I am writing as a parent and stakeholder with two children in California's public school system. My children attend high school and middle school in the Los Angeles Unified School District (LAUSD) in the city of Los Angeles, CA. They have attended CA public schools since they were in kindergarten. (Stakeholders are addressed in Ch. 1 of the California Math Framework.)

Our family is in a unique position in that our children have tried out both traditional math programs and models that align with the new California Math Framework in their respective schools. Having lived experience with the recommendations put forth in the CMF, I am writing to urge the CA BOE to reject the proposed California Math Framework in its current form.

I have heard the phrase, "your children are not a data set," but they are the data set I know the best. My kids took math at public schools that have adopted the recommendations contained in the new CMF and math at public schools that did not. Both of my children struggled in the programs that adopted the proposed CMF models of instruction and found much more success in more traditional programs that did not employ the CMF's recommendations.

My children's first elementary school was an independent charter named Larchmont Charter School in Los Angeles. Larchmont was an early adopter of the CMF's proposed models. Years before other public schools worked to align themselves with the new CMF, faculty at Larchmont Charter School worked closely with UCLA's Center X / UCLA Mathematics Project to incorporate CGI Math into their curriculum. Larchmont teachers followed Jo Boaler at Stanford and her work building on Carol Dweck's "growth mindsets," which guided them in creating model math classrooms for their students. Larchmont was a high-performing school with engaged faculty who understood and enthusiastically followed the PD.

The resulting math program, however, was not effective for my two kids, both of whom work several years above grade level. My students bemoaned the coursework, which was remedial, repetitive, slow-paced, and featured a lot of writing about their thinking for very simple concepts. Once they moved over to LAUSD proper, which followed a more traditional math path, they both soared ahead and discovered they loved math. In fifth grade, my daughter remarked, "I can't believe Larchmont never taught us the standard algorithm!"

Using a standard algorithm (and just…doing math problems) made everything click into place for these particular kids. I was therefore dismayed to see the current CMF recommend holding off on teaching certain standard algorithms until much later in elementary – using culminating standards as a guide of when to teach something rather than using them as a final goalpost as intended in the Common Core (see elementary school guidance re: when multiplication, division, etc. are taught, CMF page 83.)

But Larchmont was not our only brush with progressive math models. Last year, in LAUSD, our child's former school, Gaspar de Portola Middle School implemented a pilot program for the district that was aligned with the new CMF. Portola switched from teaching the "Big Ideas" math curriculum to "Illustrative Math" in 2022-2023. Teachers underwent extensive PD. Parent booster groups spent tens of thousands of dollars on new interactive math boards required for the new curriculum.

Again, the progressive math model (executed by excellent teachers and staff) was a disaster for the outliers who were ready to move at a faster pace. Gaspar de Portola Middle School houses a Highly Gifted Magnet (HGM) for kids who typically work 3 years ahead of grade level. Parents at the HGM, (knowing nothing about the Math Wars raging in Sacramento) were incredibly dismayed by the new curriculum.

One parent, a STEM PhD and retired astrophysicist, patiently did every problem set in both the "Big Ideas" (traditional) textbook and the (new) "Illustrative Math" textbook to try and understand the rationale behind the adoption of the new progressive model. Dismayed by what he found, he wrote a letter to our principal, which I am excerpting here:

"As for IM, first of all, I strongly applaud LAUSD and Portola's initiative and effort to bring a different approach to math education given the current state of math proficiency in the general student population in LAUSD and in the country. IM textbooks and its corresponding methodology may be very well suited to many, if not most student's needs and ability. IM tries to make students fully understand mathematical concepts instead of rote memorization by reorganizing math topics, offering a lot of repetitions, and showing various ways to explain the same concepts. My son (*name withheld) I believe, is benefitting from IM's methodology, repetitiveness, and slower pace."

"However, I have to say that IM does not serve HGM kids' needs well at all (especially to those who are taking highly accelerated math path and beyond) and is a poor fit to their unique intelligence and capability. Ultimately it does not prepare them well for later and more advanced courses like Pre-Cal and Calculus in high school and college since those classes use methodology and approach that are more in line with traditional textbooks like Big Idea Math."

"Here are some of the IM's shortcomings as a high-school level math textbook in the context of HGM (especially Algebra 1&2, and Geometry):"

- "IM covers a much smaller list of math topics and provides a much narrower knowledge base due to its slower pace. It does not delve deep enough into materials, compared to Big Ideas Math and other common core math textbooks. It offers repetitive and sometimes cumbersome ways to elucidate concepts, which bores and even confuses students."

- "IM lacks the necessary theoretical and mathematical rigor and accuracy and seems to be a "watered-down" version of traditional math textbooks."

- "IM's approach does not align with that of college textbooks."

- "IM doesn't offer enough texts, guidelines, and exercises after each lesson/chapter for students to further their investigation and study after school."

- "IM's lesson/chapter summaries are very rudimentary and omit many standard mathematical terms, equations, theorems, and conventions that are essential for a smooth transition to future courses such as Calculus and Physics." …

- "We have math teachers at HGM who are highly skilled in using Big Idea Math. Having them switch to a very different and possibly inferior way of teaching seems to be a huge waste of their talent and expertise."

- "Because of the deficiency of the IM textbook and curriculum, some HGM parents are compelled to seek outside help and tutoring, which adds extra and unnecessary workload and burden to students and parents at home."

"Overall, I believe that whilst IM may be a suitable choice for the general student population, it is unfortunately an inadequate and unsuitable selection for the HGM students."
(End of excerpted letter)

Here, the critique of Illustrative Math can be extrapolated and applied to the general shape of the math curriculum put forth in the new CMF, as the underlying principles and techniques are similar to those outlined in the first several chapters of the CMF.

In two separate schools in two separate examples, our family discovered that new progressive math curriculum aligned with the CMF was woefully inadequate when it came to addressing the specific set of learning needs of high achievers. Nor did it adequately prepare students for college level math. The slow pace and the repetition of the more progressive math models (which circle back again and again) temporarily killed the fast learners' love of math.

At scale, the proposed CMF recommendations will potentially violate state law by making high achievers repeat classes and concepts they have already mastered. Those learners deserve to experience growth within their Zones of Proximal Development. Further, despite the CMF throwing out decades of research re: gifted learners (by asserting that there is no such thing – it's all a growth mindset) these learners require appropriate placement as guaranteed by the Math Placement Act to support their academic growth.

All this said, the population of learners who needs the most help with math in CA is not the group of outliers at the top. The CMF is rightly concerned with the math achievement gap between various ethnic, racial, and cultural groups.

However, this is also where the proposed CMF is at its most cynical. For a document that is primarily concerned with equity, the authors of the CMF do not offer solid data and peer-reviewed research to support their hypothesis that their drastic overhaul to math education in CA will actually make anything more equitable for those who need it most.

In previous drafts of the CMF, the authors cited San Francisco Unified School District's "success" with de-tracking Algebra in 2014 as proof that their approach to revamping K-12 math worked. When new information re: SFUSD's program surfaced, the available data did not support that claim. In fact, it now appears that SFUSD's de-tracking experiment was a disaster, further exacerbating the math achievement gap for black and Latinx students. The only way students could prepare for the accelerated classes in high school was to take expensive supplemental math outside of their public schools as a workaround. Economically-disadvantaged

kids continued to be the ones least likely to take the private classes. (See: “SFUSD's delay of algebra 1 has created a nightmare of workarounds” by Rex Ridgeway, *San Francisco Examiner,* March 8, 2023)

While SFUSD’s failed math experiment has been removed from this draft of the CMF, the model that drove SFUSD’s failure remains the proposed math model of choice for the California Board of Education. Why? What data supports the authors’ hypothesis without hard facts to back it?

The CMF authors’ biggest argument against traditional math is that it perpetuates inequity via tracking. Their solution is to remove accelerated classes and de-track, but they wind up proposing a whole new track (data science) that will heartlessly trap kids who were hoping to enter STEM majors in college into a new dead end.

As Brian Conrad of Stanford has explained at length, when students take data science as an alternative to the pre-requisite they actually need, calculus, the effect will be to kill their STEM careers before they start. How is taking accelerated math in middle school a problem, but encouraging kids to pursue an entirely new data science track for the entirety of their high school career that may or may not meet UC standards for advanced math – that may bar them from STEM majors - not a dirty trick? Here, the BOE must consider the following article just printed in *The Chronicle of Higher Education,* “The University of California Changed Its Math Standards. Some Faculty Aren’t Happy” by Stephanie M. Lee, 7/6/23. The article backs up Conrad’s many critiques of Chapter 5 of the CMF. The inequity and issues that the data science track poses must be addressed before moving forward.

The problem with “tracking,” after all, is getting stuck on a track. However, when tracks are turned into pathways with many entryways, students can learn at an appropriate pace with a similar ability group (a much needed grouping in large public schools). They can even level-up to a new group without the curriculum getting dumbed-down into a “one sized fits all model.” Why was this solution not considered? Why is the de-tracking model used in SFUSD still in the CMF (without the accompanying data showing it didn’t work) when math models like those employed in the Long Beach Unified School District – where kids can be taught on different pathways that they can leave and enter - have actually proven to deliver more equitable results?

Finally, the authors of the CMF have targeted anyone raising questions about their data, methods, and models as politically-motivated. In Chapter 9, the authors assert re: the Common Core adoption of 2001 that, “The most organized resistance came from politically-affiliated groups who resist equitable change (see for example, Evers, 2021). More recently, the changes proposed for the California Math Framework have been met with similar opposition.” Like many big sweeping statements, this last assertion is not backed by a peer-reviewed study. It does not take into account the letter to the BOE signed by over 1,1000 STEM professionals – or the valid critiques (still unaddressed) that came from the head of undergraduate math at Stanford, Brian Conrad. It is instead a link to a YouCubed blog post.

And here is the most pressing issue. The BOE must reject any references in this current framework that do not hold up under scrutiny. There should be no non-academic research included in the CMF. Non peer-reviewed papers have no standards. They have no business being

used as references for a math framework designed to change the schooling of millions of students. Blog posts and opinion pieces must be removed for the CMF to have any credulity as an academic document. The many references to YouCubed and the CMF authors' commercial concerns must be removed. (Given the sheer amount of new textbooks that will be required by the new CMF, it is a massive conflict of interest to make this document an infomercial for the YouCubed group.)

The new revised CMF still reads as an aspirational document. It is a massive hypothesis without the peer-reviewed data to back up its assertions. While it has been clear for some time that the CMF math models do not work for the fastest learners, the CMF will more gravely change math for all children in the state in the name of equity, with no proof that its methods and models are able to deliver equitable results for students who are at the most risk of being sidelined in math.

As a parent stakeholder whose family has been the test case for this big ideas and concepts aligned with this math model, I urge you to vote "no" on adopting the revised CMF. Thank you.