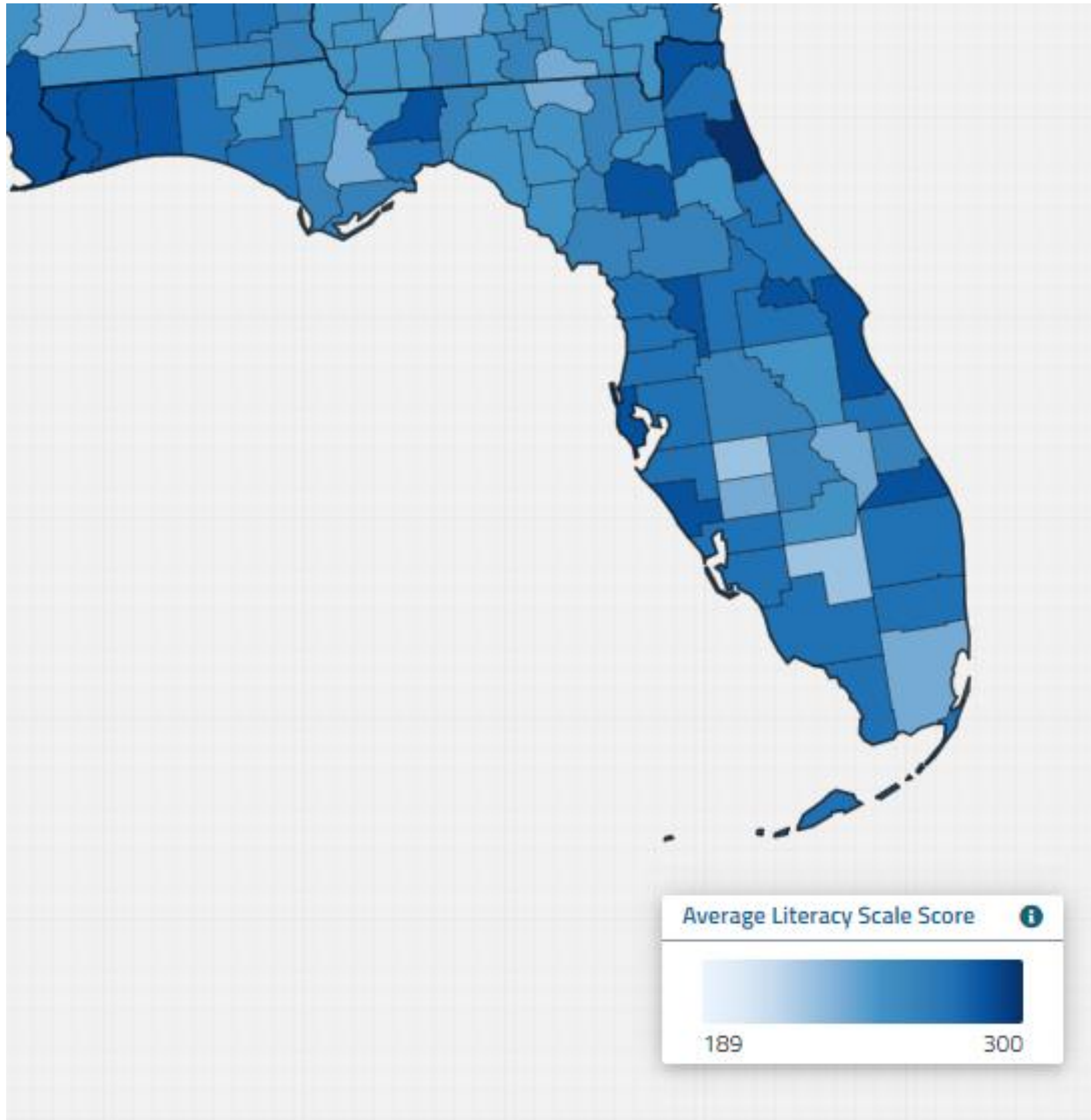
Florida is below national average in literacy and numeracy



Compared to the nation,
Florida has:

- a similar proportion of low-skilled adults in literacy
- a higher proportion of low-skilled adults in numeracy
- a lower proportion of high-skilled adults in both literacy and numeracy



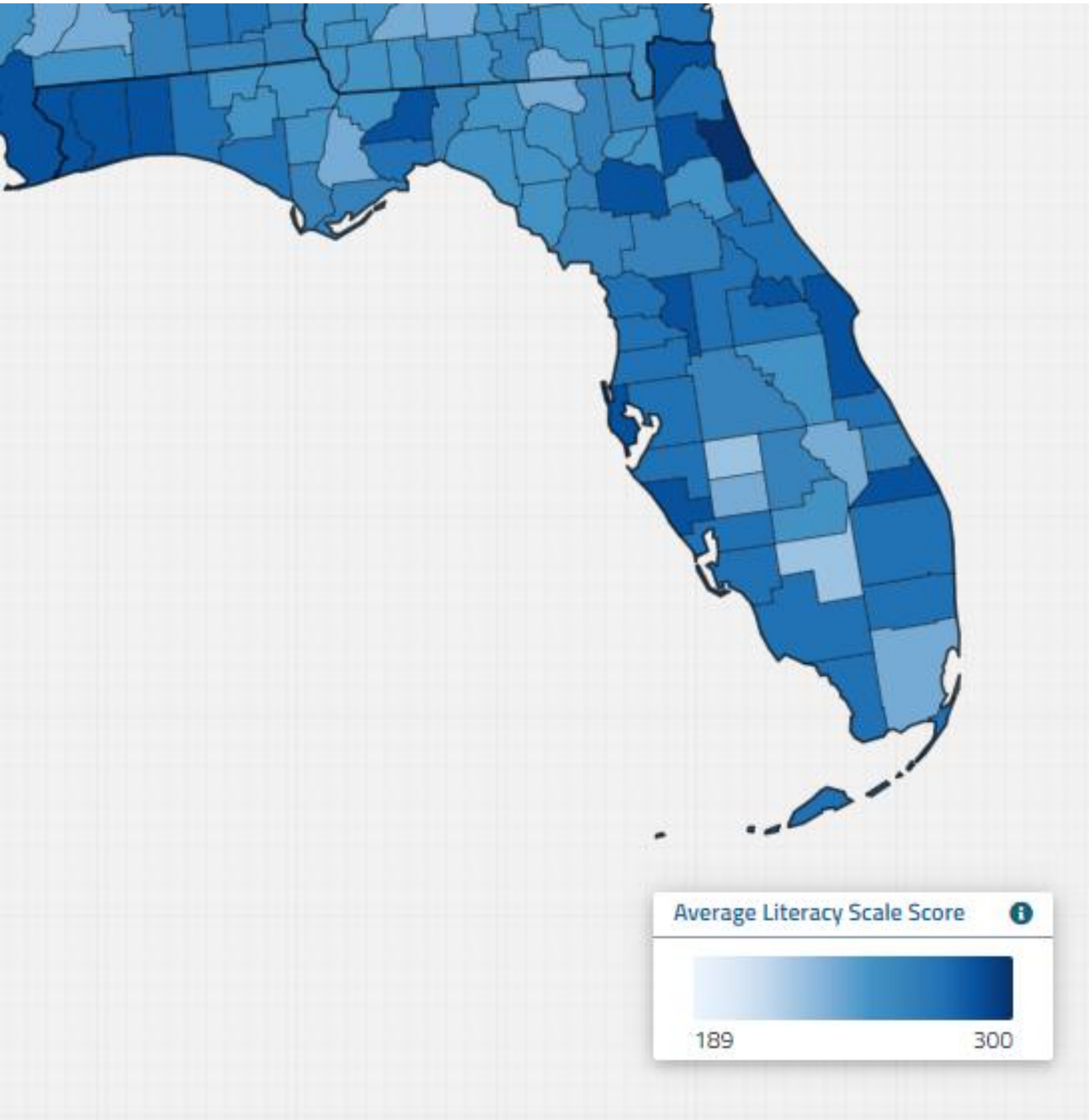


Highest-performing counties in Florida by average literacy and numeracy scores:

County	Literacy	Numeracy
St. Johns	284	273
Seminole	276	263
Leon ¹	275	259
Santa Rosa	275	263
Okaloosa	273	259
Sumter ²	272	259

1 Highest 5 in literacy only

2 Highest 5 in numeracy only



Lowest-performing counties in Florida by average literacy and numeracy scores:

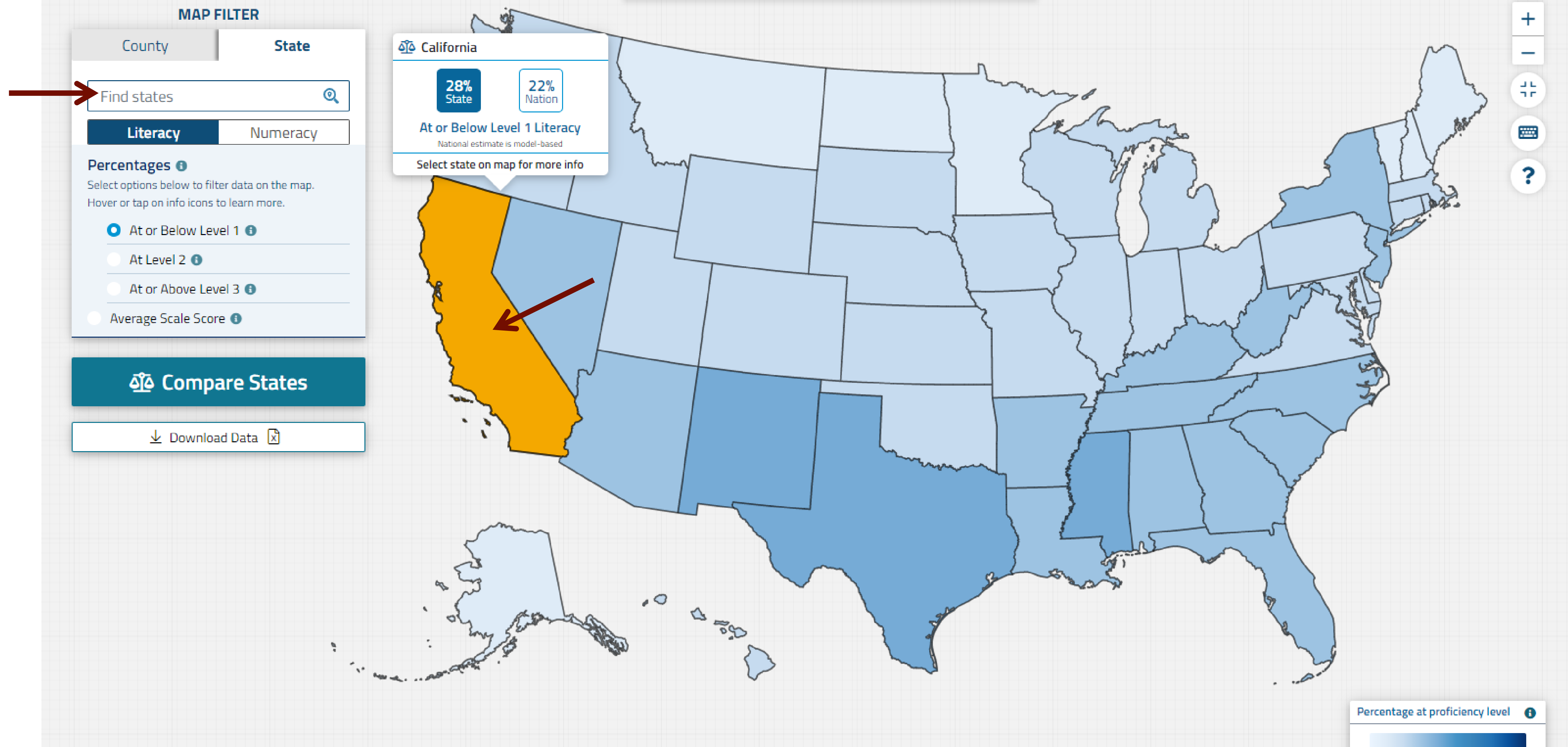
County	Literacy	Numeracy
Hendry	226	207
Hardee	227	208
DeSoto	229	208
Hamilton	233	212
Miami-Dade	236	215

Walk through results for a county in Florida and for the state

How can the PIAAC Skills Map be used to inform your work?

Example 1: What is the need for adult education in California?

Map of Percentage At or Below Level 1 Literacy



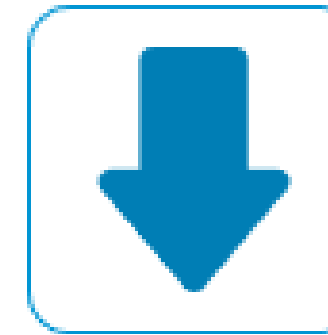
State Summary Card

California

Select a state in the map



Comparison with Average Scale Score for Nation ⓘ



Literacy: **BELOW National Average**
Scale Score

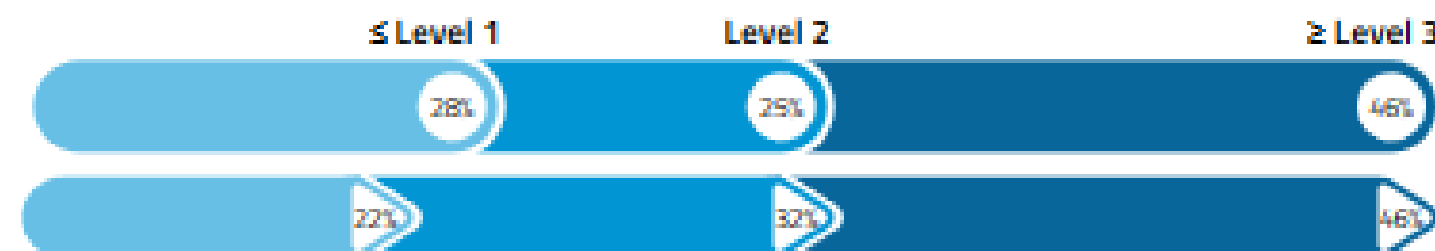


Numeracy: **BELOW National Average**
Scale Score

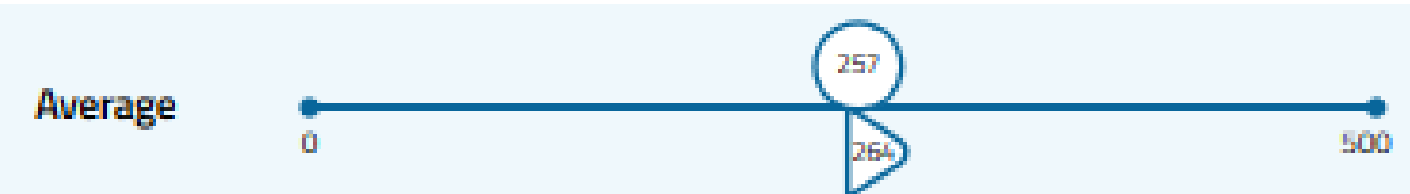
Results ⓘ

HIDE NATIONAL DATA

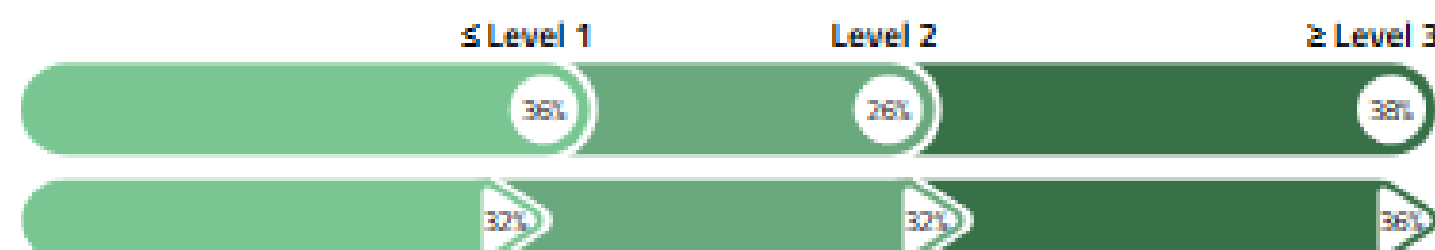
Literacy



National Data



Numeracy



National Data



Analysis of results ⓘ

California has a population of 38,982,847 according to the American Community Survey 2013-2017 five-year estimate. When compared to the nation:

Literacy :

- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 is statistically lower
- Percentage at or above Level 3 has no notable difference

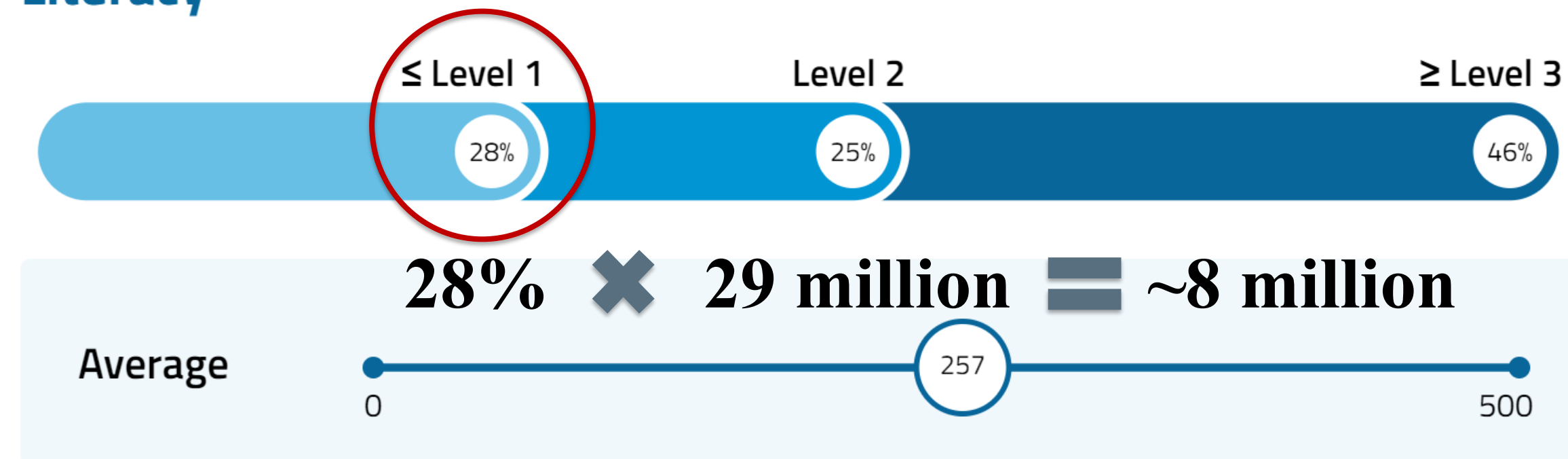
Numeracy :

- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 is statistically lower
- Percentage at or above Level 3 has no notable difference

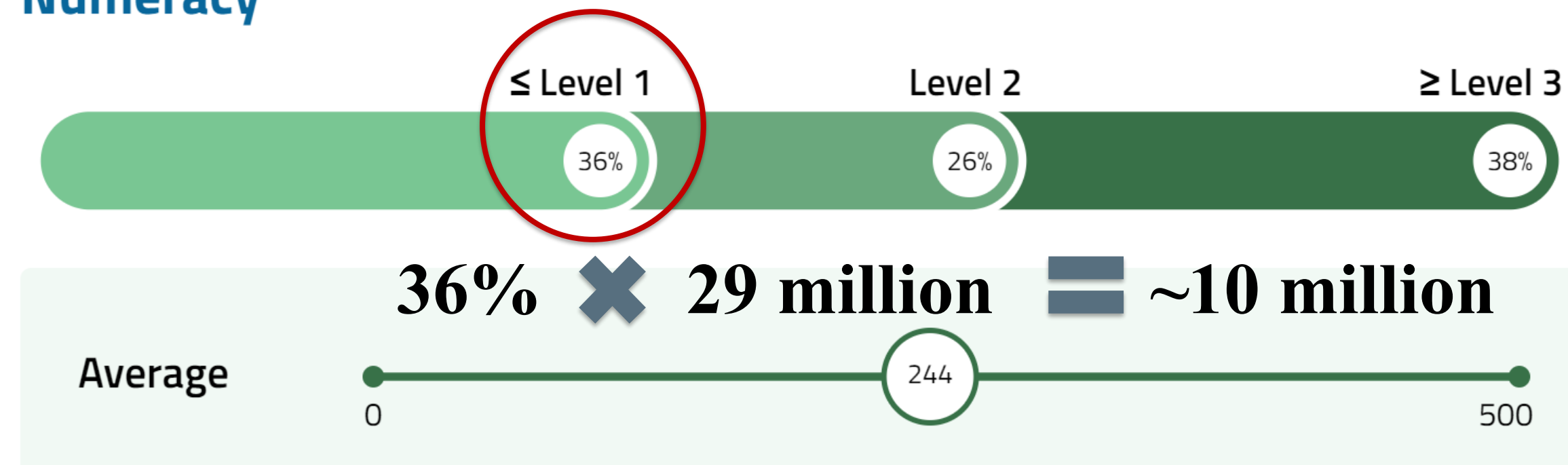
COMPARE TO ALL OTHER STATES IN THE NATION

Results ⓘ

Literacy



Numeracy



Analysis of results ⓘ

California, CA has a population (ages 16-74) of 28,700,838 according to the American Community Survey 2013-2017 five-year estimate. When compared to the nation:

Literacy :

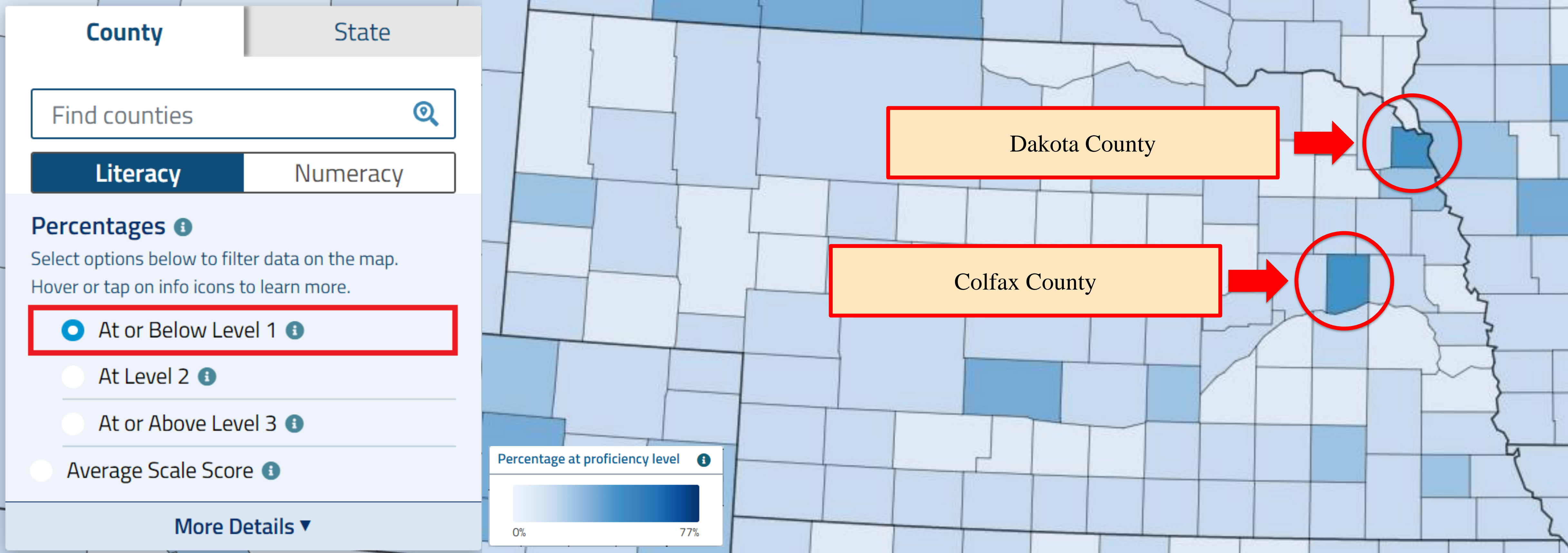
- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 is statistically lower
- Percentage at or above Level 3 has no notable difference

Numeracy :

- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 is statistically lower
- Percentage at or above Level 3 has no notable difference

COMPARE TO ALL OTHER STATES IN THE NATION

Example 2: Which counties in Nebraska are likely to have more low-skilled parents who may struggle to support their children's remote learning?



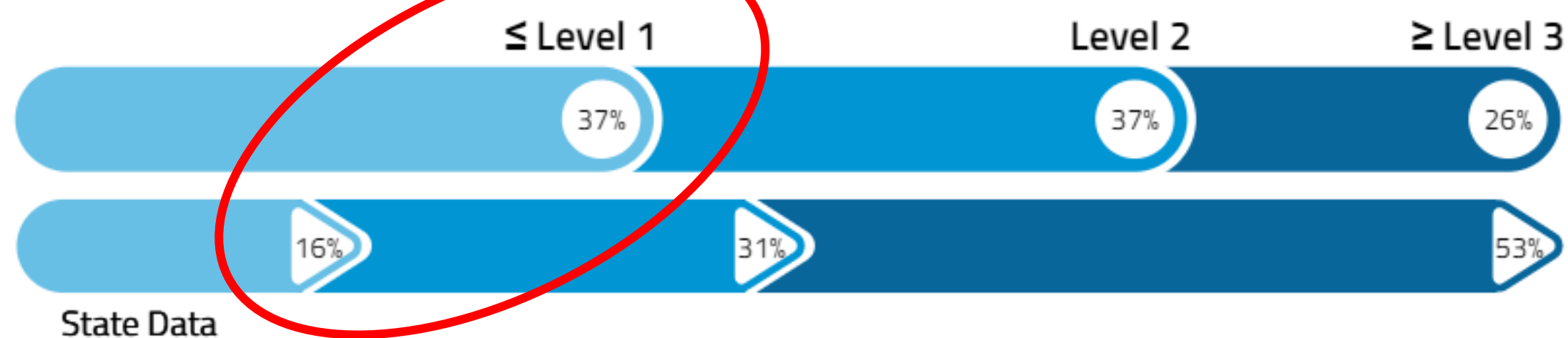
Dakota County, NE

County Summary Card

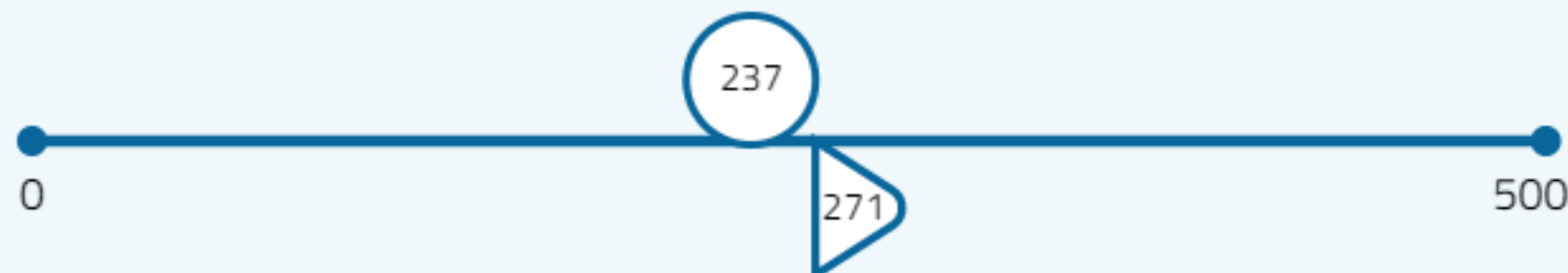
Results ⓘ

HIDE STATE DATA

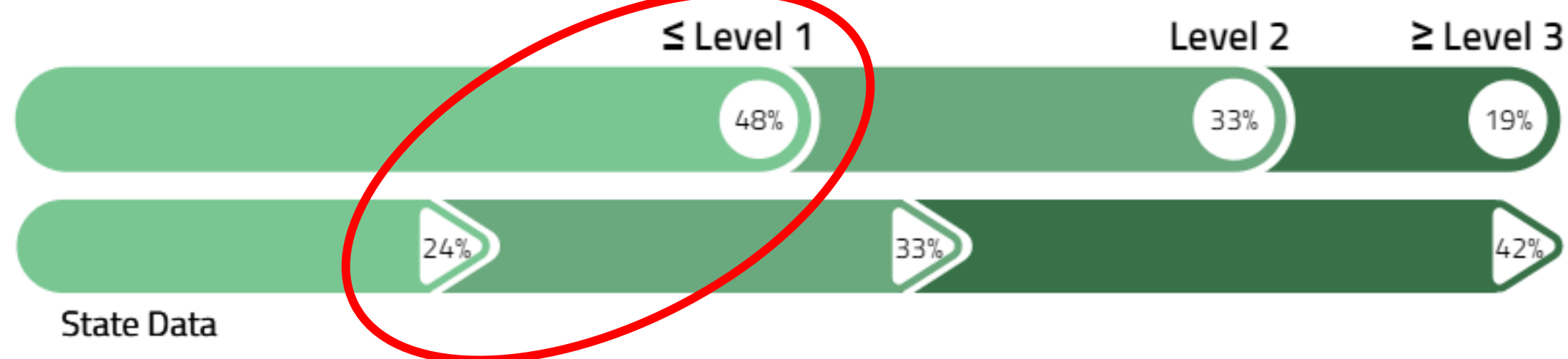
Literacy



Average
Scale Score



Numeracy



Analysis of results ⓘ

Dakota County, NE has a population (ages 16-74) of 14,193 according to the American Community Survey 2013-2017 five-year estimate. When compared to the state of Nebraska:

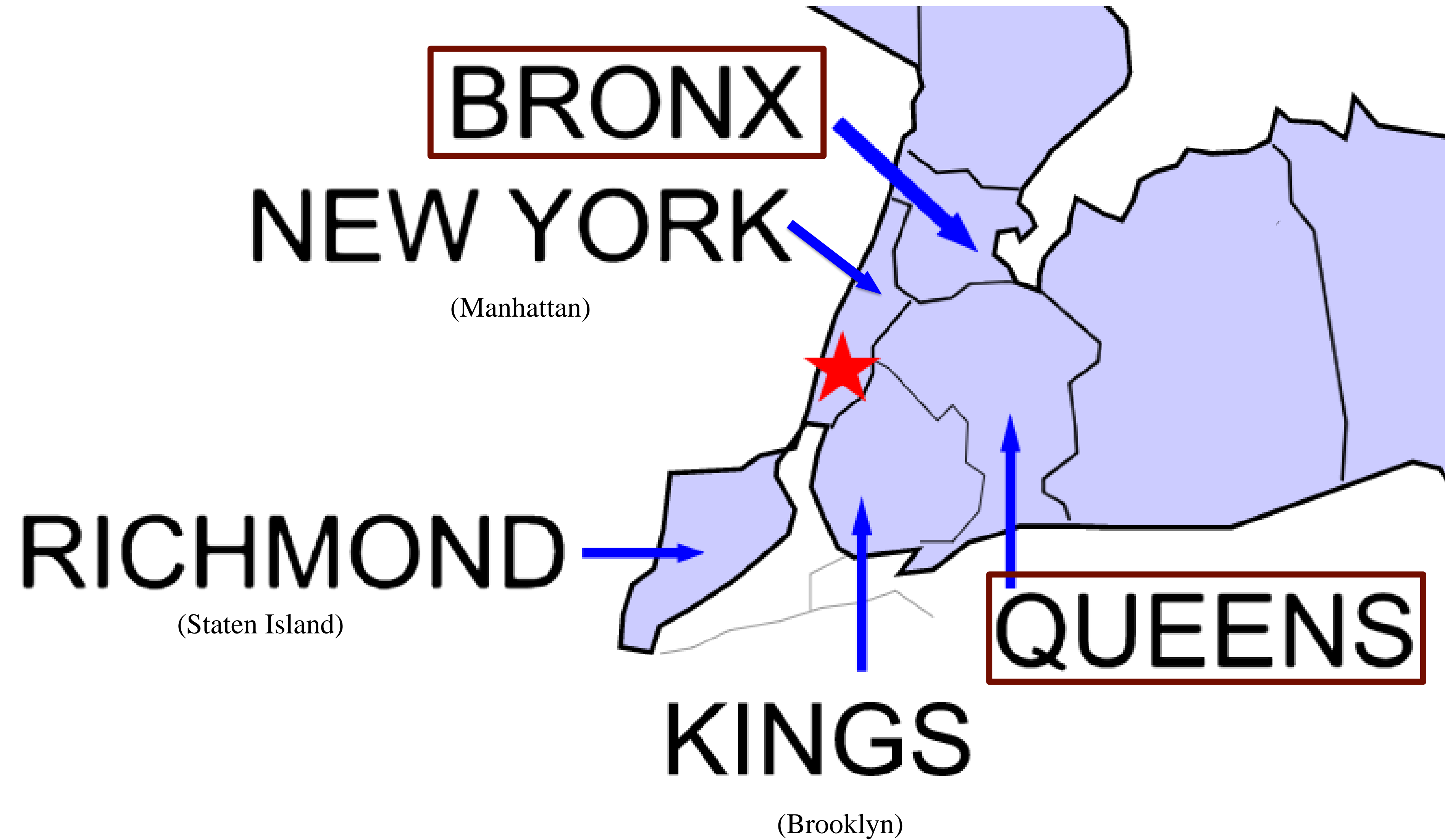
Literacy :

- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 is notably higher
- Percentage at or above Level 3 is statistically lower

Numeracy :

- Average scale score estimate is statistically lower
- Percentage at or below Level 1 is statistically higher
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 is statistically lower

Example 3: Would Queens, NY be a good place for a Bronx, NY community college to open a satellite campus?



Map of Percentage At or Below Level 1 Literacy

MAP FILTER

County

State

Find counties



Literacy

Numeracy

Percentages

Select options below to filter data on the map.
Hover or tap on info icons to learn more.

☒ At or Below Level 1

☐ At Level 2

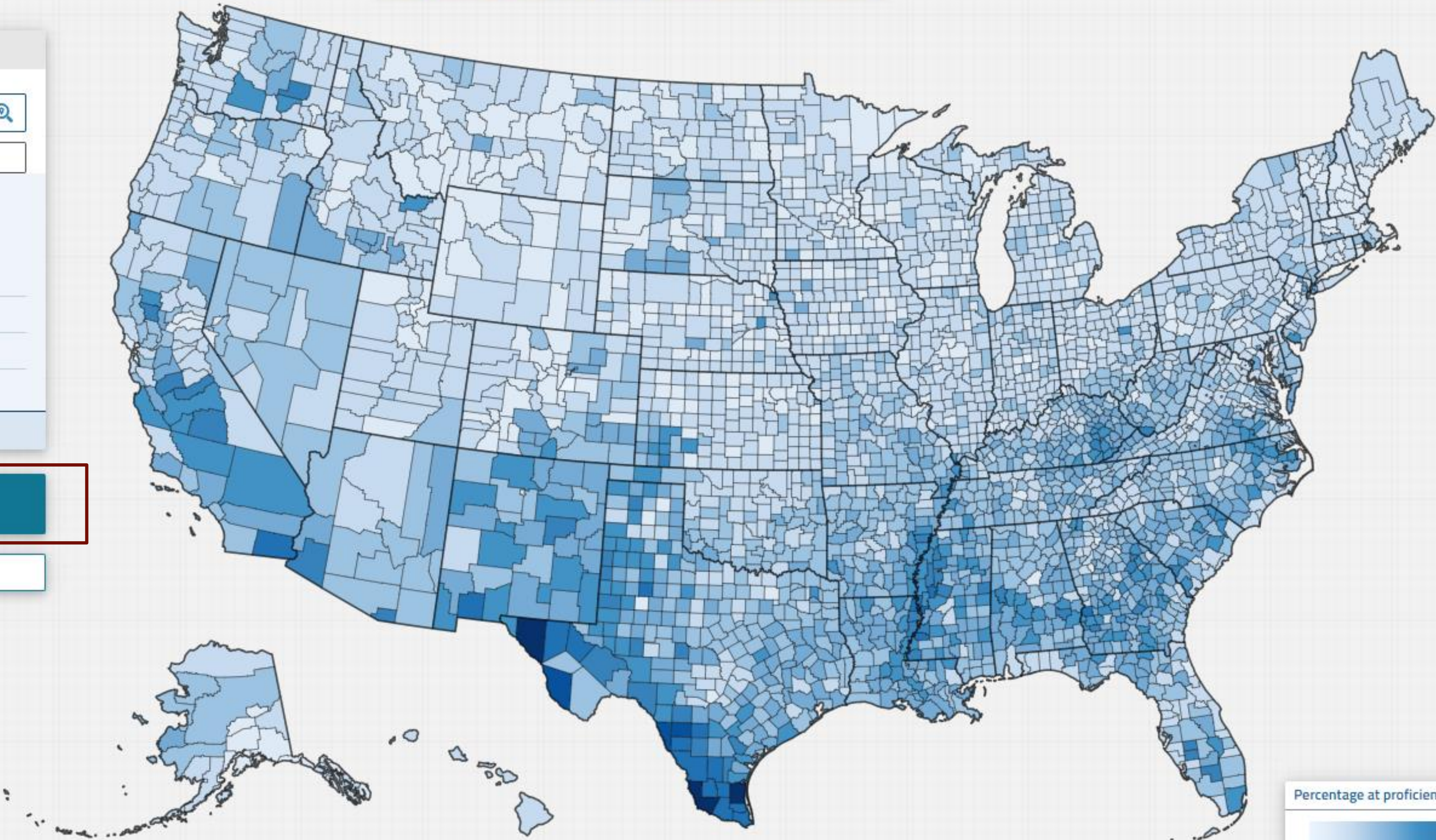
☐ At or Above Level 3

☐ Average Scale Score

More Details

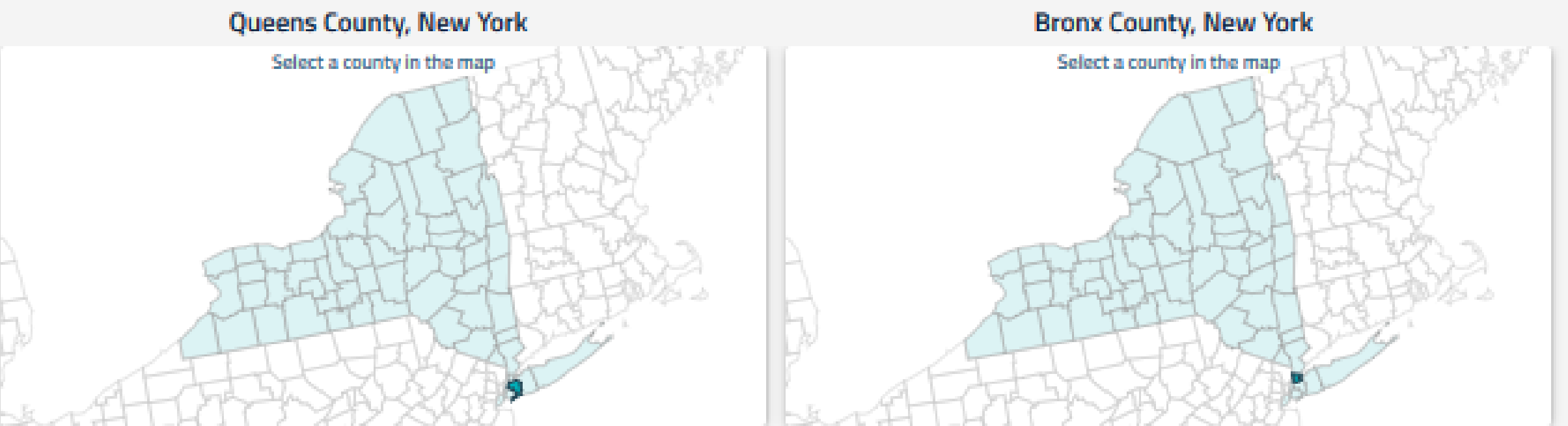
Compare Counties

Download Data



Percentage at proficiency level





Analysis of results ⓘ

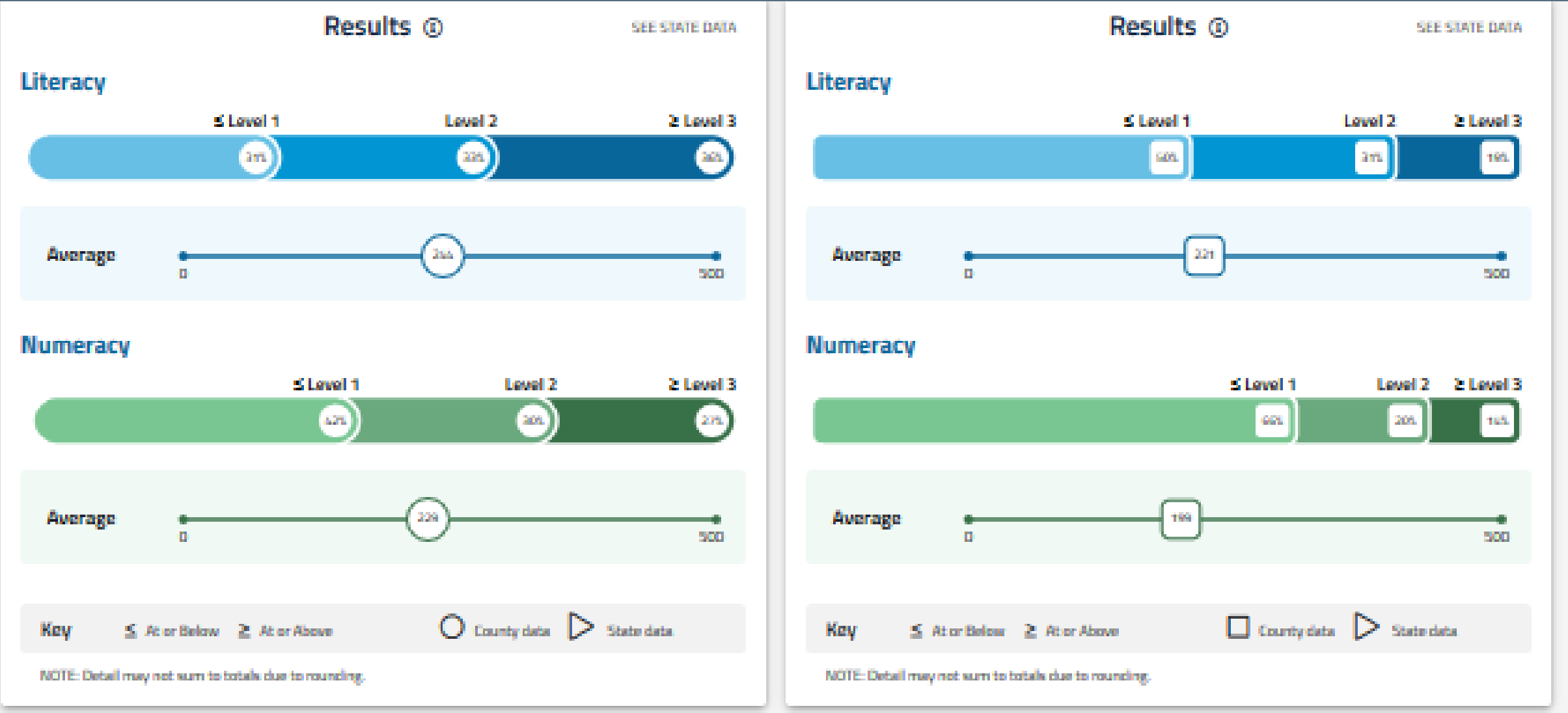
Queens County, NY when compared to Bronx County, NY:

Literacy:

- Average scale score estimate is statistically higher
- Percentage at or below Level 1 is statistically lower
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 is statistically higher

Numeracy :

- Average scale score estimate is statistically higher
- Percentage at or below Level 1 is statistically lower
- Percentage at Level 2 is notably higher
- Percentage at or above Level 3 is statistically higher



Analysis of results ⓘ

Queens County, NY when compared to Bronx County, NY:

Literacy:

- Average scale score estimate is statistically higher
- Percentage at or below Level 1 is statistically lower
- Percentage at Level 2 has no notable difference
- Percentage at or above Level 3 is statistically higher

Numeracy :

- Average scale score estimate is statistically higher
- Percentage at or below Level 1 is statistically lower
- Percentage at Level 2 is notably higher
- Percentage at or above Level 3 is statistically higher

PIAAC Skills Map Benefits

Benefits: Policy Makers

1. National level: drafting policies that are based on science and valid data.
2. State level: planning and priority-setting, decision-making, and allocation of resources.
3. Local level: comparing with state estimates or other counties as a reliable source for:
 - understanding the state of adult populations skills
 - addressing gaps in education and training

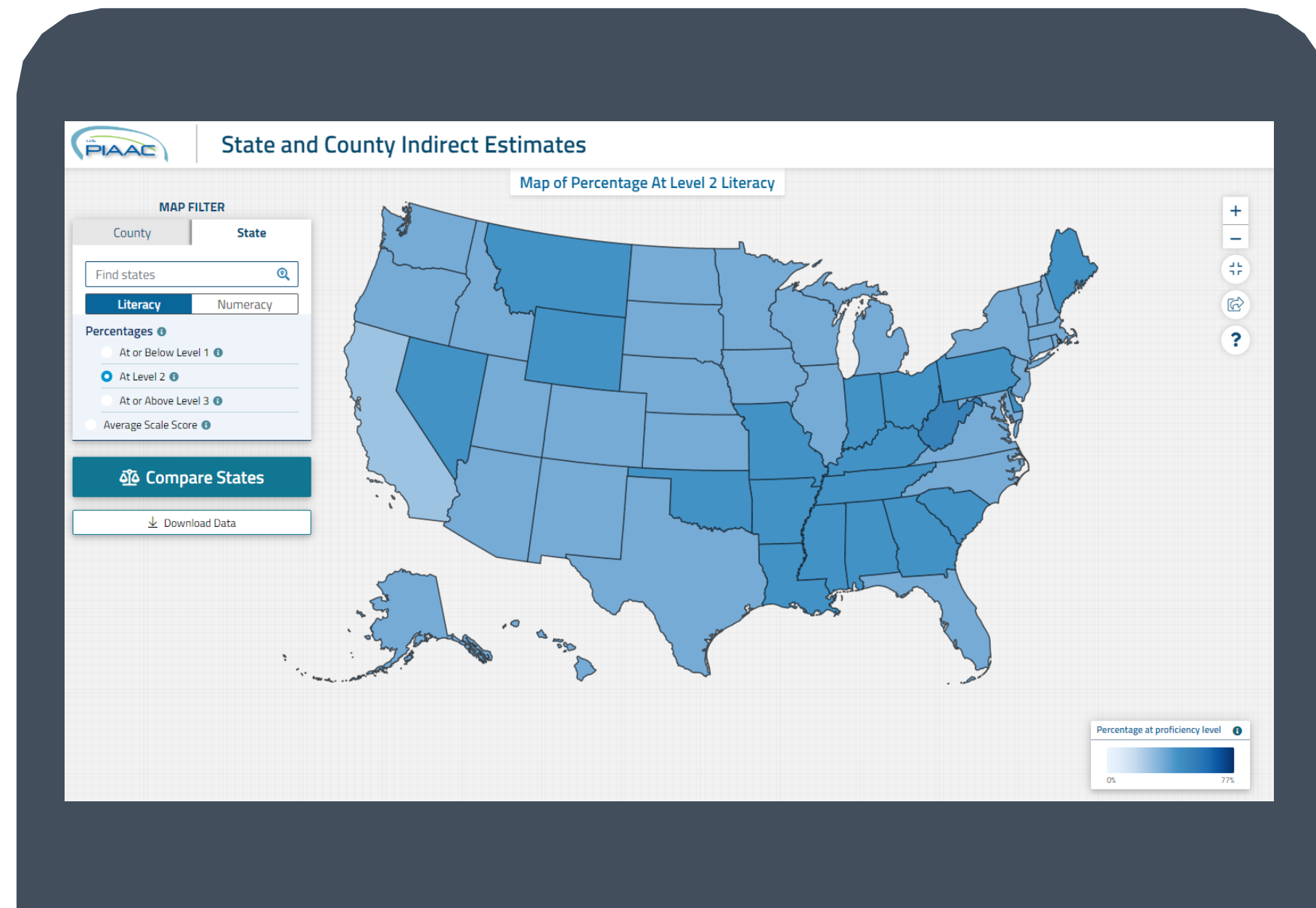
Benefits: State & County Education Organizations and Businesses

The Skills Map provides access to:

1. estimates at the three performance levels that are not available from any state or national studies and surveys;
2. additional variables for contextual information on the status of their labor force, educational attainment;
3. information source for attracting and justifying funding needs; and
4. a planning tool for organizations or companies looking for employees with certain skill sets.

Where can you find the Skills Map and other information?

The Skills Map



- Visit nces.ed.gov/surveys/piaac/state-county-estimates.asp for more information, including:

- Tutorial video for the Skills Map;
- Summary of the higher/lower-performing states and counties; and
- FAQs.

nces.ed.gov/surveys/piaac/skillsmap

Additional Resources

- Visit nces.ed.gov/surveys/piaac/ for information about the PIAAC study nationally.
- Visit oecd.org/skills/piaac/ for information about the PIAAC study internationally.
- Visit piaacgateway.com for additional resources on PIAAC.
- Contact Holly Xie (Holly.Xie@ed.gov) with any additional questions.

What's next for PIAAC?

Upcoming PIAAC Cycle 2

The next cycle of PIAAC (Cycle 2) is currently underway in the United States

- National and international Cycle 2 PIAAC data scheduled to be released in 2024.
- New measures include:
 - Numeracy components: Better measurement of lowest skills in numeracy; and
 - Financial literacy background questions (U.S. only).
- Contact NCES (Holly Xie) for more information on state participation—the deadline to inform NCES of state participation is May 2021.

Questions?

Thank you

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