Report on CLT10 2/5/2020

**Overall**

Our median score increased from 76 - 81.

The national median moved from 75 last test to 76 this test.

Our mean score increased from 76 - 89.

Our high school percentile is the sixty second percentile, about +.68 standard deviations (which is really, really good).

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In the following sections the data is aggregated in such a way that I am unable to clean it quickly. In an ideal world I would find the mean for each subskill at various math levels. As it is, we just have to take all test takers at face value. These scores are all in terms of "% right within the topic." Comparing last year to this year some areas experiences a high level of variance, so I am worried that the two tests were structurally different enough that comparing is misleading, nonetheless we will do it anyway.

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| --- | --- | --- | --- | --- | --- |
| **Verbal Reasoning** |   | **Grammar / Writing** |   | **Quantitative Reasoning** |   |
|   |   |   |   |   |   |
| **72%** |   | **72%** |   | **53%** |   |
|   |   |   |   |   |   |
|  |  |  |  |  |  |
| **Analysis** | 73% | **Grammar** | 82% | **Algebra** | 51% |
| Interpretation of Evidence | 81% | Agreement | 82% | Algebraic Expressions and Equations | 36% |
| Textual Analysis | 67% | Punctuation and Sentence Structure | 82% | Arithmetic and Operations | 67% |
| **Comprehension** | 79% | **Writing** | 58% | **Geometrical Reasoning** | 37% |
| Passage as a Whole | 83% | Structure | 59% | Properties of Shapes | 37% |
| Passage Details | 78% | Style | 57% | **Geometry** | 42% |
| Passage Relationships | 76% | Word Choice | 55% | Plane Geometry | 43% |
|  |  |  |  | Properties of Shapes | 41% |
|  |  |  |  | **Mathematical Reasoning** | 58% |
|  |  |  |  | Logic | 57% |
|  |  |  |  | Word Problems | 60% |

**Verbal Reasoning - overall correct 72%**

Interpretation of Evidence increased from 60% correct to 81% correct.

Comprehension of the passage as a whole increased from 68% correct to 83% correct.

Stagnation in all other areas.

**Writing and Grammar - overall correct 72%**

These scores are almost the exact same as last year +- 2 percent.

**Quantitative Reasoning - overall correct 53%**

This section is the hardest to say anything definitive about because the data is confounded by how many different math levels are represented.

We had a huge increase in our percentile for high school math

from 47.2 to 53.9. The trend is very positive.

The biggest subskill increases were in:

Arithmetic and Operations with 67% correct.

Logic with 57% right.

Word problems mysteriously backslid into 60% from the previous 71%.

Algebraic Expressions and Equations was still very low at 37% (same as last year). However, I don’t see a good way to increase speed and ability in this area. For one, performing algebra quickly is highly correlated with IQ about which we can do very little. For another, while we could drill the daylights out of the students to solve questions of this exact type more quickly, I don’t see the long-term advantage of being a fast calculator at a certain type of problem, especially without having the fundamental reasoning more solid. Setting up equations intelligently is a far more useful skill. Knowing how to think through a math problem, what tools to use, and how to reason are more useful to both the engineer and mathematician in the long term. Thus, I believe we should be more worried about the backslide in “word problems” and in addition work to increase the more foundational “geometrical reasoning” and “arithmetic operations”.

I think we should be realistic about what our aggregate ceiling is for percentile. I believe that we can realistically remain in the 60th percentile for verbal reasoning and grammar indefinitely, provided we have the right teaching staff. Currently we are in the 62nd and 64th percentile respectively in these two areas. For quantitative reasoning we are currently in the 54th percentile, which is respectable. We might be able to get to the 60th percentile, but what the level of reform necessary to achieve this is - I can’t yet tell. My only current suggestion is to work with math teachers to increase the quality of our school math culture. I will start working on this this week.

We will probably need one more year in math to see if our upward trend continues or stagnates. Perhaps the most important thing to do is assign more homework in this area via an online tool.