Math Advisory Committee
January 27, 2026

Members

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Recommendations are embedded and bolded in the text below.

Alignment to Strategic Plan
Priority: Student Academic Growth and Success
Performance Objective: College, Career & Civic Readiness
Strategies: Improve Tier 1 Instruction. Improve SOL pass rates.

Budgetary Implications

No incremental impacts this year but future cost savings.

Committee vote: [consensus support with the draft, formal vote to come] **Date:** January 21, 2026

I. Introduction

While we (MAC) had been planning to spread these initiatives over time given this is our last year we are packaging together several recommendations that, if implemented, would greatly enhance APS math.

We believe that APS has a great opportunity to improve math achievement. For years we have been hearing suggestions and areas where Tier 1 instruction could be improved and made more rigorous. There is no reason why APS should not take advantage of this opportunity to increase expectations and improve math instruction and achievement. The following plan represents changes that would greatly improve math education for all APS students.

II. Science of Learning

We strongly support the Math Office's push to apply the science of learning to math instruction as presented by Dr. Mann and Mr. Seward in the math update in September. Just as literacy has benefited from evidence-based practices, math instruction improves when grounded in cognitive

science: explicit instruction, worked examples, spaced practice, regular low-stakes assessments, and cumulative review. This is the way to improve Tier 1 instruction and overall performance.

We recommend that APS adopts a district-wide "science of math" framework. Mr. Carl Seward could take the lead drafting. This would provide a framework to align professional development, lesson planning expectations, interventions, and coaching to math content mastery and better math instruction.

III. Resource Adoption

The timing is fortunate in that APS contractually needs a resource adoption and we strongly encourage APS to pick a resource more aligned with the science of learning. The current resource is not adequate nor is it being used appropriately. The first step is to choose a new resource. It is important that the new math resource is not built around inquiry learning but rather lays out clear explanations of concepts along with worked examples and provides students with opportunities to build a firm math foundation by developing automaticity with math facts and procedures. **We recommend that APS adopt a new math resource that is more aligned with the science of learning.**

IV. Required Usage of Resources / Textbooks / Workbooks Purchased

We strongly recommend that APS <u>requires</u> all teachers to use the adopted resource. We use the word "require" on purpose. After the last resource adoption, the textbooks and workbooks were/are not consistently used. We have lots of parents who indicated that the workbooks came home at the end of the year completely blank and we have yet to identify a parent whose student came home with a filled-out workbook. When adopted textbooks are underused, districts lose return on investment and instructional coherence suffers. Instead, APS teachers are using ad hoc resources that are not consistent across the division.

APS should clarify that adopted textbooks are the *primary* instructional resource, supported—but not replaced—by supplemental materials. The math office should be directed to develop new instructional pacing and sequencing guides that follow the adopted resource over this summer. The math office and math coaches should monitor usage through walkthroughs and planning reviews, focusing on support rather than compliance alone.

MAC believes that requiring all teachers to use the adopted resources is not something that the math office implement on its own. **We recommend that the School Board and Superintendent provide this guidance.**

V. Change APS's sequence to match the Textbooks

APS has a tradition of having its own math sequence. This organizational decision makes it hard to adapt textbooks, workbooks, and other standard instructional material to the APS schedule. This also requires having teachers cobble together resources to support their teaching. This places unnecessary work and burdens on teachers. **We recommend that APS adapt its teaching sequences to match the adopted resource.** Alignment ensures instructional time is spent on intended standards and supports substitute teachers, interventionists, and families. We recommend that APS publish alignment guides indicating required chapters, optional resources, and pacing suggestions.

The previous decisions to have an APS only sequence, not use a commercially made resource and cobble together teachers materials leads to teachers needing more support than they otherwise would have. This has led to the need for math coaches. By making a better choice with curriculum and requiring that all teachers use it, there should be a reduction in the work required of math coaches and therefore a reduction in the demand for math coaches. **We recommend that there be a transition year to adopt and implement the new math resource and to support teachers with this change, but thereafter there should be a re-examination of the need and role for math coaches.** MAC is optimistic that this will result in substantial budget savings. Our liaison is less confident and believes that there will remain a need for math coaches.

VI. Publish Grade Syllabus

We recommend that APS publish the pacing and sequencing guides or other materials consistent with a grade-level syllabus so that parents can follow what their kids are doing. Clear, public-facing syllabi improve transparency, alignment, and trust with families while supporting continuity for students who move between schools. Many Virginia districts already publish scope-and-sequence documents, demonstrating feasibility and providing models. When parents and teachers can see *what* is taught *when*, confusion decreases and instructional coherence improves.

APS should publish grade-level topic schedules on its website, adapted from peer Virginia districts or from existing internal teacher workplans/sequence documents. While we believe this should begin with math, additional core subjects (social studies, ELA, science) should also be added. These should be updated annually and prior years archived to support longitudinal planning.

VII. Reorientate Professional Development around the New Resource Adoption to Increase Success

We recommend that a substantial portion of teacher professional development for the next two years be focused on implementing the new resource. While the new resource will cover many the same topics as before, it would be great to support teachers with the new sequence.

We also support the re-introduction of content academies to support training around specific instruction methods. Relatedly, we recommend that professional development also be focused on unpacking the standards and identifying best practices for teaching each standard. We understand that many teachers have expressed preference for having greater amount of professional development focused on explicit teaching techniques and best practices.

VIII. Ensure Consistency in Instruction Time

We recommend that APS provide consistent expectations across schools that they should provide more consistent direct instruction time. We believe that "teachers teach students" and that inconsistent quantities of direct instruction times exist in APS and lead to unequal access to core content, particularly harming students who need additional support and/or who are behind. In other words, variability in direct instruction across schools and classrooms creates inequitable learning opportunities.

The math office and coaches should audit instructional time allocations across grades and schools using observations and schedules. The math office and coaches should follow up as needed to establish minimum expectations for direct instruction and support teachers in classrooms falling below benchmarks with coaching and planning assistance.

IX. More Homework using New Workbooks

It is without (legitimate) question that thoughtfully designed homework reinforces classroom learning, builds fluency, and provides formative feedback. Notwithstanding some opinion pieces that have been labelled "educational research" it is true that homework improves academic achievement. There is a reason "practice makes perfect" is an idiom. Students who spend more time reading become better readers, just like kids who practice instruments or sports.

We recommend that APS increase its recommendations for homework, particularly in elementary school. This would require a change in homework PIP. This should be *purposeful homework*: short, aligned practice focused on core skills and content and there should be grade-band expectations (e.g., 10–20 minutes in kindergarten gradually increasing). APS should also develop guidance for providing additional homework to students who have fallen behind or who have shown other gaps. Without spending additional time, the students who have fallen behind will not be able to catch up.

We also recommend that APS remove the "no more than X minutes of homework" restriction for students who have failed an SOL or fall below proficient on MAP testing, particularly in early ES grades. The historical experience indicates that students who fall behind tend to stay beyond because most of the following year's curriculum and homework amounts are the same for all students. If a teacher were to develop an intervention that could catch students up, but it required more homework such that it was above the max limit, the

teacher would be precluded from implementing it. APS should not have artificial barriers to student achievement.

While adding homework does not have a budget impact in the short term, over time the benefits from greater homework should cause a reduction in the number of students needing additional support and cost savings from having fewer interventionists and other support staff.

X. Make Interventionists a pooled resource.

As discussed in the past, we **recommend that interventionists be treated as a pooled resource that is allocated to schools based on needs.** We expect that implementing all of the improvements included in this proposal will result in a reduction in the number of needed interventionists over time.

XI. Set up mechanism for spreading best practices across APS

We recommend that APS set up a formal process to identify high-performing classrooms and schools using achievement and growth data, followed by structured case studies, peer-sharing or other structures to disseminate best practices. APS already contains classrooms and schools achieving strong outcomes. Without a system to identify and share what works, success remains siloed. Data-driven diffusion of best practices is one of the most cost-effective improvement strategies available.

XII. Implement flexible grouping in 5th grade to prepare for three 6th grade math classes

We recommend that APS implement flexible grouping practices for all 5th grade math classes so that instruction can be most effectively targeted at students who are at different levels. To ensure consistency across the division, we believe that the School Board and Superintendent should provide guidance. We believe that this will also help support students for 6th grade where there will be 3 different math classes. We also recommend that APS pilot flexible grouping practices for select 4th grade classes based on schools where such practices could drive success.

XIII. Reporting on Learning Loss

We recommend that APS should adopt a policy requiring annual publication of a COVID Learning Loss Spotlight Report tracking mathematics achievement recovery among students who attended school during 2020-2021. The report should disaggregate achievement data by school, grade level, economic disadvantage status, English learner status, and

race/ethnicity. The report should also describe the major targeted interventions used to remediate learning loss. The report should estimate what percentage of students are on a track to achieve at grade level by the time they graduate from high school at the latest. The report should also include an updated assessment of the effectiveness of the interventions.

XIV. New reporting structures for data and student performance measures

We recommend that the math office makes the following data presentations part of its normal reporting. Currently, APS presents SOL pass rate trends over time. While the overall pass rate scores may have been relevant for accreditation, data aggregated this way tells the reader little about how the overall APS student population is doing. As an example, the pass rates for one subject has varied between 71% and 75%. This gives some information about students who fall into the third decile. However, it does not tell you anything about the 20% of students (the first and second deciles) who failed consistently, nor does it tell you anything about the 70% of the students who passed consistently. Therefore, 90% of the students are not represented.

We recommend that APS adopts two new ways of presenting the data, each to answer slightly different questions, while also providing an easier way to understand what is happening across different groups of students. All of this data is available to APS and it should be straightforward to program.

Data Presentation View 1

For the charts that have the APS and VA Overall SOL Pass Rates by Year, we recommend that the following information be added:

- Average APS SOL Score for Students Who Passed Advanced
- Average SOL Cut Line for Passed Advanced
- Average APS SOL Score for Students Who Passed
- Average APS SOL Score
- Average SOL Cut Line for Passing
- Average APS SOL Score for Students Who Did Not Pass

The two Cut Line scores are relatively flat but provide a baseline measurement for whether students in each of the subgroups are moving closer to or farther away from them. This kind of analysis is more informative for an overall view, for example, in showing trends over time for APS as a whole. It may also help answer questions as to whether gaps are closing or widening. Are the students who are failing the SOL getting closer to or farther away from passing? And for students who are passing, are they improving?

Data Presentation View 2

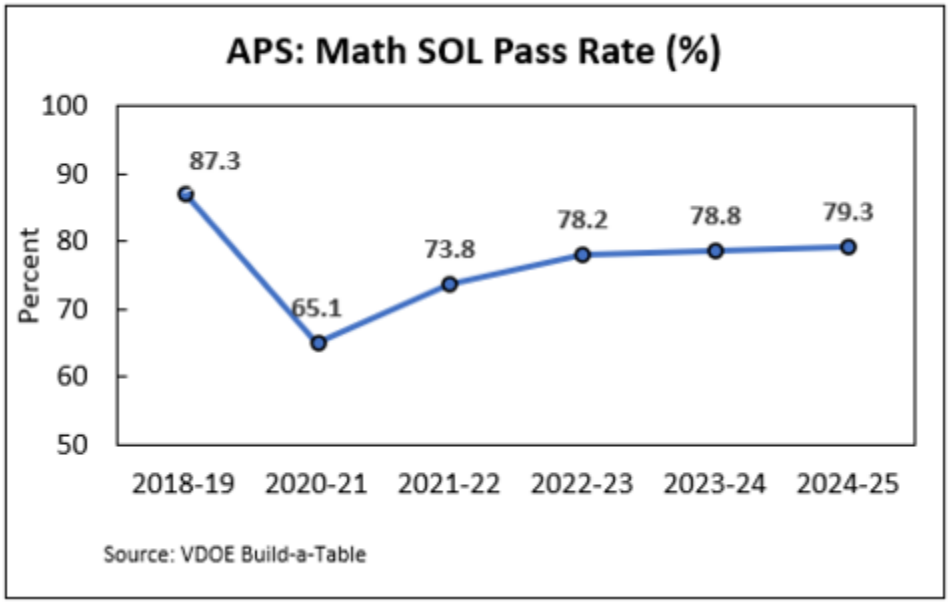
For the most detailed view of how things are going, APS could look at the distribution of SOL scores. This would involve creating a bar chart where the X-axis is SOL score and the Y-axis is the number of students with that SOL score. Again, you would have drop lines for Cut Line for Passing, Cut Line for Pass Advanced and Average SOL score. This would provide good information on whether the distribution of student achievement is a "normal distribution" or whether there is clustering of students.

This view would be most useful at a school level, subject-grade level, or another narrow view. This could also be done with the NWEA MAP data or other screening data to facilitate comparison between national trends and APS trends. This would allow insight into questions related to what different schools may be doing different things with different populations. For example, this data view could show that certain schools may be having an impact on a particular population, even if it did not cause that many students to cross the pass/fail threshold. Or it would help show whether certain interventions were having an impact by looking at changes in the distribution over time. This third view also helps validate the information provided in the more aggregated view 1 just like it provides more information as compared to the current percentage passing rates.

XV. Appendix

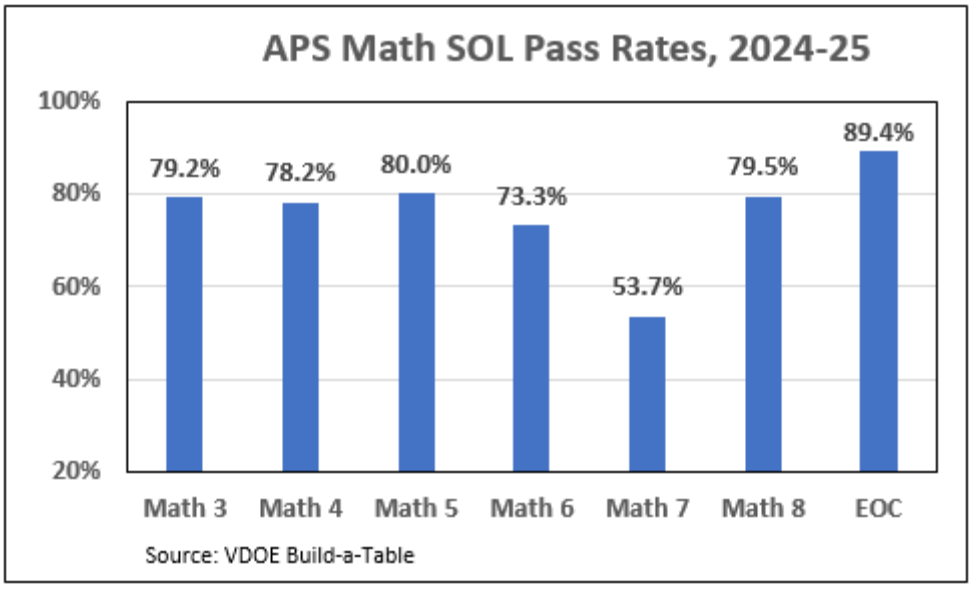
For context on these recommendations, enclosed are four summaries of SOL pass rates for APS. MAC appreciates that we have a large number of recommendations. These summaries display sobering results and support the need for significant change to Tier 1 instructions and the need for all of these recommendations.

The first chart summarizes Math SOL pass rates over the past 5 years. There was a fall in the first year after COVID along with a partial rebound but pass rates stayed relatively constant and have not shown any improvement over the past three years.

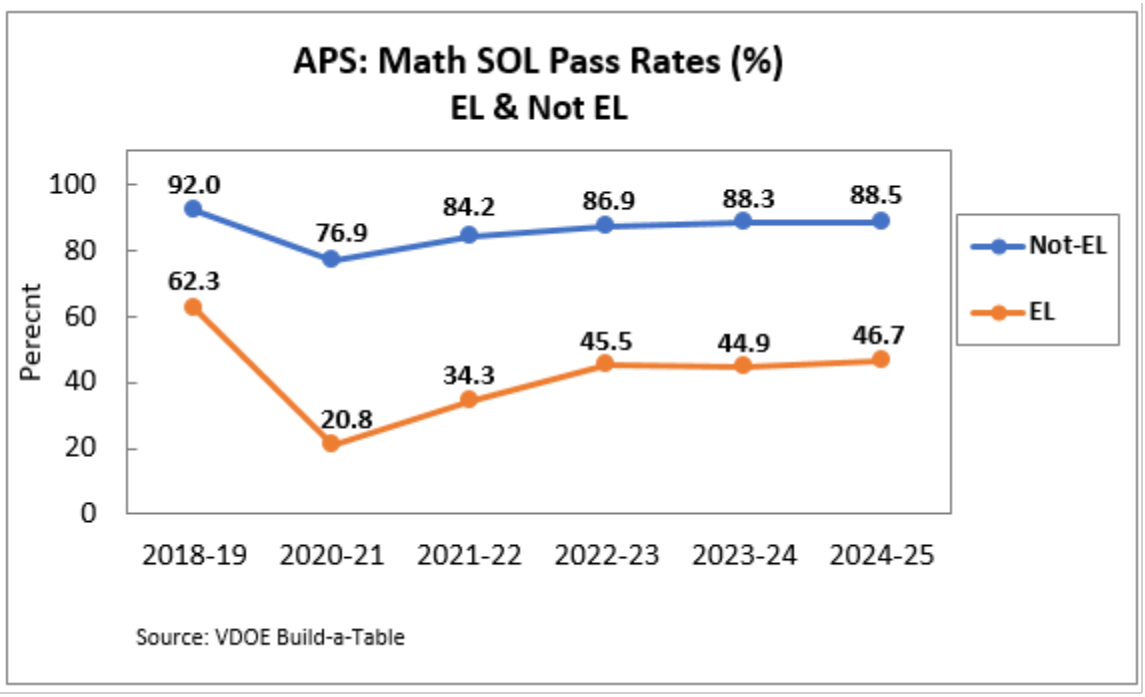


The next two charts disaggregate the SOL pass rate data by grade or by EL v non-EL.

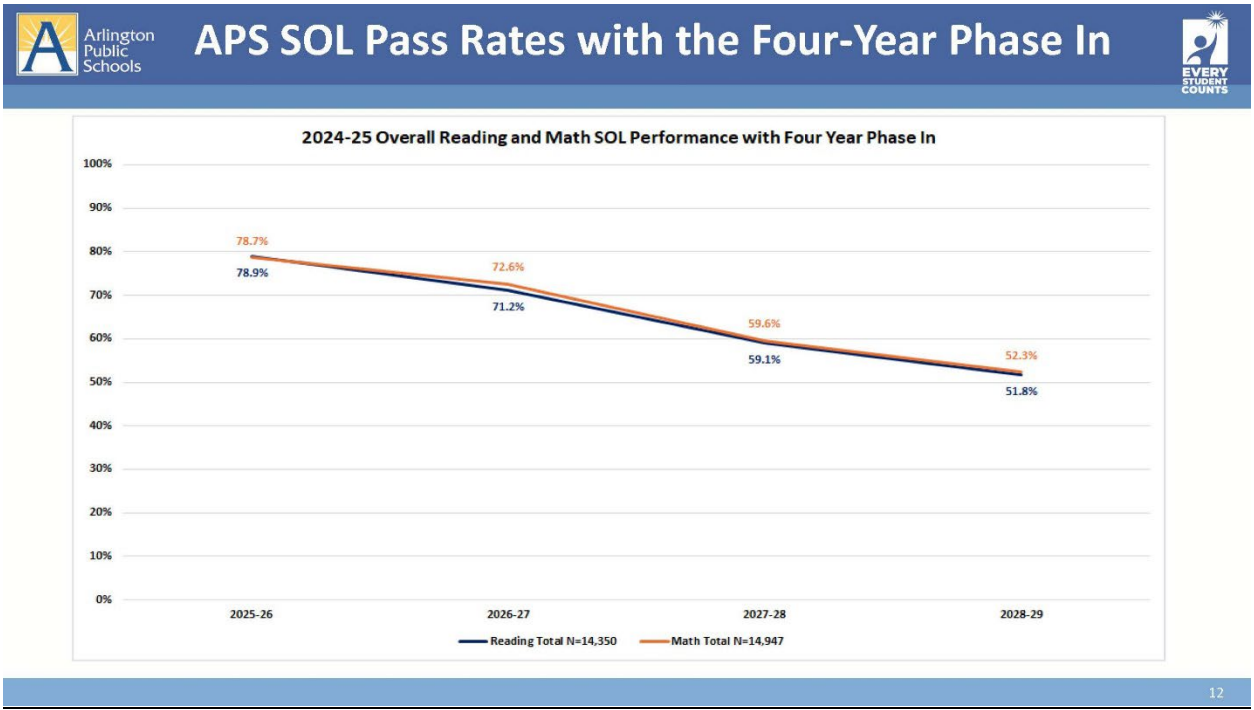
The pass rate by grade shows that the 3rd grade pass rate is below the 5th grade pass rate. This suggests a problem beyond learning loss as the 5th graders were in APS during covid, but the 3rd graders were not. The relative performance of the 3rd graders supports our recommendations that the math instruction refocus on the science of learning and that there needs to be a different curriculum.



The EL versus non-EL chart shows the gap in pass rates. This supports our recommendation that the next curriculum should be consistent with the science of learning and should move away from the "word" and "explanation" heavy pedagogical materials APS has recently been using.



This final chart is from an APS board presentation on the changes to SOL cut scores. It shows two things. First, that APS is projecting that if performance stays the same as it was in last year's SOLs (which as the charts above show was close to the 4 year average since SOL pass rates have leveled off), then in 4 years APS's SOL pass rate will have fallen 27% (the is 27 percentage points) from 79% to 52%. This is a dramatic fall in SOL pass rates and a cause for concern. This expected fall, if things stay the same, supports our call for extensive action and this range of recommendations. Second, the change in cut scores is not large. This indicates that currently 27% of APS students are just barely passing the SOLs. Again, this is consistent with problems existing today that are going to be showing up in the data over the next few years.



Staff Response

Staff support these changes and are interested in getting the School Board and Superintendent to put forth consistent guidance in the areas noted above.