NAEP Results:

2017 Reading & Mathematics

Will Donkersgoed, PhD
NAEP State Coordinator
Overview – 2017 NAEP Sampling

• N-counts
  – In WY public schools: sample of nearly 9,700 students in grades 4 and 8 across 210 schools (approx)
  – US public schools: nearly 584,800 students across 13,590 schools (approx)

• Sampling variability and statistical significance testing underlies *all* NAEP results
  – Very similar to the way ‘margin of error’ works in polling results
2017 Wyoming NAEP Report Card

- \( \Delta \)s since 2015 NAEP?

<table>
<thead>
<tr>
<th></th>
<th>Gr. 4</th>
<th>Gr. 8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>READING</strong></td>
<td>⬠</td>
<td>⬠</td>
</tr>
<tr>
<td><strong>MATHEMATICS</strong></td>
<td>⬠</td>
<td>⬠</td>
</tr>
</tbody>
</table>

- \( \Delta \)s since 2013?

<table>
<thead>
<tr>
<th></th>
<th>Gr. 4</th>
<th>Gr. 8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>READING</strong></td>
<td>⬠</td>
<td>⬠</td>
</tr>
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<td>⬠</td>
<td>⬠</td>
</tr>
</tbody>
</table>
2017 NAEP Report Card: Nat’l Public

• $\Delta$s since 2015 NAEP?

<table>
<thead>
<tr>
<th></th>
<th>Reading</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr. 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr. 8</td>
<td>$\uparrow$</td>
<td></td>
</tr>
</tbody>
</table>

• $\Delta$s since 2013?

<table>
<thead>
<tr>
<th></th>
<th>Reading</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gr. 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr. 8</td>
<td></td>
<td>$\downarrow$</td>
</tr>
</tbody>
</table>

Grade 8 reading $\uparrow$ 10 states...national uptick led by state increases in CA, FL, NJ.

In mathematics, no rebound from national declines in 2015, lost ground not recovered; in contrast, WY math scores unchanged during two- & four-year periods
State Changes Since 2015

Average Scale Scores:
Statistical increase, decrease, no $\Delta$
Between 2015 and 2017

- 0 states/jurisdictions had a score increase
- 43 states/jurisdictions had no significant change in score
- 9 states/jurisdictions had a score decrease
State Comparisons:
NAEP’s “proficient” bar

Achievement levels:
States at/above/below
US nat’l public’s % “proficient”
The 2017 nation (public) percentage at or above Proficient was 35%.
The 2017 nation (public) percentage at or above Proficient was 35%.
The 2017 **nation (public)** percentage at or above **Proficient** was **40%**.
The 2017 nation (public) percentage at or above Proficient was 33%.
Wyoming
Grade Four Reading

Trend Summaries:
Scale Scores, Achievement Levels,
Percentile Scores and
Race/Ethnicity Gaps
* Significantly different ($p < .05$) from 2017. Significance tests were performed using unrounded numbers.
* Significantly different ($p < .05$) from state's results in 2017. Significance tests were performed using unrounded numbers.

NOTE: Detail may not sum to totals because of rounding.
* Significantly different (p < .05) from 2017. Significance tests were performed using unrounded numbers.
White - Hispanic Score Gap

*Significantly different ($p < .05$) from 2017. Significance tests were performed using unrounded numbers.
White - American Indian/Alaska Native Native
Score Gap

* Significantly different ($p < .05$) from 2017. Significance tests were performed using unrounded numbers.
Wyoming Grade Eight Reading

Trend Summaries:
Scale Scores, Achievement Levels,
Percentile Scores and
White-Hispanic Gap
* Significantly different ($p < .05$) from 2017. Significance tests were performed using unrounded numbers.
<table>
<thead>
<tr>
<th>Year</th>
<th>Below Basic</th>
<th>Basic</th>
<th>Proficient</th>
<th>Advanced</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyoming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>24*</td>
<td>45</td>
<td>29*</td>
<td>2*</td>
<td>263*</td>
</tr>
<tr>
<td>2015</td>
<td>19</td>
<td>45</td>
<td>33</td>
<td>3</td>
<td>269</td>
</tr>
<tr>
<td>2017</td>
<td>20</td>
<td>43</td>
<td>34</td>
<td>3</td>
<td>269</td>
</tr>
<tr>
<td>Nation (public)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>265*</td>
</tr>
<tr>
<td>2017</td>
<td>25*</td>
<td>41</td>
<td>31*</td>
<td>4</td>
<td>265*</td>
</tr>
</tbody>
</table>

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White - Hispanic Score Gap

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‡ Reporting standards not met.
Wyoming
Grade Four Mathematics

Trend Summaries:
Scale Scores, Achievement Levels,
Percentile Scores and
Race/Ethnicity Gaps
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Gr4, Math

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White - American Indian Score Gap

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Wyoming
Grade Eight Mathematics

Trend Summaries:
Scale Scores, Achievement Levels, Percentile Scores and Race/Ethnicity Gaps
Gr8, Math

* Significantly different ($p < .05$) from 2017. Significance tests were performed using unrounded numbers.
### Wyoming

<table>
<thead>
<tr>
<th>Year</th>
<th>Below Basic</th>
<th>Basic</th>
<th>Proficient</th>
<th>Advanced</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>31*</td>
<td>45*</td>
<td>20*</td>
<td>3*</td>
<td>276*</td>
</tr>
<tr>
<td>2015</td>
<td>22</td>
<td>43</td>
<td>28</td>
<td>7*</td>
<td>287</td>
</tr>
<tr>
<td>2017</td>
<td>21</td>
<td>41</td>
<td>29</td>
<td>9</td>
<td>289</td>
</tr>
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</table>

### Nation (public)

<table>
<thead>
<tr>
<th>Year</th>
<th>Below Basic</th>
<th>Basic</th>
<th>Proficient</th>
<th>Advanced</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>31*</td>
<td>36*</td>
<td>24*</td>
<td>10</td>
<td>282*</td>
</tr>
</tbody>
</table>

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Gr8, Math

White - American Indian/Alaska Native Native
Score Gap

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State-to-State Comparisons

Average Scale Scores:
States higher, lower, or even with WY
In 2017, the average score in Wyoming (227) was:
- **lower than those in 3 states/jurisdictions**
- **higher than those in 34 states/jurisdictions**
- **not significantly different from those in 14 states/jurisdictions**
In 2017, the average score in Wyoming (269) was

- lower than those in 7 states/jurisdictions
- higher than those in 23 states/jurisdictions
- not significantly different from those in 21 states/jurisdictions
In 2017, the average score in Wyoming (248) was

- lower than those in 0 states/jurisdictions
- higher than those in 44 states/jurisdictions
- not significantly different from those in 8 states/jurisdictions
In 2017, the average score in Wyoming (289) was

- lower than those in 5 states/jurisdictions
- higher than those in 36 states/jurisdictions
- not significantly different from those in 11 states/jurisdictions
Regional Comparisons

Average Scale Scores and Achievement Levels (at/above NAEP Basic)
Legend: Wyoming is the focal state. White states were not statistically different from Wyoming. Blue states scored reliably lower than Wyoming.
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% At/Above NAEP Basic

<table>
<thead>
<tr>
<th>State</th>
<th>At/Above NAEP Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY</td>
<td>48</td>
</tr>
<tr>
<td>CO</td>
<td>43</td>
</tr>
<tr>
<td>ID</td>
<td>38</td>
</tr>
<tr>
<td>MT</td>
<td>41</td>
</tr>
<tr>
<td>NE</td>
<td>46</td>
</tr>
<tr>
<td>SD</td>
<td>40</td>
</tr>
<tr>
<td>UT</td>
<td>44</td>
</tr>
<tr>
<td>U.S.</td>
<td>39</td>
</tr>
</tbody>
</table>

Wyoming is greater than US, CO, ID, MT, SD, UT

Wyoming equals NE
Legend: Wyoming is the focal state. White states were not statistically different from Wyoming. Blue state scored reliably lower than Wyoming.
Funding Comparisons

States with Similar Per Capita Education Expenditures: Achievement Levels (at/above NAEP Basic)
Wyoming was one of nine jurisdictions spending over $15,000 per student during the 2014-2015 school year. Jurisdictions also at this spending level: Alaska, Connecticut, DC, Massachusetts, New Jersey, New York, Rhode Island, and Vermont.

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**Achievement Levels**

<table>
<thead>
<tr>
<th>State</th>
<th>Less than $9,000</th>
<th>$9,000 to $10,999</th>
<th>$11,000 to $12,999</th>
<th>$13,000 to $14,999</th>
<th>More than $15,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY</td>
<td>41</td>
<td>36</td>
<td>36</td>
<td>30</td>
<td>31</td>
</tr>
<tr>
<td>AK</td>
<td>29</td>
<td>21</td>
<td>30</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>CT</td>
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<td>MA</td>
<td>50</td>
<td>44</td>
<td>34</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>NJ</td>
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<td>34</td>
<td>37</td>
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</tr>
<tr>
<td>NY</td>
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<td>RI</td>
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</tr>
<tr>
<td>VT</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td>37</td>
<td></td>
</tr>
</tbody>
</table>

**% At/Above NAEP Basic**

- **WY > AK, CT, DC, NY, NJ, RI, VT**
- **WY = MA**
Percentages for grade 8 mathematics, by Parental education level

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>High school only, or unknown</th>
<th>BA or some post secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>28</td>
<td>72</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>42</td>
<td>58</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>26</td>
<td>74</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>25</td>
<td>75</td>
</tr>
<tr>
<td>New Jersey</td>
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<td>73</td>
</tr>
<tr>
<td>New York</td>
<td>37</td>
<td>63</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td>Vermont</td>
<td>31</td>
<td>69</td>
</tr>
<tr>
<td>Wyoming</td>
<td>32</td>
<td>68</td>
</tr>
</tbody>
</table>
Student Groups: Disaggregated Comparisons

Average Scale Scores: Wyoming Students and Their U.S. Peers
* Indicates a statistical difference in average US and WY scores
* Indicates a statistical difference in average US and WY scores
Wyoming and National Results

* Indicates a statistical difference in average US and WY scores
Wyoming and National Results

* Indicates a statistical difference in average US and WY scores
Gap Comparisons:

Achievement Levels in Wyoming for Gender, Race, Special Education, English Learner, and School Lunch Student Groups
Gr8, Math

↓ 18% since ‘15