

Classroom Mathematics

California

Program Overview



GRADES

6-8

by  i-Ready

Hear What Authors and Advisors of *Classroom Mathematics California* Have to Say



“Students connect with mathematics on a deeper level when they explore its applications in real-world contexts, discovering its relevance and power in everyday life.”

—Gladis Kersaint



“Because routines are meant to be repeated, they are effective vehicles for developing new habits. Thus, teachers can lean into instructional routines to more easily develop new teaching practices in alignment with the California framework.”

—Grace Kelemanik



“Universal Design for Learning support in *Classroom Mathematics California* serves as a process that can be used to design mathematics learning environments that are both accessible and challenging for all learners.”

—Cathery Yeh



“Teachers make hundreds of decisions per hour in the classroom, often related to the flow and logistics of a lesson. Instructional routines hold the flow of the lesson steady and shift the focus of teachers’ decision making so that they can be responsive to students’ thinking in the moment and provide access and support to each and every student.”

—Amy Lucenta



“This program was designed with explicit, intentional supports that make content more accessible and meaningful for culturally and linguistically diverse learners. We want learners to see themselves in the curriculum, helping them strengthen their mathematical identities.”

—Mark Ellis

Bringing the California Framework to Life

Designed to support the implementation of the California framework, *Classroom Mathematics California* empowers educators with comprehensive resources and innovative strategies that bring the framework’s core principles to life, ensuring students not only grasp mathematics concepts but also develop genuine excitement to learn mathematics.



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Connect Mathematical Concepts across Lessons and Units

The instructional design in *Classroom Mathematics California* aligns with the California framework’s emphasis on mathematical ideas as connected and interrelated, rather than as a series of discrete topics.



The Multiple-Day Lesson Structure

The multiple-day lesson structure provides time for California students to develop deep understanding and make connections that extend across the lessons in a unit to build Big Ideas.

~30 lessons in the year
with dedicated time for
Big Idea connections!

Big Ideas Develop across the Multiple-Day Lesson Structure

Day 1	Day 2	Day 3	Day 4	Day 5
Explore Session	Develop Sessions <i>One to Three Develop Sessions in Each Lesson</i>			Refine Session
- Prioritize critical prerequisite skills - Accelerate access to grade-level content	- Address the rigor of the California standards - Build conceptual understanding through multiple-day Develop sessions - Practice new skills and apply new learning			- Strengthen grade-level practice and differentiation with built-in practice time - Reflect and connect with Big Ideas

A Powerful Instructional Framework

The Try–Discuss–Connect instructional framework of *Classroom Mathematics California* seamlessly incorporates multiple routines and best practices into instruction while integrating language and mathematics to develop deeper understanding.



TRY IT

Students make sense of the problem.

Students solve and support their thinking.



DISCUSS IT

Students share their thinking with a partner.

Students compare their strategies.



CONNECT IT

Students make connections and reflect on what they have learned.

Students apply their thinking to a new problem.

Building Big Ideas

Each unit helps students organize new skills and concepts into overarching mathematical ideas.

Establish learning goals by introducing **Big Ideas** at the start of a unit.

Key Understandings bridge the Big Idea to the mathematics of the unit.

California Big Ideas

Unit 4 Big Ideas and *Key Understandings*:

- **Relationships Between Variables** A rate expresses a ratio relationship between two quantities. It tells you how many units of one quantity there are for every 1 unit of a second quantity. (Lesson 16)
- **Model the World** Ratios, rates, and unit rates can describe multiplicative relationships in the real world. (Lesson 16)
- **Fraction Relationships** Writing a percent as a fraction can be useful for understanding and solving percent problems. (Lessons 17–18)
- **Generalizing with Multiple Representations** Many different representations can be used to understand and solve percent problems. (Lessons 15 and 18)

Use the **Big Ideas Organizer** pages with students.

UNIT 4 Ratio Reasoning

Unit Overview

This unit introduces students to rates and percents. Students preview the skills they will be learning in this unit and assess what they know and do not know about them. Students record their progress after completing each lesson and reflect on their learning at the end of the unit.

California Big Ideas

Unit 4 Big Ideas and *Key Understandings*:

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- **Fraction Relationships** Writing a percent as a fraction can be useful for understanding and solving percent problems. (Lessons 17–18)
- **Generalizing with Multiple Representations** Many different representations can be used to understand and solve percent problems. (Lessons 15 and 18)

Use the **Big Ideas Organizer** pages with students.

Support Positive Learning Habits

At the beginning of the unit, share the individual and social responsibility goal **Persevere**. At the end of the unit, support growth mindset by having students discuss the prompts and review the skills on the **Self Reflection** page.

Academic Language Focus

The last Unit Skill is an overarching skill related to the academic language focus for the unit.

Use the **Academic Language Focus Resources** to model, practice, and formatively assess students' progress at the end of lessons where the focus language skill is listed.

Self Check

- Give students independent time to read the skills and check the ones they think they already have.
- Tell students that all of the skills may be new, and they will be able to check off more skills over time.

Unit 4

Ratio Reasoning Unit Rates and Percent

Self Check		
Before starting this unit, check off the skills you know before. As you complete each lesson, see how many more skills you can check off!		
I can ...	Before	After
Compare rates to solve real-world problems.	☐	☐
Use unit rates to find equivalent ratios.	☐	☐
Convert measurement units using rates.	☐	☐
Express a percent as a decimal or a fraction.	☐	☐
Find a given percent of a number.	☐	☐
Find what percent one number is of another number.	☐	☐
Find the whole when given a part and a percent.	☐	☐
Describe how models represent rates and percents by connecting parts of the models with the quantities being compared.	☐	☐

Unit Skills	Lesson
Compare rates to solve real-world problems.	15, 16
Use unit rates to find equivalent ratios.	16
Convert measurement units using rates.	16
Express a percent as a decimal or a fraction.	17, 18
Find a given percent of a number.	17, 18
Find what percent one number is of another number.	17, 18
Find the whole when given a part and a percent.	18
Describe how models represent rates and percents by connecting parts of the models with the quantities being compared.	15, 17, 18

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UNIT 4 Ratio Reasoning

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UNIT 4 Big Ideas Organizer

► At the end of lessons, use drawings, words, and numbers to show your thinking.

Relationships Between Variables

Key Understanding A rate expresses a ratio relationship between two quantities. It tells you how many units of one quantity there are for every 1 unit of a second quantity.

Lesson 16

Model the World

Key Understanding Ratios, rates, and unit rates can describe multiplicative relationships in the real world.

Lesson 16

Fraction Relationships

Key Understanding Writing a percent as a fraction can be useful for understanding and solving percent problems.

Lesson 18

Generalizing with Multiple Representations

Key Understanding Many different representations can be used to understand and solve percent problems.

Lesson 18

The **Big Ideas Organizer** is used at the end of the lesson as teachers facilitate discussion that encourages students to find examples of Big Ideas and Key Understandings in the lesson.

Students use the organizer to record their new understandings.

Big Idea Reflections and Connections

At the end of the unit, students revisit the Big Idea to reinforce and extend their understanding during the **Big Ideas Reflection**.

UNIT 4
Self Reflection

Support Positive Learning Habits

Growth Mindset
As students review and reflect, encourage them to revisit the work they did in each lesson in order to reflect on their learning, celebrate their growth, and set new goals.

- Have students revisit the skills on the **Self Reflection** page, review the Key Understandings on the **Big Ideas Organizer**, and respond to the Self Reflection prompts.
- Remind students that the list of skills on the Self Reflection page is the same list they saw on the **Self Check** page at the beginning of the unit.
- Discuss students' responses to the Self Reflection prompts as a class.
- Reinforce a growth mindset by telling students that they will continue to refine their understanding and build on these skills and concepts in future lessons and grade levels.

Individual and Social Responsibility

ASK You have worked hard to learn a lot of new math. When you are confused or frustrated while doing math, what can you do?

LISTEN FOR Students may share strategies for persevering that include taking a short break, asking for a hint to get back on track, asking a classmate or teacher for help, and remembering that it is normal for new learning to feel difficult.

ASK Students in a strong classroom community help each other. How did you and your classmates help each other when you were confused or frustrated while doing math?

LISTEN FOR Students may share strategies for persevering as part of a group that include encouraging each other and explaining things in different ways to help others understand.

UNIT 4 Self Reflection

In this unit you learned to . . .

Skill	Lesson
Compare rates to solve real-world problems.	15, 16
Use unit rates to find equivalent ratios.	16
Convert measurement units using rates.	16
Express a percent as a decimal or a fraction.	17, 18
Find a given percent of a number.	17, 18
Find what percent one number is of another number.	17, 18
Find the whole when given a part and a percent.	18
Describe how models represent rates and percents by connecting parts of the models with the quantities being compared.	15, 17, 18

Think about what you have learned.

> Use words, numbers, and drawings.

- The most important math I learned was _____, because . . .
- The hardest thing I learned to do was _____, because . . .
- I could use more practice with . . .

Big Idea Reflections

MAKE CONNECTIONS
Thinking about Big Ideas helps students organize their knowledge and connect mathematical understandings.

- Have students return to the **Big Ideas Organizer** to review what they recorded. Revisit class anchor charts.
- Ask questions that support looking at one Big Idea across lessons. For example, ask: *How did you see the idea of Fraction Relationships in Lessons 17 and 18?*
- Ask questions that support making connections among Big Ideas. For example, ask: *How did Fraction Relationships help you understand Generalizing with Multiple Representations?*

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Big Idea Reflections

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Big Ideas Connections

Big Idea & Key Understanding	Lesson	End of Lesson Connection
Relationships Between Variables A rate expresses a ratio relationship between two quantities. It tells you how many units of one quantity there are for every 1 unit of a second quantity.	16	A rate tells you how many units of one quantity there are for every 1 unit of a second quantity. So, if you know the second quantity, you can multiply it by the unit rate to find the related first quantity. Rates can also help you compare ratios.
Model the World Ratios, rates, and unit rates can describe multiplicative relationships in the real world.	16	Unit rates are helpful for comparing prices and speeds, converting measurements, and adjusting recipes to make larger or smaller amounts.

The **Big Ideas Connections** table in the Teacher's Guide offers examples of the ways Big Ideas can be applied.

Big Idea

Visualize Populations

Displaying sample data for two populations on the same scale can help you visually compare centers, variability, and overlap.

- LOOK BACK** Find an example where you used a display to compare sample data for two populations.
- SHARE AND DISCUSS** What types of comparisons can you make by graphing sample data for two populations in the same scale?

Presentation slides provide tailored prompts to focus student discussions as they make connections between the Key Understanding and their work in the lesson.

The Multiple-Day Lesson Structure in Action: Explore Session

Each lesson begins by activating students' prior knowledge to build on new ideas and concepts and accelerate access to grade-level content.

Grade-Level Planning (Prerequisites) Report

Use the Grade-Level Planning (Prerequisites) report as you start the lesson to identify what students know, inform instruction and groupings, and find curated resources.

1 Day

Explore
Session

1–3 Days
Develop
Sessions

1 Day
Refine
Session



LESSON 16 | SESSION 1

Explore Unit Rates

Previously, you learned about rates. In this lesson, you will learn how to use rates and unit rates to solve problems.

► Use what you know to try to solve the problem below.

Chloe is driving on the freeway. She is 200 miles from Los Angeles. Suppose she drives at a constant speed of 55 miles per hour. Can Chloe get to Los Angeles in less than $3\frac{1}{2}$ hours?

TRY IT Math Toolkit double number lines, grid paper

DISCUSS IT

Ask: How is your strategy similar to mine? How is it different?

Share: My strategy is similar to yours because ... It is different because ...

Learning Targets SMP 1, SMP 2, SMP 3, SMP 4, SMP 5, SMP 6, SMP 7, SMP 8

- Use division to find unit rates.
- Use unit rates to find equivalent ratios and compare ratios.
- Use unit rates to convert measurement units.

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LESSON 16 Use Unit Rates to Solve Problems 375

Activate and Access Prior Knowledge with the Try It Activity

Students are introduced to lesson concepts with a **Try It** problem they can solve using previously learned models and strategies that are relevant to the new content of the lesson.



CONNECT IT

1 **Look Back** Can Chloe get to Los Angeles in less than $3\frac{1}{2}$ hours? Explain.

2 **Look Ahead** Chloe's constant speed of 55 miles per hour is a **rate**. The numerical part of the rate, 55, is called the **unit rate**.

- What does the unit rate 55 tell you in this situation?
- On another trip, suppose Chloe drives at a constant speed of 60 miles per hour. What is Chloe's unit rate? What does the unit rate tell you?

c. The table shows that Chloe travels 240 miles in 4 hours. Complete the equivalent ratios in the first two columns. Where do you see Chloe's unit rate?

Miles, a	Hours, b	$\frac{a}{b} = a \div b$
	1	
	2	
180		
240	4	$\frac{240}{4} = 240 \div 4 = 60$

d. The third column of the table shows the quotient of the numbers in each equivalent ratio. Complete the third column. What do you notice?

3 **Reflect** How could you use unit rates to help you identify equivalent ratios?

Build a Bridge to New Lesson Content

Look Back/Look Ahead prompts prepare students for the new content they will learn in the rest of the lesson.

Prepare for Using Unit Rates to Solve Problems

1 Think about what you know about rates. Fill in each box. Use words, numbers, and pictures. Show as many ideas as you can.

What Is It?

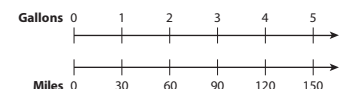
What I Know About It

rate

Examples

Examples

2 What two rates can you write for the ratios shown by the double number line? What do they tell you?



Vocabulary Development

Students use a graphic organizer to review a previously learned term that plays a key role in the upcoming lesson. This helps students reflect on concepts they know and will build upon throughout the lesson.

The Multiple-Day Lesson Structure in Action: Develop Sessions

1 Day
Explore
Session

1–3 Days

Develop
Sessions

1 Day
Refine
Session

Each lesson includes one to three Develop sessions devoted to helping students develop new strategies and understandings.

LESSON 16 | SESSION 2 ■■■

Develop Using Unit Rates to Find Equivalent Ratios

Read and try to solve the problem below.

Ashwini jogs on the track at her school. She uses a watch to track her progress. At this rate, how long will it take her to jog 16 laps?

TRY IT Math Toolkit double number lines, grid paper

TRY IT SMP 1, 2, 4, 5, 6

Make Sense of the Problem

Before students work on Try It, use **Three Reads** to help them make sense of the problem. After the third read, have them turn to a partner and answer: *What are the important quantities and relationships in the problem?*

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Try It: Make Sense of the Problem and Solve and Support Your Thinking

- Students tap into **existing knowledge** to persevere in solving the problem.
- Students decide which materials to use, giving them **agency** over their learning.
- Teachers **anticipate solutions and monitor** as students explore strategies.
- Dedicated **productive struggle** time to ensure all students have the opportunity to engage with rigorous tasks
- **Engage** students by centering their prior experience.

Three Reads

Why: Three Reads helps students slow down to reason through the language of a problem and reflect on the information given before trying to solve it. This routine helps students interpret language without reducing mathematical rigor.

How: Direct students to look at the page in their Student Worktext or on the slide. Read the problem aloud three times, then follow by asking a question with a specific focus.

Language Routines Help Students Learn Academic Language

- Choose from four different Language Routines to help students make sense of the problem.
- Routines are flexible and can be switched out as desired.

Notice and Wonder

Why: Notice and Wonder encourages students to view and think about things through a mathematical lens. Because no response is incorrect, this routine allows students to make sense of a problem/image with very little pressure.

How: Present a problem or a problem display, such as geometric figures, a data display, expressions, or equations without the final question or task. Ask:

- *What do you notice?*
- *What do you wonder?*

Record all responses without comment. Then present the question/task of the problem and lead a discussion about which of the things the students noticed and wondered might be relevant to the problem.

g the text.

language to the
ing to find out?
entities (or other
ometric figures) and
important numbers
is go together?

DISCUSS IT continued

- Explore different ways to understand how to use a unit rate to find equivalent ratios.

Ashwini jogs on the track at her school. She uses a watch to track her progress. It takes her 15 minutes to jog 6 laps. At this rate, how long will it take her to jog 16 laps?

Model It

You can use a table of equivalent ratios to solve the problem.

Laps	Minutes
6	15
1	2.5
16	?

$\div 6$ (from 6 to 1) $\times 16$ (from 1 to 16)
 $\div 6$ (from 15 to 2.5) $\times 16$ (from 2.5 to ?)

Model It

You can find the unit rate and then use it to find equivalent ratios.

Divide the numbers in the ratio 15 : 6 to find the unit rate for minutes per lap.

$$\begin{array}{l} \text{minutes} \rightarrow 15 \\ \text{laps} \rightarrow 6 \end{array} \rightarrow \frac{15}{6} = \frac{5}{2} = 2.5$$

Multiply the **number of laps** by the **unit rate** for minutes per lap.

Laps	Minutes
6	15
16	?

$\times 2.5$ (from 6 to 16)



Discuss It: Share Your Thinking with a Partner

- Students share their thinking with a partner to compare strategies.
- Peer-to-peer discourse** occurs as the teacher circulates to elicit student thinking, **anticipate** strategies, and **select and sequence** student solutions.
- Continued student processing time to increase student ownership

DISCUSS IT

SMP 3, 6, 7, 8

Support Partner Discussion

After students work on Try It, have them respond to Discuss It with a partner.

Listen for understanding that:

- the given ratio of minutes to laps is 15 to 6.
- the ratio can be used to calculate the unit rate at which Ashwini jogs.
- once the unit rate is known, it can be used to determine the time it will take for Ashwini to jog any number of laps.

Discuss It: As a Whole Class

- Students engage in whole class discussions, **comparing and connecting** models and strategies.
- Teachers use the **Ask/Listen Fors** to guide discussion.
- Additional models in the Teacher's Guide with Model It and Picture It

Facilitate Whole Class Discussion

Call on students to share selected strategies. Review that one way to justify a solution is to try to convince others that the answer makes sense.

Guide students to **Compare and Connect** the representations. Allow time for students to think by themselves before starting the discussion.

ASK How do [student name]'s and [student name]'s models show Ashwini's rate?

LISTEN FOR Representations may show the rate expressed as $2\frac{1}{2}$ (or 2.5) minutes per lap. Or, the model may show the rate expressed as $\frac{2}{5}$ (or 0.4) lap per minute

The Multiple-Day Lesson Structure in Action: Develop Sessions, Cont'd.

1 Day
Explore
Session

1–3 Days

Develop
Sessions

1 Day
Refine
Session

CONNECT IT

► Use this page to deepen your understanding of equivalent ratios.

1 Talk About It

- Look at the table in the first **Model It**. Where do you see the unit rate? How is the unit rate related to the total rate?
- How can you use the unit rate to find the total rate for Ashwini to run any number of laps?

2 Show What You Know

Explain how a unit rate for a given ratio relates to the total ratio. Explain how you can use the unit rate to find the total rate.

3 Reflect

Think about all the models and strategies you used to solve the problems. Describe how one of them helped you better understand equivalent ratios.

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CONNECT IT

SMP 2, 3, 4, 5

Prior to beginning Connect It, ensure all students understand the answer to the Try It is that it will take Ashwini 40 minutes to jog 16 laps.

Use some or all of problem 1 to continue the discussion. Students may use the space provided for notes.

For problems 2 and 3, have students record their responses. Discuss as time allows.

Facilitate Whole Class Discussion

1 Talk About It

Tell students that these discussion prompts will prepare them to respond to problem 2.

For problem 1b, look for understanding that unit rate can be used to find the number of minutes it takes to jog any number of laps or the number of laps that can be jogged in any number of minutes.

ASK What is one way to find a unit rate from a given ratio?

LISTEN FOR Divide one quantity in the ratio by the other to find the unit rate.

2 Show What You Know

Look for understanding that the unit rate is the numerical part of a rate. It can be used to find equivalent ratios.

ASK How does a unit rate relate the two quantities in a ratio? How can a unit rate help you solve problems where you need to find an equivalent ratio?

LISTEN FOR A unit rate tells you the numerical part of a rate. You can multiply or divide by a unit rate to find a missing value of an equivalent ratio.

3 Reflect

Have all students focus on the strategies used to solve the Try It. If time allows, have students discuss their ideas with a partner.

Connect It: Make Connections, Reflect, and Apply

Connect It helps solidify conceptual understanding.

During **Talk About It**, students discuss and crystalize their understanding of key ideas.

The **Reflect** question emphasizes student choice and prepares them to apply their preferred strategy in the Apply It practice.

Apply It encourages students to solve the problems flexibly using any strategy.

Apply It

For all problems, encourage students to use a model to support their thinking.

- Students may also use the unit rate 0.8 or $\frac{4}{5}$ to find the pounds per dollar. Then they can divide 7 pounds by the unit rate to find Alejandro's cost.
- Students may use the rate for dollars per pound, $\frac{5}{4}$ or 1.25 , to solve: $8 \div 1.25 = 6.4$.

LESSON 16 | SESSION 2

Apply It

► Use what you learned to solve these problems.

- Alejandro buys chicken for a barbecue. At the rate shown in the Weekly Special, what does 7 lb of chicken cost? Show your work.



SOLUTION

- Look at problem 7. How much chicken can Alejandro buy for \$8? Show your work.

ION

Volunteers to fold T-shirts for the runners at a marathon. She folds 8 T-shirts in 45 minutes. At this rate, how many T-shirts does Anica fold in 45 minutes? Show your work.

SOLUTION

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The Multiple-Day Lesson Structure in Action: Refine Session

1 Day
Explore
Session

1–3 Days
Develop
Sessions

1 Day

Refine
Session

Give students time to refine their learning from the lesson with practice as rigorous as the California Assessment of Student Performance and Progress (CAASPP). Each lesson ends with dedicated class time to practice and apply lesson concepts and options for one-on-one or small group differentiation activities.

Reteach, Reinforce, or Extend Learning



Monitor students' work on the Start activity and initial problem set.



Assess students' understanding using the Error Analysis guide and observations of students' work.



Provide differentiated options for additional practice and to support students' needs.

Approaching Proficiency:
Provide additional support with the Reteach activity in the Teacher's Guide.

Meeting Proficiency:
Reinforce learning with additional practice problems in the Student Worktext.

Extending Proficiency:
Deepen students' understanding with the Challenge Activity in the Teacher's Guide.

DIFFERENTIATION | RETEACH or REINFORCE

Visual Model
Use a double number line to show using the unit rate as a constant.

If students are unsure about using the unit rate to find an unknown quantity in an equivalent ratio, then use this activity to show the pattern generated by a unit rate.

- Materials** For each pair: Activity Sheet Double Number Lines
- Distribute the Activity Sheet. Have pairs label the top line *Laps* and draw tick marks from 1 to 22 by ones. Label the bottom line *Minutes* and draw tick marks in the same locations.
 - Ask: *How many minutes does it take Ashwini to jog one lap?* (2.5 minutes) Have pairs label the first tick mark on the *Minutes* number line with 2.5. *How many minutes will it take Ashwini to jog two laps?* How do you know? (5 minutes; Multiply the unit rate by 2: $2.5 \times 2 = 5$.) *Three laps?* (7.5 minutes; Multiply the unit rate by 3: $2.5 \times 3 = 7.5$.) Have pairs label the *Minutes* number line with 5 and 7.5.
 - Ask: *How can you use the unit rate to find the number of minutes it takes to jog 22 laps?* (Multiply the unit rate by 22.)
 - Extend by finding the number of minutes it takes to jog 32 laps and 40 laps.

LESSON 1 | SESSION 3

Refine Finding the Area of a Parallelogram

Complete the Example below. Then solve problems 1–6.

Example The area of a parallelogram is 288 in². The base of the parallelogram is 24 in. What is the height of the parallelogram?

Look at how you can use a diagram and equations to show your work.

$A = b \times h$
 $288 = 24 \times h$
 $h = 288 \div 24$
 $h = 12$

SOLUTION

Apply It

What is the area of the figure? Show your work.

CONSIDER THIS... The figure is a parallelogram. The area formula is $A = b \times h$.

CHALLENGE What if you were asked to find the area of a parallelogram with a base of 12 and a height of 12?

SOLUTION

What is the area of the figure? Show your work.

CONSIDER THIS... The figure is a parallelogram. The area formula is $A = b \times h$.

CHALLENGE What if you were asked to find the area of a parallelogram with a base of 12 and a height of 12?

DIFFERENTIATION | EXTEND

Deepen Understanding
Using Reasoning to Find and Use Unit Rates

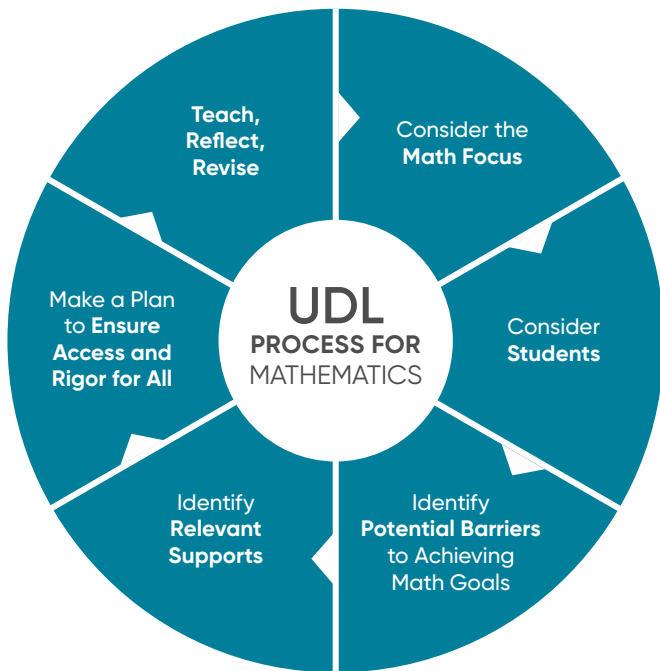
SMP 8

Prompt students to look for the relationships between quantities in a ratio and use fractions and division to find unit rates.

- ASK** What fractions can you write with 6 and 15 to show unit rates in this situation? Write each unit rate as a decimal and explain what the unit rate means in this situation.
- LISTEN FOR** You can write the fractions $\frac{6}{15}$ and $\frac{15}{6}$. The unit rate 0.4 means 0.4 lap per minute. The unit rate 2.5 means 2.5 minutes per lap.
- ASK** Why can you multiply 16 by a unit rate to find the minutes it takes to jog 16 laps?
- LISTEN FOR** The unit rate of 2.5 represents 2.5 minutes per lap. Since the number of minutes is unknown, you can find an equivalent ratio for 16 laps by multiplying 16 by the unit rate.

Universal Design for Learning (UDL): Ensuring Classroom Equity

Classroom Mathematics California leverages the UDL Framework and embeds supports throughout the instructional design.



UDL Process Toolkit

This Toolkit, found on the Teacher Toolbox, is a digital resource for instructional materials and supports:

- A planning process that ensures access and equity for all students
- UDL features in the program to maximize full effectiveness
- Best-practice implementation

Principle 1: Design Multiple Means of Engagement

- Features like STEM Stories, Real-World Connections, and Connect to Culture offer culturally sustaining mathematical opportunities.
- Hands-On Activities, Visual Models, and cooperative learning routines provide flexible ways for students to engage with rigorous mathematics concepts.
- End-of-unit Self Reflection encourages students to evaluate their leadership and progress toward unit goals.

STEM Stories

Purpose

- Inspire students by engaging them in conversation about Lewis Latimer and his contributions to science and technology.
- Empower students by highlighting how they construct arguments and analyze the reasoning of others (SMP 3) in math class and their lives outside of school.

Read and Discuss

After you read the story, discuss the Reflection Questions about being industrious and SMP 3. (15 minutes)

To get the conversation started, tell students how much Lewis contributed to science and technology through his ability to draw. By blending art, imagination, and technical knowledge, he helped develop life-changing inventions, such as the light bulb and the telephone.

ASK What are your thoughts about Lewis and his story? Have students share. If students seem reluctant, share something you found interesting about Lewis's story.

ASK What were some skills Lewis used throughout his life?

LISTEN FOR He used drawing skills, knowledge of science, and teaching skills.

ASK REFLECTION QUESTION 1 Lewis worked to learn new skills. When have you learned a new skill? Have students **Raise a Hand** to volunteer information about their own experiences.

ASK REFLECTION QUESTION 2 When do you make arguments and analyze people's reasoning? **SMP 3**

LISTEN FOR When I disagree with someone's idea, I listen carefully to what they are saying. I also need to explain what I think and give reasons why.

STEM Stories

Spotlight On

Lewis Latimer

Lewis Latimer (1848–1928) was an inventor. He developed his own inventions and worked with other well-known American inventors. He contributed to inventions, including the telephone and electric lighting, that dramatically changed people's lives.

Lewis Latimer was born near Boston. Before he was born, his parents had escaped from slavery. Lewis attended school as a child and also worked hard to learn new skills and help support his family.

Lewis was only 16 when he joined the Navy and fought for the Union during the Civil War.

After the war, Lewis worked as an assistant at a law firm specializing in patents. A patent says who owns a new invention. Skilled draftsmen used special tools to make mechanical drawings of those new inventions. Lewis worked hard to teach himself mechanical drawing. He did so well that he was soon a draftsman.

Connect to Culture

► Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.

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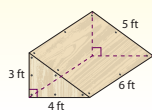
UNIT 3 | STEM Stories 276

DISCUSS IT

continued

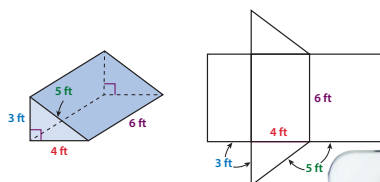
Explore different ways to find the surface area of a three-dimensional figure.

After visiting the skate park in Arcata, California, Oliver decides to build his own ramp with plywood. Three sides of the ramp are rectangles. How many square feet of plywood does Oliver need to build the ramp?

**Picture It**

You can draw a net to help you find the **surface area** of a three-dimensional figure.

The ramp has two triangular bases and three rectangular faces. Label the net with the dimensions from the triangular prism.

**Model It**

You can write an expression to find the surface area of a three-dimensional figure.

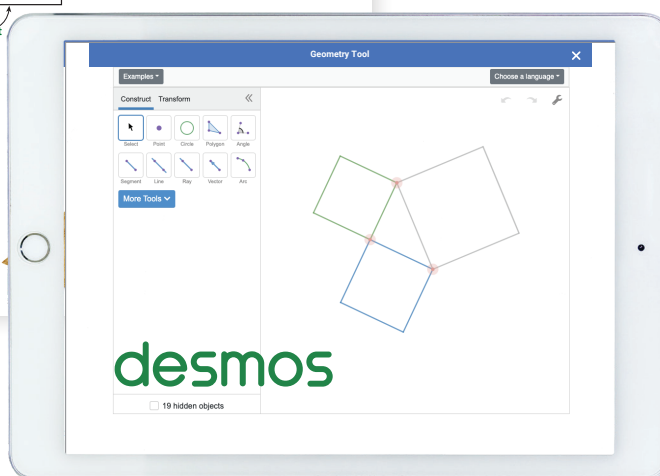
Use area formulas to write an expression for the sum of the areas of the faces.

$$\frac{1}{2}(4 \cdot 3) + \frac{1}{2}(4 \cdot 3) + (3 \cdot 6) + (4 \cdot 6) + (5 \cdot 6)$$

$$2\left(\frac{1}{2}(4 \cdot 3) + 6(3 + 4 + 5)\right)$$

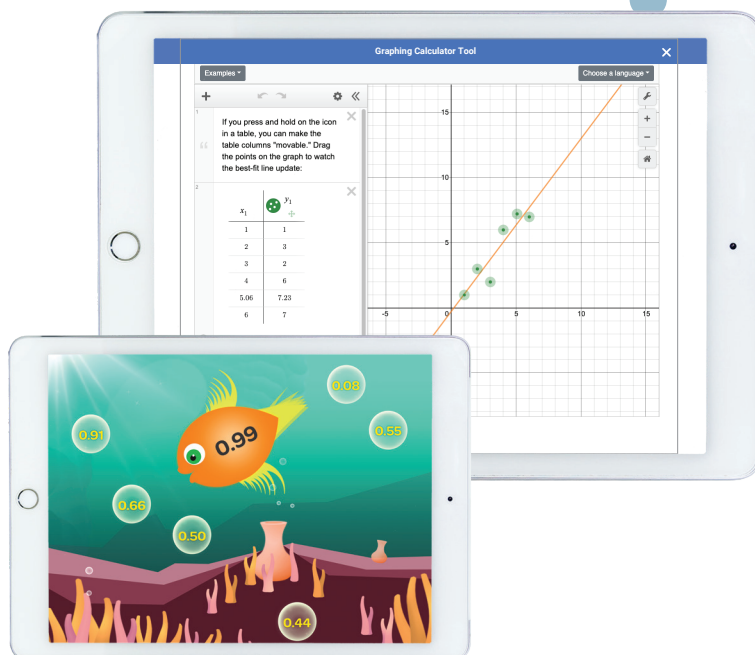
Principle 2: Design Multiple Means of Representation

- Options for language and symbols, like those in Picture It and Model It, are used in class discussion to support understanding.
- Comprehension options include leveraging unitwide Big Ideas, activating prior knowledge, and encouraging sensemaking in problem solving.
- Manipulatives and digital accessibility features, such as the Student Bookshelf and Interactive Practice, reduce learning barriers.



Principle 3: Design Multiple Means of Action and Expression

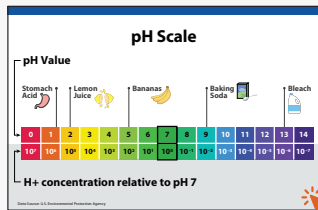
- Expression and communication options, like mathematical manipulatives and virtual tools, enable students to show their knowledge and skills.
- Problems like Try It empower students to see there are many ways to solve a problem.
- Options for interaction like keyboard navigation and digital components enable all students to participate.



Inspire Curiosity with Engaging Data Experiences

Develop data literacy through engaging, real-world activities that enable students to apply and strengthen grade-level mathematics.

START DEVELOP DATA LITERACY



DATA TALK
Ask students what they notice and wonder. See Slide Notes.

Background

A solution's pH value tells whether it is neutral, acidic, or basic. Pure water is neutral with a pH value of 7. Each change in the pH value is tenfold, so 4 on the pH scale is 10 times more acidic than 5 and 100 times more acidic than 6.

WHY? Support students in using their understanding of exponent properties to interpret a display.

Data Talks

- The content of the lesson ties directly to Data Talks, five- to 10-minute activities during which students explore data, develop data literacy, and apply skills to grade-level content.
- Students work with data graphs, charts, maps, and plots to interpret trends, make observations, and critique displays.

Start Data Talk

pH Scale

pH Value

Stomach Acid, Lemon Juice, Bananas, Baking Soda, Bleach

What do you notice?
What do you wonder?

→ Look at the data display on the next slide.

H+ concentration relative to pH 7

Start Data Talk

Image Source: iStockphoto/Shutterstock

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Start Data Talk

pH Scale

pH Value

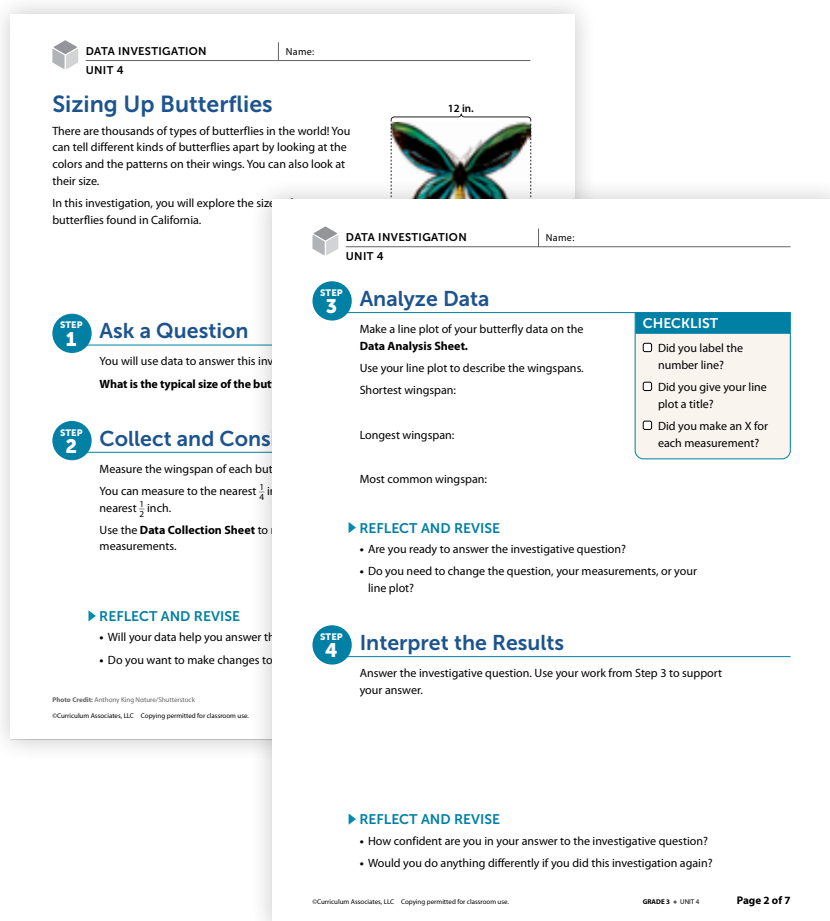
Stomach Acid, Lemon Juice, Bananas, Baking Soda, Bleach

H+ concentration relative to pH 7

Data Source: U.S. Environmental Protection Agency

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Data Talk slides are provided to prompt student discourse at the beginning of the lesson.



Strengthen grade-level mathematics and Standards for Mathematical Practice with Data Investigations.

Data Investigations

- Flexible implementation gives teachers choice.
- For a deeper dive into data, Data Investigations are two-day activities that seamlessly tie to the mathematical content presented in the unit.
- Simplify or extend different parts in the Investigation to meet the needs of the class and coincide with pacing.

A Four-Step Statistical Problem-Solving Process

Each Data Investigation encourages students to use a statistical problem-solving process.

STEP 1

Ask a Question

Students ask or make sense of an investigative question they will explore.

STEP 2

Collect and Consider Data

Students collect or access data that will help them answer their question.

STEP 3

Analyze Data

Students organize and display their data.

STEP 4

Interpret the Results

Students answer the investigative question.

All California Students Are Math Language Learners

All students, including English Learners, get the support they need to engage with rigorous content.



LESSON 13 Overview | Solve Systems of Linear Equations Algebraically

CALIFORNIA STANDARDS
Math Focus
8.EE.8 Analyze and solve pairs of simultaneous linear equations.
b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.
See Unit 3 Overview for developing and applied standards.
SMP 1–8 are embedded in Try Discuss Connect. See page 11.
SMP 3, 4 and 7 have targeted support.

ELD Support
ELD.PI.8.1, ELD.PI.8.2, ELD.PI.8.5, ELD.PI.8.6a, ELD.PI.8.6c, ELD.PI.8.7, ELD.PI.8.8, ELD.PI.8.10, ELD.PI.8.12a, ELD.PI.8.3, ELD.PII.8.4

Objectives
Content Objectives

- Estimate the solution of a system of linear equations by graphing.
- Use substitution and elimination to solve systems of linear equations.
- Determine whether a system of linear equations has one solution, no solution, or infinitely many solutions.
- Identify efficient ways to solve a system of linear equations.

Language Objectives

- Justify solutions for systems of linear equations by referring to graphs and checking if solutions are reasonable.
- Respond to clarifying questions about the processes of substitution and elimination during partner and class discussions.
- Explain why systems of linear equations have one, infinitely many, or no solutions using precise mathematical language.
- Evaluate methods of solving a system of equations using lesson vocabulary when

Vocabulary
Review
coefficient
by a variable.
system of linear
related equations
makes all the
true. A system
zero, one, or
Academic: Ten
algebraically
variables and to
eliminate to
substitution to
one thing with

Learning Progression
Earlier in Grade 8, students graphed linear equations and rewrite them in slope-intercept form.
In the previous lesson, students learned about systems of linear equations. They graphed both equations of a system and identified any points of intersection. They determined whether a system had zero, one, or infinitely many solutions by graphing and by considering the values of m and b in the slope-intercept form of the equations.
In this lesson, students will use the substitution and elimination methods to solve systems of linear equations. They will understand how the graph of a system can help them estimate the solution before finding the exact solution algebraically. They will recognize that when an algebraic solution leads to an equation that is never true, the system has no solution, and when it leads to an equation that is always true, the system has infinitely many solutions.
Later in Grade 8, how to write is to model both real-world problems apply the skills solve the system

293a LESSON 13 Solve Systems of Linear Equations Algebraically ©Curriculum Associates, LLC Copying is not permitted.

Language Objectives

- Language Objectives** are tied directly to the mathematics Content Objectives.
- They address the four domains of language students will understand and use (i.e., listening, speaking, reading, writing) to meet the mathematical objectives.
- Language-related features and resources address the California English Language Development (ELD) Standards and scaffold instruction to support English Learners.

Objectives

Content Objectives

- Estimate the solution of a system of linear equations by graphing.
- Use substitution and elimination to solve systems of linear equations.
- Determine whether a system of linear equations has one solution, no solution, or infinitely many solutions.
- Identify efficient ways to solve a system of linear equations.

Language Objectives

- Justify solutions for systems of linear equations by referring to graphs and checking if solutions are reasonable.
- Respond to clarifying questions about the processes of substitution and elimination during partner and class discussions.
- Explain why systems of linear equations have one, infinitely many, or no solutions using precise mathematical language.
- Evaluate methods of solving a system of equations using lesson vocabulary when speaking and writing.
- Listen for understanding by asking clarifying questions or requesting more information during partner and class discussions.

Build Academic Vocabulary asks students to assess prior knowledge, pronounce, define, and use the vocabulary in the lesson.

DEVELOP ACADEMIC LANGUAGE

WHY? Analyze how adverbial phrases add details to sentences.

HOW? Read Apply It problem 4, emphasizing the adverbial phrases *in the garden*, *in slope-intercept form*, and *in this situation*. **SAY:** Phrases like these give details about where, how, and when something is done. Help students determine the kind of detail each phrase provides (where, how, or when). Encourage them to use the adverbial phrases when they write their answers.



ELD.PI.8.2, ELD.PII.8.5

- Develop Academic Language** for all students at the word, sentence, or discourse level.
- Focus can be on multiple-meaning words, affixes, word families, irregular verbs, unpacking and constructing complex sentences, and conversation tips.

1 Assess prior knowledge.

- Present the words or phrases. Assess prior knowledge by asking students to rate their knowledge of each term.
- Provide a scale and ask students to write or signal their rating of each word:
 - Never heard it.
 - Not sure what it means.
 - Have an idea about what it means.
 - Know what it means and can use it.
- If students are speakers of Spanish or other Latin-based languages, use the Cognate Support routine.

2 Pronounce the words.

- Say each term and have students repeat it.

3 Define the words.

- Ask students to share the meanings of terms they know. Note which terms need more instruction or modeling.
- Model using the terms in familiar contexts.
- Provide the meaning of the terms. See the Academic Vocabulary Glossary on the Teacher Toolbox.

4 Use the words.

- Have students write the terms with descriptions or examples and a picture or graphic representation.
- Encourage students to use the terms in writing and discussion during the lesson and unit.

Cognate Support Routine

- Ask students to identify terms that look or sound similar to words in their home language.
- Check to see if the identified terms are cognates.
- Write the cognates and have students copy them next to the English terms.
- Pronounce the English term and its cognate or ask a volunteer to do so. Have students repeat.

Supports for Community: Try–Discuss–Connect incorporates UDL principles to give every student a voice and the opportunity to engage with the content in a way that is meaningful to them.

 Try It	 Discuss It	 Connect It
Action and Expression: Students make sense of the problem in a way that engages their identity and honors their prior experience, community, and individuality.	Representation: Partner and whole class discussion place value on students' ideas and contributions.	Engagement: Students make connections to strategies, the underlying mathematics, and each others' thinking and ideas.

Language Routines, Teacher Moves, and Classroom Conversation Tips promote:

- Collaboration and social interaction
- Language use for a mathematical purpose
- Meta-linguistic awareness

Connect to Language: Differentiation to Support English Learners

- Every session includes a support continuum of English proficiency levels, focused on California ELD Standards.
- Encourage scaffolding up.
- Differentiation speaks to specific lesson content and provides guidance for specific activities.

DIFFERENTIATION | ENGLISH LEARNERS
Use with Session 1 Connect It

ELD.PI.8.1 Exchanging information/ideas. **ELD.PI.8.6a** Reading/viewing closely. **ELD.PI.8.12a** Selecting language resources

Emerging: Reading/Speaking	Expanding: Reading/Speaking	Bridging: Reading/Speaking	MATH TERM
Support understanding and discussion of Connect It problem 2c. Display the Math Term and Academic Vocabulary. Read the first sentence of the problem. Ask: <i>What describes the rate of change? Ask students to complete: unit rate = ____.</i> Read the second sentence. Ask: <i>What does the rate of change equal?</i> Have students complete: <i>rate of change = ____.</i> Have students point to the changes on the graph. Display and chorally read: <i>unit rate = rate of change = quotient of the vertical change and the horizontal change = slope.</i> Support students to define slope. Check for understanding of quotient.	Have students turn to a partner to read and discuss Connect It problem 2c. Display the Math Term and Academic Vocabulary. Suggest students use the terms as they talk about the problem. Ask: <i>What does the first sentence tell you about unit rate and rate of change? What does the second sentence tell you about rate of change? What does the third sentence tell you about rate of change?</i> Have students describe slope using the displayed terms and vocabulary. Monitor to ensure that partners clarify that the quotient of means that there is division involved.	Have students read Connect It problem 2c. Display the Math Term and Academic Vocabulary. Have students use the math term and vocabulary and the words <i>unit rate</i> , <i>rate of change</i> , <i>quotient of vertical change</i> and <i>horizontal change</i> , and equals to make a graphic organizer for the word slope. Then have them use the words and phrases to orally explain slope to a partner using complete sentences. Monitor as students discuss. Highlight and repeat strong uses of vocabulary and sentence structures.	MATH TERM <i>Rate</i> is a ratio that tells the number of units of one quantity for 1 unit of another quantity. ACADEMIC VOCABULARY <i>Vertical</i> means up and down. <i>Horizontal</i> means side to side.

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LESSON 8 Graph Proportional Relationships and Define Slope 187–188

Build Academic Language for All Students: Describe

This chart is an example of how to help students progress from everyday to academic language. Use with the Academic Language Focus and Formative Assessment Resources.

LESSON 18 EXAMPLE PROGRESSION

LANGUAGE OBJECTIVE: Describe graphs of functions in speaking and writing using the terms *increasing*, *decreasing*, *constant rate*, and *varying rate*.

Sample Everyday Language

The line goes up in the first part really high, so that means running fast. Then the line goes straight across. That's resting. Then the line goes back down, but more like a ramp, so that's jogging home.

Academic Language Targets

- Identify which part of the graph you are describing using phrases, such as *in the first section*, *at first*, and *finally*.
- Use detail words to describe graph changes, including *varying*, *constant*, *gradual*, and *steep*.
- Tell what you see and what it means: *In section ____, the graph ____ at a ____ rate, which represents ____.*

Guidance by Session

- 1: Review terms to describe changes on graphs using EL Differentiation.
- 2: Practice ways to interpret graphs and describe change using EL Differentiation and close reading of Analyze It.
- 3: Have students identify and collect useful descriptive language. Invite suggestions.
- 4: Expect and validate strong descriptions in Apply It problem 1.

Build Academic Language for All Students highlights one lesson Language Objective and shows how teachers can help students bridge everyday language to academic language over the course of lesson activities.

Academic Language Focus Resources and Formative Language Assessment

- Each unit has an Academic Language Focus, such as Explain, Compare, or Justify.
- Students learn the focus, then practice and get feedback on their progress.
- Teachers can use the Formative Language Assessment Recording Sheet to monitor progress.



ACADEMIC LANGUAGE FOCUS UNIT 1 • EXPLAIN

Academic Language Focus: Explain

In this unit, students **explain** how to use place value to round and to add and subtract three-digit numbers.

How to EXPLAIN in Unit 1

- Use terms about place value like *ones*, *tens*, *hundreds*, *place*, *break apart*, and *regroup* so that listeners or readers know exactly what is meant.
- Tell each step in a solution in order. Use connecting words like *first*, *next*, *then*, *last*, and *finally* to help the listener or reader understand what to do.
- Refer to a model or math work to help make the explanation clear.

Sample Academic Language

First, find the two text the number falls between. Then find the halfway number. If the number you are rounding is equal to or greater than the halfway number, round to the greater ten. If your number is less than the halfway number, round to the lesser ten.

Culturally and Linguistically Responsive Mathematics

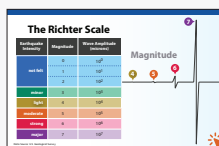
Validate and affirm students' cultural connections, experiences, and aspirations by integrating them into the instruction so students see themselves in the mathematics.

Celebrate the Student

Problems, activities, and images make mathematics relevant to California students as they see themselves and their classmates in the content.



START DEVELOP DATA LITERACY



DATA TALK
Ask students what they notice and wonder. See Slide Notes.

Background

A seismograph records earthquake vibrations as waves. The Richter scale measures the amplitude of these waves to determine the earthquake's magnitude. Each whole number increase on the scale represents a tenfold increase in magnitude.

EP&C 4 Opportunity

WHY? Support students understanding of exponents on a display.

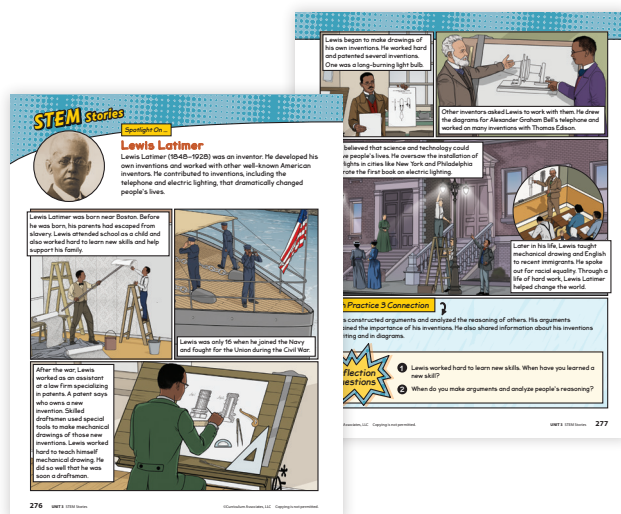
EP&C 4 Opportunity

WHY? Support students in using their understanding of exponents to interpret a display.

California's Environmental Principles and Concepts (EP&Cs):

- Emphasize the close relationship between humans and the natural environment
- Appear in every lesson, giving students the opportunity to explore and apply them

STEM Stories inspire students to learn about mathematicians from different backgrounds and highlight the Standards for Mathematical Practice that were modeled in the story.



Connect with Home Language

The **Cognate Support** routine at the start of each unit encourages English Learners to use their first language so they can make associations to academic words.

Cognates for Academic Vocabulary in Unit 1

ACADEMIC WORD	SPANISH COGNATE	ACADEMIC WORD	SPANISH COGNATE
analyze	analizar	reasoning	razonamiento
constant	constante	relate to	relacionado con
corresponds to	corresponder a	represent	representar
identical	idéntico(a)	strategy	estrategia
in common	en común	substitute	sustituir
model (n)	modelo	vertical	vertical
quantity	cantidad		

Connect to Culture

Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.

SESSION 1

Try It If any student has a skateboard, ask them to describe it. As a result of advanced technology and art, skateboards have transformed from plain boards with wheels to numerous unique designs. Now, the millions of people who skateboard have a great number of designs to choose from, each one reflecting their individual creativity. Ask students what design they would choose if they were to design their own skateboard.

SESSION 2

Try It Acoma (ACK-uh-muh) Pueblo is a pueblo in New Mexico known for its pottery. A pueblo is a settlement often made up of homes made from wood and a type of clay called adobe. The Acoma Pueblo has a unique type of clay that allows for their pottery to be thin, yet strong. The houses are made up of about 30% clay, while the pottery is almost all clay. Ask students to imagine what climate and land conditions would need to exist to live in a house partially made of clay.

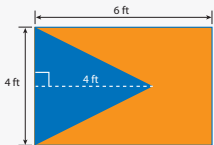
Apply It Problem 4 State parks in the United States are areas dedicated to preserving the natural beauty of the earth. They may contain forests, beaches, lakes, specific wildlife, and many other things. Make a quick list of state or local parks in the area that students know of. Discuss the ways parks are designed to preserve the natural environment. Ask students who have visited a park to describe one part of the park that they enjoyed.

SESSION 4

Apply It Problem 8 Flags for countries around the world are often made of different geometric shapes. Most flags are rectangles and have different designs on them. Only one country's flag is not a rectangle: Nepal's. Japan's flag has a circle, Jordan's flag has a triangle, and Saba's flag has a parallelogram. Ask students to describe the geometric shapes used in the flag of a country of their choice.

Connect to Culture

Use these activities to connect with and leverage the diverse backgrounds and experiences of all students. Engage students in sharing what they know about contexts before you add the information given here.



Connect to Culture invites students to share their own experiences to connect the mathematics to their own lives.

Protocols for Engagement use cultural communication modes while structuring activities to welcome all students' participation.

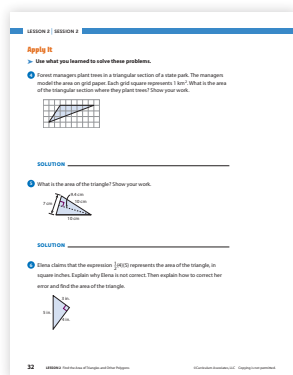
Protocols for Engagement	Where in Lesson	Validates
Call and Response Teacher calls and students respond. For example, "I say 'READY SET,' you say 'YOU BET!'"	To start class and/or bring students back together after breakout work	group identity, connectedness
Somebody Who Use a random identifier (e.g., has a pet) and invite the identified students to stand. Each one shares their response to a question.	Session 2 Connect It: Facilitate Whole Class Discussion	socio-centric, spontaneity
Give One, Get One Students mingle to find a partner and then give an idea and get an idea.	Session 3 Try It: Model it	social interaction, movement, shared responsibility

Practice That's Just Right

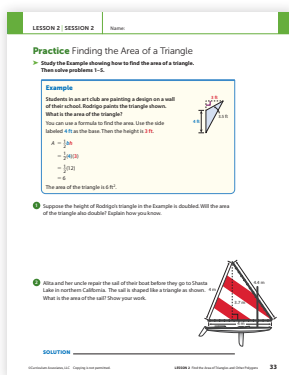
Robust practice options, digitally and in print, means all students have the right practice with the rigor of the California Common Core State Standards for Mathematics for deep conceptual understanding and procedural fluency.

Lesson-Level Practice Opportunities

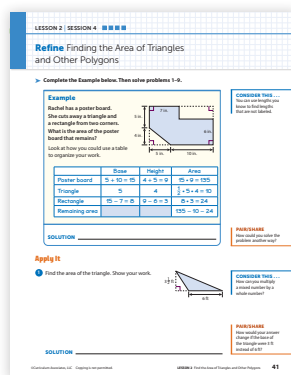
Student Worktext



Apply It Problems



Additional Practice

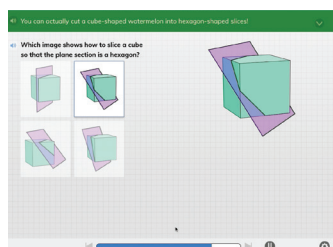


Refine Sessions

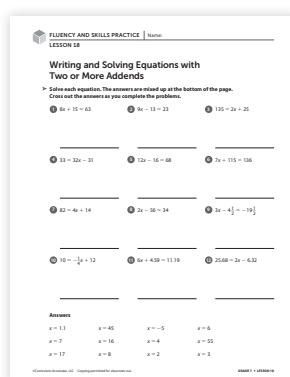
Apply It problems are found in every lesson and encourage students to solve the problems flexibly using any strategy.

Additional Practice appears in every session. Students build proficiency with the strategies learned in class and apply those ideas to answer critical-thinking questions and new problems.

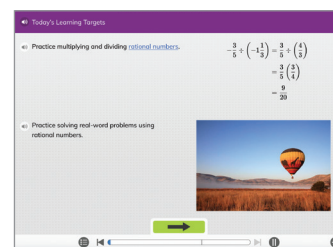
Teacher Digital Experience



Assignable Interactive Practice



Fluency and Skills Practice



Personalized Instruction

Interactive Digital Practice

is assignable and auto-graded digital practice that reinforces understanding. Teachers receive performance reports, while students receive immediate, meaningful feedback to keep them on track.

Fluency and Skills Practice

is an optional targeted practice that uses patterns and repeated reasoning to build mathematics skills. Available as a student workbook or as PDFs on the Teacher Toolbox.

Personalized Instruction

is an **optional add-on** that provides lessons designed to accelerate growth and grade-level learning.

Unit-Level Practice Opportunities

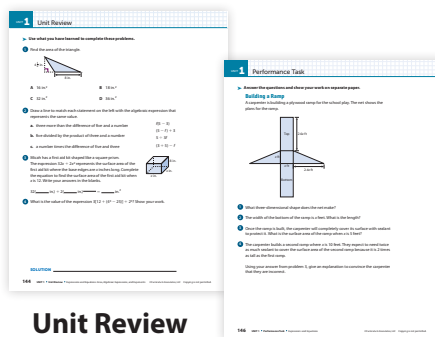
Teacher Digital Experience



Unit Games

Unit Games are a fun way to review unit content.

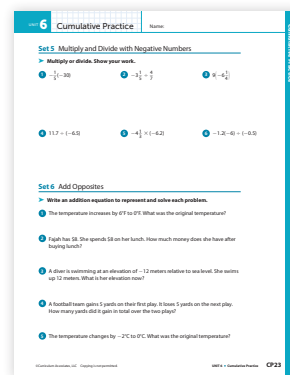
Student Worktext



Unit Review

Performance Tasks

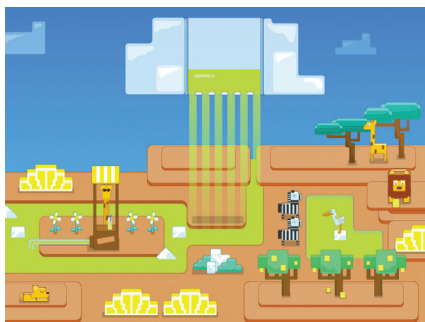
Performance Tasks are problems that tie to Depth of Knowledge levels, the California standards, and the CAASPP and its claims.



Cumulative Practice

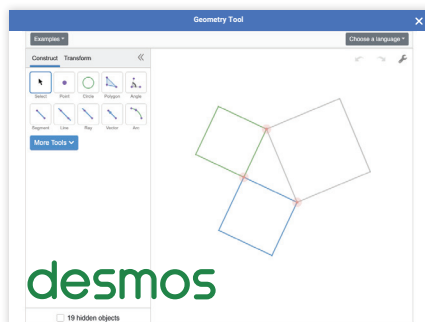
Spiral Review and Cumulative Practice is available in every unit. Students revisit previously learned content to deepen their understanding and retention.

Practice Opportunities for Any Time



Learning Games

Learning Games offer a multisensory approach to engaging students in fluency practice in a low-stakes setting.



Desmos Quick Connects

Desmos Quick Connects give students access to the online graphing and scientific calculators, as well as geometry tools, to explore concepts and deepen understanding.

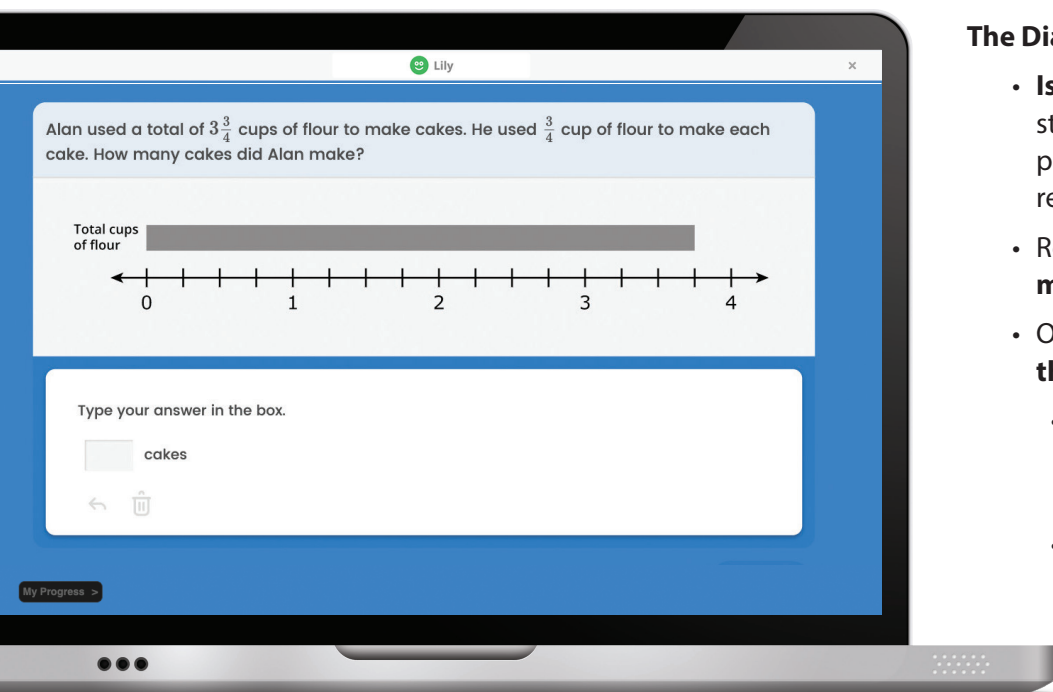
Additional Tools:

- Base-Ten Blocks
- Counters and Connecting Cubes
- Perimeter and Area
- Multiplication Models
- Fraction Models
- Number Line

See What They Know

Classroom Mathematics California includes print and digital assessments to understand student learning and inform next instructional steps, including differentiation.

Assess Prerequisite Skills

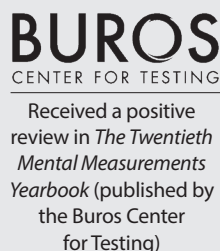


The Diagnostic, a prerequisite screener:

- **Is online, adaptive,** and pinpoints students' strengths while addressing prerequisites efficiently with curated resources
- Replaces unit assessments, which means **more time for teaching**
- Offers validity and reliability **vett**ed by **third parties**
 - **Criterion referenced:** Compare students' performance against the standards.
 - **Norm referenced:** Compare students' performance to other students.

State and Nationally Recognized

Numerous third parties have deemed the Diagnostic as a valid and reliable academic screener and progress monitoring tool.



Accelerate Learning for All Students

The Grade-Level Planning (Prerequisites) report helps you understand every student's needs as related to upcoming grade-level lessons.

- 1 Learning Progression:** Understand the progression of standards going back two-plus years.
- 2 Whole Class Guidance and Pacing Support:** Integrate and scaffold prerequisite skills into the grade-level content scope and sequence.
- 3 Small Group Resources:** Address specific in-depth needs with targeted resources for teacher-led, partner, and independent activities.

Grade-Level Planning (Prerequisites)

Subject: Math | Class/Report Group: I. Graves - Grade 4, S... | Grade: 4

Unit: Unit 3 (Lessons 14–16)

Know the Math: Classroom Mathematics California | Major themes of unit

Unit Overview

Unit 3: Multi-Digit Operations and Measurement: Multiplication, Division, Perimeter and Area
In Lessons 14–16 of this unit, students use what they know about place value, multiplication, and division to divide three- and four-digit numbers by one-digit divisors. They will also build on the...

[+ Show More](#)

[Unit Flow and Progression \(03:23\)](#)

1 Learning Progression

Identify Class Prerequisite Needs

Group	3	6	8	3
Group A	3	6	8	3
Group B	3	6	8	3
Group C	3	6	8	3
Group D	3	6	8	3

Unit Group A Understand Grouping 3 Students
Unit Group B Understand Grouping 6 Students
Unit Group C Understand Grouping 8 Students
Unit Group D Understand Grouping 3 Students

Maximize Whole Class Instruction
Focus on grade-level instruction, integrating On-the-Spot Teaching Tips to support students' connections to prerequisite skills. As needed, use the Recommended Resources to provide additional support for addressing prerequisite content ahead of upcoming lessons.

[View All Students](#)

[Unit and Lesson Support \(On-the-Spot Teaching Tips\)](#)
[Yearly Pacing for Prerequisites](#)

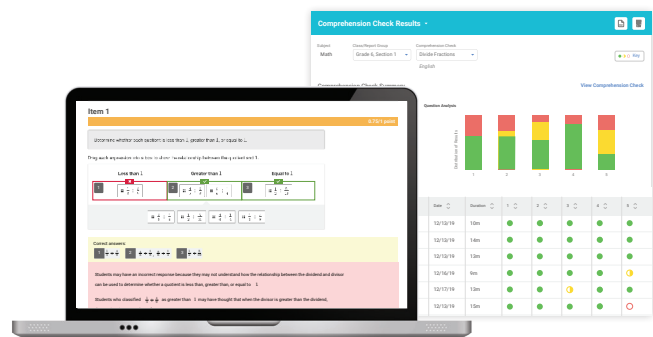
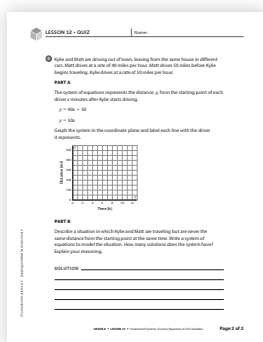
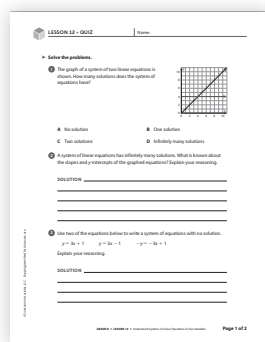
Prerequisite Skills for Upcoming Instruction
As you plan upcoming instruction, consider recommended resources for prerequisite skills while maintaining pace with grade-level instruction.

Lesson 14: Divide Three-Digit Numbers
Lesson 15: Divide Four-Digit Numbers

3 Understand the relationship between multiplication and division
(Priority Prerequisite Skill)

[View Resources](#)

Assess Student Understanding and Monitor Progress



Paper/Pencil Lesson Quizzes and Unit Assessments

- Download as PDF or editable Microsoft Word® document.
- Assign resources to Google Classroom or any learning management system (LMS).

Comprehension Checks

- Comparable to Lesson Quizzes and Unit Assessments
- Assign premade version or customize to add/remove questions.
- Auto-graded; provides instructional next steps

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Differentiation

Classroom Mathematics California integrates UDL principles to create instructional goals, methods, materials, and assessments that work for differentiating instruction for all students.

Grade-Level Planning (Prerequisites)

Subject: Math | Class/Report Group: I. Graves - Grade 4, S... | Grade: 4

Unit: Unit 3 (Lessons 14–16)

Know the Math: Classroom Mathematics California
Unit Overview

Unit 3: Multi-Digit Operations and Measurement: Multiplication, Division, Perimeter and Area
In Lessons 14–16 of this unit, students use what they know about place value, multiplication, and division to divide three- and four-digit numbers by one-digit divisors. They will also build on the...

+ Show More

Unit Flow and Progression (03:23) | Learning Progression

Identify Class Prerequisite Needs

Group	Students	Prerequisite Skill
Group A	3	Unit Group A: Understand Grouping
Group B	6	Unit Group B: Understand Grouping
Group C	8	Unit Group C: Understand Grouping
Group D	3	Unit Group D: Understand Grouping

View All Students

1 Unit and Lesson Support
On-the-Spot Teaching Tips suggest additional scaffolding to accelerate learning as needed.

2 Yearly Pacing for Prerequisites
provides guidance on when and how to use Prerequisite Lessons to more thoroughly address unfinished learning throughout the year.

3 Embedded Recommended Resources

Save time searching for small group resources to maintain pace with on-grade level instruction.

Grade-Level Planning (Prerequisites)

← Back

Recommended Resources for Prerequisite Skill:
Understand the relationship between multiplication and division (Priority Prerequisite Skill)

Supporting: Lesson 14: Divide Three-Digit Numbers, Lesson 15: Divide Four-Digit Numbers, (Grade 4, Unit 3)

View Resources: All Students

3 6 8 3
Group A Group B Group C Group D

Prerequisite skill learning progression for Lessons 14, 15

Grade 3: Understand the Meaning of Division (Lesson 10) → Grade 3: Understand How Multiplication and Division Are Connected (Lesson 11) (Priority Prerequisite Skill)

Teacher-Led Small Groups

Solve Problems Involving Equal Shares | Relate Multiplication and Division

Student-Led Small Groups

Understand How Multiplication and Division Are Connected

Center Activity: Use Related Fact | Find the Missing Number

Observe and Evaluate Student Understanding Using:

LESS FORMAL

Start Activities
Try–Discuss–Connect
Framework
Language Routines
Hands-On Activities

Self-Check
Practice
Exit Ticket
Big Ideas Organizer
Formative Language
Assessment

MORE FORMAL

Grade-Level Planning (Prerequisites)
Comprehension Checks
Lesson Quizzes
Mid-Unit Assessments
Unit Assessments

Formal and informal assessment options gather data that will inform differentiation.

Differentiate during a Session

Yellow boxes in the Teacher's Guide provide differentiation at point of use.

LESSON 2 | SESSION 2

DISCUSS IT *continued*

Explore different ways to find the area of a triangle.

Maria's class is painting a mural on a school wall. Staff at an Acoma cultural center help Maria copy an Acoma Pueblo pottery design to use in the mural.

Maria draws her design on 1-centimeter grid paper. She begins with one of the triangles. What is the area of Maria's triangle?

Model It

You can find the area of a triangle by decomposing it into two right triangles. Think of each right triangle as one half of a rectangle.

Write an expression for the area of Maria's triangle.

$$\frac{1}{2}(2 \cdot 4) + \frac{1}{2}(6 \cdot 4)$$

Model It

You can find the area of a triangle by composing the triangle with a copy of itself to form a parallelogram.

The area of the triangle is half the area of the parallelogram.

$$A = \frac{1}{2}(8 \cdot 4)$$

DIFFERENTIATION | EXTEND



Deepen Understanding

Using Structure to Relate a Triangle to a Parallelogram

SMP 7

Prompt students to think about how a figure that they do not know an area formula for can be transformed into a figure with a known area formula.

ASK How is the triangle in the second Model It arranged with its copy? Why is the triangle arranged with its copy this way?

LISTEN FOR The longer unknown sides of the triangles are matched to form a parallelogram. By aligning these two sides, the base and height of the parallelogram can be determined.

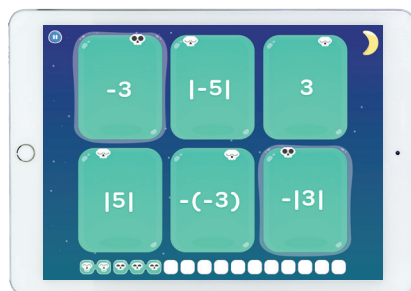
ASK Can the triangle be arranged with its copy in any other way? Would other methods of composition be helpful?

LISTEN FOR The shorter unknown sides can also be matched and the base and height of the resulting parallelogram can be determined. A parallelogram can also be formed by matching the 8-cm sides, but that would not be helpful because the length of the base is not known.

Generalize Encourage students to describe how the same ideas apply to the composition strategy shown in the first Model It.

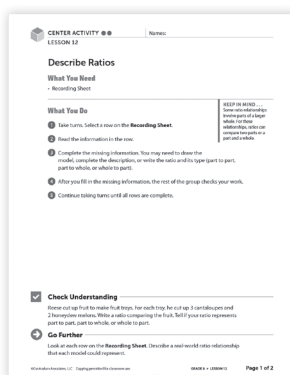
Differentiate after a Lesson

Examples include:



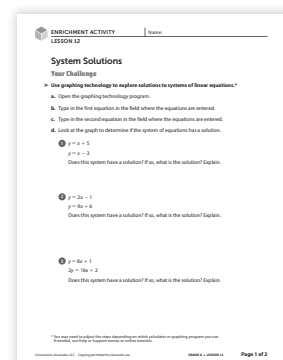
Independent Reinforcement

Learning Games offer fun, challenging, and personalized practice and help students develop a growth mindset.



Differentiated Math Center Activities

Differentiated Math Center Activities are collaborative games that reinforce concepts and skills.

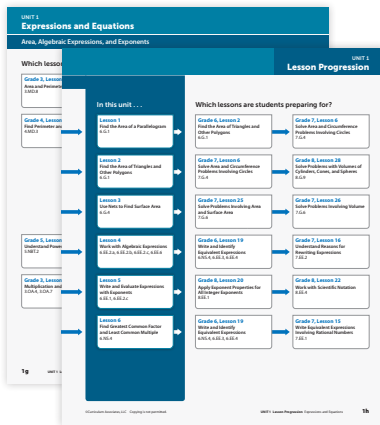


Extension

Enrichment Activities challenge students with higher-order thinking tasks and often incorporate technology options, like the Digital Math Tools powered by Desmos.

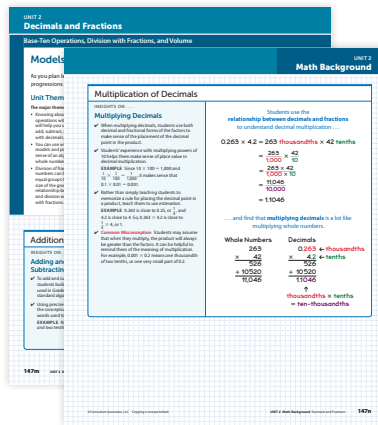
Support That Works for You

Find a range of professional learning materials, both in print and digitally, to enrich instruction for a wide range of learners.



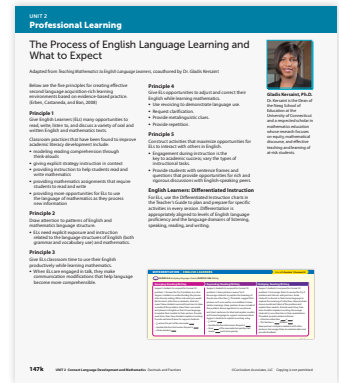
Lesson Progression

See the progression of previous, current, and future lessons to help students develop conceptual understanding.



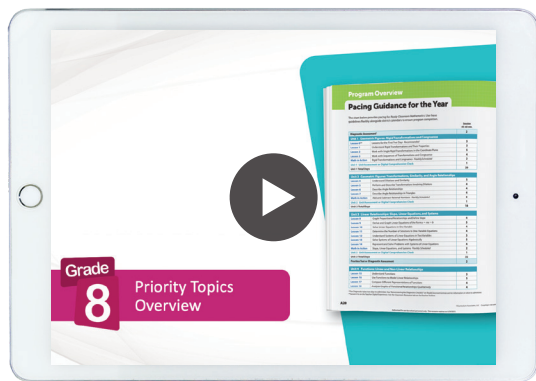
Math Background

Review the Mathematical Models and Strategies used in the unit to better understand how models fit into the learning progression.



Professional Learning

Each unit provides a different professional learning article with guidance and support for teachers.

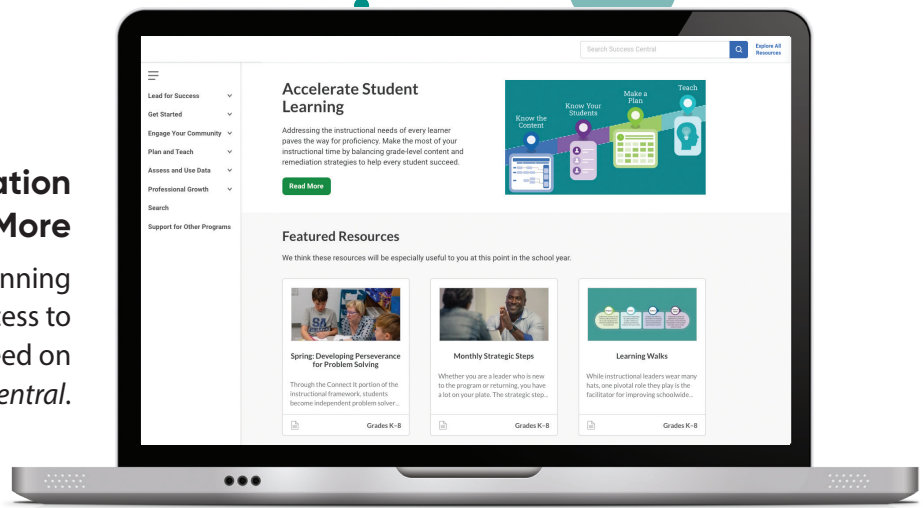


Pacing Video Series

Stay on track to deliver all grade-level content by the end of the year.

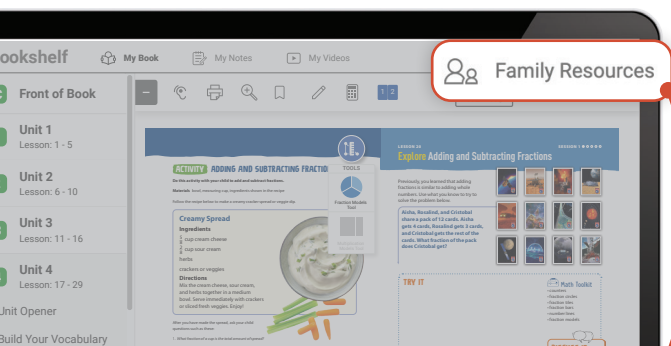
Implementation Guidance and More

From how-to tips to planning tools, get on-demand access to everything teachers need on *i-Ready Success Central*.



Empowering Families to Support Students at Home

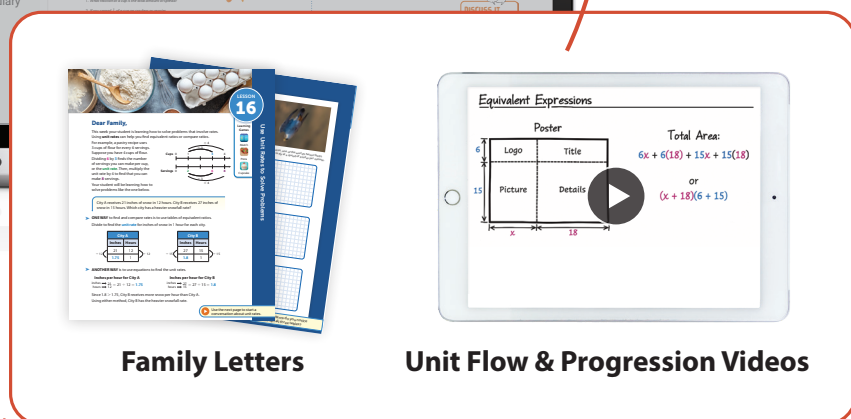
Give families the resources at home to extend learning beyond the classroom.



Resources to Help Teachers Engage Families

Find resources on Success Central that make family communication easier, including:

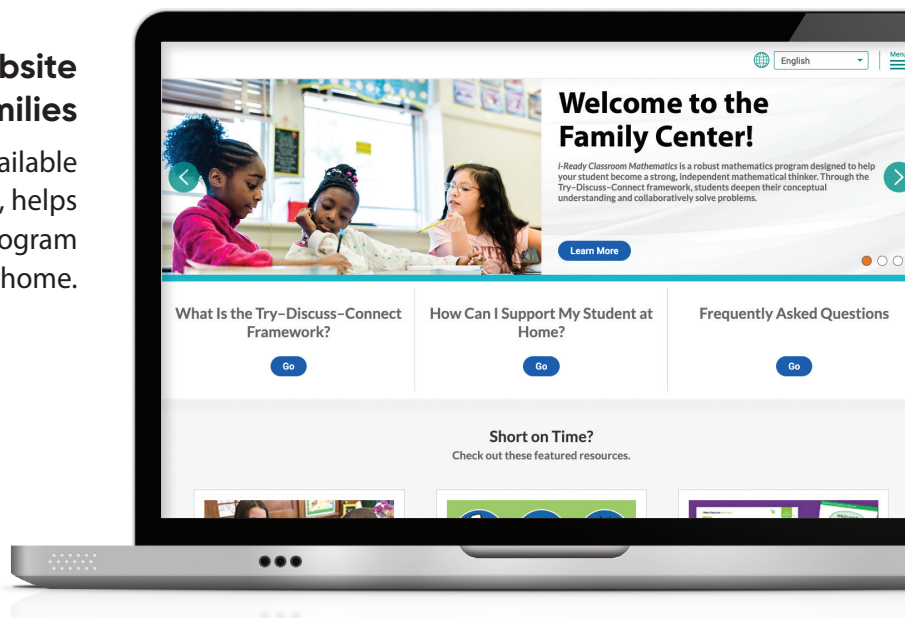
- **Introduction Letter:** Introduce families to the curriculum.
- **Family Night Presentation:** Give families an overview of the program.



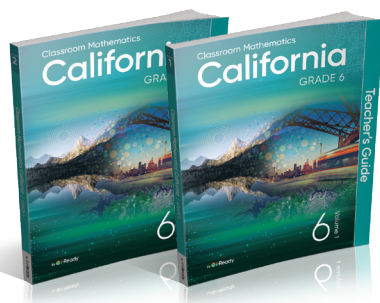
- The **Family Resources tab** on the Student Bookshelf, where online access for student resources can be found, has **Family Letters** in nine languages for every lesson that describe the mathematics being learned in family-friendly terms and offer an activity related to the lesson.
- The **Unit Flow & Progression Videos** help families support their student with the ideas and concepts taught in the curriculum. Closed captioning is available in English and Spanish.

Support Website Dedicated to Families

The Family Center, available in English and Spanish, helps families explore the program and provide support at home.



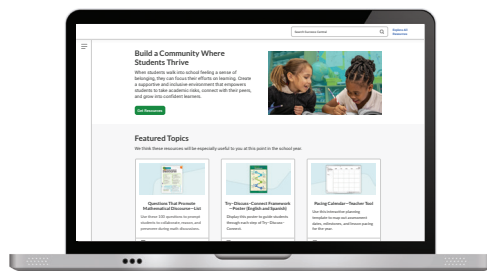
Teacher Components



Volumes
1 and 2

Teacher's Guide E/S

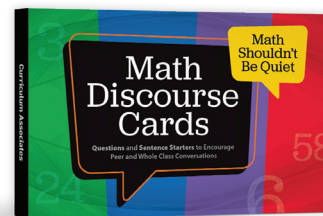
Two volumes include discourse-based instructional support, math background, and embedded professional learning.



Anytime Professional Learning

Success Central, the implementation support site, provides:

- Training videos
- Planning tools
- Implementation tips
- Whitepapers
- Discourse support E/S
- Digital courses



Discourse Cards E/S

Questions and sentence starters prompt meaningful mathematics conversations.

Teacher Digital Experience includes:

Teacher Toolbox

- Interactive Tutorials E/S
- Desmos Quick Connects
- Presentation slides E/S
- Fluency and Skills Practice** E/S
- Math Center Activities E/S
- Tools for Instruction E/S
- Enrichment Activities E/S
- Print assessment resources E/S
- Assessment Practice Book E/S (also available in print)
- Unit Flow & Progression Videos*
- Literacy Connections E/S
- Learning Games and Unit Games E/S
- Data Investigations E/S
- Digital Tools powered by Desmos E/S

E/S = Available in English and Spanish

*Closed captioned in English and Spanish

**Fluency and Skills Practice available as a student workbook for additional purchase

Interactive Practice and Report E/S

- Assignable online practice provides students with immediate, meaningful feedback.
- Report shows student performance.

Learning Games Reports

- Identify playtime breakdown for each game for a selected time interval.
- See a real-time snapshot of performance on the standards.
- Track students' choices with respect to content that is challenging for them:
 - Growth Mindset
 - Productive Strategy
 - Confidence
 - Self-Regulation

Comprehension Checks and Reports E/S

- Save time with these assignable, auto-graded assessments comparable to the print Lesson Quizzes, Mid-Unit Assessments, and Unit Assessments.
- Use the data in the reports to determine the next steps for differentiation.

Grade-Level Planning (Prerequisites) Report

Use the data and resources outlined in the Grade-Level Planning (Prerequisites) report to address unfinished learning, either during small group instruction or whole class instruction, depending on the needs of the class.

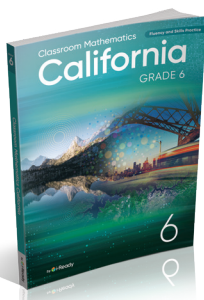
Student Components



Volumes
1 and 2

Student Worktext ^{E/S}

Students take ownership of their learning as they work through rich tasks and practice new skills in each lesson.



Fluency and Skills Practice Book ^{E/S}

Targeted practice that uses patterns and repeated reasoning. Available on Teacher Toolbox as PDFs and editable files assignable to any LMS, including Google Classroom.



Hands-On Materials ^{E/S}

Classroom Manipulative Kits and Individual Student Manipulative Bags are available.

Student Digital Experience includes:

Student Bookshelf ^{E/S}

This component provides online access to the Student Worktext along with many additional digital features that make it easy to navigate and personalize learning:

- Note-taking
- Text-to-speech
- Highlighting
- Calculator
- Multilingual Glossary

Learning Games ^{E/S}

Interactive Learning Games help students gain a rich conceptual understanding of mathematics concepts, improve fluency, and develop a positive relationship to challenge.

Interactive Digital Practice ^{E/S}

This assignable, digital resource provides practice that reinforces understanding. Students receive immediate, meaningful feedback to keep them on track.

Desmos Quick Connects

A full suite of Digital Math Tools powered by Desmos allows students to explore mathematical concepts using multiple models.

Family Resources

- Family Letter for every lesson ^{E/S}
- Unit Flow & Progression Videos*

^{E/S} = Available in English and Spanish
*Closed captioned in English and Spanish



Classroom Mathematics California

Classroom Mathematics California is rooted in a history of success. It is built on the foundation of *i-Ready Classroom Mathematics* ©2024 Edition, which earned **perfect scores** on EdReports. This history, combined with capturing the vision of the California framework, ensures high-quality instructional materials for California students.



Learn More at
ClassroomMathematicsCalifornia.com

