Curriculum Overview & Background

On behalf of the Amplify team, we thank you for considering us to be a part of this pivotal moment for mathematics teaching and learning in New York City Public Schools. We're confident that this program, along with comprehensive professional development and ongoing collaboration with your team, will support the school- and district-level instructional shifts needed to implement your vision.

Amplify Desmos Math New York represents the convergence of two groundbreaking research and development efforts in K–12 mathematics instruction. The acquisition of Desmos Classroom by Amplify Education in 2022 was driven by the recognition that both of our organizations were pursuing distinct yet reinforcing projects. The Desmos team was leveraging their unique and widely-adopted interactive learning platform in development of a full middle school curriculum, Desmos Math 6–A1. Amplify had just launched Amplify Math, bringing expertise in real-time teacher support, embedded assessment, and data visualization to the middle school math classroom. As both curricula were based on Illustrative Mathematics'® IM K–12 Math™, we knew that merging the two programs and organizations would result in a program of unprecedented quality built on a strong pedagogical foundation.

The union of Amplify and Desmos brings together industry-leading math curriculum development and instructional technology expertise. The Amplify Desmos Math New York curriculum is nearing completion and has already been adopted by San Diego Unified School District. Several districts will transition into Amplify Desmos Math from Desmos Math 6–A1 over the coming two years, including Bellevue, Washington, and Casa Grande, Arizona.

Amplify is uniquely positioned to deliver a comprehensive and proven core curriculum to New York City Public Schools—one that will support your vision for transforming math teaching and learning for all New York City students.

Amplify mathematics programs currently being used in New York City Public Schools
Amplify Math New York Edition (published in 2021) is currently being used at ten sites, including 05M514, 10X206, 07X296, 09X234, 10X331, 10X368, 24Q073, 25Q379, and 75R025.

Desmos Math 6–A1 (published between 2020 and 2023) is currently being used for core instruction at 36 sites, including 01M450, 02M422, 09X241, 10X141, 15K146, 21K288, 30Q300, 32K162, and 75M035. Additionally, 50 sites are slated to participate in the Math Equity grant project sponsored by the Bill and Melinda Gates foundation using Desmos Math 6–A1 lessons in a supplemental capacity. The just-completed pilot phase received overwhelmingly positive feedback from participating schools.

About Amplify Desmos Math New York

Deep and lasting learning occurs when students are able to make connections to prior thinking and experiences. This requires teachers to deliver math instruction that balances exploring and explaining and puts student thinking at the center of classroom instruction.

Students are invited to explore the math that fills their everyday lives, while strengthening their knowledge of math facts, procedural skills, and conceptual knowledge. With the platform we've developed, teachers can confidently guide and instruct as they build on students' understandings to help them develop a better grasp of mathematics.

Amplify Desmos Math New York is a comprehensive core program based on Illustrative Mathematics' IM K–12 Math. This new program expands on the Desmos Math 6–8 curriculum—which received all-green ratings from EdReports—with beautiful print resources and robust assessment and reporting. The curriculum centers on student ideas and poses tasks that invite a variety of approaches, promoting mathematical curiosity and student engagement.

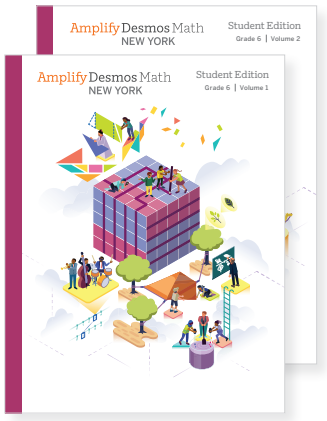
The unique combination of features in Amplify Desmos Math New York includes:

- A balance of print and digital lessons that are **visual and dynamic** to pique student interest and **invite all students to engage with mathematics**.
- Desmos Classroom technology that **elicits student thinking** throughout a day's lesson and enables teachers to shape the flow of the lesson around that thinking as it develops, revealing to students the **valid mathematical ideas in their rough-draft thinking about a problem**.
- A teacher dashboard that provides **powerful facilitation tools** (pausing, snapshotting, and screen sharing) to support teachers in advancing the ideas of the lesson, comparing and contrasting different ways of thinking, and **promoting a social and collaborative classroom**.
- Teacher guidance that invites a variety of approaches, enabling students to actively develop their own ideas (individually, in pairs, and in small groups) before **synthesizing learning as a class**.
- Engaging problem-based lessons with **low floors, high ceilings**, and continuous opportunities to take on formative assessment challenges.
- **Student notes, skill practices, and rich assessments** in each and every unit.
- Lessons which utilize **varied modalities of learning experiences** through digital engagement, rich discussions, partner work, manipulatives, and diverse task formats.

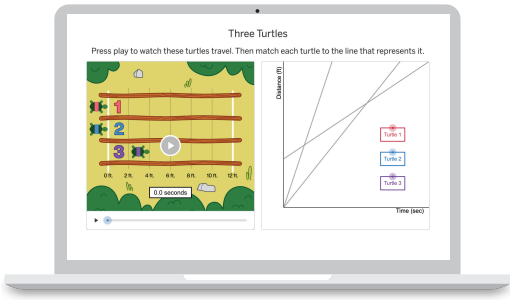
We believe in supporting teachers and leaders in creating **socially responsive and sustaining learning environments,** which is why we approach our content development with an asset-focused mindset. Students of Amplify Desmos Math New York engage deeply with both historical and current events as contexts for learning relevant and powerful mathematics, and learn to apply their understanding to solving the social, political, and economic issues of today and tomorrow.

Amplify Desmos Math New York program resources

Student bundle includes:



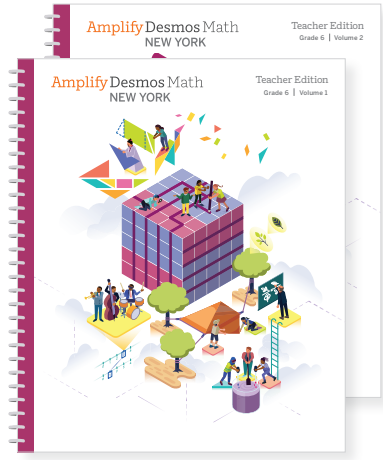
NY Student Edition,
multivolume, consumable



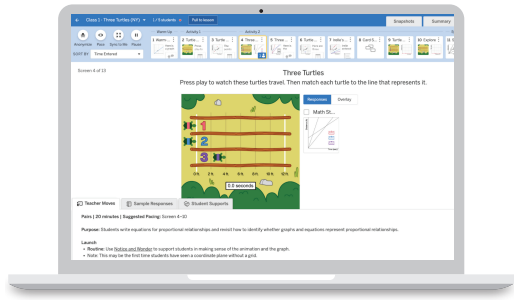
NY Digital Experience (English and Spanish), featuring:

- Interactive Student Activity Screens
- Enriched feedback
- Collaboration tools

Teacher bundle includes:



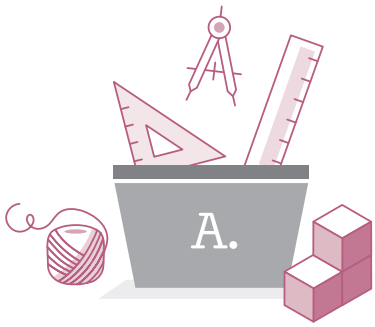
NY Teacher Edition,
multivolume, spiral-bound



NY Digital Experience (English and Spanish), featuring:

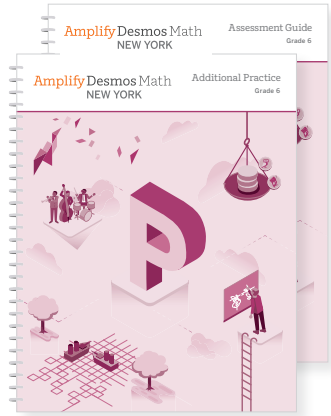
- Facilitation and progress monitoring tools
- Presentation Screens
- Instructional supports
- Assessment

Optional:



Middle School Manipulative Kit (Grades 6–8)

Extra Practice and Assessment Blackline Masters



Program architecture

Course

I mCLASS beginning-of-year diagnostic screener

I Interim Assesments

I I I

UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	UNIT 7	UNIT 8
21 days	20 days	19 days	20 days	22 days	22 days	18 days	22 days

Unit

A Pre-Unit Check

A Sub-Unit Quiz

End-of-Unit Assessment A

Sub-Unit 1							Sub-Unit 2					Practice Day	Sub-Unit 3								Practice Day
1	2	3	4	5	6	7	8	9	10	11	12	PD	13	14	15	16	17	18	19	20	PD

Note: The number of sub-units and lessons vary from unit to unit; this depiction shows the general structure of a unit.

Lesson

Warm-up	Activity 1	Activity 2	Synthesis	Exit Ticket	Practice
5 min	15 min	15 min	5 min	5 min	timing varies

Note: The number of activities and timing vary from lesson to lesson; this depiction shows the general structure of a lesson.

Key:

- Independent
- Pairs
- Small Groups
- Whole Class

Philosophy and origins

The developers at Amplify and Desmos came together to work on Amplify Desmos Math New York because both teams know that every student is brilliant, yet not every student *feels* brilliant in math class—and because both teams recognized the dearth of resources available to help teachers change that reality in their classrooms.

To ensure that students develop positive identities about themselves as mathematicians and thus achieve more in math, our team built **a truly student-centered program** around three core tenets:

- A strong foundation in **problem-based learning** is critical to developing deep conceptual understanding, procedural fluency, and application.
    - **What does that mean?** Students are introduced to interesting problems and leverage both their current understandings and problem-solving strategies to develop reasonable answers. The learning experience is an active one that leads students to explore, notice, question, solve, justify, explain, represent, and analyze. Teachers guide the process, supporting synthesis and sensemaking at the end of each lesson.

- **Technology can provide ongoing, enriched feedback** that encourages students to persevere in problem solving.
    - **What does that mean?** Especially when new ideas are being introduced, Desmos Classroom technology shows students the meaning of their thinking in context, interpreting it mathematically rather than reducing it to a question of right or wrong. This empowers students as doers of mathematics and creates a culture where, as student learning progresses toward correctness as a goal, incorrect answers become objects of curiosity rather than embarrassment. We call this information provided in response to student ideas enriched feedback, and are proud to say that Amplify Desmos Math New York offers more of it than any other math program.

- A commitment to **access and equity** should underpin every development decision.
    - **What does that mean?** All students can dive into problems on their own, and activities are designed to honor different approaches. Activities rely on collaboration and lots of hands-on, experiential learning.

In addition to IM K–12 Math by Illustrative Mathematics, Amplify Desmos Math is informed by Peg Smith and Mary K. Stein's 5 Practices for Orchestrating Productive Classroom Discourse, and a wealth of research around how students best develop numerical reasoning and procedural fluency skills, problem-solving strategies, and a positive math identity.

Curriculum strengths

Amplify Desmos Math lessons and the accompanying teacher tools are designed to help teachers develop the skills they need to build classrooms where students collaborate, explore, and discover.

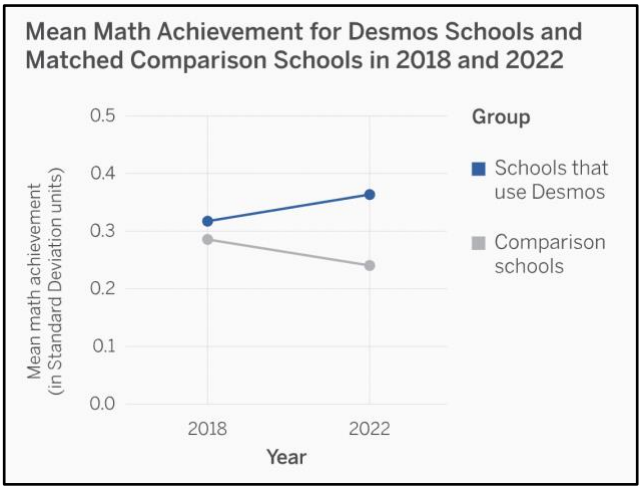
With Amplify Desmos Math:

- **Students** build deep conceptual understanding alongside procedural fluency, resulting in high levels of math achievement.
- **Students** apply their learning regularly to cognitively-demanding problems and situations.
- **Students** work in social and collaborative ways.

- **Teachers** deepen their understanding of the content and effective pedagogical approaches as they facilitate classroom discussions using the Teacher Edition.
- **Parents** can support their students at home by referencing embedded, stepped-out examples and videos.
- **Leaders** gain insight into how students are doing through detailed reports.

By connecting everyone in the learning community through common language and goals, students see themselves as **doers of math**. Students of Amplify Desmos Math New York will love math and learning math, all while meeting grade-level standards. They'll both feel seen *and* see themselves, fostering a belief that they belong and are capable in the math classroom.

Proven effective:
Amplify Desmos Math New York expands on the Desmos Math 6–A1 curriculum, which was recently proven to increase average math achievement in a study of more than 900 schools in nine states led by WestEd. More details available here.



The Effect of Desmos Math Curriculum on Middle School Mathematics Achievement in Nine States. WestEd., (McKinney, D., Strother, S., Walters, K. & Schneider, S., 2023).

What's coming

We're submitting complete digital lessons and a selection of the core print lessons for review.

	Today	Back to school 2023	Back to school 2024
Digital	All lessons complete Some supports in development	Pre-release materials begin rolling out	Program ready for May teacher trainings
Print	Complete lesson content Design and supports in development for some lessons	Pre-release materials begin rolling out	Program ready for May teacher trainings

For digital access and copies of the print lessons, visit amplify.com/math-review-nyc.

Select collaborators and advisors

Jason Zimba, Chief Academic Officer, Math at Amplify

Jason Zimba is a product of our nation's public school system, a parent of two children in the New York City Public School system, and chief academic officer of Math at Amplify. Jason founded Student Achievement Partners—a nonprofit organization dedicated to helping teachers and school leaders implement equitable, high-quality, college- and career-readiness standards—and has worked as a researcher, educator, and advocate for high-quality curriculum and instruction for all students. He was the lead writer of the Publishers' Criteria for Mathematics and the curriculum review rubrics that later became the foundation for the EdReports review rubrics.

A Rhodes scholarship recipient and former professor of physics and mathematics, Jason holds a bachelor's degree from Williams College with a double major in mathematics and astrophysics; a master's degree in mathematics from the University of Oxford; and a doctorate in mathematical physics from the University of California, Berkeley. He has worked as a researcher and educator, teaching mathematics and physics to university and high school students and incarcerated adults.

Dan Meyer, Dean of Research at Amplify

Dan Meyer loves questions—the kind that rattle around in your brain at all hours, in the shower, etc. Math always had the most interesting questions for him as a kid, then math education in adulthood. He's chased those questions through several continents, with thousands of teachers in talks and workshops, in a doctoral program at Stanford, finally landing at Desmos in 2012.

Dan taught high school math to students who didn't like high school math. He has advocated for better math instruction on CNN, "Good Morning America," TED.com and "Everyday With Rachel Ray," and is the author of the dy/dan blog. He earned his doctorate from Stanford University in math education.

Fawn Nguyen, Speaker and Math Specialist at Amplify

Fawn Nguyen spent 30 years in the classroom, a career path she has loved enough to honestly say she'd do it all over again in her next life. She enjoys cooking, gardening, taking care of eight hens, and cleaning on a steady rotation.

Fawn started blogging in late 2011 about her lessons and how her students interacted with them. She is grateful for the opportunities to speak at math conferences and facilitate workshops across the country.

Paulo Tan, Lecturer at Johns Hopkins School of Education
Paulo Tan teaches special education courses and coaches teacher candidates in the Urban Teachers program in Dallas, Texas. Prior to joining Johns Hopkins University in 2020, he was an Assistant Professor at the University of Hawai'i at Mānoa and the University of Tulsa. He is passionate about supporting teachers in building inclusive learning environments and is an advocate for justice in and out of schools. Paulo's research focuses on teacher learning toward inclusive STEM education, and toward structures and processes that facilitate such learning. He has published widely in peer-reviewed journals and is lead author of the book *Humanizing Disability in Mathematics Education: Forging New Paths*.

Phil Daro, Executive Committee Member, International Society for Design and Development in Education
Philip Daro, a lead writer of the Common Core State Standards for Mathematics, works to advance the design and use of leadership tools for improving mathematics instruction and assessment at every level of the educational system.

Philip has held leadership positions with the California Department of Education and served on numerous national committees addressing issues in mathematics assessment, standards, and instruction. He currently serves on the Executive Committee of the International Society for Design and Development in Education and on several boards. He previously served on the boards for Open Up Resources and the Noyce Foundation. He is a member of the NAEP Validity Studies Panel and sits on the advisory boards for the Algebra for All initiative, Illustrative Mathematics, and Making Mathematics.

Philip holds a bachelor's degree in English with a minor in mathematics from the University of California, Berkeley, as well as a Secondary Education Teacher Credential from the State University of New Jersey, Trenton. He was a Senior Fellow for Mathematics at America's Choice.

Other contributors include:

- Karen Everly, Vice President, Curriculum at Amplify
- Eric Berger, Senior Vice President, Desmos Classroom
- Michael Fenton, Executive Director, Curriculum at Desmos Classroom
- Jacklyn Claiborne, Math Specialist at Amplify
- Faith Moynihan, Curriculum Developer at Desmos Classroom
- Stephanie Blair, Executive Director, Desmos Coaching at Desmos Classroom