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The New York State Education Department (NYSED) has received and reviewed the petition sent to Commissioner Dr. Betty A. Rosa on October 10, 2025. Signed by 167 individuals, including teachers, parents, school psychologists, special educators, administrators, and advocates, the petition urges the Department to retract and replace the NYSED Numeracy Briefs (“math briefs”), claiming they are “not scientific and describe questionable practices.” The accompanying letter further asserts that “many of these practices have been shown through decades of rigorous research to be ineffective, especially for students struggling with mathematics.” Attached herewith, you will find a comprehensive response to these claims authored by the creator of the briefs, national numeracy expert Dr. Deborah Loewenberg Ball.

Families for New York, a group led by an associate of the conservative Manhattan Institute, has circulated the letter and petition. Their familiar refrain that the Department is “lowering standards” is not a defense of excellence, but rather, a defense of a system that has long excluded too many students. The Department and the Board of Regents stand firm in their belief that every student deserves the opportunity to show what they know and can do through learning that is meaningful, equitable, and authentic. We appreciate Chancellor John King’s shared commitment, who [has stood firm on these very principles](#), despite facing the threat of losing funding for doing so.

NYSED remains committed to providing educators with high-quality resources that promote reflective practice and continuous improvement in mathematics instruction. Released in May 2025, the Numeracy Briefs are part of the Department’s multi-year Numeracy Initiative, which aims to strengthen mathematics instruction statewide through evidence-based, culturally responsive resources aligned with the New York State Learning Standards. Modeled after the 2024 Science of Reading Literacy Briefs, the briefs are grounded in research, written for educators, and designed to support high-quality P–12 mathematics instruction. Prior to their release, the briefs underwent external review and were introduced through a statewide webinar attended by more than 1,700 educators.

While NYSED acknowledges the passion and commitment of those who signed the petition and shares their dedication to improving mathematics outcomes for all students, we will not be swayed by misinformation or efforts to undermine our work to advance equity and excellence in education. Attempts to distort or politicize this work will not deter NYSED's commitment to advancing high-quality, equitable mathematics instruction for every student in New York State.

Sincerely,

JP O'Hare

Assistant Commissioner for Public Affairs
New York State Education Department

CC: Chancellor Lester W. Young Jr. and the Board of Regents
Chancellor John King, State University of New York
President Havidán Rodríguez, State University of New York at Albany

Response to Critique of the New York State Education Department’s Numeracy Briefs

A letter sent to Commissioner Dr. Betty Rosa on October 10, 2025, petitions to retract and replace the New York State Education Department’s Numeracy Briefs (referred to as “math briefs”), levying claims that they are “not scientific and describe questionable practices.” The letter asserts that “many of these practices have been shown through decades of rigorous research to be ineffective, especially for students struggling with mathematics.” The letter is signed by 167 people, including teachers, parents, school psychologists, special educators, administrators, and advocates.

The letter is strongly worded, deploying phrases such as “pseudo-science” and “grave omissions and inaccuracies.” It cites 25 articles to support its claims that the recommendations in the briefs have been proven to be ineffective and that particular important sources have been ignored. Yet the studies they cite do not provide such evidence, including instead analyses to show the effectiveness of specific approaches to build students’ speed and accuracy, which take an extremely limited and partial perspective on the goals of mathematics learning.

It is clear that the writers and signers of this letter care deeply about improving young people’s mathematics learning and the instructional practices that can support their thriving. However, their critiques are misleading, misrepresenting both the briefs’ content and the agreed-upon goals of mathematics learning and teaching. The letter gratuitously suggests that the briefs repeat old debates and insinuates that the recommendations in the briefs are connected with those conflicts. Below we respond to the criticisms that comprise their concern and their demand that the briefs be retracted and replaced.

Criticism #1: The recommendations are not based on research.

The briefs and their recommendations draw on a wide range of studies and analyses as is appropriate for questions of education practice. To disparage the use of multiple methods as “pseudo-science” does not comprise specific substantive critique. The petition claims that only two experimental studies and two meta-analyses were used as the basis for the briefs. But such methods are not the only kinds of research that are appropriate for decisions about mathematics instruction. Brief 1 explicitly addresses this, and specifies the research base for mathematics teaching, citing the importance of different methods and kinds of studies appropriate for different questions and components of mathematics instruction. For example, while some aspects of mathematics instruction, such as the development of speed and accuracy, may be appropriately studied through randomly controlled trials, other aspects, such as the development of the use of mathematical representations, language, and proving, require investigation in particular contexts of classroom learning across time. Similarly, issues related to grouping students, classroom discourse, and the use of manipulatives require close analysis of teaching in order to produce usable knowledge for instruction. Studies of the mathematical knowledge and skill needed for teaching, a particularly crucial problem, similarly require a broader range of methods. The scope of knowledge and evidence needed for high-quality mathematics instruction and learning requires multiple approaches and sources of evidence. Brief 8 offers guidance to leaders on how to examine and evaluate these multiple sources, including the use of the *What Works Clearinghouse Practice Guides* mentioned in the petition.

In contrast to this broad application of evidence, the citations included with the letter represent a narrow segment of the research, drawing from educational psychology and special education research. Although these are important fields of inquiry, they are not enough to address the complexity of mathematics teaching and learning.

Criticism #2: The briefs advance an approach to teaching mathematics that has been shown to be ineffective in developing students’ mathematical competence.

Brief 1 explicitly rejects “an” approach, addressing instead the intertwined nature of mathematical competence (see the research synthesis in the 2001 National Research Council report, [Adding It Up: Helping Children Learn Mathematics](#)). The letter names this “balanced mathematics,” playing on a term used in literacy instruction that has come under scrutiny and critique. This term is not used in the briefs, nor does it correctly characterize instructional practices recommended therein.

Further, rather than advocating for one approach or arguing against another, the brief ties mathematics teaching to specific aspects of mathematics itself. Learning to attend to mathematical structure, prove the completeness of a solution, or justify a geometric transformation requires different mathematical skills than does correctly solving a set of division calculations. Each of these components of mathematical competence are specifically identified in standards for New York students’ mathematics learning; instructional methods cannot be generalized across these different forms of mathematical capability and skill.

To serve the state’s educators, the briefs also take account of the range of learners in classrooms. Teachers and schools in the state of New York serve students with special needs and multilingual learners, as well as students who are denied opportunities to engage in mathematically challenging work. The briefs provide evidence-based guidance for the work of teaching the different students enrolled in the state’s PK–12 classrooms.

Criticism #3: The briefs do not align with the “science of math” and the “science of reading.”

This critique inappropriately compares the briefs to evidence used in the “science of math” and the “science of reading.” Despite their names, neither of these movements is settled science and scholars across numerous fields continue to research, develop, and critique the evidence base for each. In the case of mathematics, this is an echo of past “math wars,” which involved research mathematicians and mathematics educators and centered disagreements about the goals of mathematics learning and caricatured versions of approaches to teaching.

The critiques levied in this petition draw almost exclusively on the work of psychologists—most of whom advance the science of math—who have studied specific aspects of mathematics and math learning (see the 2008 [National Mathematics Advisory Panel Report](#)). Mathematicians, who offer expertise on the nature of mathematics and its content and practice, are not the primary contributors to the letter, nor is their perspective well represented. The work conducted by psychologists focuses on particular versions of direct instruction and on basic arithmetic skills. These studies do not provide evidence related to the learning goals in the standards for mathematics learning that have been adopted by each state (see the [New York New Generation Mathematics Learning Standards](#)).

Specifically, New York’s standards (like those of other states) specify goals for mathematics learning that include but go beyond arithmetic computation with speed and accuracy. These standards make explicit the intertwined nature of mathematical achievement and competence that students are to develop. These include fluency and speed, but also include conceptual understanding and mathematical reasoning. To discount this balance of goals is to misunderstand the nature of mathematical competence.

The demands for the adults of the 21st century span a wide range of mathematical capabilities. To be able to critically and carefully use the technologies that are rapidly and increasingly employed to solve problems, today's young people will require still deeper conceptual understanding of algorithms, skill with framing questions and appropriate modeling of situations, and the capacity to judge the reasonableness of a solution. The standards for learning demand that instruction meet the needs of the adults of this next generation.

Criticism #4: The briefs contain factual inaccuracies.

This statement is itself factually wrong. Instead, the letter itself patently misrepresents the content of the briefs, implying recommendations that the briefs do not make.

“Timed tests cause math anxiety.” Brief 2 does not say that timed tests are the sole cause of math anxiety. Instead, it challenges the claim that such drills are the only way to develop fluency. It states that, while these may support the development of fluency, they can raise anxiety, and that there are other approaches to develop fluency. The brief also offers examples of alternative practices that build fluency (e.g., using tasks that require repeated use of facts to solve a more complex problem). Moreover, Brief 5 explicitly points to teacher-led formative assessment—which might include timed tests and quizzes—as a means to determining whether instruction is supporting student learning and identifying appropriate interventions for some learners.

“Direct instruction is a selective strategy only useful for disabled students.” The briefs do not say this. Instead, the briefs challenge the universal recommendation that all mathematics is best taught through explicit and highly directed instruction. Some content is appropriate to teach using direct and explicit methods while others are less so. For example, developing procedural skill with multi-digit subtraction involves explicit and careful instruction, attention to the conceptual place value concepts that underlie the procedure, and practice. However, developing the mathematical practice of making sense of and interpreting problems requires that students have experience with problems that involve determining what question is being asked and what the conditions of the problem are. In addition to making skillful judgments about which mathematical topics benefit from explicit instruction and which do not, teachers should have a repertoire of instructional methods to choose from when helping particular students develop competence.

“Structured repeated practice of math facts and standard algorithms isn’t useful.” The briefs do not say this. Brief 2 points out that timed practice of isolated facts is not the only way for students to develop fluency and procedural skill. It cautions that such methods can have negative effects and recommends considering other kinds of practice that involve quick repetition along with reasoning. Brief 3 also identifies the common outcome of drilling on conventional algorithms such as long division: too often students and teachers are more focused on arriving at the correct answer than on understanding the mathematical structure that underlies the procedure. This is not a repudiation of the need for structured repeated practice, but rather an endorsement of teaching that builds students’ fluency together with their mathematical reasoning.

“Discovery learning should be prioritized in early stages of acquisition.” The letter claims that the briefs leave “discovery learning” undefined. Not only is this false, but the briefs clearly do not recommend “discovery learning,” which the letter characterizes as leaving students on their own to develop understanding. Brief #2 clearly states that “misconceptions about inquiry and discovery approaches to teaching and learning mathematics persist, framing inquiry-based instruction as posing problems and leaving students to create mathematics on their own.” In fact, the citation included in the petition to define discovery learning differentiates between “pure discovery” and “guided discovery.” “Pure discovery” is not recommended in the brief, which

instead makes clear the need for structured and scaffolded instruction as well as for inquiry that is carefully set up and guided. Brief #4 contains a detailed discussion of the importance of modeling and explaining and explicit instruction. And Brief #7 also addresses the need for explicit instruction and attention to the correctness of the mathematical explanations. It is the flawed version of discovery learning described in the petition that the briefs attempt to correct.