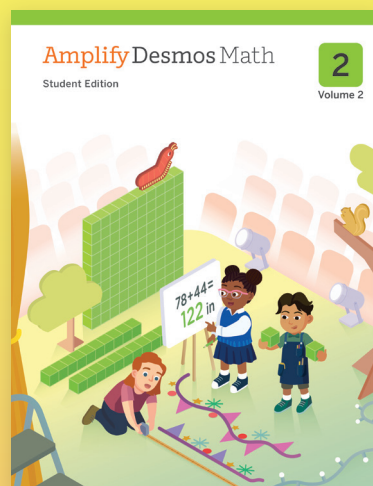
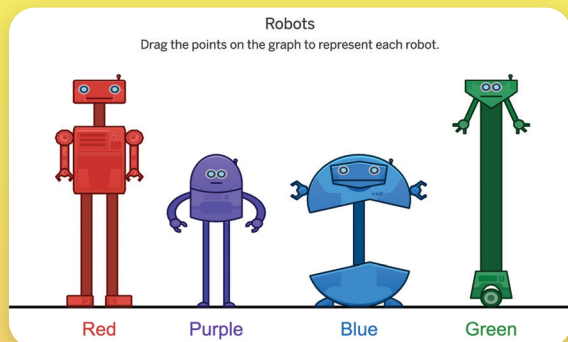
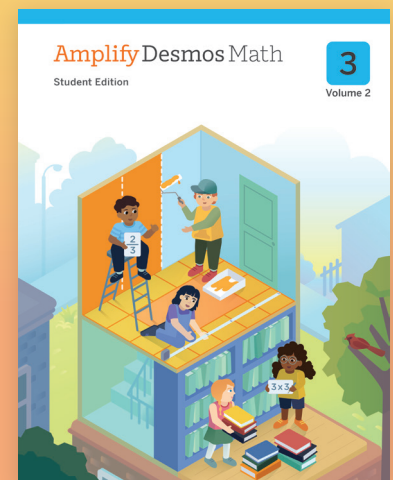
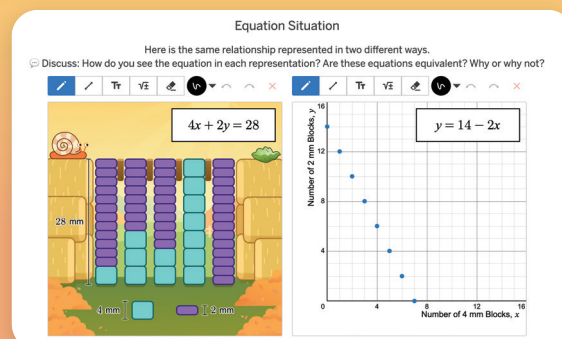
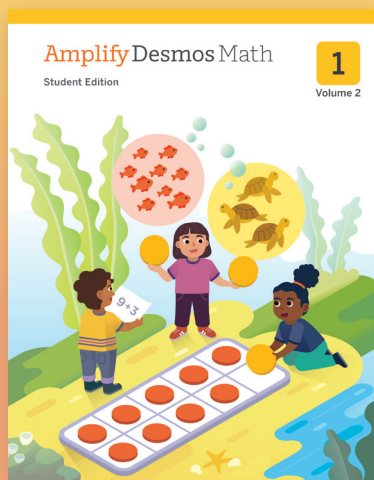


Experience Kit



GO ONLINE

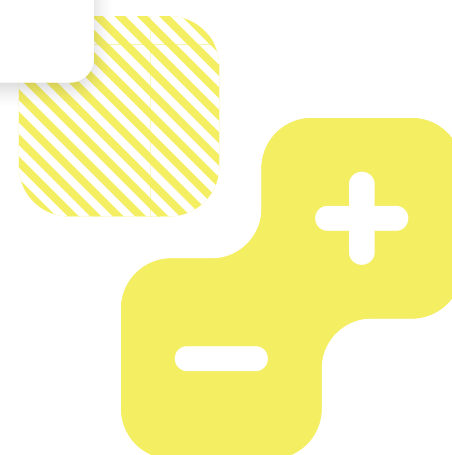
Get started with
digital lessons at
amplify.com/mathexp.



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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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

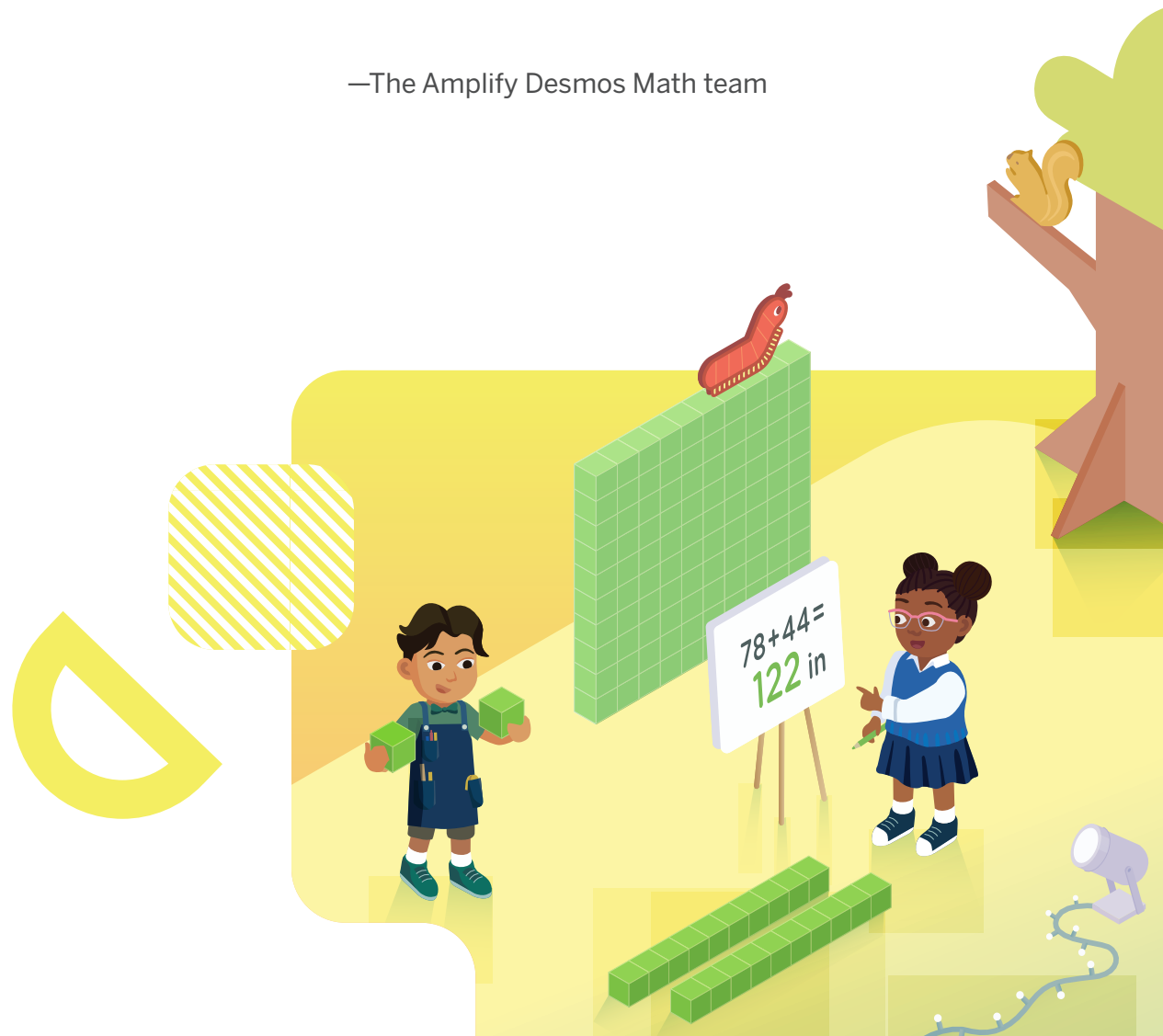






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Guided by expert advisors, partners, and educators	24

Navigating the program

Navigating print	28
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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

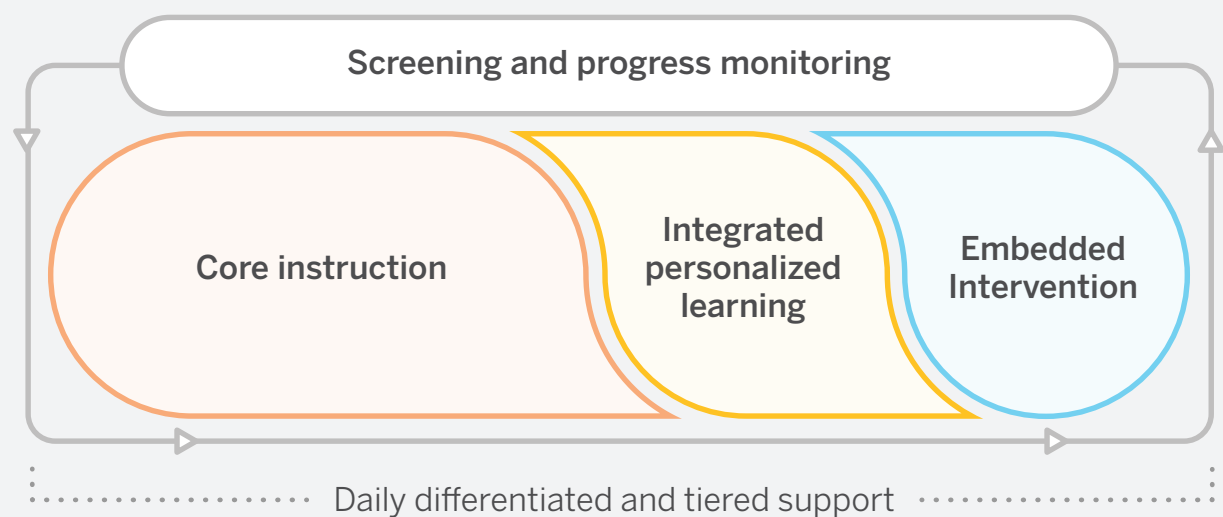
Picture a classroom where students are so eagerly engaged in a lesson, they wish it wouldn't end. The room is buzzing with the sounds of natural curiosity. This is what an Amplify Desmos Math classroom looks and sounds like. This is math that motivates.

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

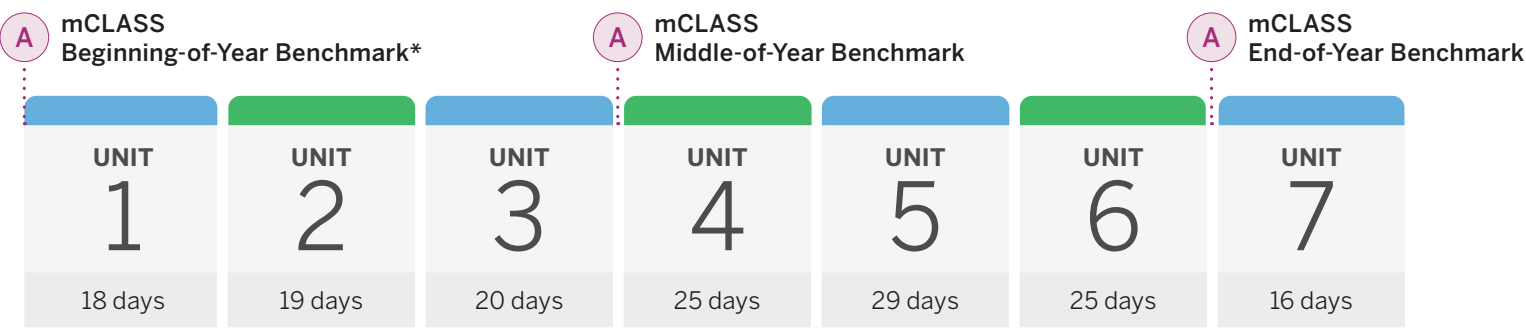
Boost Personalized Learning activities help students access grade-level math through engaging, independent digital practice. Responsive Feedback adjusts to students' work, providing item-level adaptivity to further support their learning.

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.

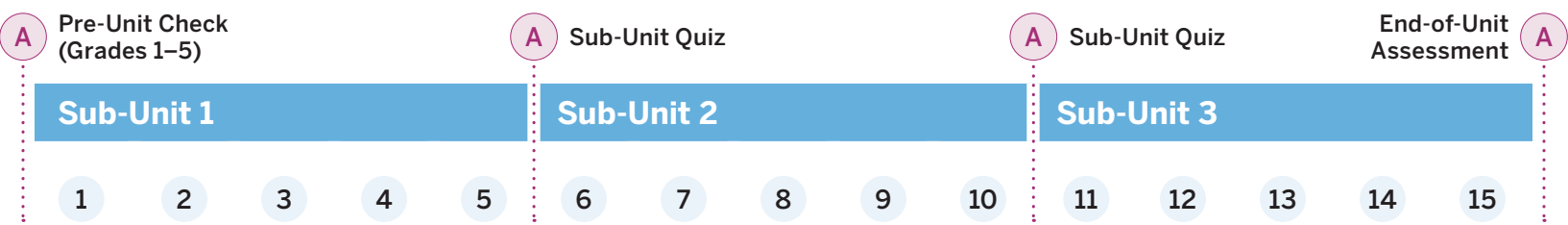
Course and unit structure

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



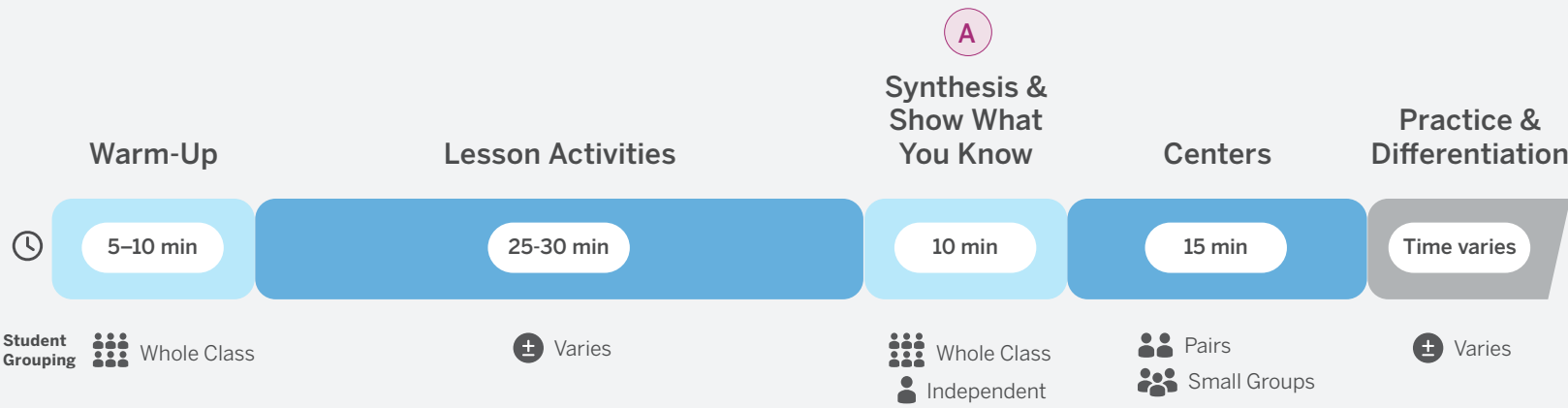
Note: The number of sub-units per unit and lessons within each sub-unit varies. This depiction shows the general structure of a unit. See the course Table of Contents in the print Teacher Edition for more details.

*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

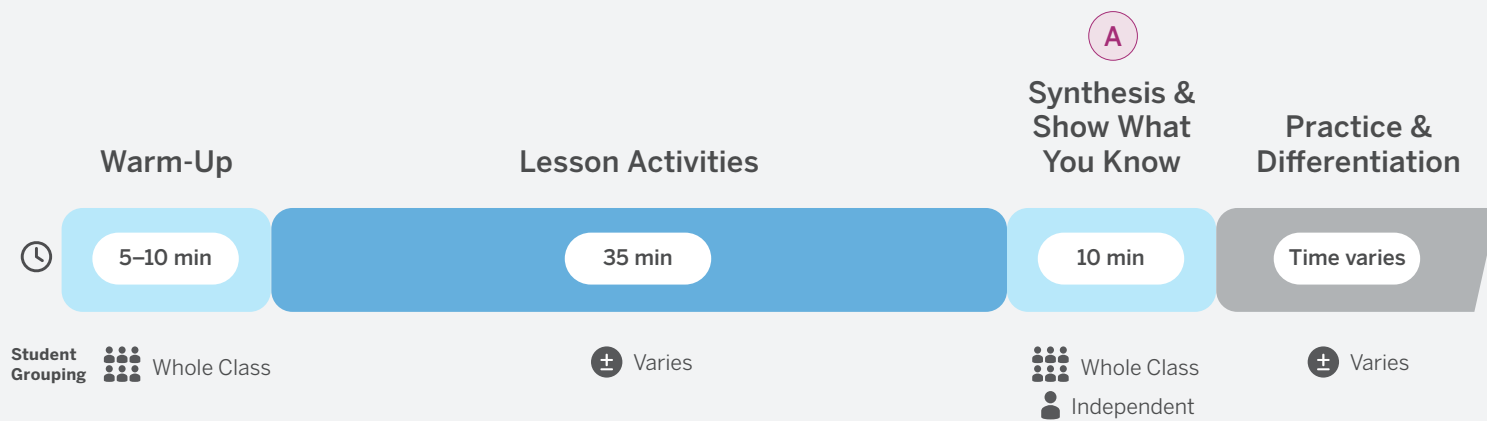
Every Amplify Desmos Math lesson begins with a whole-class Warm-Up, an invitational Instructional Routine intended to provide a social moment at the start of the lesson in which every student has an opportunity to contribute. Some Warm-Ups build fluency or highlight a strategy that may be helpful in 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.

Summary

eyes on

You can represent an equal-sharing situation with a division equation. The dividend and numerator represent the amount being shared, and the divisor and denominator represent the number of shares.

5 liters of water are shared by 6 people. How many liters of water, does each person receive?

what is being shared

$$\begin{array}{r} 5 \\ 5 \div 6 = \frac{5}{6} \end{array}$$

number of equal shares

$\left. \begin{array}{l} \text{what is being shared} \\ \text{number of equal shares} \end{array} \right\}$

how much each person receives
(size of 1 group)

Practice

- 1 Jada cuts an 11-inch strip of paper into 5 equal parts. Write an equation to represent the length of each part, in inches.

- 2 Han shared 7 liters of water equally among his 6 dogs. Write an equation to represent the amount of water each dog received in liters.

Summary

eyes on

You can represent an equal-sharing situation with a division equation. The dividend and numerator represent the amount being shared, and the divisor and denominator represent the number of shares.

5 liters of water are shared by 6 people. How many liters of water, does each person receive?

what is being shared

$$\begin{array}{r} 5 \\ 5 \div 6 = \frac{5}{6} \end{array}$$

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$\left. \begin{array}{l} \text{what is being shared} \\ \text{number of equal shares} \end{array} \right\}$

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Practice

- 1 Jada cuts an 11-inch strip of paper into 5 equal parts. Write an equation to represent the length of each part, in inches.

- 2 Han shared 7 liters of water equally among his 6 dogs. Write an equation to represent the amount of water each dog received in liters.

116 Unit 2 Fractions as Quotients and Fraction Multiplication

Lesson 3 Dance Breaks 117

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

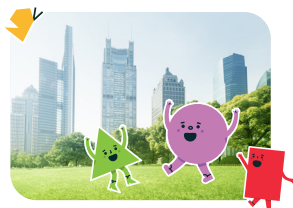


Numbers 1–10

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

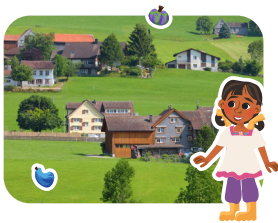


Numbers to 99

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

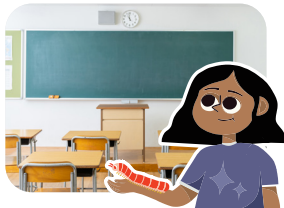
16 instructional days
4 assessment days

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

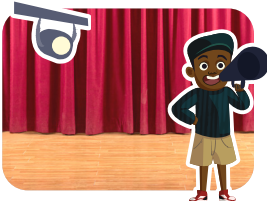


Adding and Subtracting Within 100

22 instructional days
5 assessment days

27 days total

UNIT 3



Measuring Length

15 instructional days
4 assessment days

19 days total

UNIT 4

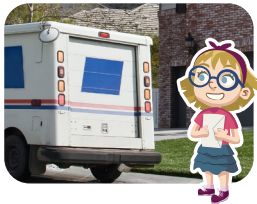


Addition and Subtraction on the Number Line

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

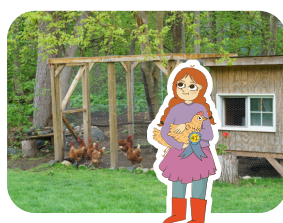
UNIT 5

**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

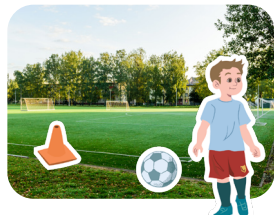


From Hundredths to Hundred Thousands

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

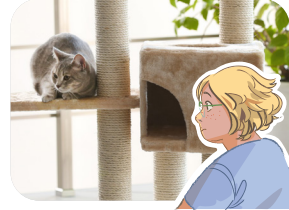
UNIT 2

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.

Unit 1
Lesson
15

Student devices recommended
We recommend students use devices for this lesson. **Student Edition pages** are also available.

Puppy Pile
Representing Data on Scaled Bar Graphs
Let's look at bar graphs with scales other than 1.

Focus and Coherence
Today's Goals
1. **Goal:** Represent data using scaled bar graphs.
2. **Language Goal:** Compare data represented on bar graphs with different scales. (*Speaking and Listening*)
Students extend their understanding of scaled picture graphs to **scaled bar graphs** to continue to build their conceptual understanding of **scales** that are greater than 1. As students represent data on scaled bar graphs and compare the graphs, they consider how the same data can look different when represented on graphs with different scales. (MP3, MP6)
Prior Learning
In Lesson 12, students represented data on picture graphs and bar graphs with a single-unit scale. In Lesson 14, students collected categorical class data and created a scaled picture graph.
Future Learning
In Lesson 16, students will choose a scale of 2, 5, or 10 when presented with 2 different sets of data and reflect on the advantages and disadvantages of different scales.

Vocabulary
New Vocabulary
scale
scaled bar graph
Review Vocabulary
bar graph
Standards
Addressing
3.MD.B.3
Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
Mathematical Practices: MP3, MP4, MP7
Building On
2.MD.D.10

Rigor and Balance
• Students extend their **conceptual understanding** of scale to bar graphs.
• Students **apply** their understanding of a scaled bar graph to represent class data on bar graphs with different scales.

We are a math community.
Mrs. Park learns about the library visitors. How can collecting and representing data on graphs help you learn about your classmates?
—Support students in building their **mathematical identity** by asking them to reflect on this question as they complete this lesson.

Unit 1
Lesson
16

Student Edition pages and Presentation Screens support learning in this lesson.

2, 5, or 10?
Choosing a Scale
Let's think about which scale to use for a bar graph — 2, 5, or 10.

Focus and Coherence
Today's Goals
1. **Goal:** Represent data on a scaled bar graph.
2. **Language Goal:** Explain which scale to use based on the data being represented. (*Speaking and Listening*)
Students choose scales to represent data on a bar graph. They work with 2 different data sets — 1 with larger amounts of data — to reflect on the advantages or disadvantages of their choices. They notice that they can choose a scale based on the numbers in the data set and that the scale can affect how to read and interpret the graph. (MP3, MP4, MP6)
Prior Learning
In Lesson 15, students interpreted and created scaled bar graphs with a scale of 2.
Future Learning
In Lesson 17, students will solve one-step "how many more" and "how many fewer" problems using data represented on scaled bar graphs.

Vocabulary
Review Vocabulary
scaled bar graph
Standards
Addressing
3.MD.B.3
Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.
Mathematical Practices: MP3, MP4, MP6, MP7
Building Toward
3.OA.A.1

Rigor and Balance
• Students **apply** their understanding of a scaled bar graph to create scaled bar graphs with a scale of 2, 5, or 10 depending on the amount of data to represent.

I am a doer of math.
What do you do when you need to choose between 2 or more things or ideas in our math class?
—Support students in building their **mathematical identity** by asking them to reflect on this question as they complete this lesson.

18 | AmplifyDesmos Math

Challenge #1

Choose the block that makes 10 with the block shown.



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.

Activity 2 Finding the Missing Pair

5 Let's watch a video.



6 Choose the block that makes 10 with the block shown in each sentence. You may use each block more than once. Fill in each sentence with the number.

1 3 5 4 2

6 and _____ make 10.

7 and _____ make 10.

5 and _____ make 10.

8 and _____ make 10.

16 Unit 1 Working With Data and Solving Comparison Problems

Unit 1
Lesson
9

Hamster Homes

Let's solve problems that involve factors and multiples.



We are a math community.
Mai was a good role model in the story. How can you be a good role model for your math peers?

Warm-Up

1 What do you notice? What do you wonder?

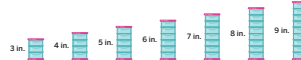


Lesson 9 Hamster Homes 3

Activity
1

Platform Heights

2 You are creating a hamster home! Choose a tube length.



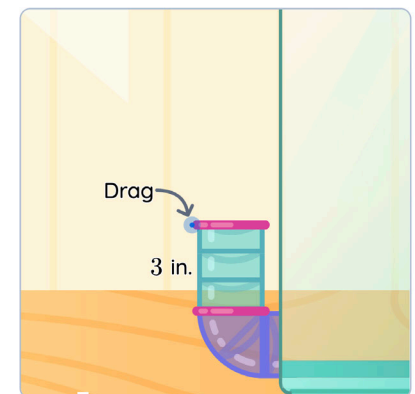
tube length: _____

3 Using your tube length, determine at least 3 platform heights that you could make.



You are creating a hamster home!

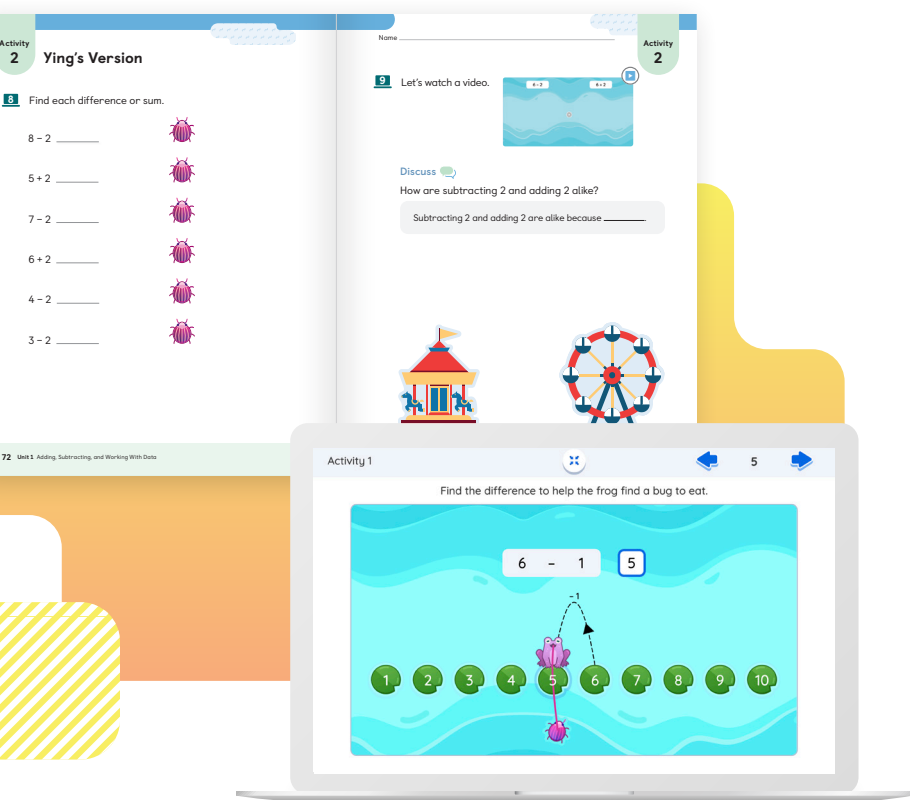
Drag to set your tube length.



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.

Activity 1 Where Is the Bug?

Purpose: Students find differences of related subtraction expressions to make connections between subtracting 1 and subtracting 2.

1 Launch

Display the expression $4 - 1$ and the number path.

Say: "The line of numbered lily pads is called a number path. To play Leaping Lily Pads, you will subtract 1 or 2 to help the frog find the bugs hiding under the number path."

Read aloud the directions for Screens 3–6.

Say: "For each screen, discuss with your partner how you could use the number path to know if your answer is correct."

2 Monitor

While students complete Screen 6, refer to the **Differentiation | Teacher Moves** table on the following page.

If students need help getting started...

- Ask, "What do you know about subtracting 1 from a number?"
- Ask, "How could you use the number path to help you find the difference?"

3 Connect

Display the expression $6 - 2$ and the number path.

Invite students to share their strategies for finding the difference $6 - 2$. Select and sequence their responses in the order shown in the Differentiation table.

Say: "Let's look at 2 strategies someone used to find the difference $7 - 2$."

Play the animation.

Use the **Think-Pair-Share** routine. Ask, "How are the strategies alike? How are they different?"

Say (if not yet mentioned during discussion): "The strategies are alike because they each show ways to subtract 2. The first strategy shows that you can count back 1 to subtract 1 and then count back 1 again to subtract 1 more. The second strategy shows that you can count back 2 to subtract 2."

Key Takeaway: Say, "When subtracting 2 from a number, you can use what you know about subtracting 1. You can count back to subtract 1 and then subtract 1 again, or you can count back 2."

Students using print

Students using digital

3-4 Find the difference to help the frog find a bug to eat.

5-6 Find the difference to help the frog find a bug to eat.

7 Find the difference to help the frog find a bug to eat.

Differentiation | Teacher Moves

Look for students who ...	For example ...	Provide support ...
Explain how they can count 2 lily pads to the left.	We can start at 6 and count 2 lily pads to the left. $6 - 2$ is 4.	Strengthen Ask: "How could you use what you know about subtracting 1 to subtract 2?"

Leaping Lily Pads! 0 students 2/9EQZ

Snapshots Summary Teacher Student

Activity 1

Find the difference to help the frog find a bug to eat.

Try it!

$6 - 2$

1 2 3 4 5 6 7 8 9 10

Teacher Moves Sample Responses Student Supports

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.

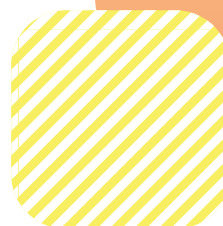
Our approach to manipulatives in Amplify Desmos Math provides:

- 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



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.)



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



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
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- Leslie Ceballos, Assistant Principal
- Christina Corradino, Teacher on Special Assignment
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- 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



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.

[illegible]

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.

Sub-Unit 1

Unit Cubes and Volume

Sub-Unit 1 Goal:

Describe and determine the volume of a rectangular prism using its layered structure.

In this sub-unit, students were formally introduced to the concept of **volume**, which is the amount of space a three-dimensional object takes up. They see that volume can be measured by packing an object with unit cubes so that there are no gaps or overlaps. They build objects with unit cubes and count the number of unit cubes used to make figures to determine volume. They recognize and connect that rectangular prisms are composed of layers, or equal groups, of unit cubes, relating volume to multiplicative relationships.

Sub-Unit 1

Unit Cubes and Volume

Sub-Unit 1

Math That Matters Most

Sub-Unit 1: Describe and determine the volume of a rectangular prism using its layered structure.

Progression of Strategies, Skills, or Language

Progression	For example...
Determining volume of three-dimensional figures by counting unit cubes.	<div>The volume is 12 cubic units. There is 1 cube on top, 3 cubes in the next row, and 8 cubes on the bottom arranged in 2 rows.</div> <div>I counted 1-25 cubes in the front, and then I counted 26-50 cubes in the back.</div>
Building rectangular prisms and describing the layered structure of a rectangular prism.	<div>There are 6 unit cubes in 1 layer. The cubes are arranged in 2 rows of 3 unit cubes. There are 5 identical layers of 6 unit cubes stacked on top of each other.</div>
Determining the volume of a rectangular prism by iterating layers of cubes.	<div>The right face of the prism has 20 cubes. There are 6 layers of 20 cubes, so the volume is 120 cubic units.</div>

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.

Centers in This Sub-Unit

Introduced

Can You Build It?

Stage 2 Rectangular Prisms

Students build rectangular prisms with given volumes.

Materials

- connecting cubes, number cards (0-5) (Manipulative Kit)
- folders (Classroom materials)

Revisited

Rectangle Rumble

Stage 2 Factors 1-5

Students spin for 2 whole number factors (1-5) and represent the product on a rectangular grid.

Materials

- Directions, Gameboard, Spinner (Centers Resources)
- number cubes (Manipulative Kit)

Sub-Unit 1

Sub-Unit Summary

Sub-Unit 1 | Summary

In this sub-unit...

- We defined **volume** as the amount of space a three-dimensional object takes up. It can be measured by packing an object with **unit cubes** so that there are no gaps or overlaps.
- We determined the volumes of three-dimensional figures by counting the number of unit cubes used to build the figures.
- We saw that **rectangular prisms** are composed of layers, or equal groups of unit cubes. We described the rectangular prisms in different ways.

The volume is 12 unit cubes:

- 1 cube on top
- 3 cubes in the next row
- 8 cubes on the bottom arranged in 2 rows

Math Tip: Count more quickly by looking for equal groups of cubes in rows and columns.

Face	Description
side	6 layers of 20 cubes
front	4 layers of 30 cubes
top	5 layers of 24 cubes

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.

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.

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

Unit 1
Lesson
3

Cube Figures

Developing Strategies to Determine Volume

Let's explore the structure of rectangular prisms.

Focus and Coherence

- Today's Goals**
 - Language Goal:** Describe the layered structure of a rectangular prism. (*Writing, Speaking, and Listening*)
 - Goal:** Develop strategies to determine the volumes of rectangular prisms.

Students compose and decompose rectangular prisms with unit cubes, developing language to describe the layered structure. They use the layered structure to develop more efficient strategies to determine volume and to consider what makes 2 prisms different. (*MP3, MP6, MP7*)
- Prior Learning**

In Grades 1 and 2, students built and described the attributes of rectangular prisms. In Lesson 2, students counted the unit cubes making up a solid figure to measure its volume.
- Future Learning**

In Lesson 4, students will determine the volumes of rectangular prisms represented as two-dimensional prisms. They will see that any face of the prism can be considered 1 layer and that each layer is identical.

Vocabulary

Review Vocabulary

rectangular prism
unit cubes
volume

Standards

Addressing

I can be all of me in math class.
When do you do math outside of school?

Support students in building their *mathematical identity* by asking them to reflect on this question as they complete this lesson.

Student Edition pages, Manipulatives, and Presentation Screens support learning in this lesson.

Lesson 3 Cube Figures 11A

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.

30 | AmplifyDesmos Math

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

Lesson at a Glance

60 min

Standards: 5.MD.C.4, 5.MD.C.3

Warm-Up

Fluency

Whole Class

10 min

Students are introduced to the **What Do You Know About ____?** routine, providing all students with the opportunity to share what they already know about rectangular prisms. (MP3, MP6)

Activity 1

Pairs

15 min

Students build prisms using unit cubes. They describe and compare the structures of different rectangular prisms, recognizing that they can use the structure to determine the volume.

Additional Prep Assemblies: a 3 × 2 × 2 rectangular prism with connecting cubes

Activity 2

Pairs

20 min

Students are introduced to the Center **Can You Build It?** Stage 2, in which they compete to build as many different rectangular prisms as possible with a given volume. This prepares students to recognize the layered structure in images of prisms in Lesson 4.

Synthesis

Whole Class

10 min

Students review and reflect on ways to describe the layered structure of rectangular prisms, recognizing that some prisms can look different but have the same volume.

Show What You Know

Independent

5 min

Students demonstrate their understanding by selecting true statements about the volume of a rectangular prism.

Prep Checklist

Invite students to use their Student Edition and prepare the additional materials. Display the Presentation Screens.

This lesson includes:

- Presentation Screens (for display)
- Student Edition
- Show What You Know PDF

Additional required materials:

- Manipulative Kit: connecting cubes, number cards (0–5), rectangular prism (3 × 2 × 2)
- Classroom materials: folders

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

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

Whole Class

10 min

Presentation Screen 1

Lesson 3 Warm-Up

Warm-Up

What Do You Know About ____?

Purpose: Students share ideas about rectangular prisms, preparing them to connect the layered structure to strategies for determining a prism's volume.

1 Launch

Display the question.

Use the **What Do You Know About ____?** routine.

Ask, "What do you know about rectangular prisms?"

Invite students to **share** their responses.

2 Connect

Record students' responses as they share and leave them displayed throughout the lesson.

Ask, "How are rectangular prisms similar to the figures you built in the previous lesson? How are they different?"

Students might say . . .

I know that rectangular prisms are solid shapes.

I know that rectangular prisms have 6 sides or faces.

I know that each face of a rectangular prism is a rectangle.

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.

[illegible]

recommended less

on modality.

The **Key Takeaway** is called out to highlight the learning goal of the activity and provide

The guidance for every activity includes a **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.

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.


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 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.

Students using print

Summary 

When determining the volume of a solid figure, you may need to determine some edge lengths. You can calculate the volume of the figure when you know the dimensions of your prism.




volume: $(2 \times 2 \times 3) + (7 \times 2 \times 3)$

Practice

1. Determine the volume of the figure. **Sample work shown.**

Show or explain your thinking.



bottom prism: $12 \times 5 \times 8 = 480$
top prism: $7 \times 5 \times 316 = 795$
total volume: $480 + 316 = 795$

answer: **795 cubic inches**

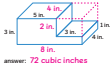
84 Unit 3, Lesson 1

Now _____ Date _____

2. Determine the volume of the figure.

Show or explain your thinking.


Sample work shown.



completed prism:
 $8 \times 4 \times 3 = 96$
missing part:
 $3 \times 4 \times 2 = 24$
volume of the figure: $96 - 24 = 72$

answer: **72 cubic inches**

3. Henri is building a model of a pyramid, similar to the ones found in Egypt. Each layer of the pyramid is in the shape of a square and has a height of 2 inches. Determine the volume of the pyramid.



☐ 200 cubic inches
☐ 328 cubic inches
☒ 272 cubic inches
☐ 400 cubic inches

Lesson 12 What's the Edge Length? 85

Spiral Review

For Problems 4–7, determine the value of the expression.

4. $6 \times \underline{36}$ 5. $40 \div 5 = \underline{8}$

6. $32 \div 4 = \underline{8}$ 7. $9 \times 2 = \underline{18}$

8. Last week, Shawn practiced piano for $\frac{1}{2}$ hours on Monday, $\frac{1}{4}$ hours on Wednesday, and $\frac{1}{8}$ hours on Friday. How long did Shawn practice piano last week?

Show or explain your thinking.

Sample work shown.

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} = \frac{4}{8} + \frac{2}{8} + \frac{1}{8} = \frac{7}{8}$$

answer: **$\frac{7}{8}$ hours** or **49 minutes**

86 Unit 3, Lesson 1

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

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

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

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.

D Differentiation

Use after Lesson 12

Support

Provide targeted intervention for students by using these resources.

If Students: Use only labeled edge lengths to determine the volume.

» **Respond:**

- **Mini-Lesson** | 15 min
Determining Unknown Edge Lengths of a Figure
- **Lesson 12 Refresh Video**

Strengthen

Reinforce students' understanding of the concepts assessed by using these resources.

If Students: Determine the volume by decomposing the figure and determining needed edge lengths based on their decomposition strategy.

» **Respond:**

- **Centers** | 15 min
Can You Build It?, Stage 2
Capture Squares, Stage 7
- **Lesson 12 Practice** | 15 min
- **Item Bank**

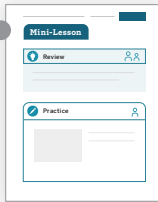
Stretch

Challenge students and extend their learning with these resources.

If Students: Determine the volume by decomposing the figure and determining needed edge lengths based on their decomposition strategy. Flexibly consider multiple decomposition strategies.

» **Respond:**


- **Sub-Unit 3 Extension Activities** | 15 min



Mini-Lesson


Review

Practice



Can You Build It?


Stage 2



Extension


Support, strengthen, and stretch learning by assigning these digital resources that adjust to each student's current level of skill and understanding: • **Personalized Practice** • **By Heart Fluency Practice** • **Math Adventures**

Key (Differentiation Resources)




Grade 5
Centers
Resources

Centers




Grade 5
Intervention
and Extension
Resources

Mini-Lessons
Extensions



Grade 5
Student
Edition

Lesson Practice




Item Bank

Professional Learning

Who participated in math class today?
What assumptions are you making about those who did not participate?
How could you leverage each of your students' ideas to support them in being seen and heard in tomorrow's math class?

86A Unit 1 Volume



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.

Unit 1 | Quiz: Sub-Unit 1

Assess and Respond

Support, strengthen, and stretch learning by assigning these digital resources that adjust to each student's current level of skill and understanding.

Personalized Practice
By Hand Fluency Practice
Multi-Adaptations

Quiz: Sub-Unit 1

Independent | 20 min

Facilitation:

Assign this Sub-Unit Quiz at the end of Sub-Unit 1 to evaluate students' proficiency with the key concepts and skills addressed in this sub-unit. The Up Next problem previews targeted concepts and skills addressed in the next sub-unit.

Item Analysis



Problem(s)	Concept or skill	DOK	Standard(s)
1	Comparing the volumes of figures	2	4.MD.A.1.5.MD.C.3.MP6
2	Determining the volume of a rectangular prism showing unit cubes	2	5.MD.C.3.MP7

Up Next... (preparation for Lesson 7)
3* Knowing relative

Assessment Resource PDF

Quiz: Sub-Unit 1

1. Each rectangular prism is made up of unit cubes. Which figure has a greater volume? **Circle 1: Concepts and Procedures**

Figure A:  Figure B: 

3. Show or explain your thinking. **Script work shown:**

Figure A has a volume of 30 unit cubes, and Figure B has a volume of 9 unit cubes. So, Figure A has a greater volume because it takes up more space.

answer: Figure A

Quiz: Sub-Unit 1 (continued)

2. The rectangular prism is made up of unit cubes. Determine the volume of the rectangular prism in unit cubes. **Circle 1: Concepts and Procedures**

3. Show or explain your thinking. **Script work shown:**

There are 2 layers of 15 unit cubes.

answer: 30 unit cubes

4. Select units that the used to measure the length of a pencil? Select all that apply. **Circle 1: Concepts and Procedures**

☒ centimeter ☐ meter ☐ kilometer ☐ inch ☐ foot ☐ yard

Assessment Resources

Link to Assessment Resource
Student Print Assessments
Answer Keys

27A Unit 1 Volume

Differentiation (Quiz: Sub-Unit 1)

1. Strengthen and Stretch students' learning, refer to the differentiation resources suggested throughout this Sub-Unit.

Sub-Unit Goals	Problem(s)	Respond to Student Thinking
Describe and determine the volume of a rectangular prism using its layered structure.	1	Support Mini-Lesson: Comparing Volume (Lesson 2) Teacher Move: Have students review the problem and then provide additional opportunities for students to compare the volumes of prisms.
	2	Support Mini-Lesson: Using the Structure of Rectangular Prisms to Determine Volume (Lesson 4) Teacher Move: Have students review the problem by determining the volume of the top layer and then counting the number of layers.
Determine the volume of a rectangular prism using the formulas $V = l \times w \times h$ and $V = B \times h$.	3	Support Mini-Lesson: Solving Problems With Liters and Milliliters (Grade 4, Unit 5, Lesson 13) Teacher Move: Plan to use base ten units and unit cubes in Lesson 7 to demonstrate the relative sizes of standard measurement units.

Up Next... (preparation for Lesson 7)

Unit 1 Volume 27B

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



4.1 Unit Overview

Factors and Multiples

Explore patterns and identify multiples, factor pairs, and prime and composite numbers.

Let us know what you thought about this lesson by filling out [this survey](#).

Unit at a Glance

Sub-Unit 1: Patterns, Factors, and Multiples (Lessons 1–8)

- Generate and extend shape and number patterns.
- Determine whether a number is prime or composite.
- Relate the side lengths and area of a rectangle to factors and multiples.

Sub-Unit 2: Using Factors and Multiples (Lessons 9–12)

- Apply multiplication fluency within 100 and the relationship between multiplication and division to identify factor pairs and multiples.

Review Vocabulary

- area
- even
- expression
- factor

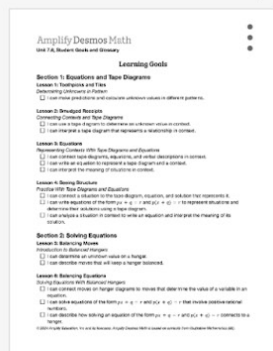
Vocabulary

- common multiple
- composite number
- multiple
- prime number

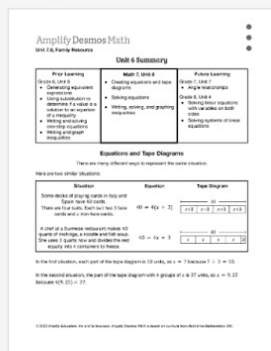
On the Unit Landing Page for each unit, you'll find Unit-at-a-Glance information, including sub-unit descriptions and learning goals, vocabulary found in the unit, and standards addressed in the unit (where applicable).

Paper Resources

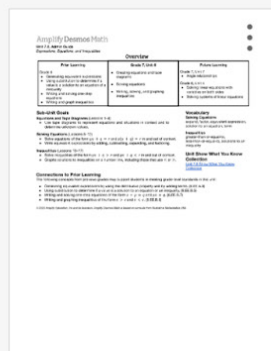
Student Goals and Glossary



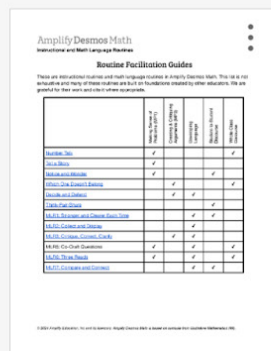
Family Resource



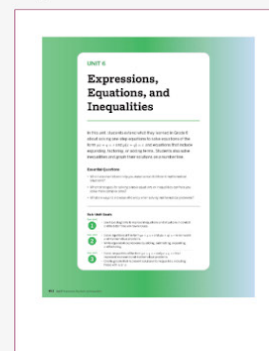
Admin Guide



Routine Facilitation Guides



Teacher Edition + Answer Key



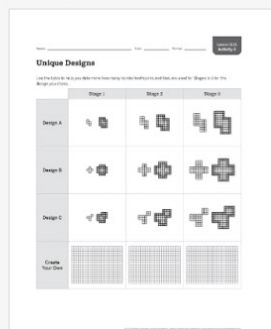
Student Lessons + Practice



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.

Amplify.

Grade 4 - Beta

Teacher Garry

Search

Amplify Desmos Math

Grade 4 - Beta

Unit 1: Factors ...

4.1 Unit Overview

I Contain Multitudes

4.1 Pre-Unit Check

1. Investigate: Quilt Patterns

2. How Does It Grow?

3. Numbers Rule!

4. What Do They Have in Common?

5. Building Rectangles

6. How Many Rectangles?

7. How Many Factors?

8. Which Products Do You Know?

4.1 Sub-Unit 1 Quiz

9. Hamster Homes

10. Factor or Multiple?

11. Mystery Numbers

12. A Number Game

4.1 End-of-Unit Assessment

4.1 Performance Task

4.1 Lesson Practice

4.1 Show What You Know Collection

4.1 Mini-Lessons

4.1 Centers

4.1 Extensions

4.1 Boost

4.1 Personalized Learning

4.1 Fluency Practice

4.1 Math Adventures

Hamster Homes

Lesson 9: Real-World Problems Involving Factors and Multiples

Let's solve problems that involve factors and multiples.

Let us know what you thought about this lesson by filling out [this survey](#).

Student devices recommended. Student Edition pages are also available.

Why digital? Students explore factors and multiples and receive responsive feedback in real time.

Instruction

Differentiation Beyond the Lesson

Today's Goals

Apply an understanding of factors and multiples in the range 1 – 100 to solve real-world problems.

Language Goal: Explain how to solve problems using factors and multiples. (Reading, Writing, Speaking, and Listening)

Standards

Addressing MP1 MP2 MP3 4.OA.B.4

Instructional Routines

Notice and Wonder

Think-Pair-Share

At a Glance

Practice Problems

Show What You Know

Your Assignments

Assign this activity to one of your classes or create a single session code

Screens

Preview

Warm-Up

Activity 1

Activity 2

Synthesis

Show What You Know

Paper Resources

Teacher Edition

Student Edition

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

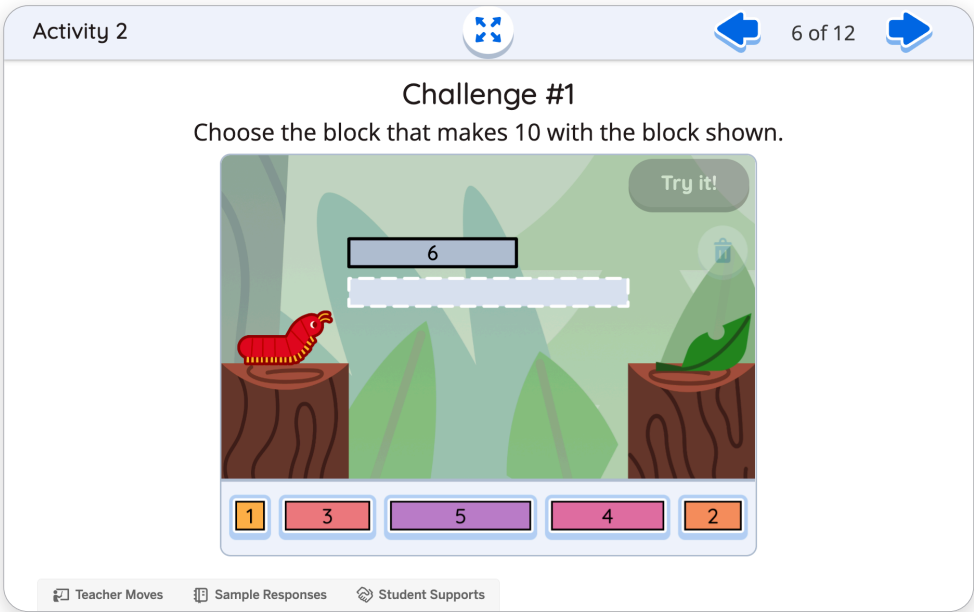
Paper resources for each lesson include print Teacher Edition pages, print Student Edition pages, and the lesson Show What You Know printable PDF.

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.

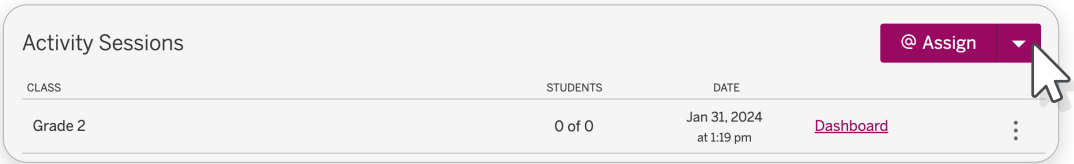
To make planning and teaching seamless, tips for instruction are available in both the print Teacher Edition and digitally at point of use. At the bottom of Activity Screens, the teacher will see suggestions for facilitation to support great classroom conversations:

- **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

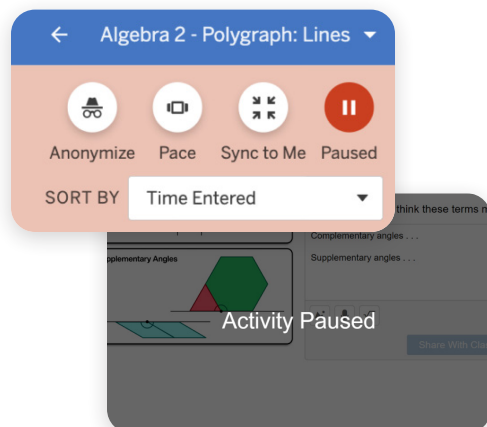


Assign

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.

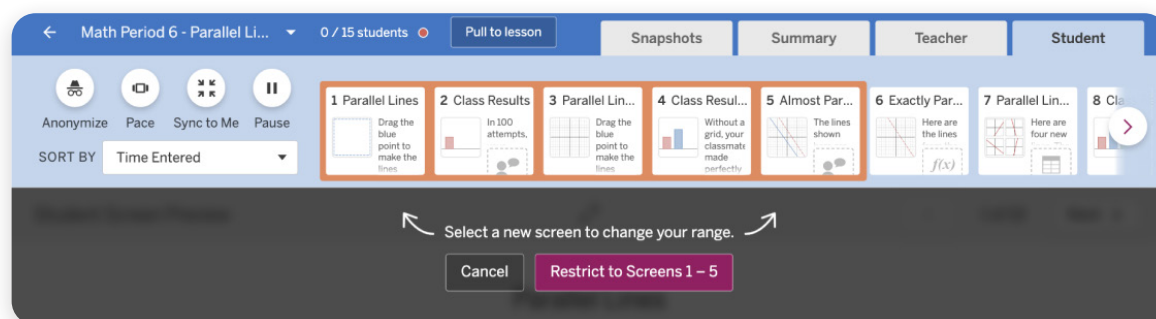
Keep an activity paused for as long (or as briefly) as you want. When you're ready for students to continue, press the Pause button again to resume the activity.

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.

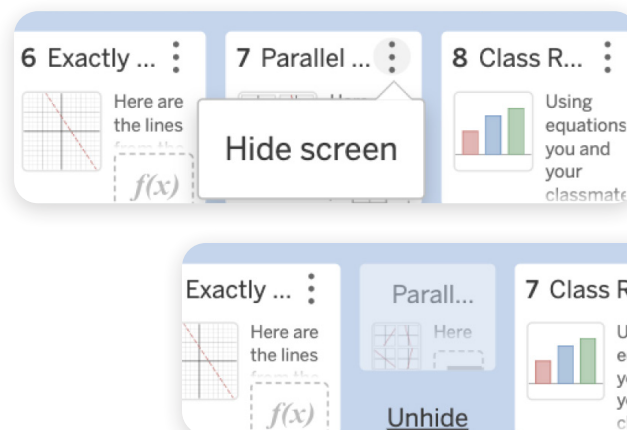
Once Pacing is activated, you'll see clear indicators for what screens your students may access. You can edit or extend that range, or even disable pacing, with a single click.



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.

Activity Sessions				
CLASS		STUDENTS	DATE	
E5YPM2	New students can join until Jan 2, 2025	0	Jan 3, 2024 at 10:50 am	Dashboard ⋮
YMMVC5	New students can join until Jul 17, 2024	0	Nov 17, 2023 at 3:18 pm	Dashboard ⋮

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.

The screenshot displays the Teacher Dashboard interface. At the top, there are four tabs: 'Snapshots', 'Summary', 'Teacher', and 'Student'. The 'Teacher' tab is currently selected. Below the tabs, there is a 'Warm-Up' section with a title 'Warm-Up' and a prompt 'Choose 2 blocks. What do you notice? What do you wonder?'. The interface shows a grid of colored blocks with numbers: 9 (green), 2 (orange), 7 (blue), 5 (purple), 6 (purple), 1 (yellow), 4 (pink), 3 (red), and 8 (teal). A 'Try it!' button is visible. On the right side, there are three empty text input fields for student responses. At the bottom, there are three tabs: 'Teacher Moves', 'Sample Responses', and 'Student Supports'.

Snapshots

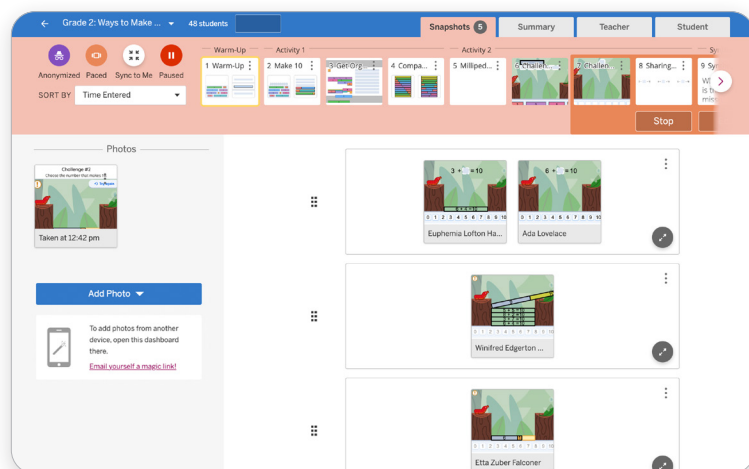
Peg Smith and Mary Kay Stein's *5 Practices for Orchestrating Productive Mathematics Discussions* offers a clear and useful framework for facilitating class discussions around student thinking. We added a Snapshot tool to make it even easier to select and sequence student work for those discussions. 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.



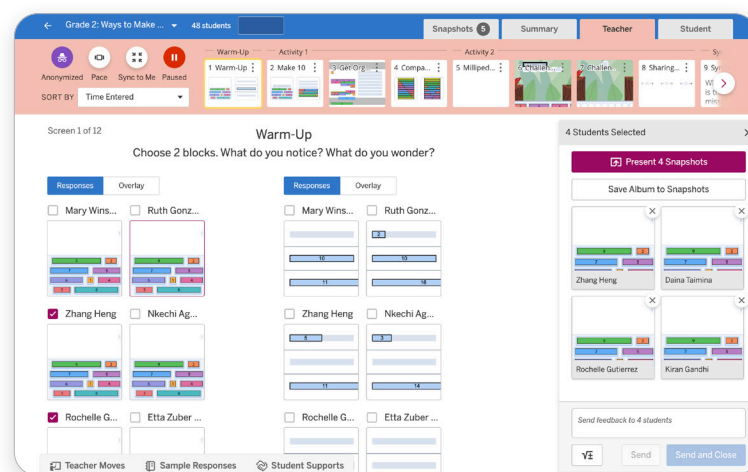
Then, in the Snapshots View, you can organize your snapshots into albums. Each album can hold up to four snapshots.



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.

Grade 2: Ways to Make ... 48 students									
Snapshots 4 Summary Teacher Student									
Anonymized Paced Sync to Me Paused									
SORT BY Time Entered									
Warm-Up Activity 1 Activity 2 Synthesis									
1 Warm-Up 2 Make 10 3 Get Org... 4 Compa... 5 Milliped... 6 Challen... 7 Challen... 8 Sharing... 9 Synthesis 10 Synth...									
Stop Edit +									
Mary Winston Jackson	⋮	●	×						
Ruth Gonzalez	⋮	●	✓	●	—	—	✓	×	
Zhang Heng	⋮	●	×	●	—	—	✓	×	
Nkechi Agwu	⋮	●	×	●	—	—	✓	×	
Rochelle Gutierrez	⋮	●	✓	●	—	—	✓	✓	
Etta Zuber Falconer	⋮	●	●		—	—	✓	×	
Kiran Gandhi	⋮	●	●	●	—				
Dorothy Vaughan	⋮	●	✓	●	—	—	✓	✓	—
Daina Taimina	⋮	●	×	●	—	—	✓		
Sofia Kovalekskaya	⋮	●	✓	●	—	—	×		

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.

Grade 2: Ways to Make ... 48 students

Snapshots 4 Summary Teacher Student

Anonymized Paced Sync to Me Paused

SORT BY Time Entered

Warm-Up Activity 1 Activity 2 Synthesis

1 Warm-Up 2 Make 10 3 Get Org... 4 Compa... 5 Milliped... 6 Challen... 7 Challen... 8 Sharing... 9 Synthesis 10 Synth...

Stop Edit +

Screen 2 of 12

Make 10

Choose different ways to make 10 with 2 blocks.

☐ Show Correctness

Responses Overlay

Mary Wins... Ruth Gonz... Zhang Heng

Nkechi Ag... Rochelle G... Etta Zuber ...

Teacher Moves Sample Responses Student Supports

Notes



Notes



Visit us online for more information
on Amplify Desmos Math.

 amplify.com/mathexp

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