Cabell County Schools’ Math Students Deepen Thinking and Raise State Assessment Scores by 6%

6-8 Math Success Story

“...It’s just amazing to go into the classrooms where teachers are implementing the curriculum with fidelity and see the deep-thinking math talks students are having.”

-Lisa Burris, Academic Math Specialist, Cabell County Schools, WV

Results:
• Reached all students through collaborative classrooms
• Shifted from teacher-centered to student-centered learning
• Increased student engagement, addressing district goal
• Built deeper conceptual understanding of math
• WVGSA math scores increased an average of 6% from 2020-2022

3 Major Challenges
Huntington, the second largest city in West Virginia, sits on the Ohio River where West Virginia, Ohio, and Kentucky meet. Here, 11,875 students enrolled in Cabell County Schools come together from a wide range of socioeconomic backgrounds.

The district serves students ranging from those who are staying in homeless shelters to children whose parents are doctors, lawyers, and bank presidents. With a wide variety of home support, adverse childhood experiences (ACEs), and access to resources, Cabell County math educators faced the challenge of providing the same high-quality instruction to all students while also meeting the district goal of raising student engagement.

Challenges:
• Students come from a wide range of socioeconomic backgrounds
• Classrooms were teacher-centered
• Struggled to meet district goal to maintain high student engagement
• Needed a curriculum with higher-order thinking questions similar to state assessment

Solutions:
• Carnegie Learning Middle School Math Solution

Populations Served:
• Grades 6-8
Another challenge that Cabell County faced was that their math classrooms were still following the traditional model of teacher-centered instruction, rather than student-centered classrooms that they knew were best practice for 21st-century learning.

Finally, the district also needed a curriculum that provided higher-order thinking questions similar to the ones on the West Virginia General Summative Assessment (WVGSA).

So, how did Cabell County Schools modernize their math classrooms in a way that empowered all students to engage with deep mathematical thinking, no matter their starting point?

A critical component of the answer has been the Carnegie Learning Middle School Math Solution.

“The most important concept is that it is application math, so they can see how it relates to the real world. I love that the book gives those visuals and that they can see where it’s going to relate to their lives in the future.”

Engagement Skyrockets with Student-Centered Classrooms

Cabell County students are more engaged than ever in math classrooms that are now student-centered.

Lisa Burris, Academic Math Specialist for the four middle schools in the district, shares, “Carnegie Learning’s math solution definitely promotes student collaboration, which increases student engagement. I think it’s a wonderful curriculum. It encourages and promotes student-centered learning and not just the direct teaching that we’re used to, especially from my generation.”

The core blended math solution combines the write-in, consumable text MATHbook with the AI-driven, one-on-one software MATHia. MATHbook is designed to foster in-class discussion, group work, and exploratory learning.

Eighth grade math and Algebra 1 teacher Lauren Cooper also appreciates the student-driven collaboration in her classroom. “Carnegie Learning really plays into student-centered learning. You’re going to learn best by teaching other people, and that’s really the goal of students cooperating.”

Leveling the Playing Field Pushes All Students to Excel

In addition to student-centered classrooms, the Middle School Math Solution has provided other ways to level the playing field for all students to excel.

MATHbook’s spiral design gives students multiple chances for concepts to click into place.

Seventh grade math teacher Carol Ward comments, “Carnegie Learning does a good job of going backwards and then going forwards in the materials and the standards. So students may not get it on a Monday, but on Wednesday, it all clicks for them.”

Giving students multiple ways to access math gives them even more chances to succeed.

Teri Booten, a sixth grade teacher, says, “One thing I like about Carnegie Learning is that students see multiple ways that they can access the curriculum. Do they want to use a double number line? Do they want to use a tape diagram? Do they want to scale up or scale down? Do they want to use a graph? Do they want to use it as a table? And they see all of this and they know they have choices about how they can access that.”

More students are getting opportunities to succeed, all without sacrificing rigor.

“Carnegie Learning is the most rigorous program that I have used thus far,” Ms. Cooper reflects. “But even with that, we can bring in kids that aren't high-level learners and they can still find success.”
Teaching the Why Behind the Math

Modern math classrooms have evolved to emphasize conceptual understanding over rote memorization, as reflected by the higher-order thinking questions on the state assessment, WVGSA. Cabell County teachers and students have risen to the challenge, with the help of our math solution.

“It's just amazing to go into the classrooms where teachers are implementing the curriculum with fidelity and see the deep-thinking math talks students are having,” Ms. Burris says.

One of those teachers is Ms. Ward.

“The most important concept is that it is application math,” Ms. Ward reflects, “so they can see how it relates to the real world. I love that the book gives those visuals and that they can see where it’s going to relate to their lives in the future.”

Promising Gains on State Assessment Scores

During the five and a half years of Cabell County Schools' implementation of our math program, the district has seen a gradual increase on WVGSA scores, with an understandable dip during the pandemic.

Across all four middle schools, WVGSA math scores increased an average of 6% from 2020-2022.

“This is a fairly significant increase in overall test scores in our district,” Ms. Burris states. “It hasn’t been an easy couple of years, so we’re pleased with the direction we’re going.”

Not only have the overall scores gone up, Mrs. Booten’s sixth grade class accomplished a particularly impressive feat that reflects their deep mathematical growth.

“Last year, I was super excited. My kids scored the highest on the DOK [Depth of Knowledge] 3 questions,” Mrs. Booten beams. “The area that they did the best on was those higher-level thinking questions. I was thrilled.”

Looking Forward

As Cabell County continues its partnership with Carnegie Learning, what's on the horizon?

Ms. Burris is excited to see how much higher their WVGSA scores will be this year. But numbers aren't everything.

“I feel confident that our test scores will increase even more this year. However, more importantly, our students are having deeper math talks and our classrooms are becoming more student-centered since using Carnegie Learning.”