Amplify Desmos Math
CALIFORNIA

Amplify Desmos Math California (Grades K–8) – Program Description

Amplify Desmos Math California is a new, curiosity-driven program designed to build students' lifelong math proficiency. Through a structured approach to problem-based learning, we help teachers create a collaborative math community with students at its center. The program pairs problems students are eager to solve with clear, easy-to-follow instructional guidance that leaves space for teacher creativity. Teachers build on students' curiosity to develop lasting grade-level understanding.

The Amplify Desmos Math California program is grounded in the ambitious vision articulated in the California Mathematics Framework to enable all California students to become powerful users of mathematics in order to better understand and impact the world (Framework pg. 3). Our program incorporates the latest research in student learning, meaning that we:

- **Focus on the Big Ideas.** Amplify Desmos Math California's courses, units, and lessons are centered around the Big Ideas. Big Ideas, like standards, are not considered in isolation. In addition to each unit and lesson's focal Big Ideas, Amplify Desmos Math California also provides connections among the Big Ideas across units and lessons.
- **Center on open and engaging tasks.** Amplify Desmos Math California is grounded in engaging tasks meant to address students' often-asked question: "Why am I learning this?" Students are invited into learning with low-floor, high-ceiling tasks that provide an entry point for all. Open tasks in Amplify Desmos Math California provide the space for students to try on multiple strategies and represent their thinking in different ways, and allow student explanation and discussion to serve as the center of the classroom. All lessons offer both print and digital representations of lessons.
- **Provide enhanced digital experiences.** Amplify Desmos Math California includes digitally-enhanced lesson activities, incorporating interactive digital tools alongside print materials. These purposefully-placed resources allow students to visualize mathematical concepts, receive actionable feedback while practicing, encounter personalized learning support from an onscreen tutor, and engage in discussions about their thinking and approaches.
- **Treat core instruction & differentiation as integral partners.** The Amplify Desmos Math California curriculum provides teachers with lessons, strategies, and resources to eliminate barriers and increase access to grade-level content without reducing the mathematical demand of tasks. Every activity has multiple entry points to ensure that all students are supported and challenged. Intervention and personalized learning activities are directly connected to lesson content and offer students the individualized support they need to be successful.

Our pedagogy is centered on four core tenets:

1. **Structured approach to problem based learning:** Our program thoughtfully combines conceptual understanding, procedural fluency, and application. Each lesson is designed to tell a story by posing problems that invite a variety of approaches before guiding students to synthesize their understanding of the learning goals. The Teacher Edition provides guidance

for teachers to anticipate and monitor strategies students may use, select and sequence students' ideas, and orchestrate productive discussions to help students make connections between their own ideas and those of their classmates.

2. **Access to grade-level math for every student, every day:** Tasks in each lesson are thoughtfully sequenced so that all students can engage with the math each day without roadblocks. Every lesson includes suggestions for accessibility and differentiation to support, strengthen, and stretch student understanding. Our comprehensive solution includes diagnostic and benchmark assessments, tailored practice resources that adjust to student learning, and other intervention support.

3. **Student thinking is valuable and can be made evident.** Students first take an active role in developing their own ideas, then synthesize those ideas as a class. To guide the learning process, students see each other's thinking, engage in conversations, and connect to each other by using math to make sense of the world. This collaboration fuels classroom conversations and a shared understanding of math. Students are encouraged to ask questions, make conjectures, and justify their reasoning. Responsive Feedback™ shows students what their ideas mean in context and offers opportunities for students to learn from each other's answers. This feedback encourages students to explore different strategies and make sense of a variety of responses, so that student ideas drive the learning process.

4. **Math that motivates.** Picture a classroom where students are so eagerly engaged in a lesson, they wish it wouldn't end. The room is buzzing with the sounds of natural curiosity. This is what an Amplify Desmos Math California classroom looks and sounds like. This is math that motivates. Our curriculum supports social classrooms, invites mathematical creativity, and evokes wonder, empowering students to see themselves and their classmates as doers of mathematics.

Components

Amplify Desmos Math California combines physical materials with digital tools, including:

- **Teacher and Student Editions:** Print materials for teachers and students offer comprehensive content designed to support the learning process. Teachers facilitate engagement with structured lessons, while students access clearly defined information and exercises that enhance their understanding of the material.
- **Ancillary Materials:** Teachers leverage a set of ancillary materials to make learning attainable for all students with language support, interactive Centers for hands-on learning, intervention and extension resources to meet the needs of all students, additional practice exercises, and a variety of assessment resources to track student progress.
- **Dynamic Digital Experiences:** Lessons include visual and dynamic interactions that pique students' interest and invite all students to engage in the mathematics. The embedded interactions and animations allow students to test predictions, get feedback, share ideas, and connect representations. Students are invited to try their thinking out – even if that thinking is still in the "rough draft" phase. As students interact with the digital screens, Responsive Feedback responds to their inputs. As a result, students may notice interesting things about

both correct and incorrect answers more readily.

- **Mini-Lessons:** Mini-Lessons are ideal for small-group or whole-class instruction when additional concept support is needed, or students need more time with the mathematics of the lesson.
- **Course-Level Investigations:** These longer, multi-day tasks (featuring local California connections) give students opportunities to apply the mathematics learned in class to interpret data, make conjectures, and present findings that answer the investigation question.
- **Manipulative and Center Kits:** The materials included in our kits enliven learning by making meaningful hands-on exploration possible. Teachers facilitate these interactive experiences, nurturing practical understanding and critical thinking through tactile engagement.
- **Formative and Summative Assessments:** Teachers conduct formative and summative assessments to evaluate students' understanding and progress. Diagnostic assessments provide a snapshot of understanding at the beginning of the year, and align with our pre-unit assessments. Formative assessments are embedded throughout daily lessons in Amplify Desmos Math California, and provide valuable feedback that guides instructional adjustments and supports student growth. Summative assessments are included at the end of each unit and provide necessary reporting on student progress. Performance tasks (grades 3–8), available for each unit, are culminating tasks where students have an opportunity to demonstrate their problem-solving skills or apply the math they have learned to a multi-step, real-world problem.

Amplify Desmos Math and the California Mathematics Framework

Category 1: Mathematics Content/Alignment with the Standards

Amplify Desmos Math California is grounded in the framework for K–12 Math Education, emphasizing coherence and real-world problem-solving. Each unit includes a specific learning progression that guides students towards more complex mathematical reasoning, offering authentic learning experiences that engage students as mathematical thinkers.

Amplify Desmos Math California is built from the California Common Core State Standards for Mathematics. We meticulously integrate the Standards for Mathematical Practice into every lesson, fostering critical thinking and problem-solving skills. Students are welcomed into a rigorous and comprehensive mathematical education that prepares them for future academic and real-world challenges. Teachers engage learners in activities that emphasize practical application, encouraging students to explore concepts deeply and develop a strong mathematical foundation.

Amplify Desmos Math California includes instructional content that is based on the California Environmental Principles and Concepts. These environmental standards are woven into applicable core lessons and on the course-level investigations.

Category 2: Program Organization

Each grade level includes a set of units designed to completely cover the California Common Core State Standards for Mathematics and to address the Big Ideas of that grade. Amplify Desmos Math California aligns each lesson to the Drivers of Investigation, which are intended to spark

student curiosity and engagement in mathematics, and one of the four Content Connections. Teachers leverage the Coherence guidance in the Teacher Edition to advance students through the learning of the grade by building on previous concepts, as well as prepare them to access the mathematics in later grades.

The suggested time for each lesson is between 45 and 60 minutes depending on the grade. Each lesson consists of a sequence of activities to engage students with a variety of materials and classroom routines, including hands-on activities, robust digital practice, embedded formative and summative assessments, and student-to-student discourse.

Category 3: Assessment

The system of assessments for each Amplify Desmos Math California unit is designed to provide teachers with credible, actionable, and timely information about students' progress toward the unit learning goals.

The variety of assessment options for Amplify Desmos Math California include:

- Pre-Unit Check (formative, grades 2–8): Each unit begins with a pre-unit check. This check is agnostic to the standards covered in the following unit and serves not as a deficit-based acknowledgment of what students do not know, but rather as an affirmation of the knowledge and skills with which students come in.
- Sub-Unit Quizzes (formative, grades K–8): With regular Sub-Unit Quizzes, student understanding never comes as a surprise. In these assessments, students are evaluated on a subset of conceptual understandings from the unit. Provided rubrics help illuminate students' current understanding and provide guidance for responding to student thinking.
- Sub-Unit Checklists (grades K–1): These checklists enable teachers to observe key skills and concepts that cannot be assessed on a pencil-and-paper assessment and outline a roadmap of the supports students require to progress effectively.
- Show What You Know (formative, grades K–8): Each lesson offers a daily formative assessment focused on one of the key concepts in the lesson. Show What You Know moments are carefully designed to minimize the time students take to complete while maximizing the insight the teacher receives on a daily basis to attend to student needs during the following class. Show What You Know is optional in grades K–1.
- End-of-Unit Assessment (summative): Students engage with rigorous grade-level mathematics through a variety of formats and tasks in the End-of-Unit Assessment. A combination of autoscored and rubric-scored items provide deep insights into student thinking.
- Watch Your Knowledge Grow (formative, grades K–8): Students take ownership of their learning by reflecting and tracking their progress before and after each unit.
- mCLASS Benchmark Assessments (grades K–8) : This powerful digital assessment system is whole-class administered for benchmarking three times a year: beginning-of-year/readiness screener (BOY), middle-of-year (MOY), and end-of-year (EOY). The assessments are designed with a focus on analyzing student responses to reveal underlying math thinking, evaluate what

students know about grade-level math, and inform instructional decisions.

- Performance Tasks (grades 3–8): Performance tasks are designed to engage students in meaningful, real-world problem-solving activities that require them to apply their mathematical knowledge and reasoning skills.
- CAASPP-aligned Item Bank: This standards-aligned bank of questions allows teachers to filter and search by grade and standard to find items. Once assigned on the digital platform, students will experience CAASPP-like practice with the online digital tools.

Category 4: Access and Equity

The aim of Amplify Desmos Math California is for all students to develop a deep understanding of mathematical concepts aligned with the math content standards and encompass the core concepts outlined in the California Framework.

Each lesson incorporates opportunities for engagement, representation, action, and expression based on the guidelines of Universal Design for Learning (UDL). UDL is a research-based framework designed to ensure meaningful learning experiences for all students.[1]

- **Multiple Means of Engagement:** Students engage in both print and digital learning, and are regularly participating in discussions and hands-on activities. Students are invited to build their own challenge for other students to solve, which provides opportunities for choice and autonomy, as well as joy and play.
- **Multiple Means of Representation:** Students are encouraged to demonstrate their learning using mathematical representations, both print and digital, and regularly engage with their peers in analyzing multiple possible solutions. Classes engage in open-ended discussions about what individual students notice and wonder about mathematical concepts.
- **Multiple Means of Action and Expression:** Learners differ in how they navigate learning environments and express what they know. Students can communicate their ideas in multiple ways, including in print, sketching, uploading photos, or recording an audio response.

To support teachers in providing the best daily instruction, every lesson includes a robust set of differentiation resources, both within and following each lesson.

- **In-lesson differentiation:** Our Teacher Moves provided within every lesson activity provide differentiated suggestions for in-the-moment instructional support.Teachers are provided with clear student learning objectives, each matched with immediately usable suggestions for how to respond to student thinking.
- **Beyond-the-lesson differentiation:** Following each lesson, teachers are provided with resources to support different groups of students – some students need **support** in a teacher-led small-group, other students are almost there and need to **strengthen** their learning, while

1 https://udlguidelines.cast.org/

some students are ready to **stretch** their learning. These resources include: Mini-Lessons, Item Bank, Boost Personalized Learning, Fluency Practice, Centers, Extensions, Lesson Practice, Math Adventure games, and Lesson Summaries.

Additional ways Amplify Desmos Math California provides access for all students include:

- The digital platform includes accessibility tools to help customize the learning experience to students' individual needs. With their teacher's support, students have the ability to use accessibility tools on their device to customize the learning experience. These tools include: text to speech, font size, zoom, and language selection.
- Each grade offers connections to authentic contexts. All units feature Math in Action pages where students reflect on the math they learned in this unit and how it applies to society, the workplace, and their world and communities. In grades K–5, each unit is centered on a Unit Story. These stories are brief fiction stories read aloud by the teacher to invite students to build upon their prior knowledge and lived experiences.
- Amplify Desmos Math California asserts that the development of mathematical language is essential for all learners, and we place a strong emphasis on the interconnectedness of mathematical content, practice, and language. Our program particularly acknowledges the unique needs of multilingual and English learners by providing targeted support as they engage with math. By focusing on when, how, and why students use language to understand and communicate their mathematical ideas, every lesson offers rich opportunities for language development.
- Math Adventures and Fluency Practice provide additional opportunities to practice and apply mathematical concepts and skills.

Category 5: Instructional Planning and Support

In addition to offering expert professional learning opportunities, Amplify Desmos Math California includes an array of embedded instructional supports to empower teachers to lead effectively and gain actionable insights into student growth and progress. Teacher tools are provided for planning around the coherence of the mathematical concepts of the grade and beyond. Teachers are supported with guidance for how to adjust the scope & sequence based on a set of pacing recommendations.

Teachers are equipped with a comprehensive set of resources designed to enhance their understanding and implementation of the program. These resources provide insights into coherence within the curriculum, offering a Mathematical Background and Connection to Future Learning pages to support the educators' grasp of core concepts and ensuring that teachers can guide students through a progressive learning journey. Additional Math Language Development, Intervention, Investigation, Extension, and Assessment resources provide teachers a variety of ways to support all students both from within and beyond the lesson.