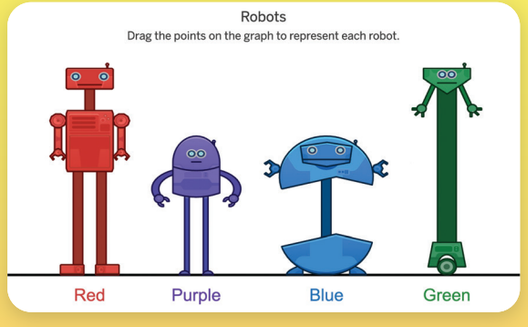
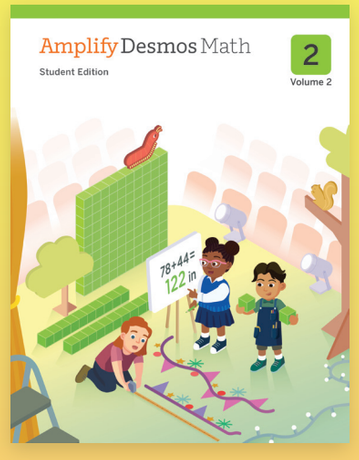
Amplify Desmos Math

Grades K–5

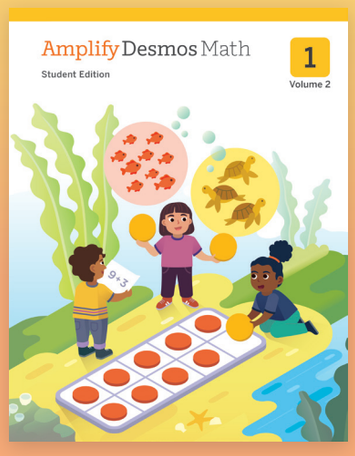
Experience Kit

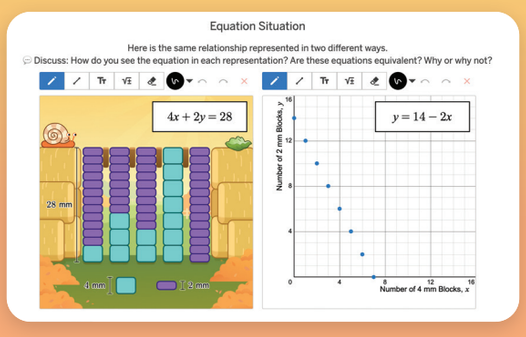


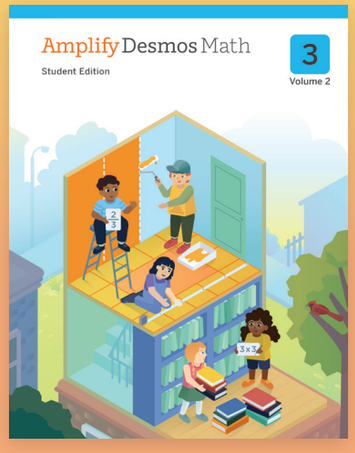


GO ONLINE

Get started with digital lessons at amplify.com/mathexp.







About Amplify

Amplify is dedicated to collaborating with educators to create learning experiences that are rigorous and riveting for all students. Amplify creates K–12 core and supplemental curriculum, assessment, and intervention programs for today's students.

A pioneer in K–12 education since 2000, Amplify is leading the way in next-generation curriculum and assessment. All of our programs provide teachers with powerful tools that help them understand and respond to the needs of every student.

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55 Washington Street, Suite 800,
Brooklyn, NY 11201
www.amplify.com

Welcome to Amplify Desmos Math!

Amplify Desmos Math is a new, curiosity-driven program that supports teachers in building a classroom of students who see themselves as math people and gain 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.

In the pages that follow, you'll find information about our pedagogical philosophy, the research behind our approach, and program components and features. We've also included a section on navigating digital and print program resources to help you find your way around the curriculum.

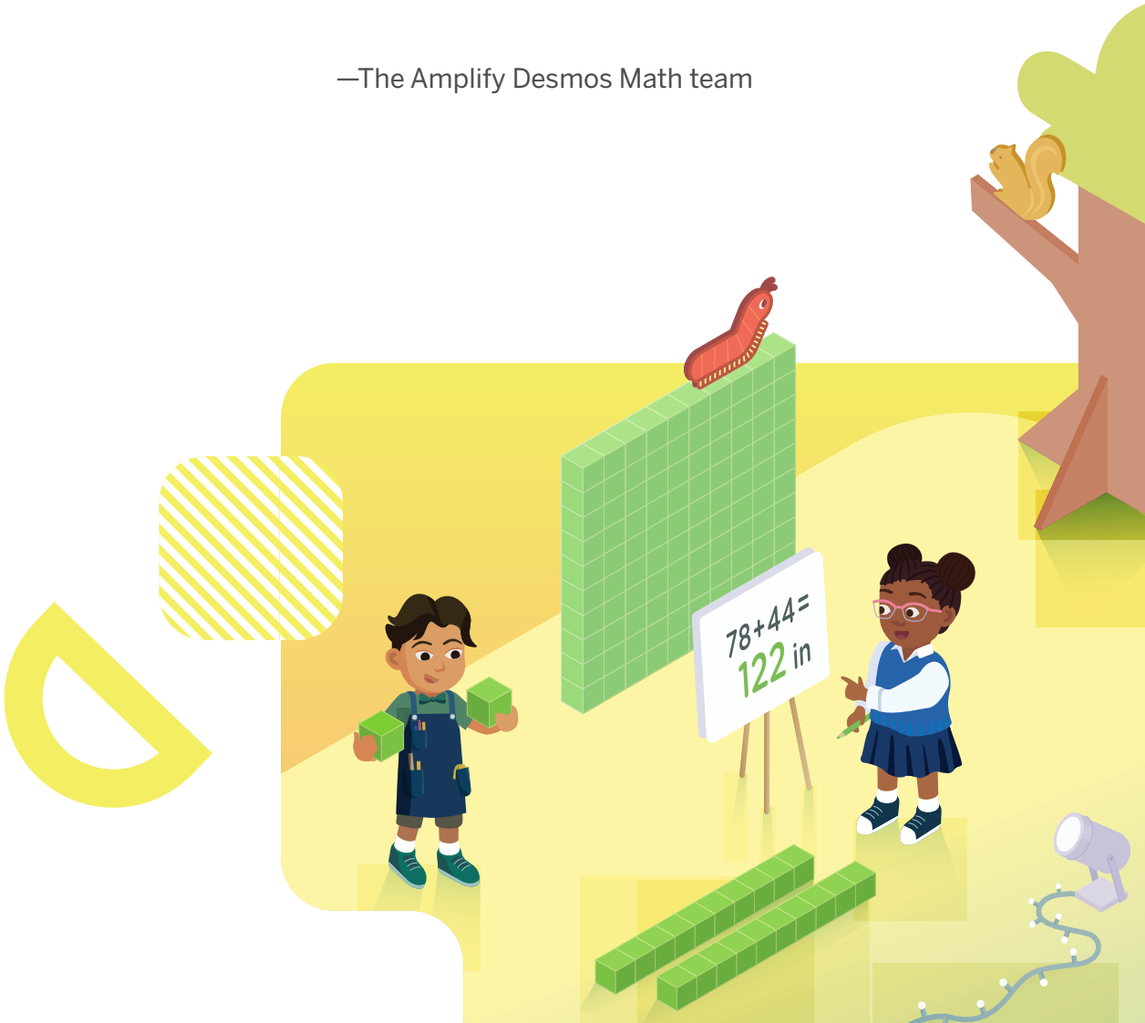
We're thrilled to have you on this journey with us, and we're here to help. Whether you have a pedagogical question or need technical support, our team can be reached anytime via:

Live chat: Click the orange icon while logged in to chat with our customer support team.

Phone: Call our toll-free number: **(800) 823-1969**.

Email: Send an email to **help@amplify.com**. In the message body, please include your name and question. Provide as much detail as possible, so we can help you find a solution.

—The Amplify Desmos Math team



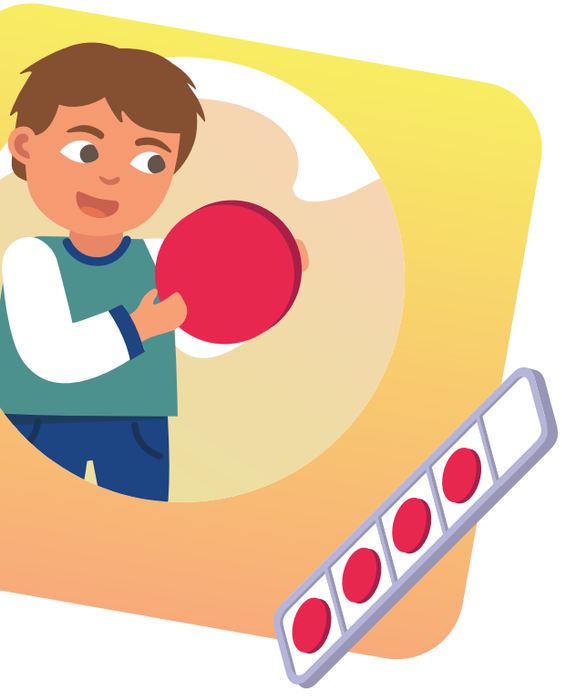


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Table of contents

Our philosophy

As we developed Amplify Desmos Math, we asked ourselves: *How can we support teachers in creating a collaborative classroom of learners excited about math?*

With that question in mind, we built the program around four core tenets:

1 A structured approach to problem-based learning

The 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 any roadblocks. Every lesson includes suggestions for accessibility and differentiation to support, strengthen, and stretch student understanding.

We also provide additional resources that integrate seamlessly with core instruction, including a suite of assessments, tailored practice resources that adjust to student learning, and other intervention solutions. Cohesive differentiation and intervention resources support and challenge students on their path toward deeper understanding of the learning goals, ensuring that all students can gain or stretch beyond grade-level math.

Proficiency Progression

Lessons are designed around what we call the Proficiency Progression, a model that systematically builds on students' curiosity to develop lasting grade-level understanding.

1. Activate students' prior knowledge and curiosity
2. Generate new ideas through collaboration
3. Refine ideas using facilitation tools
4. Guide to grade-level understanding
5. Practice, reinforce, remediate, and extend for lasting understanding

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.

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.

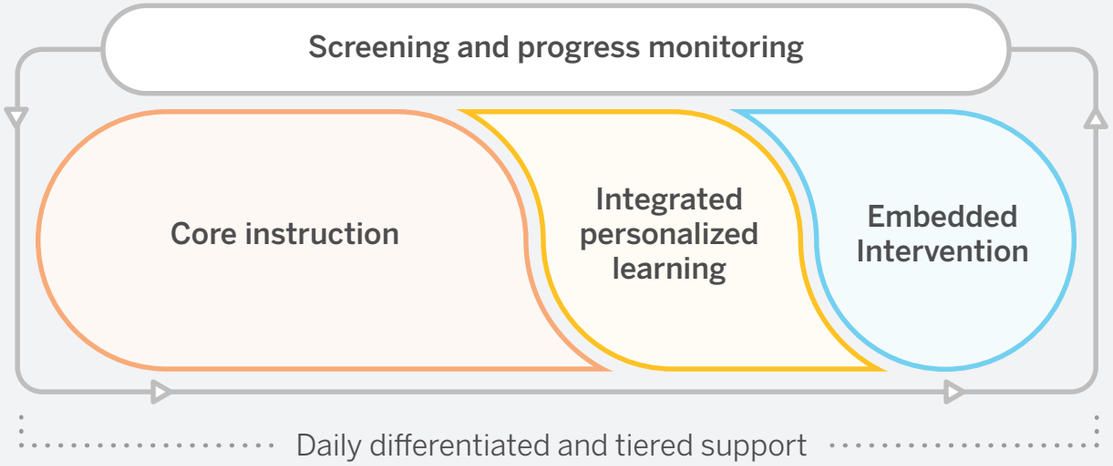
4 Math that motivates

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 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 having interesting mathematical ideas.

A powerful suite of math resources

Amplify Desmos Math combines the best of problem-based lessons, intervention, personalized practice, and assessments into a coherent and engaging experience for both students and teachers.



Screening and progress monitoring

mCLASS® Assessments, along with daily formative checks, measure what students know and how they think. The asset-based assessment system provides teachers with targeted, actionable insights, linked to core instruction and intervention resources.

Core instruction

Amplify Desmos Math lessons provide a structured approach to problem-based learning, helping teachers create a collaborative math community with students at its center. Each lesson systematically builds on students' curiosity to develop lasting grade-level understandings for all students.

Integrated personalized learning

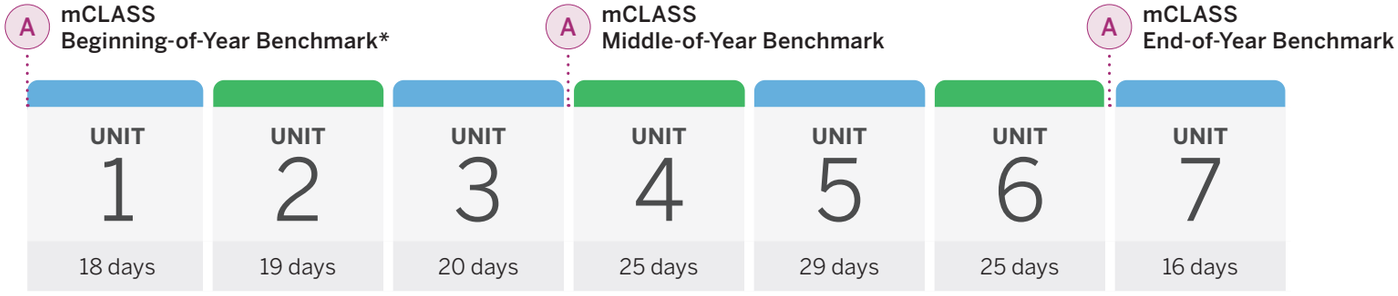
Boost Personalized Learning activities help students access grade-level math through engaging, independent digital practice. Responsive Feedback adjusts to students' work, providing item-level adaptivity to further support their learning.

Embedded intervention

Integrated resources like Mini-Lessons, Fluency Practice, and Math Adventures provide targeted intervention on a specific concept or skill connected to the daily lesson. Extensions are also available to stretch students' understanding.

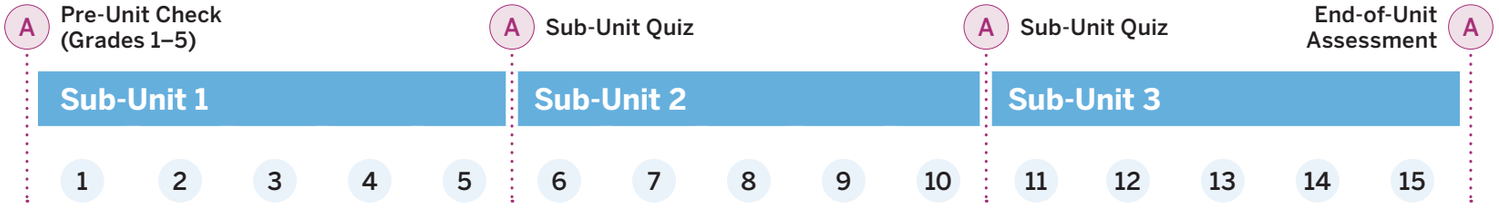
Course and unit structure

Course



Note: The number of lessons varies from unit to unit in each grade. There are eight units in grade 2. See pages 12–17 for the full program scope and sequence.

Unit



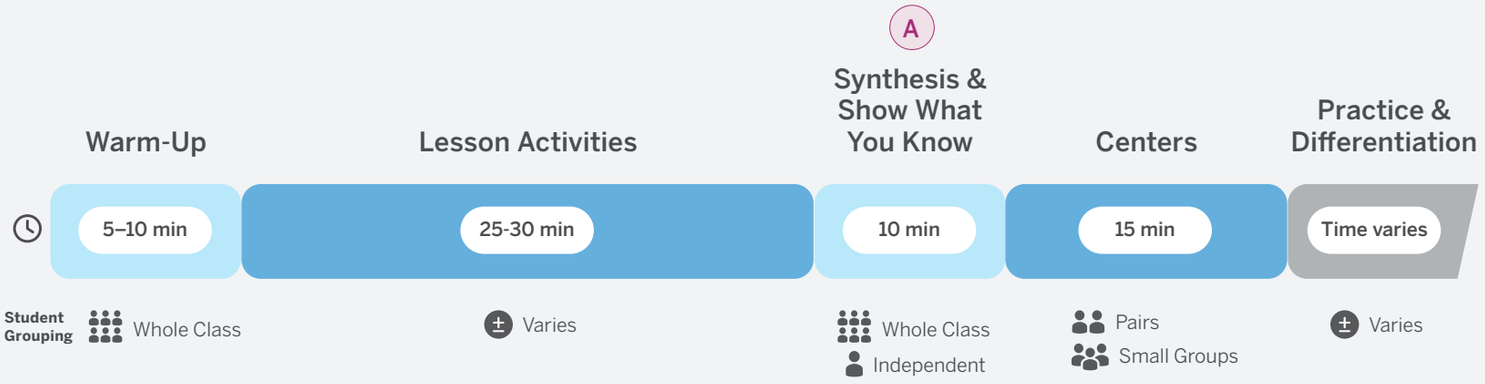
Note: The number of sub-units per unit and lessons within each sub-unit varies. This depiction shows the general structure of a unit. See the course Table of Contents in the print Teacher Edition for more details.

*A brief but powerful mCLASS Beginning-of-Year Screener is provided when mCLASS Benchmark is not included.

A indicates program assessments

Lesson structure

Grades K–1



Warm-Up

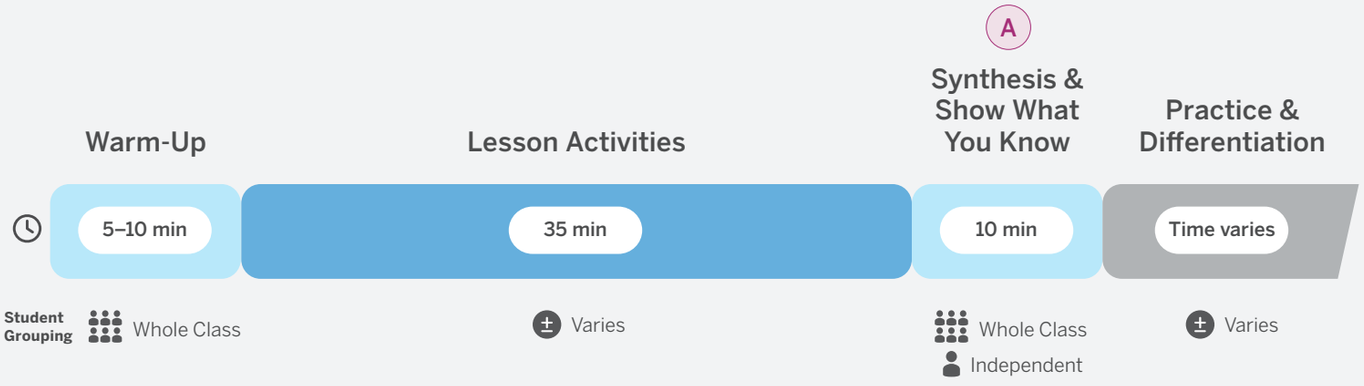
Every Amplify Desmos Math lesson begins with a whole-class Warm-Up, an invitational Instructional Routine intended to provide a social moment at the start of the lesson in which every student has an opportunity to contribute. Some Warm-Ups build fluency or highlight a strategy that may be helpful in the current lesson. Other Warm-Ups act as an invitation into the math of the lesson. The Warm-Up for the first lesson of each unit introduces the Unit Story for the Unit.

Activities

Each lesson includes one or two activities. These activities are the heart of each lesson. Students notice, wonder, explore, calculate, predict, measure, explain their thinking, use math to settle disputes, create challenges for their classmates, and more.

Guidance is provided to help teachers launch, monitor, and connect student thinking over the course of the activity. There are also suggestions for pacing, facilitation moves, discussion questions, examples of early student thinking, and ideas for early finishers, as well as opportunities to build and develop the math community in the classroom.

Grades 2–5



Centers

Centers are engaging, hands-on, 15-minute games for students in grades K–5 to play collaboratively to strengthen their understanding of key skills and concepts. In grades K–1, students have Daily Center Time built into every lesson.

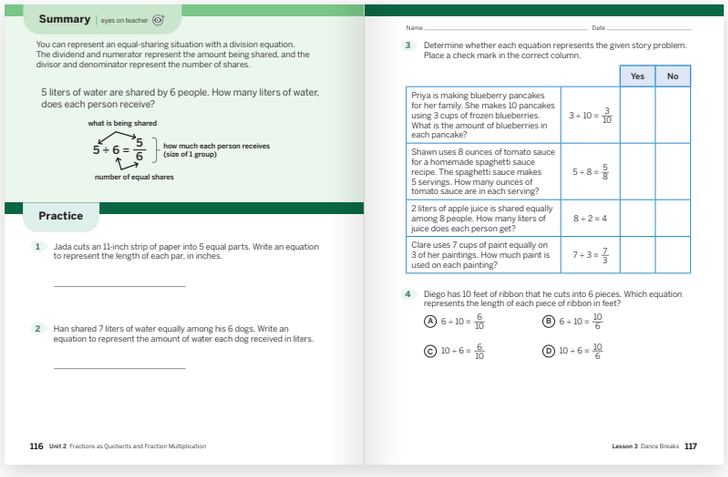
Synthesis & Show What You Know

The Synthesis is an opportunity for the teacher and students to pull all the learning of the lesson together into a lesson takeaway. Students engage in a facilitated discussion to consolidate and refine their ideas about the learning goals, and the teacher synthesizes students' learning.

Show What You Know is a daily assessment opportunity for students to show what they know about the learning goals and what they are still learning.

Practice

Daily practice problems for the day's lesson are included both online and in the print Student Edition, including fluency, test practice, and spiral review.



Practice problems in grades K–1 are only available in print.

Scope and sequence

Kindergarten

Suggested instructional days: 136

UNIT 1

Math in Our World

18 instructional days
3 assessment days

21 days total

UNIT 2

Numbers 1–10

22 instructional days
4 assessment days

26 days total

UNIT 3

Flat Shapes All Around Us

16 instructional days
2 assessment days

18 days total

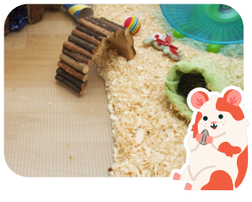
UNIT 4

Understanding Addition and Subtraction

20 instructional days
3 assessment days

23 days total

UNIT 5



Make and Break Apart Numbers Within 10

15 instructional days
3 assessment days

18 days total

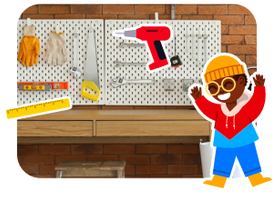
UNIT 6

Numbers 0–20

11 instructional days
2 assessment days

13 days total

UNIT 7



Solid Shapes All Around Us

15 instructional days
2 assessment days

17 days total

Grade 1

Suggested instructional days: **153**

UNIT 1

Adding, Subtracting, and Working With Data

15 instructional days
4 assessment days

19 days total

UNIT 2

Addition and Subtraction Story Problems

20 instructional days
5 assessment days

25 days total

UNIT 3

Adding and Subtracting Within 20

20 instructional days
5 assessment days

25 days total

UNIT 4

Numbers to 99

22 instructional days
5 assessment days

27 days total

UNIT 5

Adding Within 100

14 instructional days
4 assessment days

18 days total

UNIT 6

Measuring Lengths of Up to 120 Length Units

15 instructional days
4 assessment days

19 days total

UNIT 7

Geometry and Time

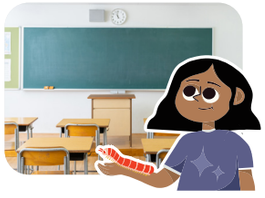
16 instructional days
4 assessment days

20 days total

Grade 2

Suggested instructional days: **156**

UNIT 1



Working with Data and Solving Comparison Problems

16 instructional days
4 assessment days

20 days total

UNIT 2

Adding and Subtracting Within 100

22 instructional days
5 assessment days

27 days total

UNIT 3

Measuring Length

15 instructional days
4 assessment days

19 days total

UNIT 4

Addition and Subtraction on the Number Line

13 instructional days
3 assessment days

16 days total

UNIT 5

Numbers to 1,000

12 instructional days
3 assessment days

15 days total

UNIT 6

Geometry and Time

16 instructional days
4 assessment days

20 days total

UNIT 7

Adding and Subtracting Within 1,000

19 instructional days
4 assessment days

23 days total

UNIT 8

Equal Groups

13 instructional days
3 assessment days

16 days total

Grade 3

Suggested instructional days: **151**

UNIT 1

Introducing Multiplication

18 instructional days
4 assessment days

22 days total

UNIT 2

Area and Multiplication

13 instructional days
4 assessment days

17 days total

UNIT 3

Wrapping Up Addition and Subtraction Within 1,000

22 instructional days
5 assessment days

27 days total

UNIT 4

Relating Multiplication to Division

20 instructional days
5 assessment days

25 days total

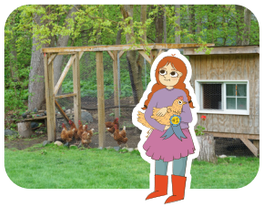
UNIT 5

Fractions as Numbers

17 instructional days
4 assessment days

21 days total

UNIT 6



Measuring Length, Time, Liquid Volume, and Weight

17 instructional days
5 assessment days

22 days total

UNIT 7

Two-Dimensional Shapes and Perimeter

13 instructional days
4 assessment days

17 days total

Grade 4

Suggested instructional days: **152**

UNIT 1

Factors and Multiples

12 instructional days
3 assessment days

15 days total

UNIT 2

Fraction Equivalence and Comparison

15 instructional days
4 assessment days

19 days total

UNIT 3

Extending Operations to Fractions

16 instructional days
4 assessment days

20 days total

UNIT 4

From Hundredths to Hundred Thousands

21 instructional days
5 assessment days

26 days total

UNIT 5

Multiplicative Comparison and Measurement

17 instructional days
4 assessment days

21 days total

UNIT 6

Multiplying and Dividing Multi-Digit Numbers

23 instructional days
4 assessment days

27 days total

UNIT 7

Angles and Properties of Shapes

20 instructional days
4 assessment days

24 days total

Grade 5

Suggested instructional days: **149**

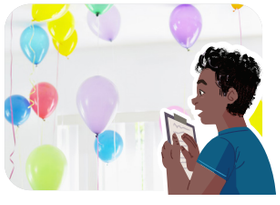
UNIT 1

Volume

14 instructional days
4 assessment days

18 days total

UNIT 2



Fractions as Quotients and Fraction Multiplication

15 instructional days
4 assessment days

19 days total

UNIT 3

Multiplying and Dividing Fractions

15 instructional days
4 assessment days

19 days total

UNIT 4

Wrapping Up Multiplication and Division With Multi-Digit Numbers

19 instructional days
4 assessment days

23 days total

UNIT 5

Place Value Patterns and Decimal Operations

25 instructional days
5 assessment days

30 days total

UNIT 6

More Decimal and Fraction Operations

20 instructional days
4 assessment days

24 days total

UNIT 7

Shapes on the Coordinate Plane

12 instructional days
4 assessment days

16 days total

Powerful print and digital learning experiences

All lessons in Amplify Desmos Math include print materials and rich digital experiences. Every lesson is supported with Student Edition pages, teacher presentation screens, and interactive digital resources for practice and differentiation. Some lessons also enable students to use devices to interact with lesson content.

For an age-appropriate number of lessons in grades K–5, we recommend students engage with all lesson content using devices. These lessons feature collaboration tools, interactive visuals, and Responsive Feedback. They also offer additional guidance to support students on devices and those using pages from the Student Edition.

Student devices are recommended for approximately 10 percent of lessons in grades K–2, 15 percent of lessons in grades 2–3, and 20 percent of lessons in grades 4–5.

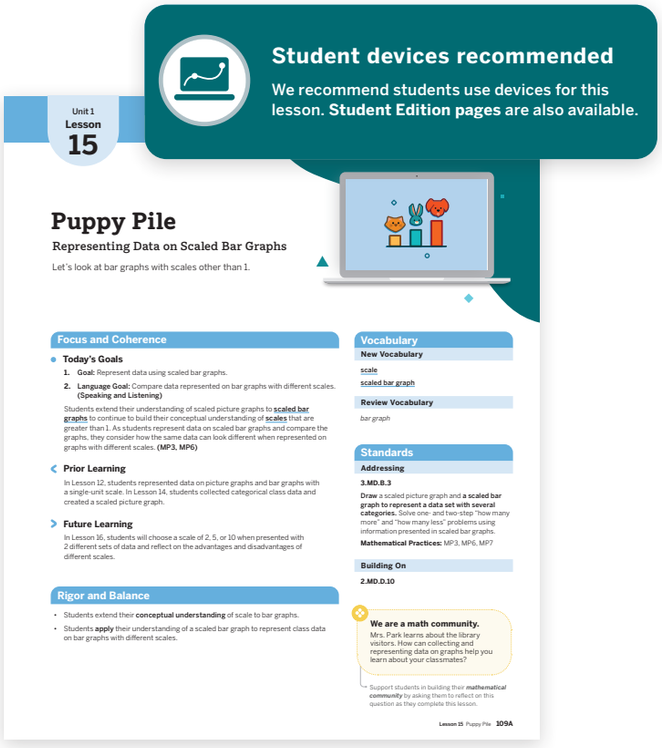
Whether every student has their own device or students are sharing a device, all students leverage technology to collaborate and engage with their peers, learning with and from each other.

Every lesson supports learning with:

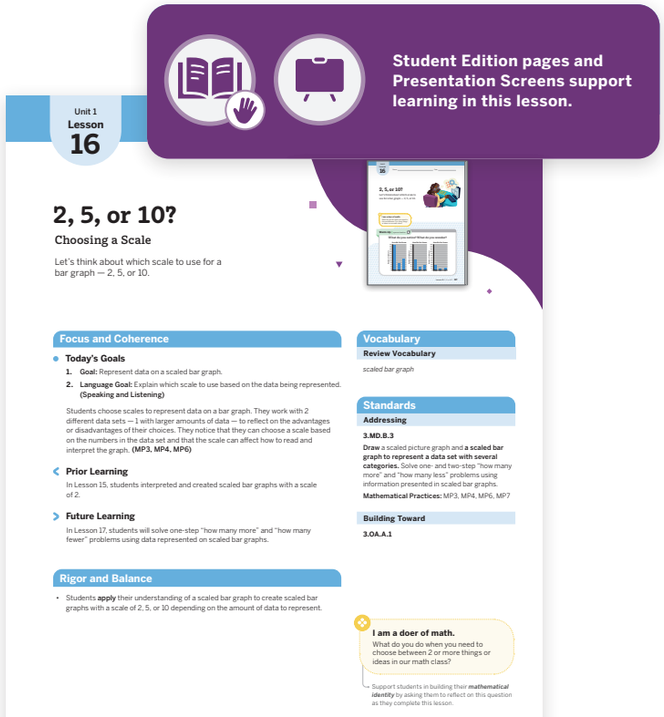
- Student Edition pages.
- Presentation Screens.
- Interactive digital resources for additional practice and differentiation.

Lessons where student devices are recommended also feature:

- Activity Screens for student devices.
- Closely aligned Student Edition pages for offline note-taking or for students who may need to use print.

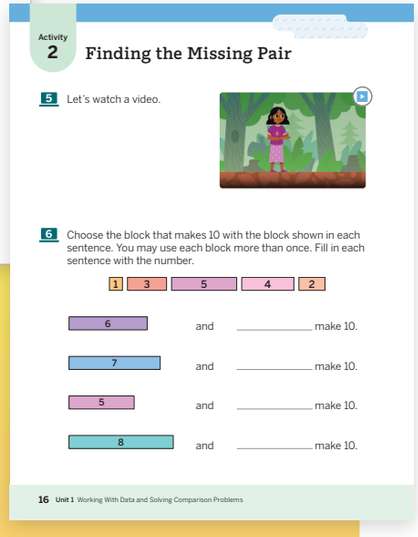


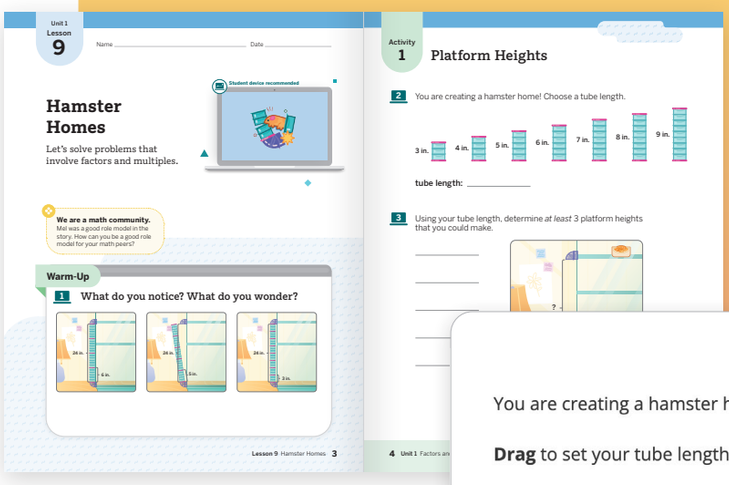
The first page of every lesson in the Teacher Edition shows teachers how they should plan to have students engage the lesson.

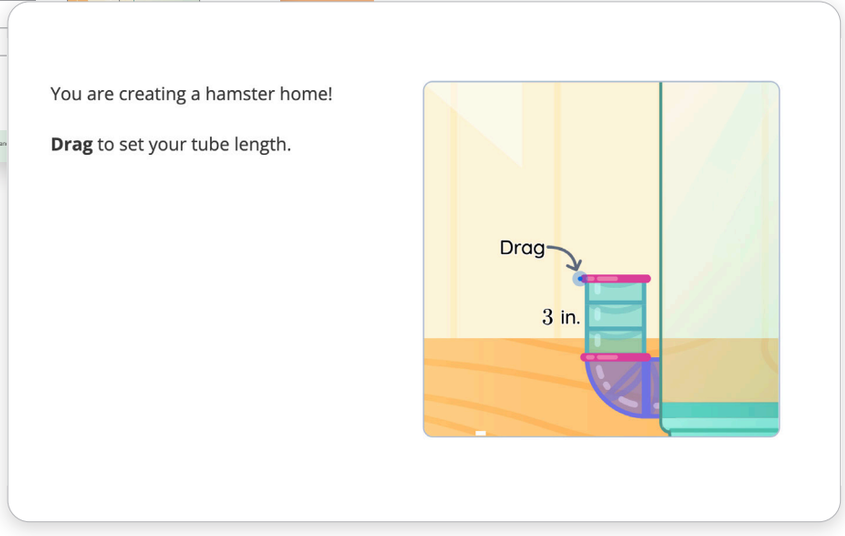


Grade 2

In this activity, students arrange number pairs into a pattern to notice that recognizing patterns can be useful when finding all the ways to make 10.



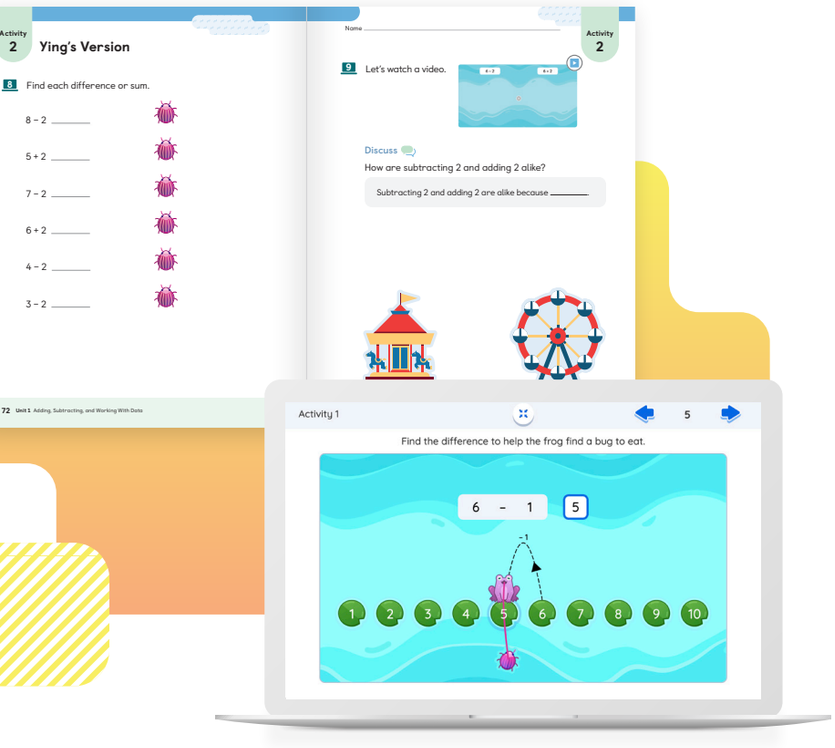




Grade 4

Students use the Notice and Wonder routine to share what they notice and wonder about platform heights and tube lengths in hamster homes. They then choose a tube length to connect to platform heights for their hamster home. They identify possible heights using what they know about multiples.

Program components



For students

- **Student Edition** (two volume): Print student consumable workbook
- **Digital access** to lesson resources and practice, including:
  - Interactive Student Activity Screens
  - Responsive Feedback™
  - Collaboration tools
  - Boost Personalized Learning (grades K–8)
- **Additional Practice:** Take-home workbook with two pages of practice problems per lesson, aligned with Amplify Desmos Math Student Edition

Student materials are also available in Spanish.

Manipulative kits

Manipulative kits are specific to each grade, K–5, and include materials for a class of 24 students. An add-on kit with materials for an additional five students is also available for purchase for larger class sizes.

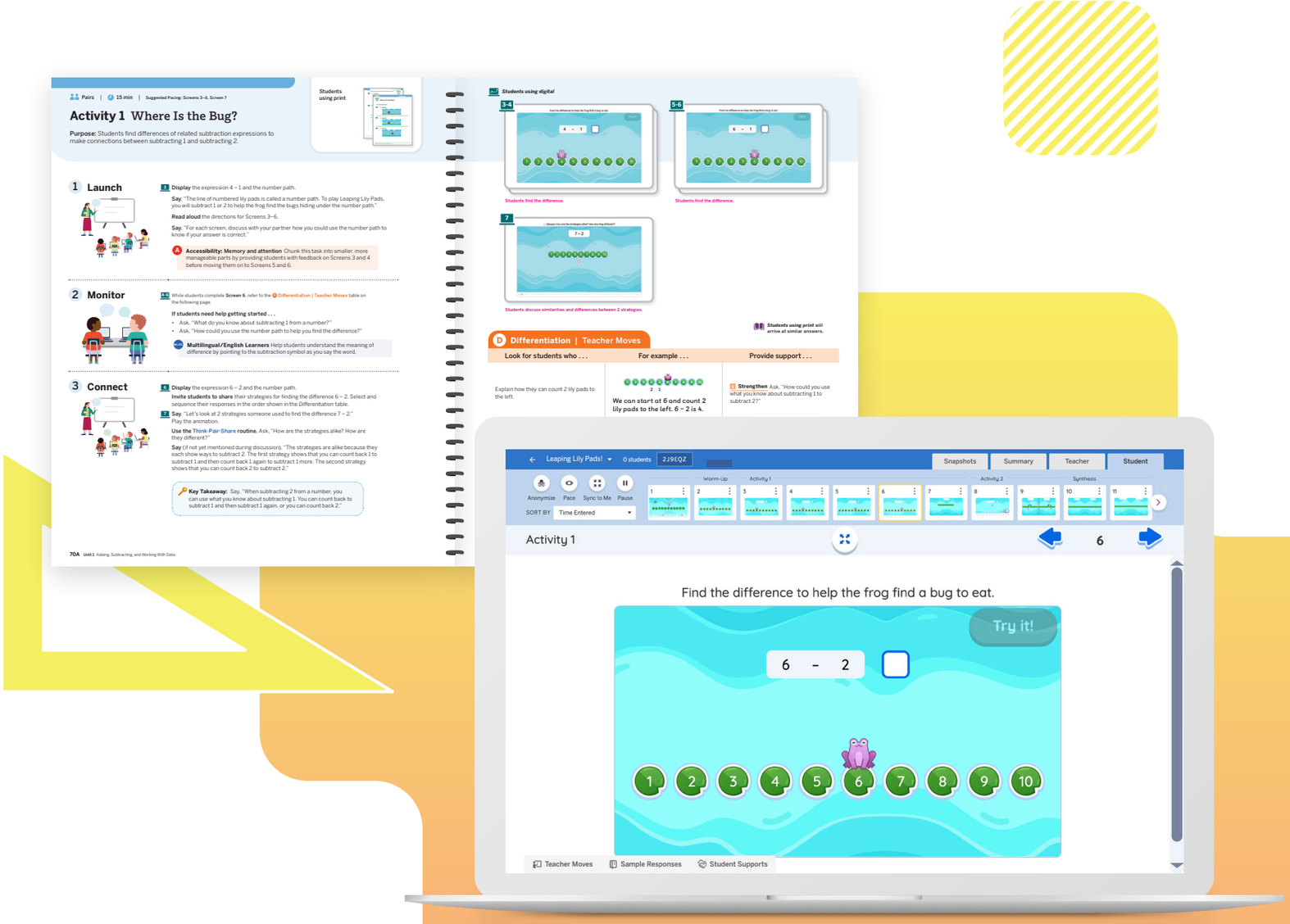
See page 23 for a full list of components included in the hands-on manipulative kits.

Centers kits

Centers Kits are available for easy grab-and-go use that include all printed materials needed, organized and pre-packaged by Center and Center stage.

For teachers

- **Teacher Edition** (two-volume): Print teacher resource guiding lesson differentiation and instruction
- **Digital access** to planning and instruction resources, including:
  - Presentation Screens
  - Facilitation and progress monitoring tools
  - Assessment and reporting suite, including mCLASS® Assessments (grades K–8)
- **Additional Practice:** Following Amplify Desmos Math structure, these offer two pages of practice problems per lesson with answers for teachers.
- **Assessment and Lesson Resources:** Robust assessments drive learning and inform instruction.
- **Centers Resources** (grades K–5): Centers Resources appear as part of instructional activities and lesson differentiation, and include work mats, instructional cards, guidance, and other print materials.
- **Intervention and Extension Resources** (grades K–8): Additional resources reinforce and extend key concepts, including Mini-Lessons and Extensions.
- **Math Language Development Resources:** Provides teachers with strategies, including vocabulary routines and activity pages, to enhance English learners' language skills and understanding in math classes.



Manipulatives

Hands-on manipulatives in the math classroom are essential tools for discovery and understanding key math concepts. They create a tactile experience to help students conceptualize information, allowing them to build mental models.

Our approach to manipulatives in Amplify Desmos Math provides:

- A space where students can use any manipulative they want to explore and play to better understand a concept.
- A way for teachers to see how students are understanding a concept through the use of manipulatives.
- Specific manipulatives for specific moments.

Lessons in Amplify Desmos Math thoughtfully integrate the use of manipulatives where appropriate to enhance students' understanding of key math concepts. Our approach aligns with the 2013 position statement issued by the National Council of Supervisors of Mathematics (NCSM): "[I]n order to develop every student's mathematical proficiency, leaders and teachers must systematically integrate the use of concrete and virtual manipulatives into classroom instruction at all grade levels".[1]

The contents of Amplify Desmos Math manipulative kits include materials that can be used to illustrate math concepts, "whether made specifically for mathematics (e.g., connecting cubes) or for other purposes."[2]

The kits contain materials for a class of 24 students, with an add-on kit for larger class sizes also available.

1 NCSM. (2013). Improving student achievement in mathematics using manipulatives in classroom instruction [Position paper].

2 V. de W., J. A., Karp, K. S., Bay-Williams, J. M., & Wray, J. A. (2022). *Elementary and middle school mathematics: Teaching developmentally*. Pearson.

MANIPULATIVES

Component	GK	G1	G2	G3	G4	G5
4-inch clock			✓			
6-inch protractor					✓	✓
Algebra tiles						
Base ten cubes					✓	✓
Base ten flats				✓	✓	✓
Base ten rods		✓	✓	✓	✓	✓
Base ten units		✓		✓	✓	✓
Bucket balance				✓		
Clear plastic straws	✓					
Clock		✓	✓			
Compass						
Dot cubes		✓				
Double ten frames		✓	✓			
Five frames	✓					
Foam number cubes			✓	✓	✓	
Geoblocks	✓	✓				
Geoboards				✓		
Geosolids	✓	✓				
Gram weights				✓		
Inch color tiles			✓	✓	✓	
Number cards	✓	✓	✓	✓	✓	✓
Paper clips						
Pattern blocks	✓	✓		✓	✓	
Patty paper						
Place value mat		✓				
Play dough	✓					
Ruler			✓	✓	✓	
Snap cubes	✓	✓	✓	✓	✓	✓
Tape measure			✓			
Ten frames	✓	✓	✓			
Two-color counters	✓	✓	✓	✓	✓	✓

Guided by expert advisors, partners, and educators

Amplify Desmos Math embodies the convergence of groundbreaking research and development efforts in K–12 mathematics instruction. The acquisition of Desmos Classroom by Amplify Education in 2022 brought together two distinct, yet complementary, curriculum efforts based on Illustrative Mathematics'® IM K–12 Math™.

A dedicated team at Amplify, with nearly 2,000 combined years of classroom teaching and school leadership experience, thoughtfully created Amplify Desmos Math with teachers and students in mind. This team includes curriculum developers, interaction developers, copy editors, graph specialists, digital innovation specialists, standards and customization specialists, production editors, and many more.

Amplify Desmos Math also brings together industry-leading curriculum development and instructional technology experts who understand the needs of K–12 teachers and learners and are dedicated to rigorous and equitable mathematics instruction.

Program advisors and contributors

Jason Zimba, Ph.D.
A leader in mathematics education, Jason was a founding partner of Student Achievement Partners, an author of the Publishers' Criteria for Mathematics, and a catalyst in countless initiatives to improve math education nationwide. He is now Chief Academic Officer at Amplify.

Dan Meyer, Ph.D.
A longtime advocate for better math instruction, Dan served as Chief Academic Officer at Desmos, making digital math tools more accessible and engaging for students. In 2024, Dan was awarded the prestigious Ross Taylor/Glenn Gilbert National Leadership Award by the National Council of Supervisors of Mathematics for transforming the way educators and students experience mathematics. He continues to shape the future of math technology as Vice President of User Growth at Amplify.

Kristin Gray
Passionate about the value of curiosity in the classroom, Kristin received the Presidential Award for Excellence in Mathematics and Science Teaching. Beyond her role as a teacher and coach, she has influenced math education at scale as former Director of K–5 Curriculum at Illustrative Mathematics and current Executive Director of Math at Amplify.

Phil Daro
Dedicated to rigorous and equitable mathematics instruction, Phil received the Walter Denham Award from the California Mathematics Council and the Ross Taylor/Glenn Gilbert National Leadership Award from the National Council of Supervisors of Mathematics. He is a long-time member of the NAEP Validity Studies panel.

Fawn Nguyen
With over 30 years of classroom experience, Fawn is renowned for her teaching methods in the area of problem-solving. She has shared her knowledge at countless conferences and workshops nationwide. She now leverages her expertise as a math specialist at Amplify.

Patrick Callahan, Ph.D.
A research mathematician passionate about using assessment to understand student thinking, Patrick co-founded Math ANEX, now a part of Amplify. He has served as statewide co-director of the California Mathematics Project and Senior Research Scientist at WestEd. He is Vice President of Assessment at Amplify.

John W. Staley, Ph.D.
A longtime educator and past president of NCSM, John has worked to improve school systems and prepare students for the future. He has also served as chair of the U.S. National Commission on Mathematics Instruction and board member for Student Achievement Partners.

Partner organizations

ENGLISH LEARNERS SUCCESS FORUM

Math is a language that needs to be developed. Our work with **English Learners Success Forum (ELSF)** supports the development of all students' language skills with thoughtful integration of strategies and best practices for multilingual and English learners. **elsuccessforum.org**

(Note: ELSF does not rate or endorse materials. ELSF encourages all selection of materials to go through a robust adoption process using EL-inclusive criteria.)

math for love

Multiplication By Heart and other fluency decks by **Math for Love** have been included in Amplify Desmos Math to inspire a love of mathematics in students and to foster a deep understanding of math concepts through problem-solving, play, and inquiry. **mathforlove.com**

desmos studio PBC

Our close collaboration with **Desmos Studio**—which sets the standard for calculators and digital tools for exploring mathematics—enables us to build equitable, accessible, and delightful activities in Desmos Classroom, Amplify's teaching and learning platform. **desmos.com**

Classroom advisors

Chris Shore
Secondary Curriculum and Instruction Coordinator
Professional learning, intervention, usability, and secondary mathematics

Michelle Douglas Meyer
District Math Facilitator
Early childhood mathematics

JoAnna Chocooj
Retired teacher
Early childhood mathematics

Leila Sales
Children's Book Author, Publisher, and Consultant
Elementary Unit Stories

Educator advisors

- Vicky Alvarez, Teacher
- Wendy Baty, Consultant & Retired Teacher
- Daniel Bautista, Teacher
- Melodie Blackwood, Consultant
- Jed Butler, Teacher
- Beverly Campbell, Elementary Teacher on Special Assignment
- Joaquin Castillo, Instructional Coach
- Leslie Ceballos, Assistant Principal
- Christina Corradino, Teacher on Special Assignment
- Jamie Dropik, Teacher
- Simon Eisenberg, Lead teacher
- Krista Fosmire, Teacher
- Duane Habecker, Mathematics coordinator
- Allison Krasnow, Assistant Principal
- Jeffrey Linder, Math Specialist
- Chandra T. Phillips, Principal
- Lori Robinson, Retired Executive Director
- Ileana Santigao, Teacher
- Morgan Saxby, Teacher
- Lisa Stoll, Retired Teacher
- Natara Warren, Teacher & instructional coach
- Chris Weber, Principal
- Kelly Young, Teacher


VOLUME:
204
96+108

Navigating the program

In the pages that follow, you'll find helpful tips and wayfinding for navigating Amplify Desmos Math. We recommend reading these pages alongside the program's print materials and digital experience to fully appreciate and understand the components in context.

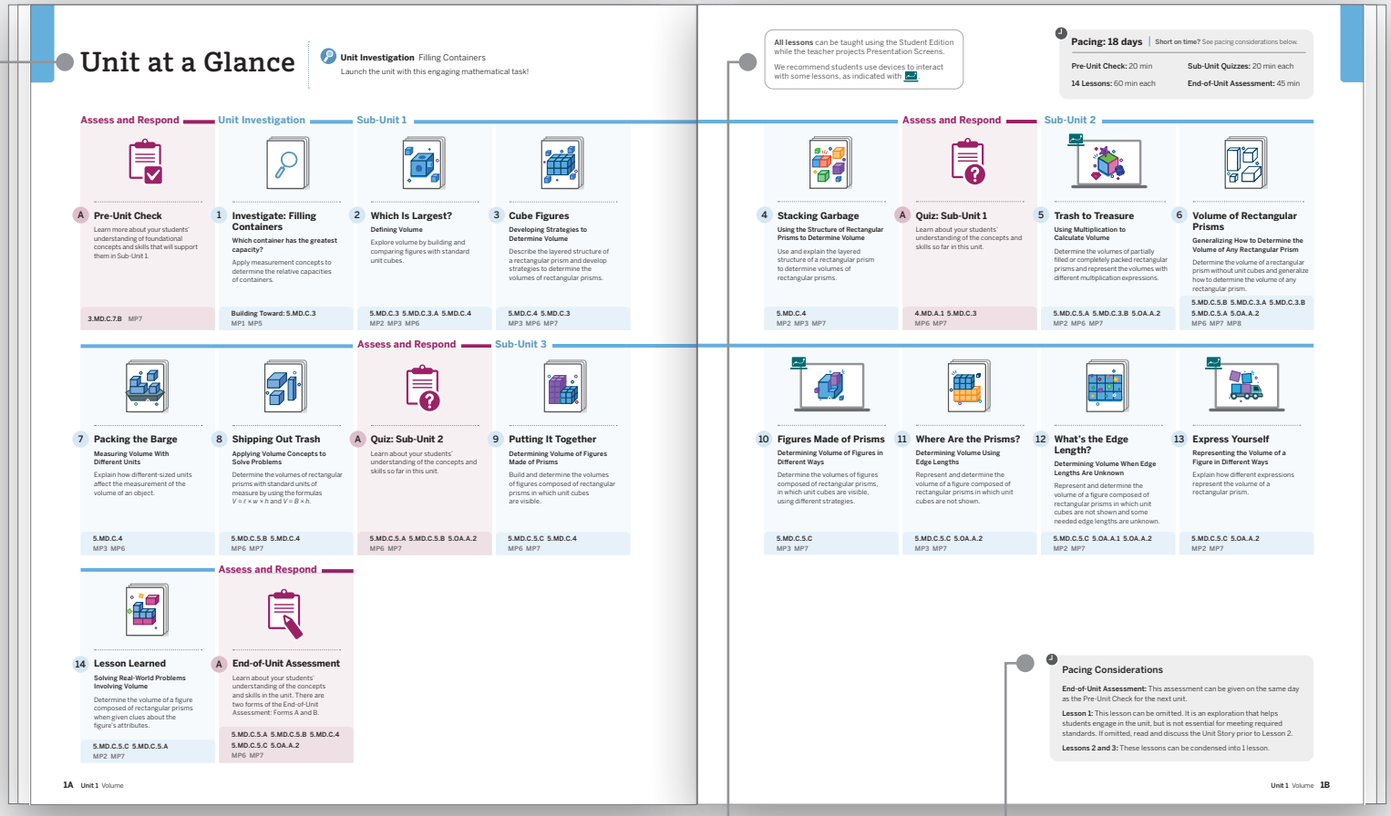
You'll read about navigating program features including:

- Navigating the print program
- Navigating the digital program

Navigating the print program

Unit & Sub-Unit Resources

Each unit includes a range of resources designed to support teachers in thinking through the progression of mathematics that students will engage with over the course of the unit. These resources can support teachers in their unit planning, as well as choices they make in response to students' thinking, strengths, and needs that arise over the course of the unit.



Every unit has a **Unit at a Glance** page which shows teachers everything they need to know to get started planning out their upcoming unit.

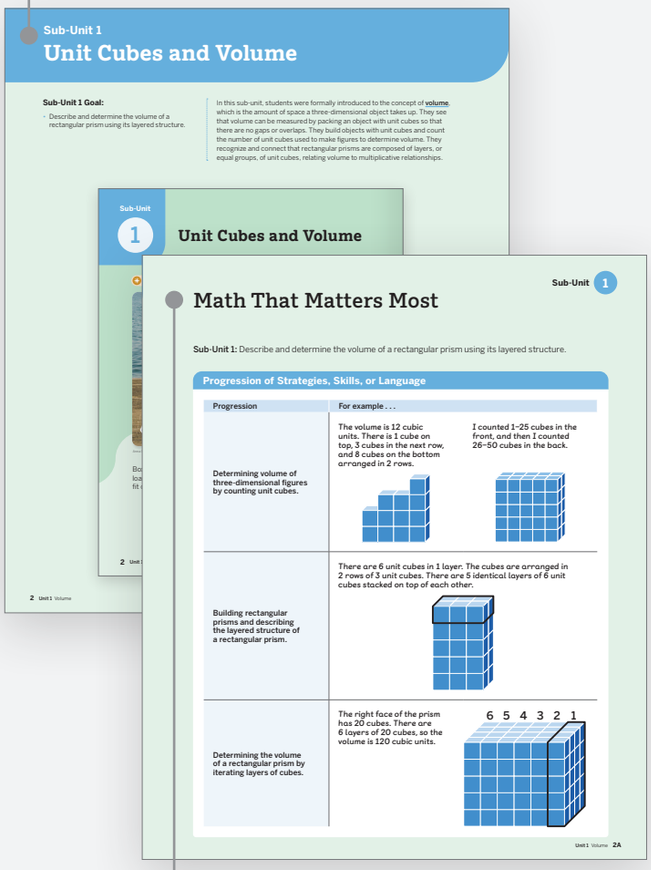
While all lessons can be taught using the Student Edition as the teacher projects Presentation Screens, we recommend students use **devices** to interact with some lessons.

Teachers are provided with thoughtful **pacing considerations** for how they can adjust the pacing of the unit as needed without compromising unit learning goals.

Unit Overview pages

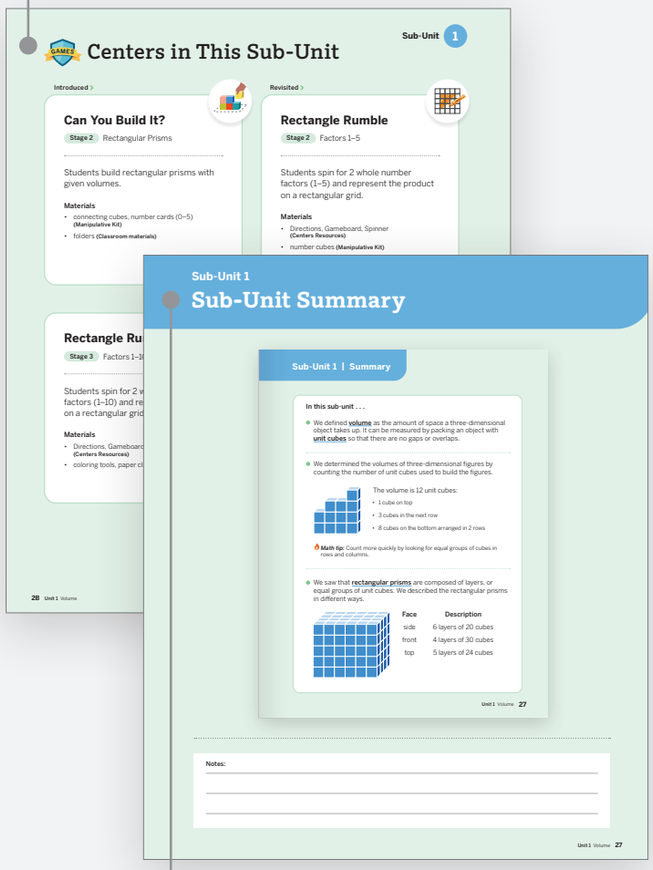
Teachers will find a comprehensive set of resources for each unit, including an overview of the math of the unit, a visual summary of the Unit at a Glance, a preview of each of the unit assessments, and unit guidance for differentiation, Centers, accessibility, language development, materials, technology, and connections to future learning. Each Unit Overview also includes a professional development activity, a formative Pre-Unit Check that teachers can use to assess students' readiness for unit topics, and a Unit Story that provides an engaging narrative to frame students' explorations throughout the unit.

The **Sub-Unit Overview** clearly shows the goals and student-facing essential questions for the sub-unit.



Depending on the goals of the sub-unit, the **Math That Matters Most** page illustrates for teachers the most important progressions of either strategies, skills, or language that happen during the sub-unit.

This page lists all **Centers** that are included in **Activities** in the sub-unit. It shows teachers which Centers are newly introduced and which are being revisited from prior sub-units or units.



The **Summary** page clearly illustrates what students learned in the sub-unit, which aids teachers as they provide opportunities for practice and assessment of sub-unit topics.

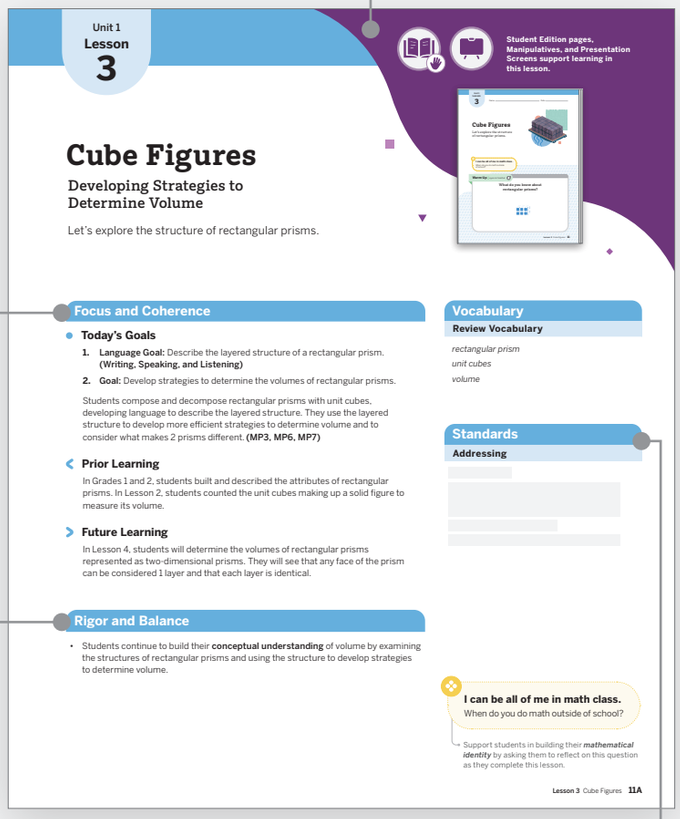
Sub-Unit Overview pages

The lessons within each unit are grouped into sub-units that address a related group of concepts. Each sub-unit starts and ends with pages that focus on the key ideas of the sub-unit.

Lesson Supports

Throughout this Teacher Edition, lesson guidance for teachers is organized clearly and consistently so that they have all of the information they need at their fingertips.

Lesson modality shows teachers how they should plan to have students engage in the lesson.



In the **Focus and Coherence** section, teachers will find the goals and language goals for the lesson. There is also information on prior learning that has built to the math in this lesson, as well as future learning that this lesson is helping build to.

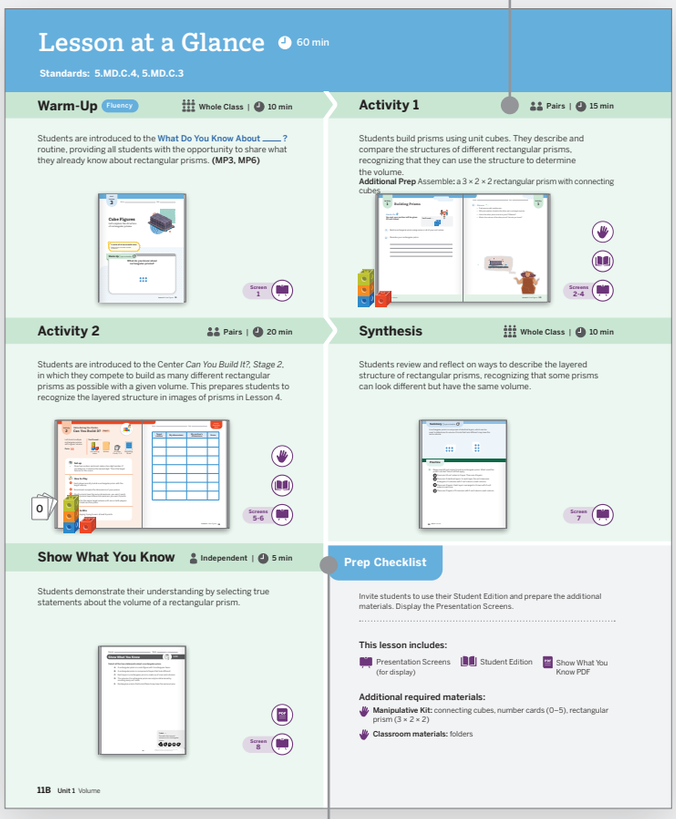
The **Rigor and Balance** section explains how students develop conceptual understanding, procedural fluency, and application in this lesson.

Where applicable, the **Standards** section will list all standards addressed in this lesson, including standards the lesson builds on and standards the lesson is building toward.

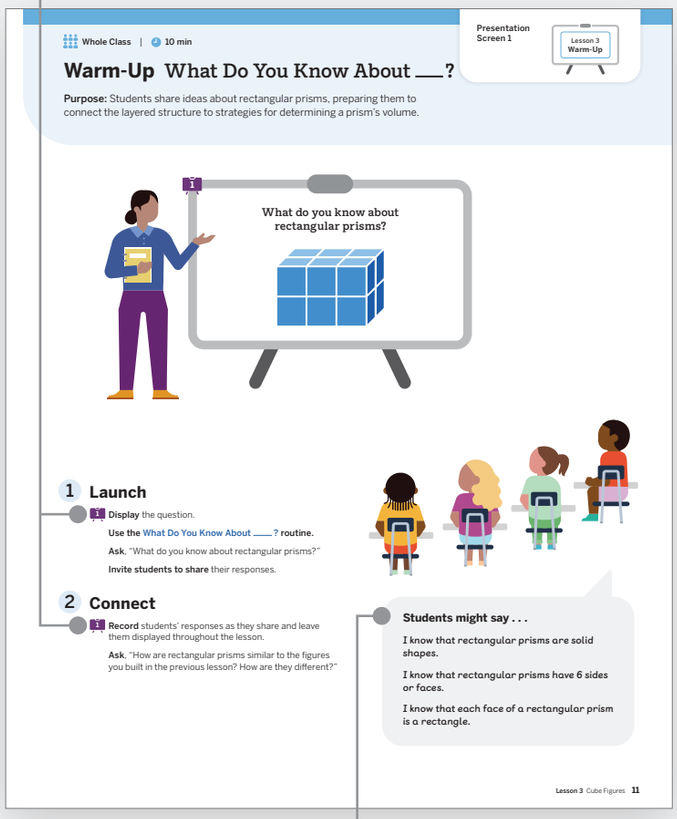
Lesson Overview

This introductory page orients teachers to the topic, standards, and key learning goals of the lesson, including any new vocabulary terms that will be introduced.

The **time frame** and suggested **student grouping** is listed for each part of the lesson.



The screen icon is used to show which **Presentation Screens** or **Student Activity Screens** align to each instructional moment.



The **Prep Checklist** lists all needed **print** or **digital** materials.

Examples of what **students might say** in response to the Warm-Up prompt are provided to help teachers prepare to facilitate the conversation.

Lesson at a Glance

The Lesson at a Glance page describes the purpose of the Warm-Up, Activities, Synthesis, and Show What You Know. Teachers will find suggested timing for each part of the lesson, as well as guidance on whether students should work individually, in pairs, in small groups, or with the whole class.

The page also lists which Student Edition pages, Presentation Screens, or Student Digital Screens can be used with each part of the lesson, as well as any hands-on materials that may be needed.

Warm-Up

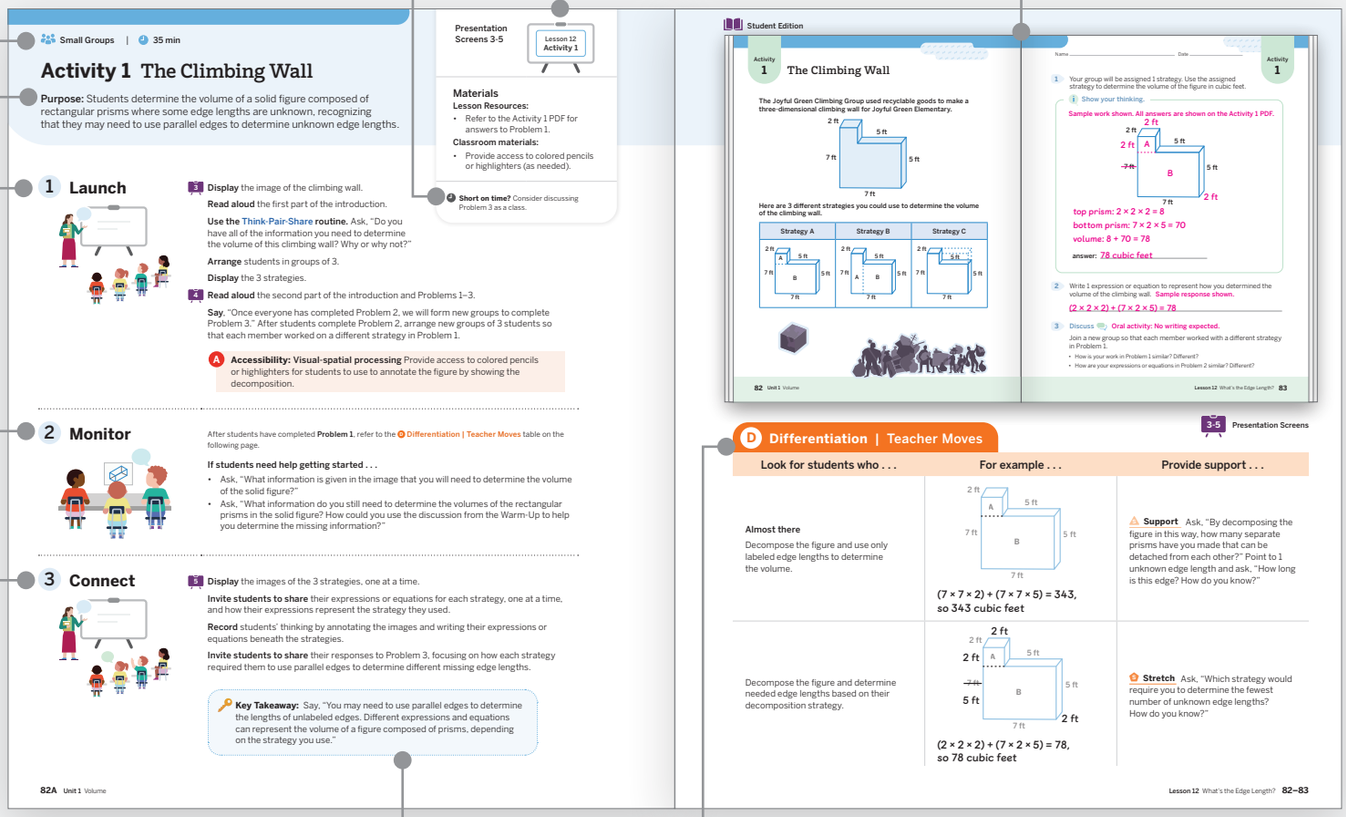
Every Amplify Desmos Math lesson begins with a whole-class Warm-Up, an invitational Instructional Routine intended to provide a social moment at the start of the lesson in which every student has an opportunity to contribute. Some Warm-Ups build fluency or highlight a strategy that may be helpful in the current lesson. Other Warm-Ups act as an invitation into the math of the lesson. The Warm-Up for the first lesson of each unit introduces the Unit Story for the unit.

The **purpose** of each activity is highlighted here, as well as suggestions for the **student grouping** and **time frame** for the activity.

Short on time? Teachers are provided with thoughtful suggestions for how they can adjust the pacing of the lesson as needed without compromising lesson goals.

Print-based lessons note the **corresponding Teacher Presentation Screens** here, while digital lessons note the **related student print pages** for any students not using devices.

For every activity, teachers will see the **corresponding student digital screens** or **Student Edition pages**, based on the recommended lesson modality.



Small Groups | 35 min

Activity 1 The Climbing Wall

Purpose: Students determine the volume of a solid figure composed of rectangular prisms where some edge lengths are unknown, recognizing that they may need to use parallel edges to determine unknown edge lengths.

Presentation Screens 3-5 — Lesson 12 Activity 1

Materials
Lesson Resources:
- Refer to the Activity 1 PDF for answers to Problem 1.

Classroom materials:
- Provide access to colored pencils or highlighters (as needed).

Short on time? Consider discussing Problem 3 as a class.

1 Launch

Display the image of the climbing wall.

Read aloud the first part of the introduction.

Use the Think-Pair-Share routine. Ask, "Do you have all of the information you need to determine the volume of this climbing wall? Why or why not?"

Arrange students in groups of 3.

Display the 3 strategies.

Read aloud the second part of the introduction and Problems 1–3.

Say, "Once everyone has completed Problem 2, we will form new groups to complete Problem 3." After students complete Problem 2, arrange new groups of 3 students so that each member worked on a different strategy in Problem 1.

A Accessibility: Visual-spatial processing Provide access to colored pencils or highlighters for students to use to annotate the figure by showing the decomposition.

2 Monitor

After students have completed **Problem 1**, refer to the D Differentiation | Teacher Moves table on the following page.

If students need help getting started . . .
- Ask, "What information is given in the image that you will need to determine the volume of the solid figure?"
- Ask, "What information do you still need to determine the volumes of the rectangular prisms in the solid figure? How could you use the discussion from the Warm-Up to help you determine the missing information?"

3 Connect

Display the images of the 3 strategies, one at a time.

Invite students to share their expressions or equations for each strategy, one at a time, and how their expressions represent the strategy they used.

Record students' thinking by annotating the images and writing their expressions or equations beneath the strategies.

Invite students to share their responses to Problem 3, focusing on how each strategy required them to use parallel edges to determine different missing edge lengths.

Key Takeaway: Say, "You may need to use parallel edges to determine the lengths of unlabeled edges. Different expressions and equations can represent the volume of a figure composed of prisms, depending on the strategy you use."

82A Unit 1 Volume

Student Edition

Activity 1 **The Climbing Wall**

The Joyful Green Climbing Group used recyclable goods to make a three-dimensional climbing wall for Joyful Green Elementary.

Here are 3 different strategies you could use to determine the volume of the climbing wall.

Strategy A | Strategy B | Strategy C

1 Your group will be assigned 1 strategy. Use the assigned strategy to determine the volume of the figure in cubic feet.

Show your thinking.

Sample work shown. All answers are shown on the Activity 1 PDF.

top prism: 2 × 2 × 2 = 8
bottom prism: 7 × 2 × 5 = 70
volume: 8 + 70 = 78

answer: 78 cubic feet

2 Write 1 expression or equation to represent how you determined the volume of the climbing wall. Sample response shown.

(2 × 2 × 2) + (7 × 2 × 5) = 78

3 Discuss Oral activity: No writing expected.

Join a new group so that each member worked with a different strategy in Problem 1.
- How is your work in Problem 1 similar? Different?
- How are your expressions or equations in Problem 2 similar? Different?

82 Unit 1 Volume — Lesson 12 What's the Edge Length? 83

3-5 Presentation Screens

D Differentiation | Teacher Moves

Look for students who . . .	For example . . .	Provide support . . .
Almost there Decompose the figure and use only labeled edge lengths to determine the volume.	(7 × 7 × 2) + (7 × 5) = 343, so 343 cubic feet	**Support** Ask, "By decomposing the figure in this way, how many separate prisms have you made that can be detached from each other?" Point to 1 unknown edge length and ask, "How long is this edge? How do you know?"
Decompose the figure and determine needed edge lengths based on their decomposition strategy.	(2 × 2 × 2) + (7 × 2 × 5) = 78, so 78 cubic feet	**Stretch** Ask, "Which strategy would require you to determine the fewest number of unknown edge lengths? How do you know?"

Lesson 12 What's the Edge Length? 82–83

In the **Launch, Monitor, Connect** guidance, teachers will find ways to help students get started, suggested facilitation moves, and discussion questions.

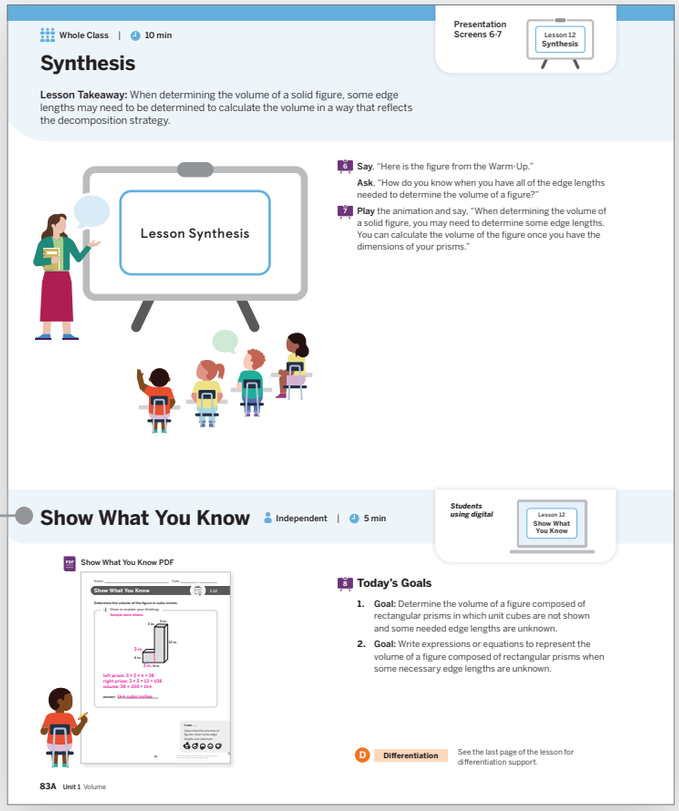
The **Key Takeaway** is called out to highlight the learning goal of the activity and provide teachers with an example of how to frame the big idea of the activity for students.

The guidance for every activity includes a **D Differentiation Teacher Moves** table to support teachers in meeting the needs of all students during the activity. This table can help teachers anticipate the ways students may approach the activity, and provides prompts that they can use during the lesson to **Support**, **Strengthen**, and **Stretch** individual students in their thinking.

Activities

Each lesson includes one or two activities. These activities are the heart of each lesson. Students notice, wonder, explore, calculate, predict, measure, explain their thinking, use math to settle disputes, create challenges for their classmates, and more.

Guidance is provided to help teachers Launch, Monitor, and Connect students' thinking over the course of each activity. Teachers will also find suggestions for pacing, facilitation moves, discussion questions, examples of early student thinking, and ideas for students who may enjoy a challenge, as well as opportunities to build and develop the math community in their classroom.



Whole Class | 10 min

Synthesis

Presentation Screens 6-7

Lesson 12 Synthesis

Lesson Takeaway: When determining the volume of a solid figure, some edge lengths may need to be determined to calculate the volume in a way that reflects the decomposition strategy.

Lesson Synthesis

6 **Say**, "Here is the figure from the Warm-Up."

Ask, "How do you know when you have all of the edge lengths needed to determine the volume of a figure?"

7 **Play** the animation and say, "When determining the volume of a solid figure, you may need to determine some edge lengths. You can calculate the volume of the figure once you have the dimensions of your prisms."

Show What You Know

Independent | 5 min

Students using digital

Lesson 12 Show What You Know

Show What You Know PDF

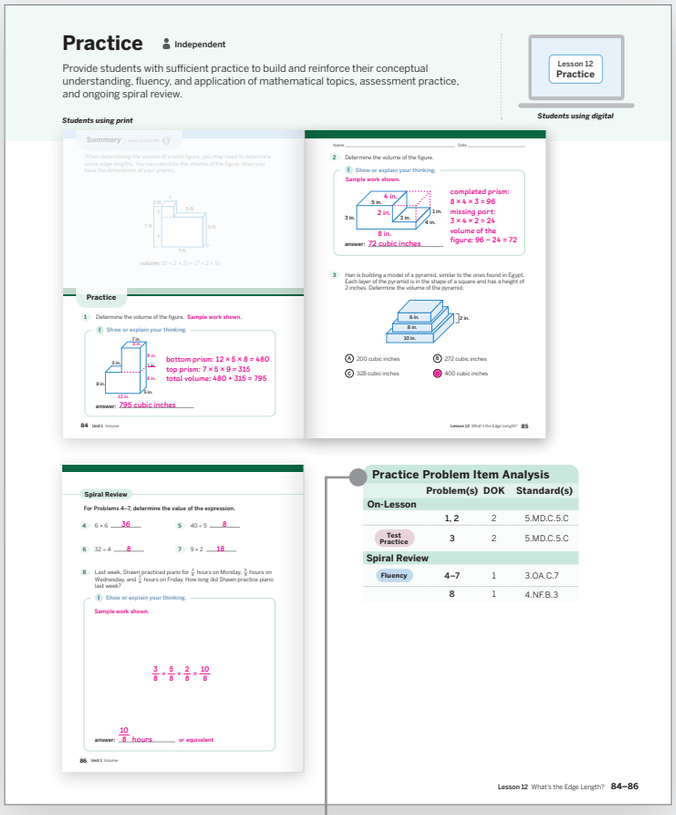
8 **Today's Goals**

1. **Goal:** Determine the volume of a figure composed of rectangular prisms in which unit cubes are not shown and some needed edge lengths are unknown.
2. **Goal:** Write expressions or equations to represent the volume of a figure composed of rectangular prisms when some necessary edge lengths are unknown.

D **Differentiation** See the last page of the lesson for differentiation support.

83A Unit 1 Volume

Lessons conclude with an opportunity for students to reflect on the main learning goals and "**show what they know**," either in print or digitally. This is a great way for both students and teachers to get a formative check for understanding.



Practice

Independent

Provide students with sufficient practice to build and reinforce their conceptual understanding, fluency, and application of mathematical topics, assessment practice, and ongoing spiral review.

Lesson 12 Practice

Students using digital

Students using print

Summary

Practice

Spiral Review

Lesson 12 What's the Edge Length? 84–86

Practice Problem Item Analysis

	Problem(s)	DOK	Standard(s)
On-Lesson			
	1, 2	2	5.MD.C.5.C
Test Practice	3	2	5.MD.C.5.C
Spiral Review			
Fluency	4–7	1	3.OA.C.7
	8	1	4.NF.B.3

A **Practice Problem Item Analysis** table breaks down the problems by type, Depth of Knowledge (DOK), and corresponding standards.

Synthesis

The Synthesis is an opportunity for the teacher and students to pull all the learning of the lesson together into a lesson takeaway. Students engage in a facilitated discussion to consolidate and refine their ideas about the learning goals, and the teacher synthesizes students' learning.

Practice

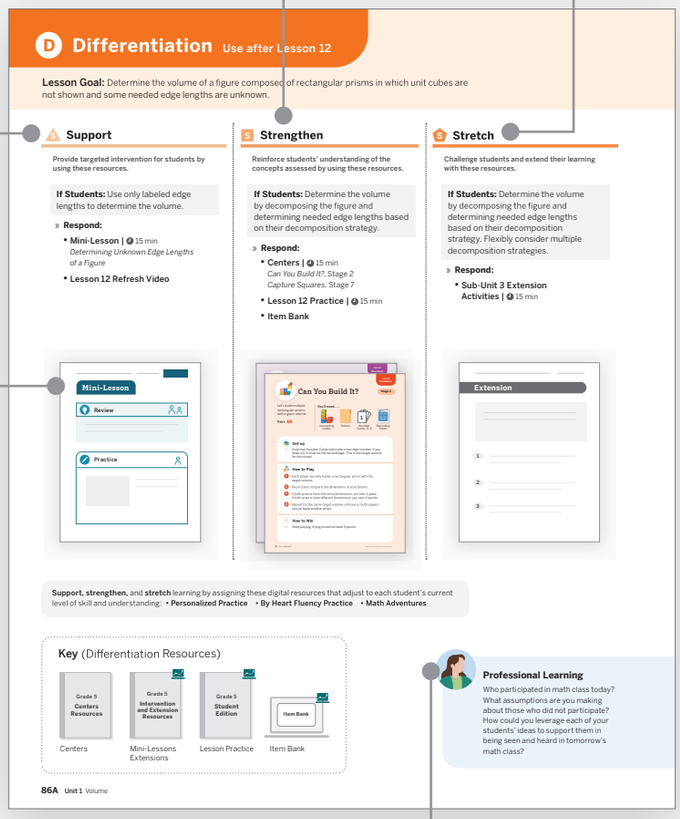
Daily practice problems for the day's lesson are included in the print Student Edition, including Fluency, Test Practice, and Spiral Review.

For even more practice aligned to each lesson, Additional Practice is provided as a teacher resource or an optional student consumable.

Support provides guidance for how to work with students who could benefit from targeted intervention.

Strengthen lists resources for students to reinforce their understanding of the concepts.

Stretch lists challenge opportunities for students who are ready to extend their learning.

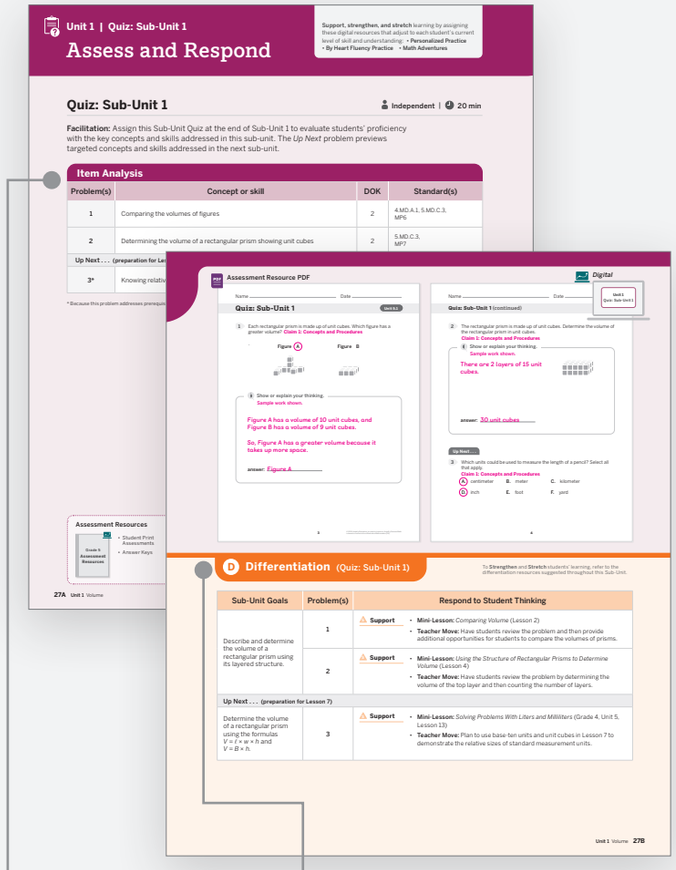


Teacher-led **Mini-Lessons** provide targeted intervention to small groups of students who need additional support or need more time.

Professional Learning callouts feature questions and prompts designed to help teachers reflect on how students' thinking developed over the course of the lesson.

Differentiation

A comprehensive set of differentiation suggestions and resources are provided for teachers to use as needed after each lesson. This includes Mini-Lessons for Supporting, Centers for Strengthening, and Extension activities for Stretching students' understanding of the lesson goal.



An **Item Analysis** is provided to show what concepts and skills are assessed in each problem.

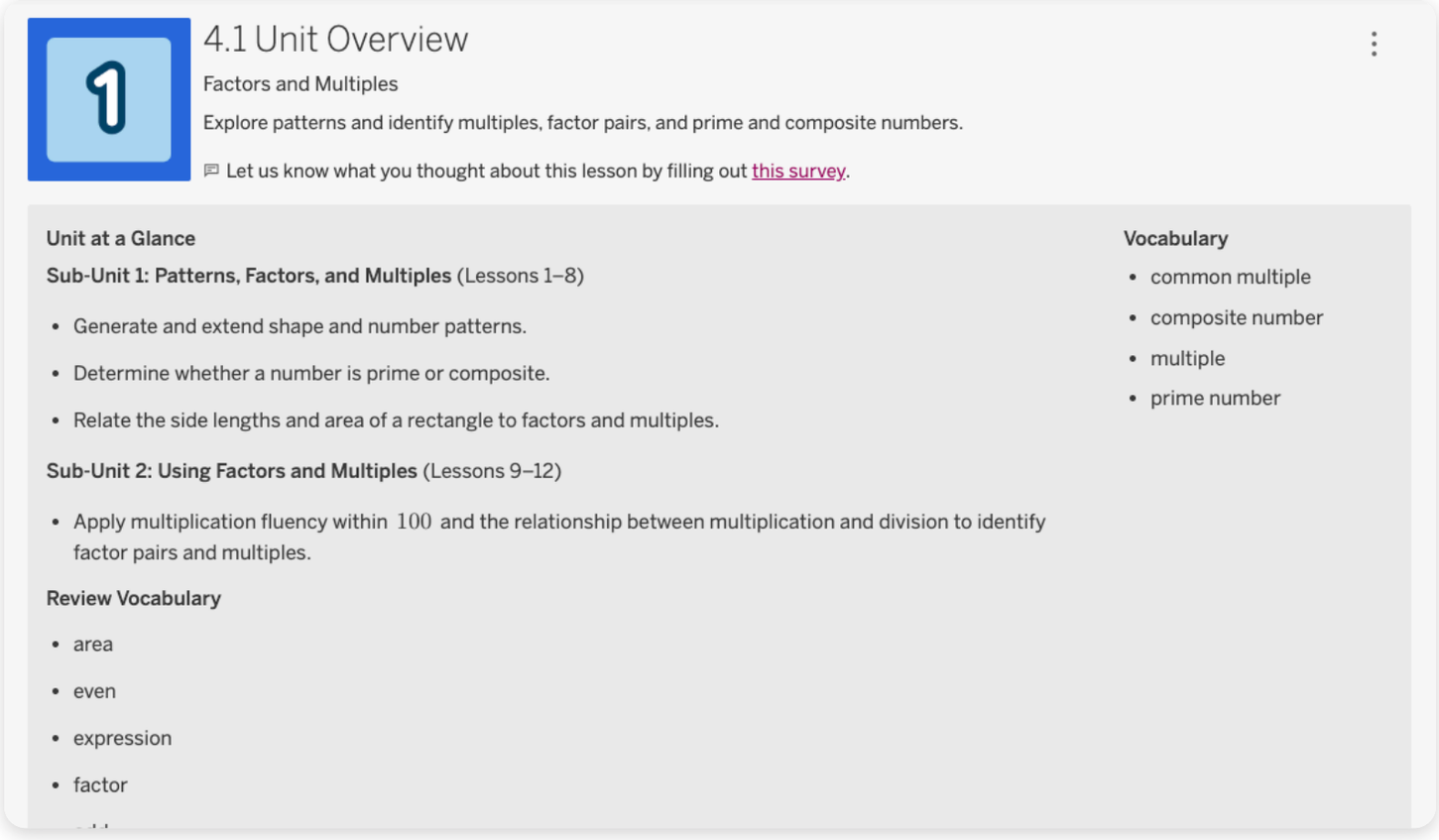
A **Differentiation** table suggests specific teacher moves and resources to support students' understanding based on their responses to assessment problems.

Assess and Respond

Each unit typically includes one or two Sub-Unit Quizzes. Quizzes are designed for students to show what they know and can do based on what they have learned so far in the unit. Each unit includes Assess and Respond guidance for the Pre-Unit Check, Sub-Unit Quizzes, and End-of-Unit Assessment.

Navigating the digital program

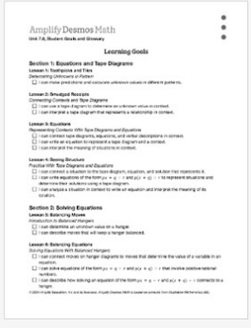
Unit Landing Page



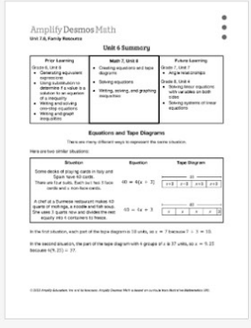
On the Unit Landing Page for each unit, you'll find Unit-at-a-Glance information, including sub-unit descriptions and learning goals, vocabulary found in the unit, and standards addressed in the unit (where applicable).

Paper Resources

Student Goals and Glossary

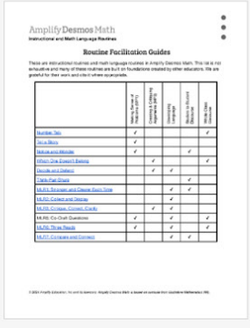


Family Resource



Admin Guide

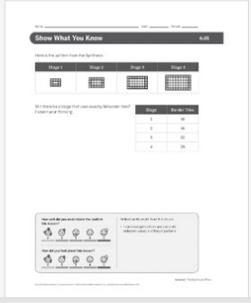
Routine Facilitation Guides



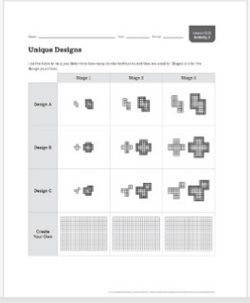
Teacher Edition + Answer Key

Student Lessons + Practice

Show What You Know Collection



Activity Sheets and Cards

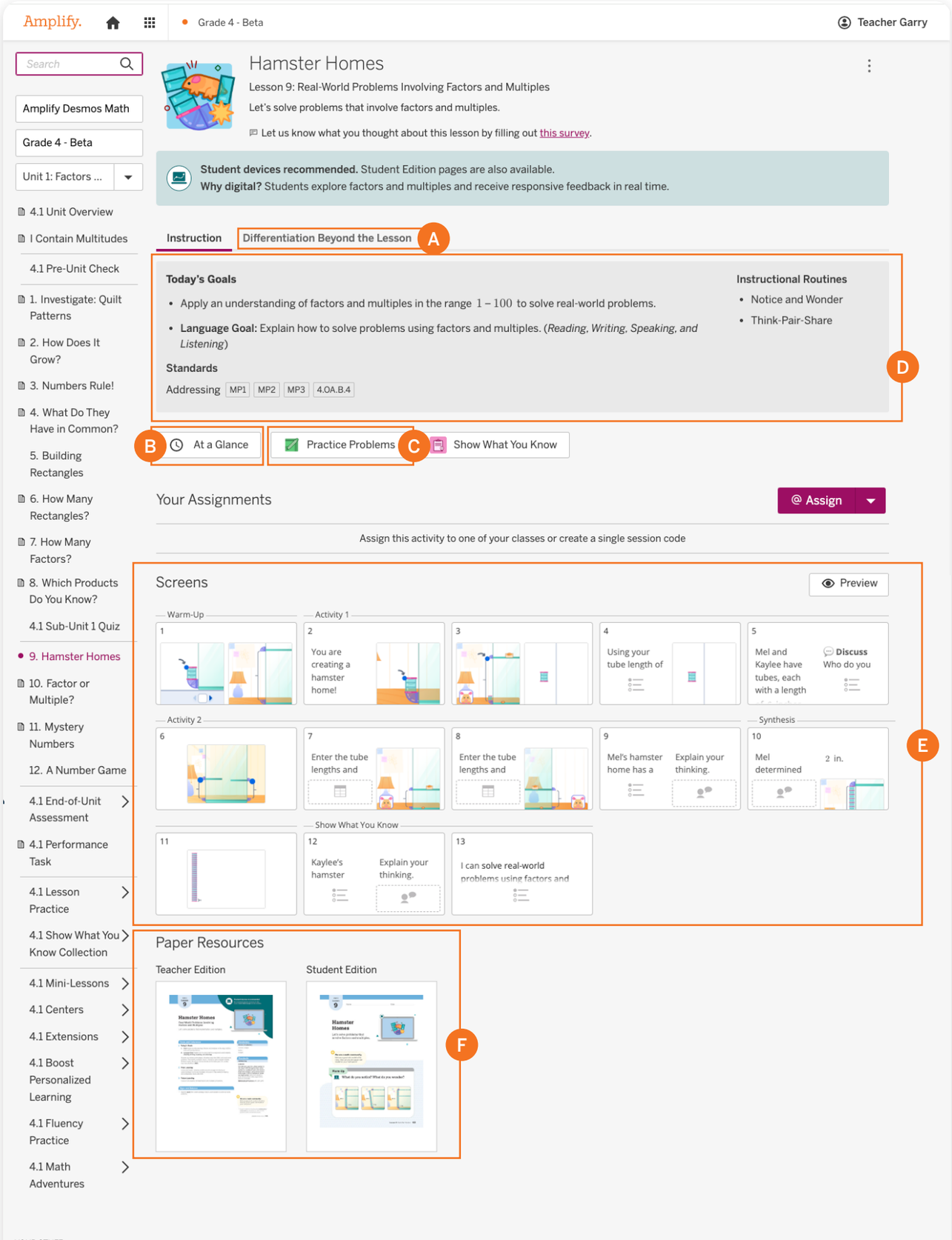


The Unit Landing Page also includes a variety of paper resources available for that unit. Those resources include:

- A printable PDF of the Teacher Edition and Student Edition pages for the entire unit (the Teacher Edition pages include assessment answer keys).
- A caregiver resource for teachers to share with families about the math in the unit and how to support learning at home.
- Student goals and glossary of vocabulary in the unit.
- An administrator guide for what to look for as the unit is being taught.
- Routine Facilitation Guides for the routines found in the unit.
- Activity Sheets and Cards for lessons in the unit that call for additional resources not included in the Student Edition.

Lesson Landing Page

Like the print Lesson Overview, the Lesson Landing page has helpful information for planning and facilitating the lesson.



A Differentiation Beyond the Lesson
The Differentiation Beyond the Lesson tab provides guidance and differentiation resources after each lesson for students in three categories: Support, Strengthen, and Stretch.

B At a Glance
The At a Glance button will pull up a preview of the lesson Warm-Up, lesson activities, Synthesis, and Show What You Know. You'll find suggested timing for each part of the lesson, as well as guidance on whether students should work individually, in pairs, or with the whole class. The Focus and Coherence and Rigor and Balance information for the lesson is also found here.

C Practice Problems
Every Amplify Desmos Math lesson includes a digital Practice Problems set, which you and students can access via the Lesson Landing Page.

D Lesson prep
In the gray box on the Lesson Landing Page, you'll find the goals for that lesson, any materials needed for the lesson, vocabulary found in that lesson, and standards addressed in the lesson.

E Lesson Thumbnails
Teacher Presentation Screens enhance lessons and are for the teacher to project. Lessons where student devices are suggested have Student Activity Screens.

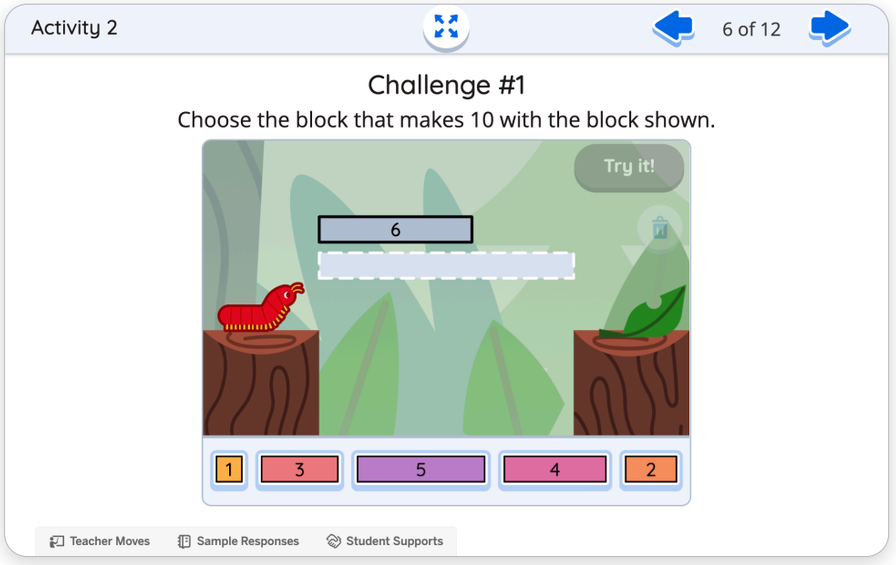
F Paper resources
Paper resources for each lesson include print Teacher Edition pages, print Student Edition pages, and the lesson Show What You Know printable PDF.

Student Screens

Student Activity Screens make the lesson highly interactive for students working on devices individually or in pairs or small groups. You can preview by clicking Activity Screens from the lesson landing page.

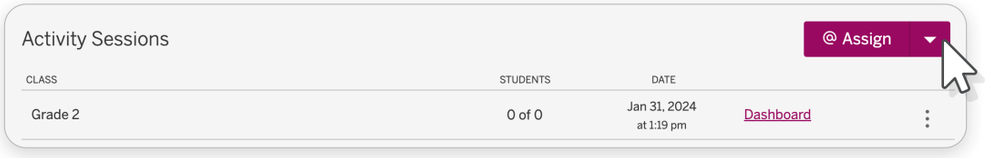
To make planning and teaching seamless, tips for instruction are available in both the print Teacher Edition and digitally at point of use. At the bottom of Activity Screens, the teacher will see suggestions for facilitation to support great classroom conversations:

- **Teacher moves:** Suggestions for pacing, facilitation moves, discussion questions, examples of early student thinking, and ideas for early finishers, as well as opportunities to build and develop the math community in your classroom
- **Sample responses:** One or more examples of a possible student response to the problem
- **Student supports:** Facilitation suggestions to support students with disabilities and multilingual students

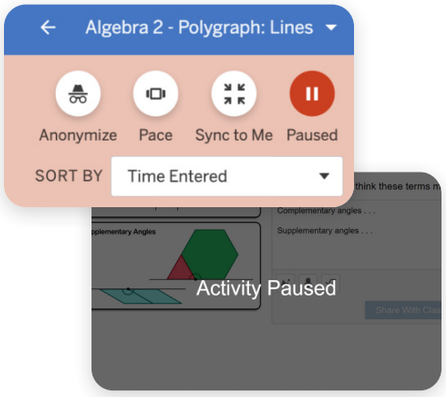


Assign

Getting your students started with a digital lesson is a breeze. To have your students try one of these program preview lessons, simply generate and share a single-session code by clicking the arrow next to @Assign. If you have individual classes set up, getting students online is even quicker!



Pause



Pause allows you to stop the lesson and gather student attention—whether for a brief announcement or a class discussion.

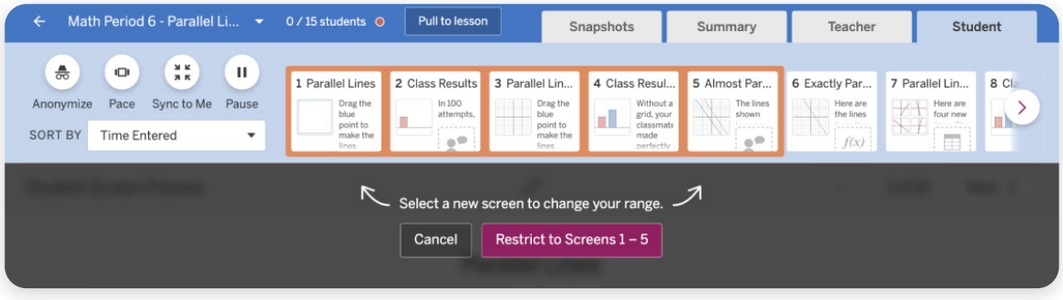
Keep an activity paused for as long (or as briefly) as you want. When you're ready for students to continue, press the Pause button again to resume the activity.

With Pause activated, students can see their current screen but cannot interact with the activity at all.

Pacing

Pacing allows you to lead students through part of an activity one screen or one section at a time. To activate, click the Pacing icon. Then select the screen (or screens) you'd like to gather your students on. They'll automatically go to that location in the activity, and the navigation outside of that range will temporarily be disabled.

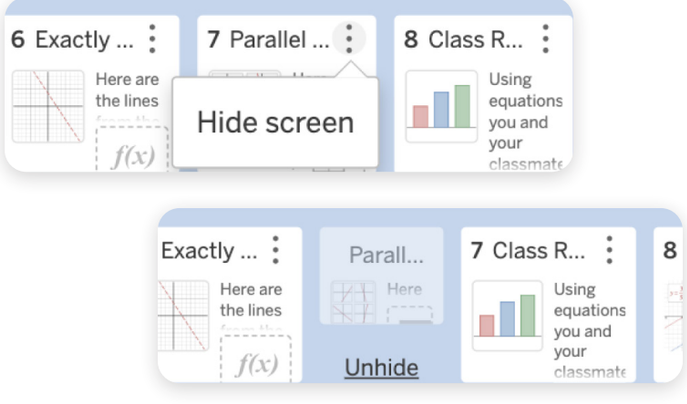
Once Pacing is activated, you'll see clear indicators for what screens your students may access. You can edit or extend that range, or even disable pacing, with a single click.



Hide screens

Are you running out of time in class? Or do you want to refine an activity to better suit your students' needs? You can hide screens from students by clicking the Menu (three vertical dots) on the screen's thumbnail. This allows for non-sequential teacher pacing.

Notice that the screens automatically renumber themselves when one is hidden. Change your mind? Simply click Unhide and students will be able to access the screen again.

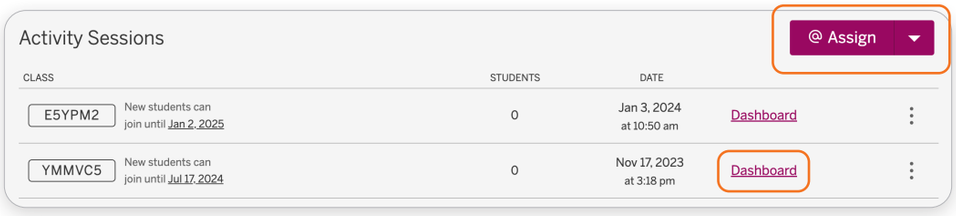


Teacher supports and facilitation tools

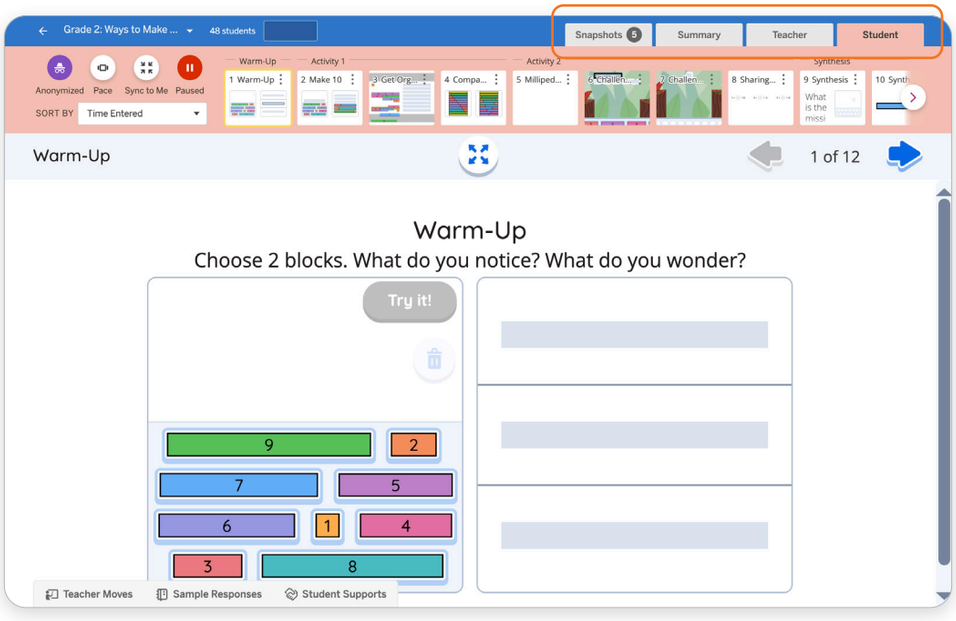
Teacher Dashboard

The powerful Teacher Dashboard helps teachers play an active role as discussion facilitators, monitoring student work in real time, choosing moments to share and discuss, and synthesizing learning. Teachers get insight into student thinking in real time, meaning they can select student work to display and discuss quickly and easily, and ask better questions to guide more productive discussions.

To teach a lesson with students on devices, click the Dashboard link next to your single-session code or class name to launch your Teacher Dashboard with facilitation tools.



The Teacher Dashboard has four tabs at the top. In addition to these views, the Teacher Dashboard also has facilitation tools, including the Class Conversation Toolkit and Written Feedback.



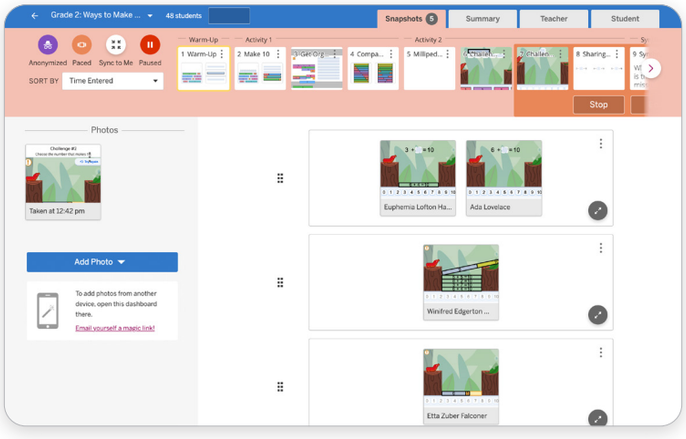
Snapshots

Peg Smith and Mary Kay Stein's *5 Practices for Orchestrating Productive Mathematics Discussions* offers a clear and useful framework for facilitating class discussions around student thinking. We added a Snapshot tool to make it even easier to select and sequence student work for those discussions. Try your hand at selecting and sequencing student work for discussion during your next Amplify Desmos Math lesson.

Snapshot student screens

To select a response for discussion, simply click the camera icon.

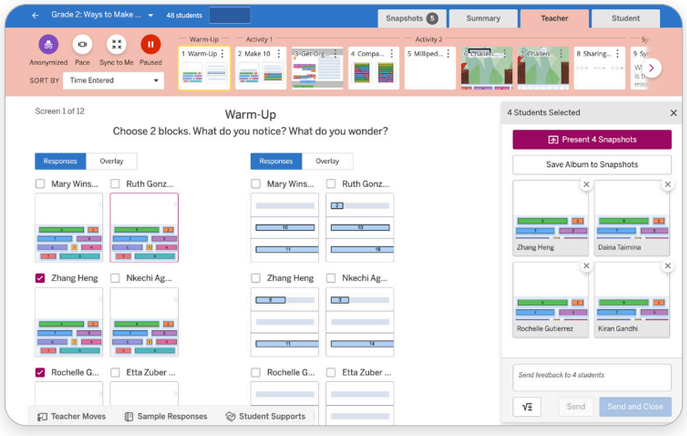
Then, in the Snapshots View, you can organize your snapshots into albums. Each album can hold up to four snapshots.



Present your albums to facilitate class discussions. Consider entering a title or question, or simply share your discussion prompt aloud! (**Note:** The teacher must present the album of snapshots to students in order for the album to show on student devices.)

Snapshot in Teacher View

To select a response for discussion in the Teacher View, click the response's checkbox to bring up the snapshots and the Feedback sidebar.

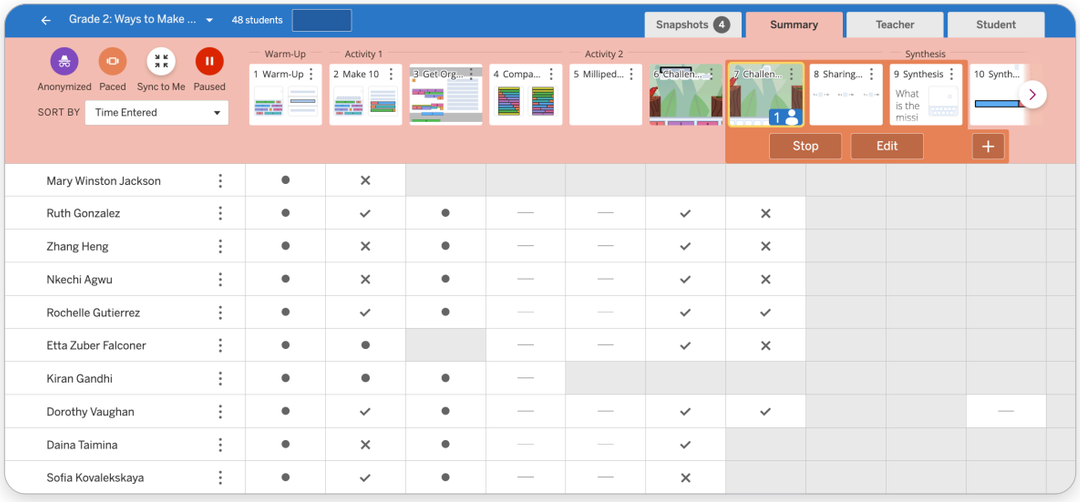


You can select up to four pieces of work and present them to students right from the Teacher View, or save them as an album in Snapshots.

Dashboard summary view

When you open a dashboard, you will first see the Summary View. Here you will see a row for each student in the activity session, along with a quick overview of where they are in the activity, a symbol to let you know more about their work on that screen, and a triangle indicator in the corner if you've sent the student feedback on that screen.

You can click on any of these boxes to see the current state of the student's screen. You might use a student screen as a jumping-off point for a class discussion and modify the screen together with the class. Any changes you make will not change the work for the student.



Here is what the symbols on this page mean:

Dash: There is no required input for this screen, but students still need to look at it.

Check: Everything on this screen is correct.

Cross: Something on this screen is incorrect.

Warning: Something on this screen isn't merely incorrect but indicates the student may have misunderstood the question itself—intervene ASAP!

Dot: This screen requires teacher interpretation.

You might also see a triangle indicator in the corner. Here's what they mean:

Teal triangle: You sent feedback to the student on that screen, but the student has not yet seen the feedback.

Gray triangle: You sent feedback to the student on that screen and the student has seen the feedback.

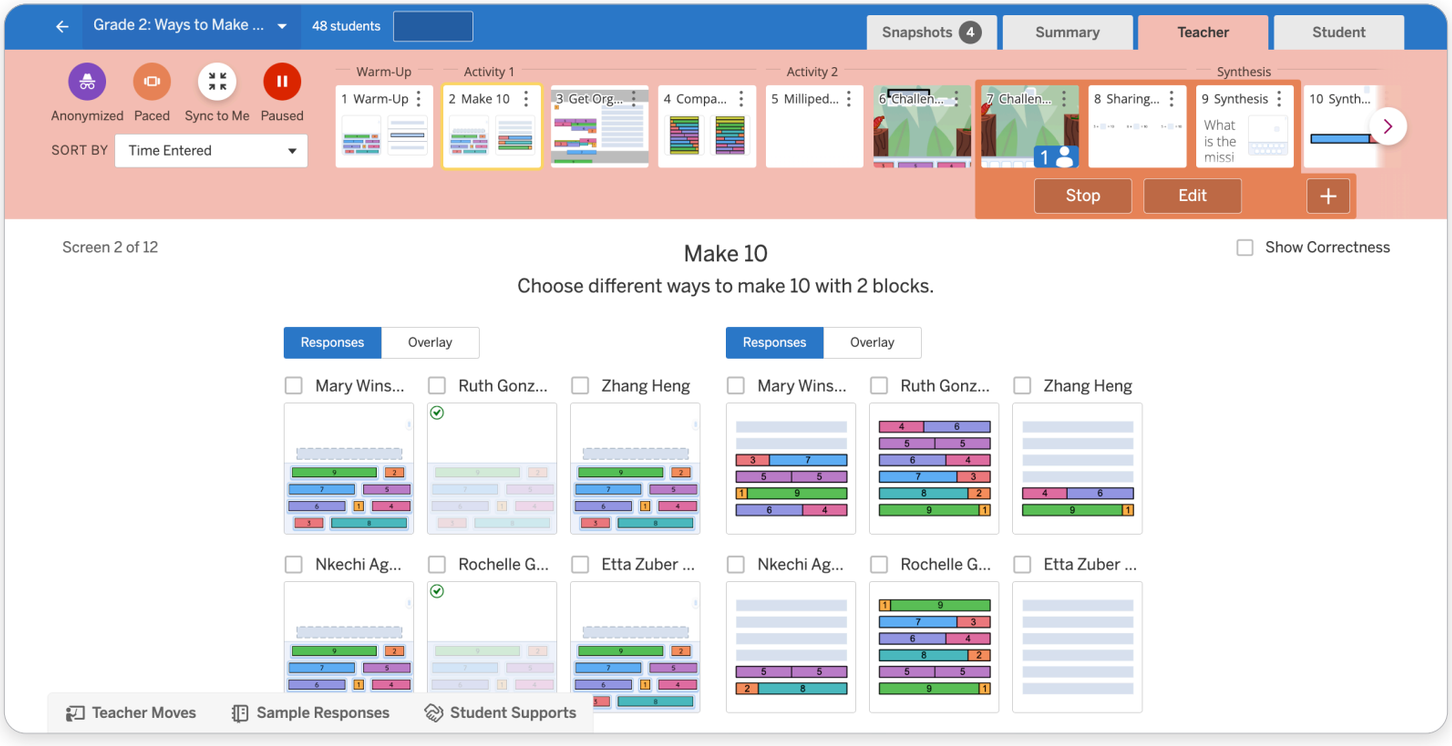
Teacher View

In the dashboard, you can use the Teacher View to answer questions like:

- How did all my students answer this question?
- What answers were most common?

If the screen has some components that can be correct or incorrect, you can check the Show Correctness checkbox in the upper-right corner of the screen. This will add icons to pieces of work showing if they're correct or incorrect.

You can also leave written feedback and create and present albums of snapshots from the Teacher View by selecting the student response checkboxes.



Notes

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