

**GOVERNMENT OF THE DISTRICT OF COLUMBIA**  
**District of Columbia Public Schools (DCPS)**



Public Hearing on  
B25-800 Mathematics Education Improvement Amendment Act of 2024

Testimony of  
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Before the  
Committee of the Whole  
The Honorable Phil Mendelson, Chairperson

John A. Wilson Building  
1350 Pennsylvania Avenue NW

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12:00 PM



Good afternoon, Chairman Mendelson, Councilmembers, staff, and members of the public. My name is Corie Colgan, and I am the Chief of the Office of Teaching and Learning at DC Public Schools (DCPS). I am joined today by Jennifer Kumi Burkett, DCPS' Senior Director of Science, Technology, Engineering, and Mathematics. Our Office provides educators with curricular resources, academic programs, and aligned professional development to ensure rigorous and joyful learning experiences for every student. Our office includes five divisions that directly support students and schools – content and curriculum, extended learning and academic recovery, language access, professional learning, and specialized instruction. These divisions provide services to schools like the creation of curricular materials, oversight of afterschool programs, the identification of multilingual learners through the DCPS Welcome Center, and staffing of speech and language pathologists and other service providers in schools.

I want to start my testimony today by thanking all the educators at DCPS who work daily with our 52,000 students to help them develop their skills as mathematicians. We know that an effective teacher can be the game-changer in a student's life, helping them develop skills in mathematics that can support their future learning, nurture an interest, or help them establish a career. By the end of my testimony today, it is my goal that you will be able to answer two questions –

- (1) What is effective mathematics instruction?
- (2) What is DCPS' strategy for teaching mathematics to students?

**First, what is effective mathematics instruction?** If you were to walk into a classroom at DCPS or review the mathematics homework of a student today, you might be surprised. The work that students are doing in mathematics looks different than the work students were doing ten, twenty, or more years ago in school. That is because math teaching has shifted significantly over the last decades from a focus on rote memorization and lecture-based instruction to a student-centered approach that emphasizes the five strands of mathematical proficiency:

- Conceptual understanding;
- Procedural fluency;
- Strategic competence;



- Adaptive reasoning; and
- Productive disposition.

While everyone needs to know their multiplication tables, in addition to developing that type of “procedural fluency,” students today engage in problem-solving and the exploration of multiple strategies, fostering a deeper conceptual grasp of mathematical principles. Technology has also transformed math classrooms, providing interactive tools and data-driven insights that enable personalized, adaptive learning experiences. This modern approach enhances students' critical thinking, resilience, and collaboration skills, equipping them to navigate the complexities of the contemporary world effectively.

I mentioned the five strands of mathematics instruction and I want to share a little more about each strand so that you really understand what effective mathematics instruction looks like today. In recent decades, the National Research Council and the National Council of Teachers of Mathematics have developed resources and explanations that deepen the public understanding of these five strands and how they show up in mathematics education.<sup>1</sup> More information on the five strands and the practices that support them are available in your materials and *in Slide #2*. I will give a brief definition of each and am happy to answer additional questions during today’s hearing.

1. *Conceptual Understanding* means comprehending mathematical concepts, operations, and relations – knowing what mathematical symbols, diagrams, and procedures mean.
2. *Procedural Fluency* means carrying out mathematical procedures, such as adding, subtracting, multiplying, and dividing numbers flexibly, accurately, efficiently, and appropriately.
3. *Strategic Competence* means being able to formulate problems mathematically and to devise strategies for solving them using concepts and procedures appropriately.

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<sup>1</sup> See, for example

[https://www.nctm.org/uploadedFiles/Advocacy/Advocacy\\_Toolkit/Mathematical%20Proficiency\\_The%20Five%20Strands.pdf](https://www.nctm.org/uploadedFiles/Advocacy/Advocacy_Toolkit/Mathematical%20Proficiency_The%20Five%20Strands.pdf) and <https://www.nctm.org/Standards-and-Positions/Position-Statements/Procedural-Fluency-in-Mathematics/>.



4. *Adaptive Reasoning* means using logic to explain and justify a solution to a problem or to extend from something known to something not yet known.
5. *Productive Disposition* means seeing mathematics as sensible, useful, and doable – if you work at it – and being willing to do the work.

While each strand is important, I want to emphasize that effective math instruction must interweave all five. If we merely focus on some and not others, we will leave students ill-equipped for more advanced mathematics in high school and beyond. I hope that providing more information on what effective math instruction looks like at a big picture level is helpful to you as you consider the legislation before you and the larger issue of mathematics instruction within public schools in Washington, DC.

Now, I want to turn my attention to the next question – **What is DCPS’ Strategy for Teaching Mathematics to Students?** Prior to the COVID-19 pandemic, DCPS students were steadily improving their mathematics skills with more students demonstrating proficiency on local and national assessments like PARCC and NAEP. As you can see *in Slide #3*, DCPS scores on these two critical assessments were steadily improving, with NAEP scores in 4<sup>th</sup> grade at the average for large cities in 2019. The impact of the pandemic was profound, whether it was the loss of caregivers or the interrupted learning that occurred due to the shift to virtual instruction. It was with those impacts in mind that DCPS developed its five-year strategic plan, *A Capital Commitment 2023-2028*. As we note in our plan, “by focusing on early numeracy, mathematical reasoning, and algebra readiness, we will drive math excellence across the district and prepare students for advanced courses in high school and STEM-focused career opportunities.” While we have seen academic recovery since the return to in-person learning, we have more work to do, and I want to explain DCPS’ strategy for teaching our students to be mathematically strong.

Our strategy has five parts, which you can see *on Slide #4*:

1. *Implement a robust early numeracy program that ensures Pre-K and kindergarten alignment, early screening, and intervention to maximize the number of students performing on or above grade level by the end of second grade.* To achieve this, DCPS Central Services and schools continue to



implement the *Building Blocks* curriculum in early childhood classrooms. We have also trained schools on the use of mathematics screeners in the early grades and are working to expand this work to more schools this year.

2. *Raise math expertise of educators through high quality professional learning and the establishment of the DREAM Learning Center to provide robust graduate level coursework and credentialing.* At each DCPS school, a “LEAP Leader” focused on math is responsible for ensuring that teachers regularly participate in professional learning to strengthen their math instruction. LEAP Leaders are content experts who lead weekly seminars and work directly with teachers by observing them, planning lessons with them, or reviewing student data to help develop next steps for instruction.<sup>2</sup> We are focused on ensuring that our LEAP leaders continue to build their own expertise in math so that they can, in turn, strengthen the expertise of the teachers they work with regularly. I want to take this opportunity to share a little more about the three parts of the planned DREAM Learning Center – tutoring, professional development, and family engagement. Building on the success of the DC Reading Clinic, educators will tutor students and receive mentoring from more experienced mathematics teachers. We have seen this model work at the Reading Clinic with improved early literacy results and more effective teachers and believe that similar model can help our students in math. Additionally, families will be able to make use of resources at the center so they can support student learning at home.
3. *Build the pathway to Grade 8 Algebra 1 beginning in Pre-K, grounded in high quality Tier 1 instruction.* One way that we are working to achieve this goal is by reviewing our standards in the elementary and early secondary grades. We have noticed that students who are particularly successful at mastering certain “power standards” are better prepared for Algebra in 8<sup>th</sup> grade than others. Therefore, we are selecting and designing specific activities that students can engage in each spring to prepare them for both the next grade and specifically for Algebra later. We are excited about this work and look forward to continuing to discuss it in the future.

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<sup>2</sup> More information on LEAP (LEarning together to Advance our Practice) can be found at <https://dcps.dc.gov/page/leap-teacher-professional-development>.



4. *Ensure students in every ward have access to the same advanced math, financial literacy, and data science courses.* To achieve this goal, we recently audited the course offerings at each high school to ensure all students have access to at least one Advanced Placement or Dual Enrollment course in math. For financial literacy, we collaborated with OSSE on the development of new standards and are piloting a program with Junior Achievement, a local non-profit focused on financial literacy education.
  
5. *Change math mindsets and build math joy through communities of learning across schools and with families.* This includes supporting students with participating in math competitions at Google headquarters for example and creating resources for parents to better understand math instruction at DCPS. We know that mathematics can be intimidating but at DCPS we believe that “all people are math people” and we are confronting the work of changing mindsets head on.

To support educators with internalizing, planning, and facilitating the use of curriculum, DCPS Central Services provides several key resources. These include weekly pacing guides to help teachers stay on track throughout the school year with lesson call outs, prioritized content and tasks, and guidance for how to incorporate lessons from other parts of the day to support student learning. We have also created instructional playbooks for elementary and secondary math to highlight effective instructional strategies and offer “look-fors” for both teachers and students to support high-quality instruction. Finally, Central Services curated planning templates to help teachers make sense of the math of a given unit or lesson.

We know that each school has unique strengths and needs when it comes to mathematics instruction. Our Cluster Support Model (CSM) provides differentiated support to schools in service of their school goals, our strategic plan, and our district strategy. This year, as part of the CSM, four Central Services staff provide mathematics instructional support to elementary schools and three Central Services staff provide support to secondary schools. Through a mix of individual coaching and group professional development, these staff members help schools effectively implement district-wide resources within their school context; they support LEAP Leaders with best



practices in instructional planning, curriculum implementation, and data analysis. They also provide integrated school support with CSM colleagues in Special Education, Language Acquisition, Multi-Tiered Systems of Support (MTSS), and more, to ensure we are effectively supporting *all* students to become strong mathematicians.

### **B25-800 Mathematics Education Improvement Amendment Act of 2024**

We appreciate the Council's attention to the important work of improving mathematics achievement in Washington, DC's public schools. We share that goal and are eagerly participating in the Mathematics Task Force convened by OSSE, fulfilling the goal of the legislation. My colleagues, Ms. Burkett and Jessica Gonzalez, Director of Math Strategy and Advancement, are part of the Task Force, and DCPS looks forward to reviewing the recommendations that emerge from the Task Force. We support the work of the Task Force wholeheartedly.

Thank you for the opportunity to testify today on mathematics instruction at DCPS. It is imperative that we work together on the shared goal of our students achieving in mathematics while in school and graduating prepared for what is next. I look forward to answering your questions.