



i-Ready<sup>®</sup> Classroom  
Mathematics

# Program Overview



**Perfect Scores  
on EdReports**

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to learn more.

Grades

**6-8**

**It's why you became a teacher.**

You can tell when the light bulb goes on for your students.

It could be in their eyes or a glowing smile, a subtle change in posture, or a shift in the tone of their voice.

When they know they've got it, they couldn't be prouder—and neither could you.

***These magical moments  
stay with you forever.***



*i-Ready Classroom Mathematics* is a comprehensive math curriculum for Grades K–8 designed to help you create those “aha!” moments every day for every student. Here’s how . . .



**Focus on High-Impact Teaching Strategies . . . . . 4**

Use the most impactful, research-based teaching strategies to help students become independent, mathematical thinkers.



**Turn Data into Action . . . . . 14**

Accelerate students’ learning by combining powerful insights from data with thoughtfully curated resources to scaffold instruction.



**Put Students at the Heart of Learning . . . . . 20**

Foster the joy of learning with a classroom environment that’s focused on students’ creativity, critical thinking, communication, and collaboration.



**Support Teachers Every Step of the Way . . . . . 26**

Thoughtful service, support, and resources are available to make your job a little easier, so you have time to focus on what matters most—your students.

*For a full list of program components available in English and Spanish, see [pages 34–35](#).*



# Promote Meaningful Math Learning with a Purposeful Plan

Make the best use of instructional time. The lessons in *i-Ready Classroom Mathematics* span multiple days and integrate standards to help students make connections and develop a deep conceptual understanding of the mathematics.

## Three Types of Lessons

### Strategy Lessons

*Majority of Lessons in the Program*

Help students make important connections and deepen their understanding while they acquire and develop mathematical skills and strategies.

### Understand Lessons

*Lessons That Begin with "Understand"*

Dedicate time to introduce students to new ideas conceptually before they use those ideas in problem situations.

### Math in Action Lessons

*Lesson at the End of Each Unit*

Review and apply unit content and teach students how to develop complete responses to multistep performance tasks.

## Structure of a Lesson

Within a lesson, each session (or "day") plays a different role in supporting students' understanding. This provides students with a variety of experiences and gives them the time they need to develop conceptual understanding, build procedural fluency, and apply the mathematics to novel situations.

Day 1	Day 2	Day 3	Day 4	Day 5
<b>Explore Session</b>	<b>Develop Sessions</b>			<b>Refine Session</b>
Review prerequisites to address unfinished learning and activate prior knowledge that relates to the lesson.	Build multidimensional understanding of grade-level content through problem solving, discourse, practice, and application of new learning.			Strengthen skills and understanding with in-class time for practice and differentiation.



## Lessons in *i-Ready Classroom Mathematics* Make It All Possible

- ✓ **Address the standards** with rigorous, student-centered discourse and practice.
- ✓ **Develop mathematical practices** authentically through problem solving and discussion.
- ✓ **Incorporate the National Council of Teachers of Mathematics (NCTM)'s Effective Mathematics Teaching Practices** naturally into instruction.
- ✓ **Engage *all* learners** by encouraging all students' voices, perspectives, and experiences.
- ✓ **Support English Learners** so all students can engage with the language of mathematics.
- ✓ **Integrate technology** to enhance students' understanding of the mathematics.
- ✓ **Assess understanding** formally, informally, and holistically.
- ✓ **Differentiate with ease** in real time with a wide range of resources.
- ✓ **Encourage positive learning habits** that promote and maintain healthy learning environments.
- ✓ **Implement the Universal Design for Learning (UDL)** to the benefit of all students.





# Spark Curiosity: *Explore Session*

1 Day

Explore  
Session

1-3 Days  
Develop  
Sessions

1 Day  
Refine  
Session

Engage students and help them build upon the schema they have already developed with problem-based lessons. Each lesson starts by activating students' prior knowledge to set a foundation upon which they can place the new facts, ideas, and concepts of the lesson.

## Effective Math Teaching Practices

NCTM's Effective Mathematics Teaching Practices (EMTPs) are woven into each session.

### NCTM EMTP

Look for this text to see how these best practices are seamlessly incorporated into instruction.

**NCTM EMTPs:** Effective mathematics educators . . .

1. Establish mathematics goals that focus on learning.
2. Implement tasks that promote reasoning and problem solving.
3. Use and connect mathematical representations.
4. Facilitate meaningful mathematical discourse.
5. Pose purposeful questions.
6. Build procedural fluency from conceptual understanding.
7. Support productive struggle in learning mathematics.
8. Elicit and use evidence of student thinking.

(NCTM, 2014)



## Activate and Assess Prior Knowledge

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

NCTM EMT P 2

## 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.

NCTM EMT P 5


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. 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 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 | SESSION 1

### 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**.

a. What does the unit rate 55 tell you in this situation?

b. On another trip, 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?

## Vocabulary Development

To build on their vocabulary, 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.

LESSON 16 | SESSION 1 Name: \_\_\_\_\_

### 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?

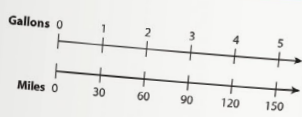
What I Know About It

rate

Examples

Examples

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



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# Build Understanding: *Develop Sessions*

1 Day  
Explore  
Session

1–3 Days

Develop  
Sessions

1 Day  
Refine  
Session

Help students make sense of math by making connections across multiple representations. Each lesson includes several sessions devoted to helping students integrate new concepts into their existing understanding of related mathematical ideas, patterns, and procedures.

## A Powerful Framework for Instruction


The **Try–Discuss–Connect instructional framework** seamlessly incorporates multiple routines, math practices, and effective teaching practices into instruction.


LESSON 16 | SESSION 4 ■■■■□

**Develop** Using Unit Rates to Convert Measurements

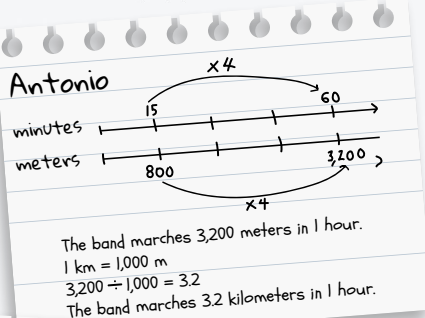
► Read and try to solve the problem below.

A band marches in the African American Day Parade in New York City. The band marches 800 meters every 15 minutes. At this rate, how many kilometers does the band march in 1 hour?



**TRY IT**  **Math Toolkit** double number lines, grid paper, rulers

**Antonio**



The band marches 3,200 meters in 1 hour.  
1 km = 1,000 m  
 $3,200 \div 1,000 = 3.2$   
The band marches 3.2 kilometers in 1 hour.

**Kayla**

1 km = 1,000 m, so 1 m is  $\frac{1}{1,000}$  km.  
So, 800m is  $800 \times \frac{1}{1,000}$  km.  
 $800 \times \frac{1}{1,000} = \frac{800}{1,000} = \frac{8}{10}$   
The band marches  $\frac{8}{10}$  km every 15 minutes.  
1 h = 60 min and  $4 \times 15 = 60$   
 $4 \times \frac{8}{10} = \frac{32}{10}$  or  $3 \frac{2}{10}$   
The band marches  $3 \frac{2}{10}$  km every 15 minutes. The band marches

**DISCUSS IT**

**Ask:** How do you know your answer is reasonable?  
**Share:** My answer makes sense because ...

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### Try It

Students make sense of the problem and persevere in solving and supporting their thinking. **NCTM EMTP 7**

By having time to think through the problem as a class and then try it on their own first, students learn to tap into their existing knowledge and develop perseverance.

### Discuss It

Students share their thinking with a partner and compare their strategies. **NCTM EMTP 2**

By engaging in peer-to-peer discourse, students build confidence and learn from one another.



**CONNECT IT**

Use the problem from the previous page to help you understand how to convert between units of measure.

- Look at the first **Model It**. How are the relationships 1,000 meters = 1 kilometer and 60 minutes = 1 hour similar to rates?
- Look at the second **Model It**. The relationship 1 kilometer = 1,000 meters is used to write the rate  $\frac{1}{1,000}$  kilometer per meter. How is this rate shown by a row of the table of meters and kilometers in the first **Model It**?
- There are two rates that relate meters and kilometers. In the second **Model It**, why is  $\frac{1}{1,000}$  the unit rate that is used to convert 3,200 meters to kilometers?
- How many kilometers does the band march in 1 hour?
- How is converting between measurements similar to finding equivalent ratios?
- Reflect** Think about all the models and strategies you have discussed today. Describe how one of them helped you better understand how to convert between units of measure.

**Apply It**

Use what you learned to solve these problems.

- The unit of money in England is the pound (£). When Anne visits England, £10 equals \$13. She sees a bike rental that costs £3 per hour. Anne wants to spend less than \$20. Can Anne rent the bike for 5 hours? Explain.
- A can contains 4 cups of pineapple juice. The can of juice costs \$2.56. What is the unit price in dollars per fluid ounce? (8 fluid ounces = 1 cup)
  - \$12.50 per fluid ounce
  - \$1.56 per fluid ounce
  - \$0.64 per fluid ounce
  - \$0.08 per fluid ounce
- A model train takes 10 seconds to travel along a section of track that is 5 yards long. At this rate, how many feet does the model train travel every minute? Show your work.

**SOLUTION**

**Connect It**

Students make connections between strategies, reflect on what they have learned, and apply that learning to new problems.

**NCTM EMTPs 4, 5, and 8**

This helps students deepen their understanding, build flexibility in their thinking, and better retain what they have learned.

**Daily Practice**

Students solidify their conceptual understanding and build procedural fluency from that understanding. **NCTM EMTP 6**

Name: \_\_\_\_\_

**Practice Using Unit Rates to Convert Measurements**

Study the Example showing how to solve a measurement conversion problem. Then solve problems 1–4.

**Example**

The table shows the prices of two brands of flour. Which brand is the better buy?

Convert the weight of Brand A to ounces.

1 pound = 16 ounces

The rate is 16 ounces per pound.

pounds      ounces per pound  
 $5 \times 16 = 80$

Brand A weighs 80 ounces.

Find the unit prices in dollars per ounce, as shown in the tables.

Brand A costs \$0.03 per ounce.

Brand B costs \$0.04 per ounce.

Brand A is the better buy.

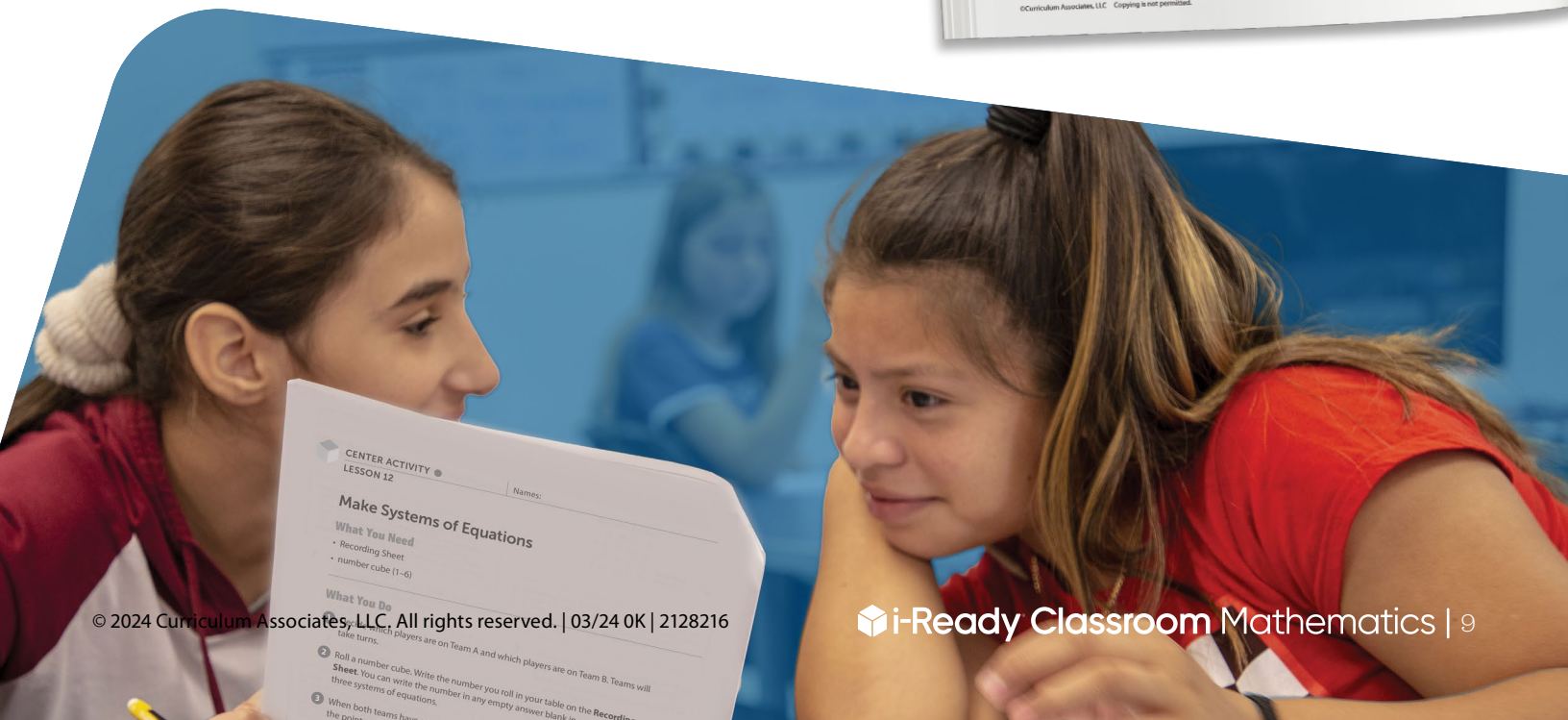
Flour	Weight	Price
Brand A	5 pounds	\$2.40
Brand B	48 ounces	\$1.92

Brand A		
Dollars	2.40	0.03
Ounces	80	1

Brand B		
Dollars	1.92	0.04
Ounces	48	1

- Show how you can solve the problem in the Example by comparing the unit prices in dollars per pound.

**Vocabulary**  
**convert**  
 to write an equivalent measurement using a different unit.





# Make Learning Stick: *Refine Sessions*

1 Day  
Explore  
Session

1-3 Days  
Develop  
Sessions

1 Day

Refine  
Session

Give students time to practice and cement their learning from the lesson. Each lesson ends with dedicated class time for practice and options for one-on-one or small group differentiation activities.

## Dedicated Class Time for Practice and Differentiation



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



**Assess students' understanding** using the Error Analysis guide and observations of students' work.  
**NCTM EMTP 8**



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



# Reteach, Reinforce, or Extend Learning

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

**NCTM EMTPs 2 and 3**

## RETEACH



### Hands-On Activity Make a model to show the relationships between unit conversions and unit rates.

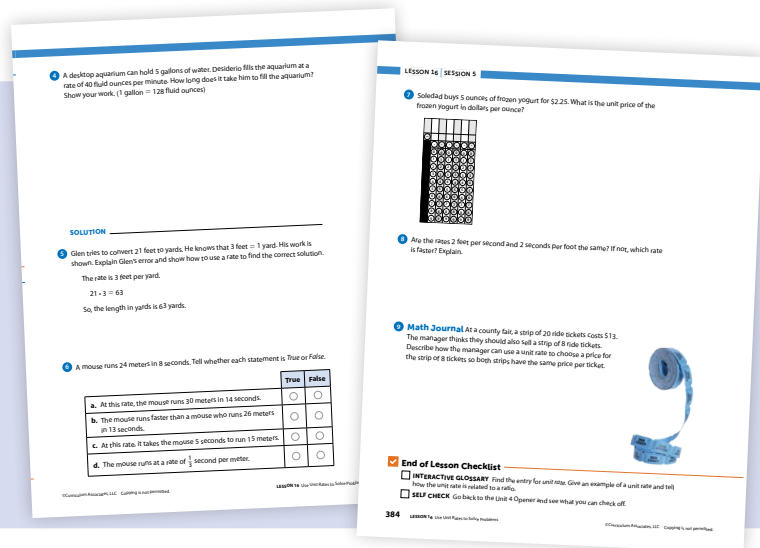
Students approaching proficiency with using unit rates to solve problems will benefit from modeling the process for finding unit rates and using unit conversions.

**Materials** For each group: 15 sticky notes

- Write and display: *Ayana buys 9 feet of wood for \$2.88. Dara buys 4 yards of wood for \$4.20. Who got the better deal?* Discuss with students that they will need to compare unit prices.
- Have one group find the rate of dollars per foot and the other group find the rate of dollars per yard.
- Give the group that is finding the rate of dollars per foot 4 sticky notes. Have them find the unit conversion. Students should label each sticky note using the unit conversion to find the number of feet equal to 4 yards.
- Repeat with the group that is finding the rate of dollars per yard. Ask: *How many yards will each sticky note represent? How do you know?*  $\frac{1}{3}$  yard;  $\frac{1}{3}$  yard is the same as 1 foot. Have the group model 9 feet in sticky notes. Ask: *What is this length in yards?* [3 yards]
- Next, have each group calculate the unit price. [Ayana: unit price for 1 foot is \$0.32; unit price for 1 yard is \$0.96; Dara: unit price for 1 foot is \$0.35; unit price for 1 yard is \$1.05.]
- Ask: *Who got the better deal and why?* [Ayana; She paid less per foot (or yard).]
- Discuss how students could build similar models to compare prices: *Which is the better deal: 6 pounds of red grapes for \$11.52 or 64 ounces of green grapes for \$8.32?* [Red: \$1.92 per pound or \$0.12 per ounce; Green: \$2.08 per pound or \$0.13 per ounce; Red grapes are the better deal.]

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

**NCTM EMTP 6**



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

**NCTM EMTPs 2 and 3**

## EXTEND



### Challenge Solve rate problems involving conversions between systems.

Students extending beyond proficiency will benefit from solving rate problems with multiple conversions.

- Have partners research conversion rates to solve this problem: *A car travels 55 miles per hour. What is this speed in kilometers per second, rounded to the nearest thousandth?*
- Some students may first convert miles to kilometers, and then convert hours to seconds. Others may make all conversions at once. [0.025 kilometer per second]
- Repeat with solving the following problem: *A small pool can hold 3,785 liters of water. Water flows through a hose into the empty pool at a rate of 1 gallon per minute. About how many hours will it take to fill the pool?* [about  $16\frac{2}{3}$  hours]



# Practice That's Just Right

Reinforce students' mathematical understanding with a variety of rich practice opportunities. The print and digital practice in *i-Ready Classroom Mathematics* solidifies students' conceptual understanding first, then provides fluency practice and opportunities for students to apply their learning to new problems. **NCTM EMT 6**

LESSON 18 | SESSION 3 Name: \_\_\_\_\_

**Practice** Writing and Solving Equations with Grouping Symbols

► Study the Example showing how to use an equation with grouping symbols to solve a problem. Then solve problems 1-5.

**Example**  
Lillie's family donates money to charity each year. Lillie's brother donates \$3 more than Lillie. Her parents donate 4.5 times as much as Lillie's brother. Lillie's parents donate \$45. How much does Lillie donate?  
You can represent the situation with an equation.  
 $d =$  Lillie's donation in dollars  
 $4.5(d + 3) = 45$   
 $4.5(d + 3) = 45$   
 $4.5 \cdot (d + 3) = 45$   
 $d + 3 = 10$   
 $d + 3 - 3 = 10 - 3$   
 $d = 7$   
Lillie donates \$7.

1 Look at  $4.5(d + 3) = 45$   
a. What does  $(d + 3)$  represent?  
b. Why is  $(d + 3)$  multiplied by 4.5?  
c. How much does Lillie donate?

## Additional Practice in Student Worktext

In every session, students build proficiency with the strategies learned in class and apply those ideas to answer critical-thinking questions and new problems.

FLUENCY AND SKILLS PRACTICE | Name: \_\_\_\_\_  
LESSON 18

**Writing and Solving Equations with Two or More Addends**

► Solve each equation. The answers are mixed up at the bottom of the page. Cross out the answers as you complete the problems.

1  $8x + 15 = 63$       2  $9x - 13 = 23$       3  $135 = 2x + 25$

4  $33 = 32x - 31$       5  $12x - 16 = 68$       6  $7x + 115 = 136$

7  $3x - 4\frac{1}{2} = -19\frac{1}{2}$

8  $25.68 = 2x - 6.32$

9  $x = 6$   
10  $x = 55$   
11  $x = 3$

GRADE 7 • LESSON 18

## Fluency and Skills Practice

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

UNIT 6 Cumulative Practice Name: \_\_\_\_\_

**Set 5 Multiply and Divide with Negative Numbers**

► Multiply or divide. Show your work.

1  $-\frac{1}{3}(-30)$       2  $-3\frac{1}{3} \div \frac{4}{9}$       3  $9(-6\frac{1}{4})$

4  $11.7 = (-6.5)$       5  $-4\frac{1}{2} \times (-6.2)$       6  $-1.2(-6) \div (-0.5)$

**Set 6 Add Opposites**

► Write an addition equation to represent and solve each problem.

1 The temperature increases by  $6^\circ\text{F}$  to  $0^\circ\text{F}$ . What was the original temperature?

2 Fajah has \$8. She spends \$8 on her lunch. How much money does she have after buying lunch?

3 A diver is swimming at an elevation of  $-12$  meters relative to sea level. She swims up 12 meters. What is her elevation now?

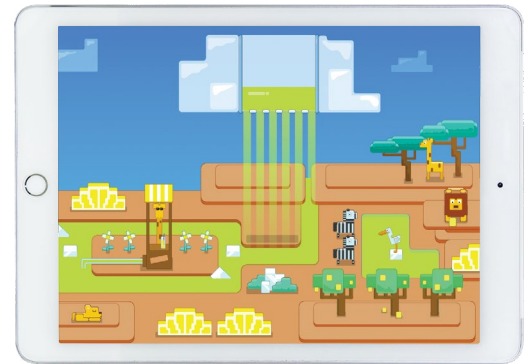
4 A football team gains 5 yards on their first play. It loses 5 yards on the next play. How many yards did it gain in total over the two plays?

5 The temperature changes by  $-2^\circ\text{C}$  to  $0^\circ\text{C}$ . What was the original temperature?

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## Cumulative Practice

Students revisit previously learned content to deepen their understanding and retention. Available for every unit.



## Digital Learning Games

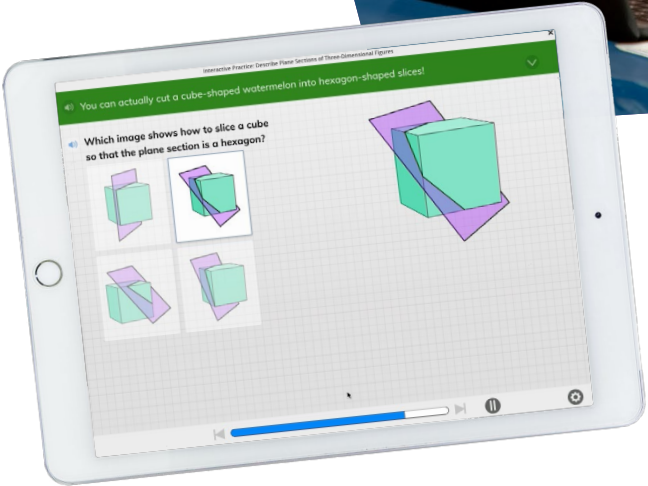
Fun fluency practice allows students to explore essential skills in a low-stakes environment. In-depth reports offer teachers real-time snapshots of skills progress and growth mindset. Students can toggle to play games in Spanish.



Google Classroom

Easily assign resources to Google Classroom.

Student resources, including the digital Student Worktext and PDFs, work with most learning management systems.



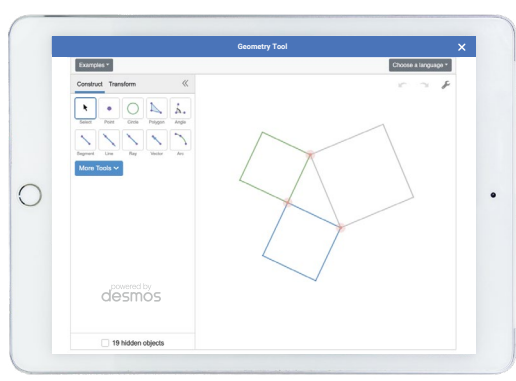
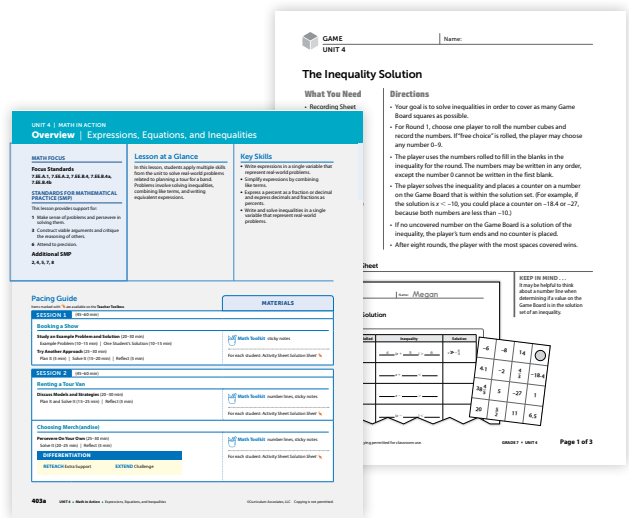
## Interactive Practice with Technology-Enhanced Items

Available for every lesson!

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

## Hands-On Games

Unit Games and Math in Action lessons develop math practices and use students' critical-thinking skills.



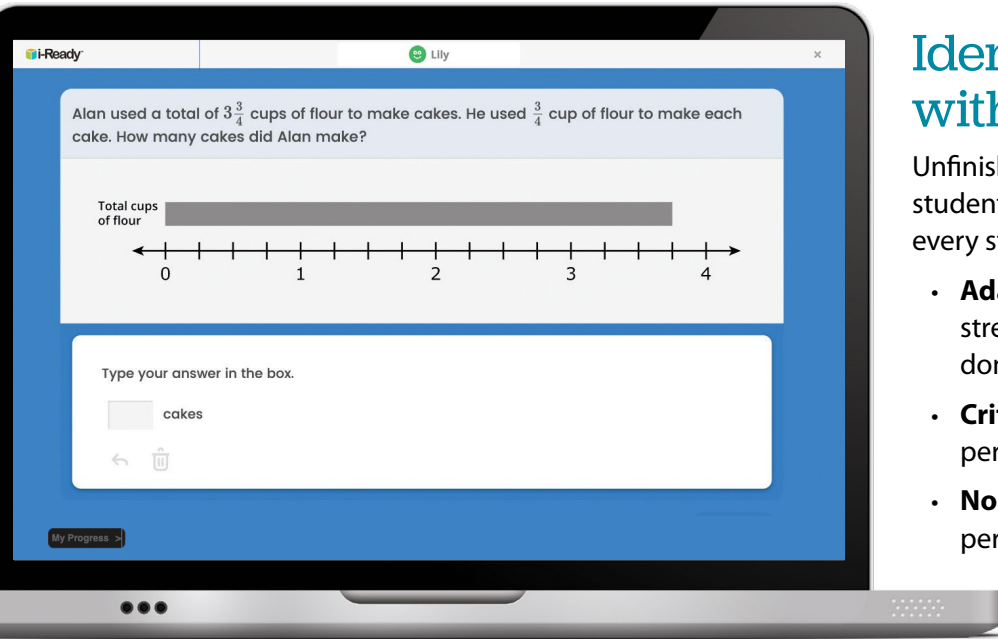
## Digital Math Tools Powered by Desmos

Students have access to the online graphing and scientific calculators, as well as geometry tools, to explore concepts and deepen understanding.



# Plan for Success

When students are lifelong learners, data is a roadmap—not a destination. Valid, reliable, and timely data lets you know where your students are so you can meet them there and give them the right resources and support to continue their journey.



## Identify Students' Needs with the Diagnostic

Unfinished learning can lead to challenges as students work on grade-level standards. Knowing every student's needs is critical for success.

- **Adaptive (Grades K–12):** Pinpoint students' strengths and needs across all skills and domains.
- **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.



**BUROS**  
CENTER FOR TESTING

Received a positive review in *The Twentieth Mental Measurements Yearbook* (published by the Buros Center for Testing)



*i-Ready* received high ratings from the National Center on Intensive Intervention (NCII).

To see evidence that the Diagnostic is proven to work, visit [CurriculumAssociates.com/Research-and-Efficacy](https://CurriculumAssociates.com/Research-and-Efficacy).

# Accelerate Learning with a Custom Plan

Based on results from the Diagnostic, the Prerequisites report identifies the essential prerequisite skills to focus on for every student for every lesson.

- 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.


Prerequisites ▾ 📄

Subject: Class/Report Group A. Shah - Grade 6, Section 1 Grade Grade 6 Unit Unit 2 (Lessons 7-11) ▾


**Unit Overview** Major Themes of Unit ⓘ

**Unit 2: Decimals and Fractions: Base-Ten Operations, Division with Fractions, and Volume**


In this unit, students use what they know about adding, subtracting, and multiplying decimals to hundredths to extend their understanding of computing with decimals. They learn the standard algorithm for whole number and decimal division and use both visual models and equations to divide with fractions. They will also build on their prior understanding of volume and of multiplying with fractions to find volumes of rectangular prisms with fractional edge lengths.




Unit Flow & Progression Video

1  


Learning Progression

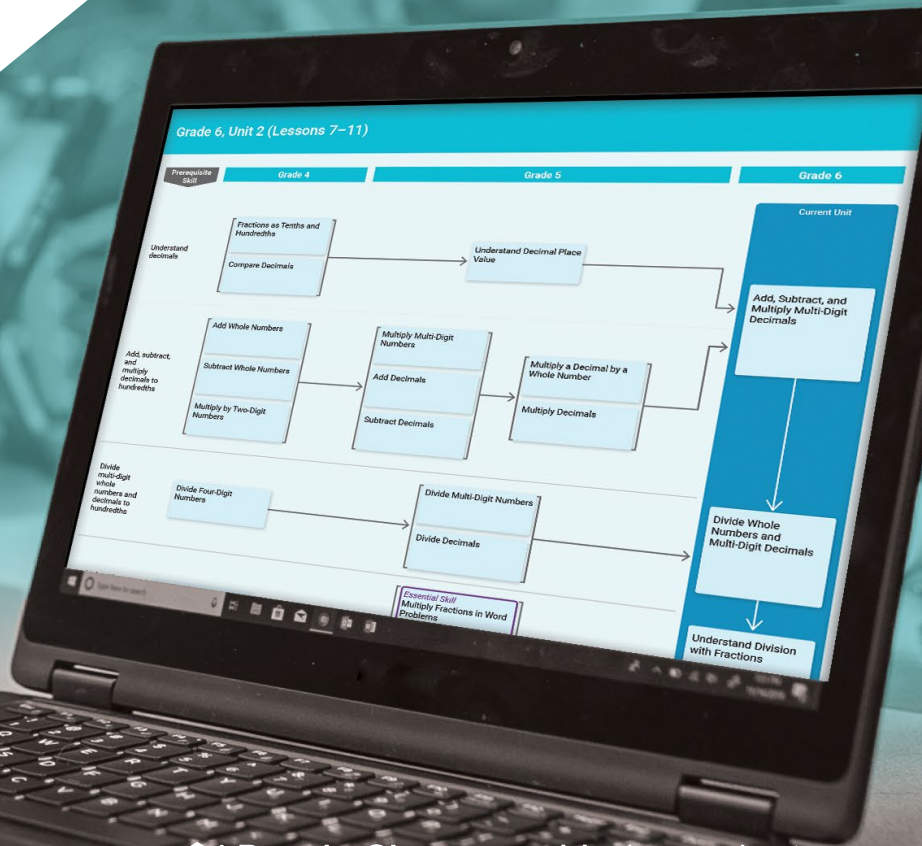


Unit and Lesson Support

2  


Yearly Pacing for Prerequisites

Prerequisite Groups	Unit Group A 2 Students	Unit Group B 8 Students	Unit Group C 2 Students	Unit Group D 7 Students
Prerequisites	Recommendations 📄	Recommendations 📄	Recommendations 📄	Recommendations 📄
Understand decimals.	✓	✓	✓	Additional Support
Add, subtract, and multiply decimals to hundredths.	✓	✓	Additional Support	In-depth Review
Divide multi-digit whole numbers and decimals to hundredths.	✓	✓	Additional Support	In-depth Review
<b>Essential Skill</b> Multiply with fractions and divide with unit fractions.	✓	Additional Support	In-depth Review	In-depth Review
Find volume with whole numbers.	✓	Additional Support	In-depth Review	In-depth Review
	Banks, Abby Sanchez, Laura	Graves, Christian Cheng, Bianca Delaney, Aaron	Royce, Logan McIntosh, Markus	Gonzales, Bella Hopper, Carla Vu, Kaylee

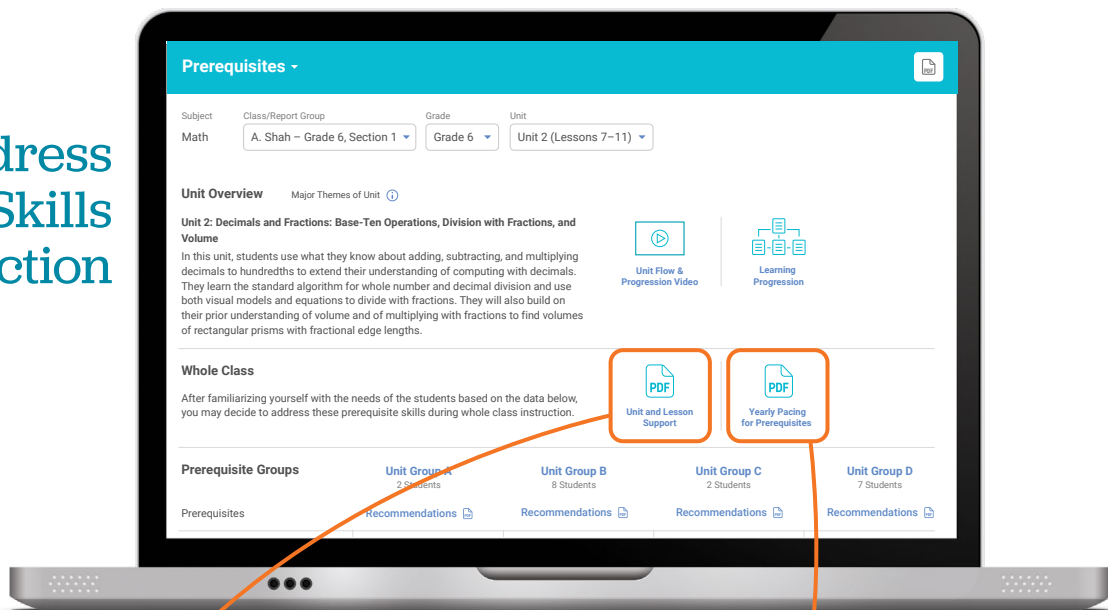




# Make a Difference Every Day

Math class goes by quickly. You need a thoughtful approach to effectively differentiate in that short amount of time. Whether it's addressing unfinished learning or responding in the moment to unlock a tricky concept or address a misconception, *i-Ready Classroom Mathematics* has the plan and resources for efficient differentiation.

## Proactively Address Prerequisite Skills during Instruction



### ◆ ON-THE-SPOT TEACHING TIPS FOR GRADE 6

- **Use simpler numbers.** It is easier to see patterns and relationships when the fractions are easy to envision. Provide additional problems with simpler numbers, spending extra time with problems where one number is a unit fraction or a whole number.
- **Connect division and multiplication.** Reinforce the foundational work students did with division with unit fractions and whole numbers in Grade 5 to build their understanding of important relationships between division and multiplication. For example, students can understand that  $3 \div \frac{1}{4} = 12$  because they know that  $12 \times \frac{1}{4} = 3$ . Students can also recognize that the division expression  $3 \div \frac{1}{4}$  is equivalent to the multiplication expression  $3 \times 4$  because one way to answer the question "How many  $\frac{1}{4}$ s are in 3?" is to multiply 3 by 4.
- **Make sense of the operation in word problems.** As in their Grade 5 work on division with unit fractions, encourage students to use *both* a visual model *and* an appropriate division equation when solving word problems. Visual models help them make sense of situations that involve division with fractions and help them determine which quantity is the dividend and which is the divisor.

**On-the-Spot Teaching Tips** suggest additional scaffolding to support students with unfinished learning as they engage in grade-level work.

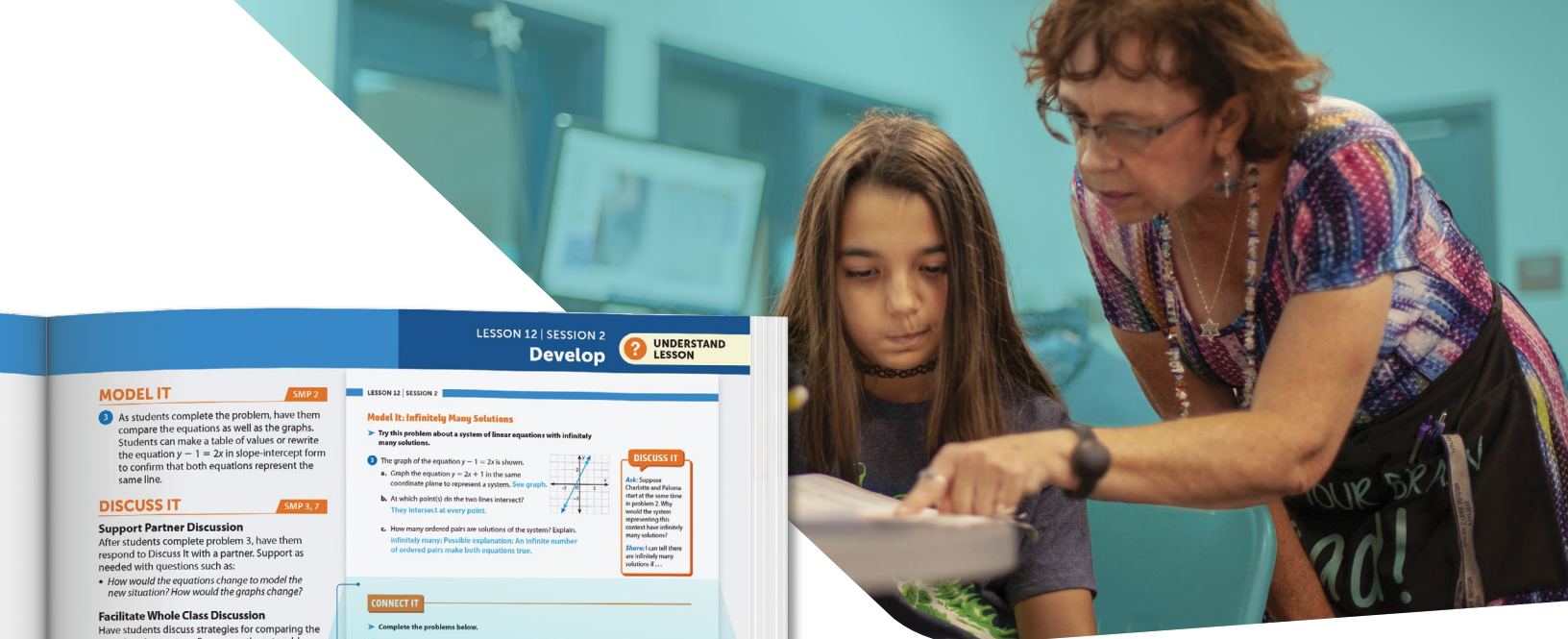
### Unit 2 Decimals and Fractions: Base-Ten Operations, Division with Fractions, and Volume

Unit 2, Lesson 7 continues to build fluency with decimal addition, subtraction, and multiplication. There are no recommended prerequisite lessons.

<b>Lesson 7</b> Add, Subtract, and Multiply Multi-Digit Decimals	2 to 4 days
<b>PREPARE for Unit 2, Lesson 8</b> by reviewing dividing with two-digit divisors and with decimals to support students in learning an algorithm for division.	0 to 4 days
<b>Grade 5, Lesson 5</b> Divide Multi-Digit Numbers	
<b>Grade 5, Lesson 17</b> Divide Decimals	
<b>Lesson 8</b> Divide Whole Numbers and Multi-Digit Decimals	2 to 5 days
<b>PREPARE for Unit 2, Lessons 9–10</b> by reviewing fraction multiplication and division with unit fractions to support students as they expand their skills with dividing fractions.	0 to 4 days
<b>Grade 5, Lesson 22</b> Multiply Fractions in Word Problems	
<b>Grade 5, Lesson 24</b> Divide Unit Fractions in Word Problems	
<b>Lesson 9</b> Understand Division with Fractions	3 days
<b>Lesson 10</b> Divide Fractions	4 days
<b>Lesson 11</b> Solve Volume Problems with Fractions	2 to 4 days

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





# Authentically Respond to Students in the Moment

## Monitor Understanding

Throughout each session, there are opportunities to observe students' understanding and multiple options to differentiate.

**MODEL IT**

SMP.2

As students complete the problem, have them compare the equations as well as the graphs. Students can make a table of values or rewrite the equation  $y - 1 = 2x$  in slope-intercept form to confirm that both equations represent the same line.

**DISCUSS IT**

SMP.3, 7

**Support Partner Discussion**

After students complete problem 3, have them respond to Discuss It with a partner. Support as needed with questions such as:

- How would the equations change to model the new situation? How would the graphs change?

**Facilitate Whole Class Discussion**

Have students discuss strategies for comparing the equations in a system. Encourage them to add reasons or examples to ideas they agree with during discussion.

**ASK** How could you predict that a system will have infinitely many solutions without graphing?

**LISTEN FOR** I can write the equations in slope-intercept form. If both equations have the same slope and the same y-intercept, then they represent the same line. The system will have an infinite number of solutions.

**DIFFERENTIATION | RETEACH or REINFORCE**

**Hands-On Activity**  
Compare equations to identify the solutions of a system.

If students are unsure about how to identify the number of solutions a system of linear equations has, then use this activity to spark discussion.

- Materials** For each student: transparency markers, transparency of Activity Sheet Graph Paper
- Tell each student to write an equation in the form  $y = mx + b$  on their transparency, selecting  $m$  and  $b$  from the set of numbers: 1, 2, and 3. Then have students draw axes and graph their equations.
  - Have students circulate and compare equations and overlay their graphs matching up the axes. As they compare equations, ask students to discuss the number of solutions the system has.
  - After students have finished their comparisons, ask them to share what they have learned. Have students connect the number of solutions to the values of  $m$  and  $b$  in the equations for each system.

**Model It: Infinitely Many Solutions**

Try this problem about a system of linear equations with infinitely many solutions.

The graph of the equation  $y - 1 = 2x$  is shown.

- Graph the equation  $y = 2x + 1$  in the same coordinate plane to represent a system. See graph.
- At which point(s) do the two lines intersect? They intersect at every point.



**DISCUSS IT**

**Ask:** Suppose Charlotte and Paloma start at the same time in problem 2. Why would the system representing this context have infinitely many solutions?  
**Share:** I can tell there are infinitely many solutions if...

**CONNECT IT**

Complete the problems below.

- Look at problems 1–3. In each system of equations, both lines have the same slope. Can two lines with the same slope ever intersect at exactly one point? Explain.  
*Note:* Possible explanation: If two lines have the same slope, they are either parallel and do not intersect at all, or they are the same line and share infinitely many points.

- What values of  $m$  and  $b$  will result in a system with no solution?  
 $y = 4x + 5$   
 $y = mx + b$   
 $m = 4$ ; Possible answer:  $b = 10$  (any number except 5)

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**CONNECT IT**

SMP.2, 3, 7

- Student responses should show understanding that lines with the same slope are either different parallel lines or the same line.

**CLOSE | EXIT TICKET**

- Look for understanding that for the system to have no solution, the lines must have the same slope but different y-intercepts.

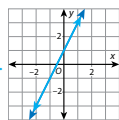
**Error Alert:** If students choose  $m$  and  $b$  so that the two equations have the same y-intercept and different slopes, have them sketch the graphs of the equations of the system they have created. They should observe that the lines intersect at the y-intercept, so the system has one solution. Ask students what  $m$  and  $b$  indicate about the line and what values of  $m$  and  $b$  would guarantee that the two lines do not intersect.

**Model It: Infinitely Many Solutions**

Try this problem about a system of linear equations with infinitely many solutions.

The graph of the equation  $y - 1 = 2x$  is shown.

- Graph the equation  $y = 2x + 1$  in the same coordinate plane to represent a system. See graph.
- At which point(s) do the two lines intersect? They intersect at every point.



**DISCUSS IT**

**Ask:** Suppose Charlotte and Paloma start at the same time in problem 2. Why would the system representing this context have infinitely many solutions?  
**Share:** I can tell there are infinitely many solutions if...

- How many ordered pairs are solutions of the system? Explain.  
infinitely many; Possible explanation: An infinite number of ordered pairs make both equations true.

**DIFFERENTIATION | RETEACH or REINFORCE**

**Hands-On Activity**  
Compare equations to identify the solutions of a system.

If students are unsure about how to identify the number of solutions a system of linear equations has, then use this activity to spark discussion.

- Materials** For each student: transparency markers, transparency of Activity Sheet Graph Paper
- Tell each student to write an equation in the form  $y = mx + b$  on their transparency, selecting  $m$  and  $b$  from the set of numbers: 1, 2, and 3. Then have students draw axes and graph their equations.
  - Have students circulate and compare equations and overlay their graphs matching up the axes. As they compare equations, ask students to discuss the number of solutions the system has.
  - After students have finished their comparisons, ask them to share what they have learned. Have students connect the number of solutions to the values of  $m$  and  $b$  in the equations for each system.

## Just-in-Time Supports

Reteach, reinforce, or extend learning using the activities provided in the yellow differentiation boxes in the Teacher's Guide. The line points to where these activities can be used during instruction to support students' needs.

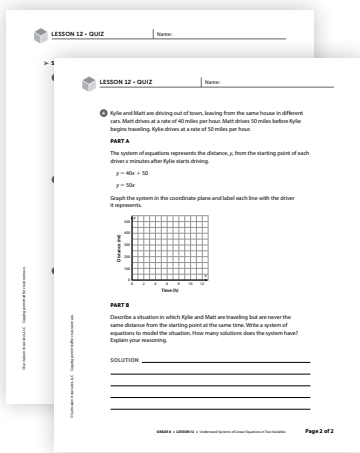


# Track, Support, and Celebrate Students' Growth

Know what your students know. *i-Ready Classroom Mathematics* includes print and digital assessments and a wealth of resources to meet all students' learning needs. Reports are in depth yet intuitive, so you can easily plan the next steps for instruction.

## Assess Students' Understanding and Monitor Progress

Choose how you want to gather data on students' strengths and dig deeper into their individual needs.

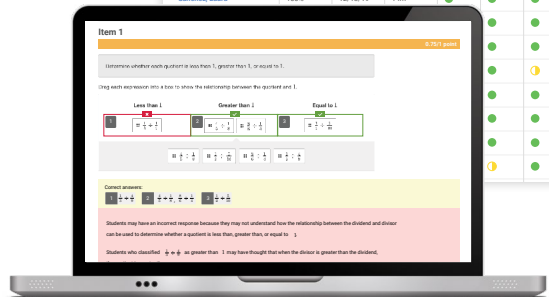
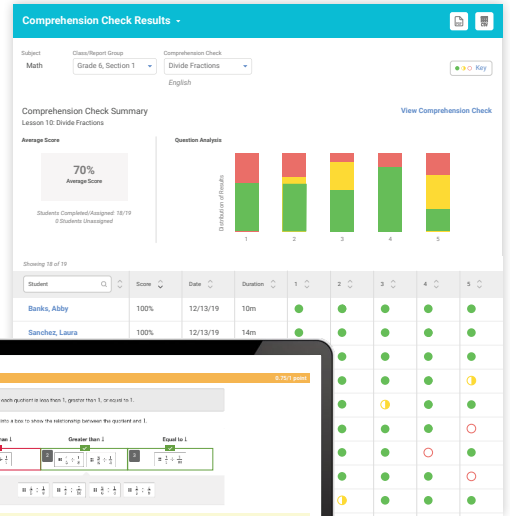


### Paper/Pencil Assessment

To check students' understanding with a print-based option, use the editable Lesson Quizzes and Mid-Unit and Unit Assessments.

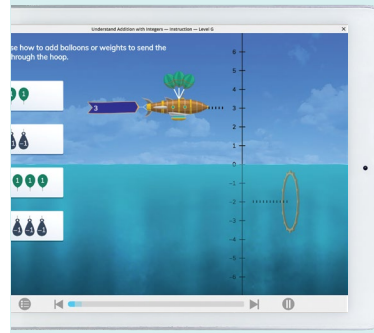
### Digital Assessments

Comparable to the paper/pencil options, digital Comprehension Checks with audio support provide in-depth reports analyzing students' understanding of concepts.



# Differentiation Resources for Each Lesson

Once you identify instructional needs, choose the resource that will help students grow and succeed.



## Unfinished Learning:

Prerequisite Lessons and Interactive Tutorials can address skills to help students access grade-level content.

### Tools for Instruction

#### Solutions of Systems of Linear Equations

**Objective:** Determine the number of solutions to a system of equations. **Materials:** 100% Coordinate Plane (page 1)

Students have previously graphed lines in the coordinate plane and identified the slope and y-intercept of linear equations. In this activity, students will determine whether a system of equations has one, zero, or infinitely many solutions. Students will graph and analyze the slopes and y-intercepts of lines to determine the number of solutions. They will develop the understanding that systems of equations of lines that intersect at one point have one solution, systems of equations of parallel lines have no solutions, and systems of equations of the same line have infinitely many solutions. Being able to determine the number of solutions to a system will help students check for reasonableness when finding the exact solutions to systems of equations.

**Two Ways to Teach**

**Solve by Graphing** **Exit Ticket**

Tell the student that the solution to a system of equations is the ordered pair(s) that make all equations in the system true. Explain that one way to solve systems of equations is to graph the equations and find their point(s) of intersection. Provide the student with a ruler and a copy of **Coordinate Plane** (page 1).

Present the following system of equations:

$$y = 2x + 4$$

$$y = -2x + 3$$

Guide the student through graphing the system on the first coordinate plane. Ask, Do these two lines intersect? If so, how many times do they intersect? **Coordinate Plane**. Stop. Does the line intersect at one point? This system has one solution. Ask, Do all lines intersect? Explain. **Two Lines are Parallel**. Tell the student that if the lines in a system of equations are parallel, the system has no solution.

Present the following system of equations:

$$y = 3x - 1$$

$$y = 3x + 5$$

Give the student time to graph the system on the second coordinate plane and determine the number of solutions. **Coordinate Plane**. Ask, How many times do they intersect? **Coordinate Plane**. Stop. Does the line intersect at one point? This system has one solution. Ask, Do all lines intersect? Explain. **Two Lines are Parallel**. Tell the student that if the lines in a system of equations are parallel, the system has no solution.

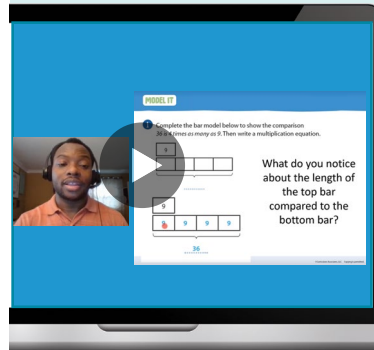
Present the following system of equations:

$$y = -\frac{1}{2}x + 4$$

$$2y = -x + 8$$

Give the student time to graph the system on the third coordinate plane, and determine the number of solutions.

**Reteach:** Tools for Instruction are mini-lessons for reteaching lesson concepts.



## Out-of-Class Support:

The Develop Session Video Library provides instructional videos for remote learning, homework supports, or reteaching concepts.

### CENTER ACTIVITY

#### LESSON 12

#### Make Systems of Equations

##### What You Need

- Recording Sheet
- number cube (1–6)

##### What You Do

- Decide which players are on Team A and which players are on Team B. Teams will take turns.
- Roll a number cube. Write the number you roll in your table on the **Recording Sheet**. You can write the number in any empty answer blank in any of your team's three systems of equations.
- When both teams have completely filled in their three systems of equations, find the point value for each system.
  - Infinitely many solutions: 5 points
  - No solution: 3 points
  - Exactly one solution: 1 point
- Add your team's points to find your team's total score. The team with the greater total score wins.

##### Check Understanding

Tell whether the system of equations has no solution, one solution, or infinitely many solutions. Explain how you know.

$$y = 2x$$

$$y = -2x$$

##### Go Further

**Student-Led Small Groups:** Leveled Math Center Activities are collaborative games to reinforce concepts and skills.

### ENRICHMENT ACTIVITY

#### LESSON 12

#### System Solutions

##### Your Challenge

Use graphing technology to explore solutions to systems of linear equations.\*

- Open the graphing technology program.
- Type in the first equation in the field where the equations are entered.
- Type in the second equation in the field where the equations are entered.
- Look at the graph to determine if the system of equations has a solution.

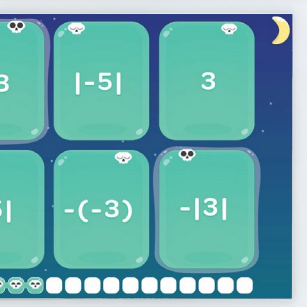
1.  $y = x + 5$   
 $y = x - 3$   
Does this system have a solution? If so, what is the solution? Explain.

2.  $y = 2x - 1$   
 $y = 3x + 6$   
Does this system have a solution? If so, what is the solution? Explain.

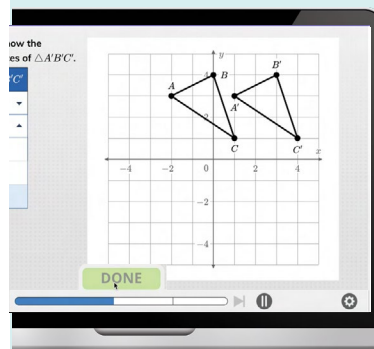
3.  $y = 8x + 1$   
 $2y = 16x + 2$   
Does this system have a solution? If so, what is the solution? Explain.

## Extension:

Enrichment Activities challenge students with higher-order thinking tasks and often incorporate technology options, like the Desmos tools.



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



**Personalized Instruction:** This optional add-on provides lessons designed to accelerate growth and grade-level learning.



# Embrace Students as Individuals


Allow students to explore the world through the lens of mathematics. *i-Ready Classroom Mathematics* incorporates features of the UDL to ensure that instruction is flexible, equitable, and accessible to all students.

## Celebrate and Inspire

**STEM Stories** spotlight the lives and STEM contributions of people with diverse backgrounds and provide a real-life instance of mathematical practices in action.

**STEM Stories** Spotlight On ...

**Raye Montague**  
Raye Montague (1935–2018) was an engineer with the United States Navy. She developed computer programs to design ships and submarines. Her work changed how ships are designed.



When Raye Montague was 7, her grandfather took her to see a German World War II submarine. The periscopes, dials, and equipment fascinated her. She knew that she wanted to work on ships someday.

Raye had to solve many problems on her way to becoming a ship engineer. No colleges where she lived would accept a Black engineering student at the time, so she earned a business degree instead.

She worked as a Navy typist by day ...

... and took computer classes at night.

As Raye moved closer to her goal, she kept solving problems. When no one would teach her how to use the computer at work, she taught herself by watching others.

Oh, I see ...

Raye faced another problem when her boss said she could be promoted only if she worked at night. Buses didn't run at night, so Raye bought a car and taught herself to drive.

After years of hard work, Raye earned a promotion as a computer programmer for the Navy. The other employees at her new job had been struggling for years to develop a program to design ships.

When the President heard about Raye's new program, he asked the Navy to design a warship. Most ships took two years to design, but Raye was given one month to do it. Fortunately, she already had the solution to this problem. Using her new program, her team completed the design in less than 19 hours! Raye earned an award for her design.

Raye solved the problem, designing a program in just six months!

Well done!

Raye continued working hard to solve problems during her career designing ships for the Navy.

**Math Practice 5 Connection**

Raye succeeded by mastering computers and programming them to be more efficient. She taught herself how to use a computer. She then used the computer strategically by making a new program to design ships more quickly. She cut the design time from two years to less than a single day.

**Reflection Questions**

- 1 Think about the problems Raye had to solve. What problems have you faced? How have you solved them?
- 2 Think of a homework assignment you have had. Describe how you used technology strategically to complete the assignment.

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Unit 1 STEM Stories 25T

### Real-World Connections

STEM-focused connections show how mathematics is used in everyday life.




### REAL-WORLD CONNECTION

Builders need to budget the costs for new projects before beginning the physical work. The National Association of Home Builders keeps records on the average cost per square foot for homes across the United States. The cost per square foot is calculated by dividing the cost of the land, materials, and labor used to build the home by the number of square feet of the home. The largest factor that influences a home's cost per square foot is the value of the land. For example, a home in a major metropolitan area may have a higher land value than a home in a rural area. Ask students to think of other real-world examples when examining rates might be useful.



# Create a Community of Interconnected Learners

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

**LESSON 9 Overview | Derive and Graph Linear Equations of the Form  $y = mx + b$**

**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** In competitions for runners who are blind or have low vision, athletes are required to wear eye masks to ensure no runner has an advantage. Runners compete with the aid of a guide who is sighted. Guide and runner are connected by a rope around their fingers. The guide matches the runner's speed and form and may communicate with the runner during the race. Guides not only compete with runners who are blind but also team with them. Training together helps to improve speed, coordination, and collaboration between a competitive runner and their guide. Because of their dedication and hard work alongside their competitive runners, guides also win medals in competitions.



**SESSION 2** ■ ■ ■ ■ ■

**Apply It Problem 6** Ask students who have seen bamboo to describe what it looks like. Bamboo plants are very strong and are relatively easy to grow. Bamboo tends to grow quickly and may need to be trimmed back so it does not outgrow its space. Bamboo plants are so versatile that their fibers can be used for decoration, in fabric and clothing, as building materials, or even as a food source.

**SESSION 3** ■ ■ ■ ■ ■

**Try It** Ask students who have seen oak barrels in homes or businesses to tell the barrels. Oak barrels collect and store wine. They can include punnets, gaskets, and handles for storage, or they can be single wooden or plastic containers. The collected water is used to water gardens or for other outdoor needs. The water typically chemical-free and is a good source of nutrition for plants. The practice of collecting rainwater started in the Middle East around 2000 BCE.

**SESSION 4** ■ ■ ■ ■ ■

**Try It** Ask students about outdoor sites that they would like to visit, even if the weather is not ideal. Students may explore the Great Smoky Mountains National Park, the invention of modern soccer gear in 1963 by James Watson and Eric Ripston. Guide can accompany all-terrain vehicles and mountain bikes.

**Protocols for Engagement**

Where in Lesson	Validates
<b>Raise a Hand</b> Students raise a hand to volunteer information that is specific to their own experiences.	verbal expressiveness, turn-taking, spontaneity
<b>Buddy Read</b> During the Three Reads routine, the teacher reads the first time and students read, taking turns with a partner, the second and third times.	collective success, social interaction
<b>Give One, Get One</b> Students mingle to find a partner and then give an idea and get an idea.	social interaction, movement, shared responsibility

## SESSION 1 ■ ■ ■ ■ ■

**Try It** In competitions for runners who are blind or have low vision, athletes are required to wear eye masks to ensure no runner has an advantage. Runners compete with the aid of a guide who is sighted. Guide and runner are connected by a rope around their fingers. The guide matches the runner's speed and form and may communicate with the runner during the race. Guides not only compete with runners who are blind but also train with them. Training together helps to improve speed, coordination, and collaboration between a competitive runner and their guide. Because of their dedication and hard work alongside their competitive runners, guides also win medals in competitions.

## Draw on Students' Cultural and Linguistic Background and Behaviors

Every lesson includes background information, cultural connections, and instructional protocols to engage students while affirming and validating their identities.








# Integrate Language and Mathematics

Math class is the perfect place for multilingual learners to develop academic language while also building content knowledge. *i-Ready Classroom Mathematics* includes the resources to support both of these goals as students engage in reading, writing, speaking, and listening.

## Increase Student Engagement

 Try It	 Discuss It	 Connect It
<p><b>Language Routines</b></p> <ul style="list-style-type: none"> <li>• Three Reads</li> <li>• Co-Craft Questions</li> <li>• Notice and Wonder</li> <li>• Say It Another Way</li> </ul> <p><b>Teacher Moves</b></p> <ul style="list-style-type: none"> <li>• Turn and Talk</li> <li>• Individual Think Time</li> </ul>	<p><b>Language Routines</b></p> <ul style="list-style-type: none"> <li>• Compare and Connect</li> <li>• Collect and Display</li> </ul> <p><b>Teacher Moves</b></p> <ul style="list-style-type: none"> <li>• Turn and Talk</li> <li>• Individual Think Time</li> <li>• Four Rs</li> </ul> <p><b>Conversation Tips</b></p>	<p><b>Language Routines</b></p> <ul style="list-style-type: none"> <li>• Collect and Display</li> <li>• Compare and Connect</li> </ul> <p><b>Teacher Moves</b></p> <ul style="list-style-type: none"> <li>• Turn and Talk</li> <li>• Individual Think Time</li> <li>• Four Rs</li> </ul>

### Differentiation for English Learners

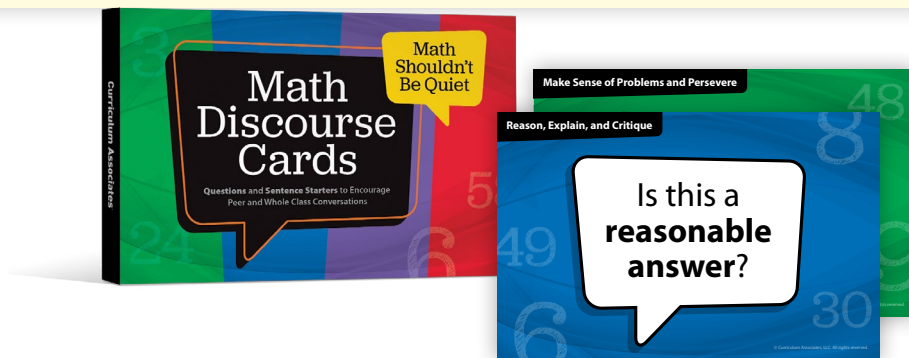
Scaffolds for each session suggest ways to help English Learners access and engage with rigorous mathematics.

**DIFFERENTIATION | ENGLISH LEARNERS** Use with **Session 2 Model It**

<p><b>Levels 1–3: Speaking/Writing</b></p> <p>To help students interpret Model It problem 2, read the problem aloud. Use <b>Act It Out</b> to clarify the phrase <i>catch up</i>. Use a volunteer or classroom objects to role play the meaning of <i>catch up</i>. State the phrase in the past tense: <i>I caught up with</i> _____. Display <i>catch up</i> and <i>caught up</i>. Have partners use both phrases to describe a situation. Then reread problem 2, clarifying words as needed. Ask a student to explain <i>same rate</i>. Use sentence frames to help students answer part a:</p> <ul style="list-style-type: none"> <li>• <i>Paloma</i> ____ <i>catch up</i> to <i>Charlotte</i>.</li> <li>• <i>I know</i> because they are _____.</li> <li>• <i>I can tell</i> from the graphs that <i>Paloma</i> ____ <i>catch up</i>, because the lines _____.</li> </ul>	<p><b>Levels 2–4: Speaking/Writing</b></p> <p>Help students interpret Model It problem 2. Use <b>Act It Out</b> to have students demonstrate <i>catch up</i> and <i>caught up</i>. When a student catches up, have them discuss how that is different from the situation in the problem. Encourage them to use the word <i>rate</i>:</p> <ul style="list-style-type: none"> <li>• <i>I caught up to</i> _____ <i>because</i> _____.</li> <li>• <i>In the problem, Paloma and Charlotte</i> _____.</li> </ul> <p>Then help students connect the situation to the graph. Ask: <i>How does the graph show the distance Paloma and Charlotte hike?</i> Have students draft a response to 2a. Then have them answer 2b and make connections with partners:</p> <ul style="list-style-type: none"> <li>• <i>Our answers are</i> _____, <i>so I think we can check the answer by</i> _____.</li> </ul>	<p><b>Levels 3–5: Speaking/Writing</b></p> <p>Help students interpret Model It problem 2. Have students read the problem and turn to a partner to discuss how the graph connects to the problem. Encourage partners to explain how the graph shows both girls hiking on the same trail at the same rate. Have them draft a response to 2a and have partners review each other’s responses. Then have students work independently to answer 2b. When ready, have them turn to partners to connect and discuss answers. Ask: <i>How does your answer compare to your partner’s? Do both answers include an explanation? How can you test your answer?</i></p> <p>Encourage students to use <i>same</i>, <i>different</i>, <i>both</i>, <i>and</i>, or <i>but</i> as they explain their ideas.</p>
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### Additional Language and Discourse Supports

Resources like the Discourse Cards and Multilingual Glossaries help students talk through their ideas using academic language.



# Teach Academic Language

## Academic Vocabulary Activities and Routine

Engage students in rigorous mathematics and encourage effective communication.

**UNIT 6** Vocabulary Review

► Review the unit vocabulary. Put a check mark by items you can use in speaking and writing. Look up the meaning of any terms you do not know.

Math Vocabulary	Academic Vocabulary
<input type="checkbox"/> cone	<input type="checkbox"/> perfect cube
<input type="checkbox"/> converse of the Pythagorean Theorem	<input type="checkbox"/> perfect square
<input type="checkbox"/> cube root of $x$	<input type="checkbox"/> Pythagorean Theorem
<input type="checkbox"/> irrational number	<input type="checkbox"/> real numbers
<input type="checkbox"/> legs (of a right triangle)	<input type="checkbox"/> square root of $x$

► Use the unit vocabulary to complete the problems.

- How are rational numbers and irrational numbers alike and different? Use at least three math or academic vocabulary terms in your explanation. Underline each term you use. Give an example of each type of number.  
Possible explanation: Rational and irrational numbers are alike because they are both real numbers. They are different because irrational numbers cannot be written as a fraction or repeating decimal. You can find a rational approximation for an irrational number. 0.33 is a rational number, and the square root of 2 is an irrational number.
- Is  $-5$  a square root of 25? Explain.  
Yes; Possible explanation: The product of  $-5$  and  $-5$  is 25.
- Describe a perfect cube. Use two math or academic vocabulary terms in your answer. Underline each term you use.  
Possible answer: A perfect cube is the product when an integer is used as a factor three times. For example,  $4 \times 4 \times 4 = 64$ . This means 64 is a perfect cube and the cube root of 64 is 4.
- The answer to a question is Use the Pythagorean Theorem. What might the question be?  
Possible answer: The question might be, "I know the lengths of the hypotenuse and one leg of a right triangle. How can I find the length of the other leg?"

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UNIT 6 • Vocabulary Review • Real Numbers: Rational Numbers, Irrational Numbers, and

### Academic Vocabulary Routine

Use with *Build Your Vocabulary*.

- Assess prior knowledge.**
  - Assess prior knowledge by asking students to place a check mark next to any vocabulary words they know or are familiar with.
  - Have students work in pairs to briefly discuss how and when they have used the words. Listen to assess if perceived knowledge is correct.
  - If you have Spanish speakers or speakers of other Latin-based languages, use the *Cognate Support* routine.
- Pronounce the words.**
  - Review the *Academic Vocabulary*.
  - Say each of the words aloud and then have students repeat to ensure correct pronunciation.
- Define the words.**
  - Call on volunteer pairs to provide meanings of the words they know.
  - Note which word(s) need more direct instruction and modeling.
  - Model the usage of the word(s) in context, using topics that connect with students in a meaningful way.
  - Provide the meaning of the word(s). See *Academic Vocabulary Glossary on the Teacher Toolbox*.
- Use the words.**
  - Have students write the word(s), their own descriptions or examples, and a picture, symbol, or graphic representation in their math journal.
  - Review the activity as a whole class and remediate where needed.

## Support at the Word, Sentence, and Discourse Levels

Prompts help students ask and answer questions, express ideas, and unpack complex sentences.

### DEVELOP ACADEMIC LANGUAGE

**WHY?** Support students as they respectfully disagree with an idea during discussion.

**HOW?** Discuss with students how to disagree with an idea respectfully during discourse. Ask them to disagree with the idea, not the person. Model for students how understanding and working through disagreements is a way to learn. Suggest these sentence frames:

- \_\_\_\_\_ said \_\_\_\_\_. I disagree because \_\_\_\_\_.
- I thought about this differently \_\_\_\_\_.

LESSON 6 | SESSION 2 ■ ■ ■ ■

### Develop Describing Congruent Angle Relationships

**Purpose**

- Develop strategies, such as using transformations, to show that certain angles formed by parallel lines cut by a transversal are congruent.
- Recognize that when the lines cut by a transversal are parallel, then alternate interior angles are congruent, alternate exterior angles are congruent, and corresponding angles are congruent.

**START CONNECT TO PRIOR KNOWLEDGE**

Same and Different

reflection	rotation
translation	dilation

Possible Solutions

All are transformations.

D is the only one that can change size.

A and B can both change orientation.

B and D both need a center.

**WHY?** Support students' facility with the characteristics of transformations.

**DEVELOP ACADEMIC LANGUAGE**

**WHY?** Support students as they respectfully disagree with an idea during discussion.

**HOW?** Discuss with students how to disagree with an idea respectfully during discourse. Ask them to disagree with the idea, not the person. Model for students how understanding and working through disagreements is a way to learn. Suggest these sentence frames:

- \_\_\_\_\_ said \_\_\_\_\_. I disagree because \_\_\_\_\_.
- I thought about this differently \_\_\_\_\_.

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

**Make Sense of the Problem**

See *Connect to Culture* to support student engagement. Before students work on Try It, use *Say it Another Way* to help them make sense of the problem. Listen for understanding that in a sequence of transformations, there is one or more movements, including reflection, rotation, translation, or dilation.

121 LESSON 6 Describe Angle Relationships ©Curriculum Associates, LLC. Copying is not permitted.



# Cultivate a Mindset for Learning

Create a community of interconnected learners. By developing the whole child, encouraging collaboration, and making time to reflect on their thinking, students not only become good mathematicians, but they also develop important life skills.

## UNIT 4 Algebraic Thinking

### Unit Big Ideas

This unit introduces students to generating equivalent expressions and solving multi-step equations and inequalities. 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.

The major themes of this unit are:

- You can apply properties of operations to generate equivalent expressions that reveal different aspects of a problem.
- You can use what you know about solving one-step equations to solve multi-step equations and inequalities.
- Reasoning about the effect of multiplying by a negative number can help you understand why the inequality symbol sometimes changes when solving inequalities.

### Self Check

- Take a few minutes to have each student independently read through the list of skills. Ask students to consider each skill and check the box if it is a skill they think they already have.
- Remind students that these skills are likely to all be new to them and that over time, they will be able to check off more and more skills.

### Support Whole Class Discussion

Engage students in a discussion about the skills with questions such as:

- Which skills seem related to something you already know?
- Which skills do you think you would use in your everyday life? Why?

### 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.

**Unit 4 Algebraic Thinking Expressions, Equations, and Inequalities**

**Self Check** Before starting this unit, check off the skills you know below. As you complete each lesson, see how many more skills you can check off!

I can ...	Before	After
Find equivalent expressions.	<input type="checkbox"/>	<input type="checkbox"/>
Rewrite expressions in different forms.	<input type="checkbox"/>	<input type="checkbox"/>
Solve multi-step equations.	<input type="checkbox"/>	<input type="checkbox"/>
Solve problems using equations.	<input type="checkbox"/>	<input type="checkbox"/>
Solve inequalities.	<input type="checkbox"/>	<input type="checkbox"/>
Solve problems using inequalities.	<input type="checkbox"/>	<input type="checkbox"/>
Graph the solution set of an inequality.	<input type="checkbox"/>	<input type="checkbox"/>
Actively participate in discussions by asking questions and replying or building on classmates' ideas.	<input type="checkbox"/>	<input type="checkbox"/>

Unit Skills	Lesson
Find equivalent expressions.	15
Rewrite linear equations in different forms.	
Solve multi-step equations.	
Solve problems using equations.	
Solve inequalities.	
Solve problems using inequalities.	
Graph the solution set of an inequality.	
Actively participate in discussions by asking questions and replying or building on classmates' ideas.	

## Support Student Agency

### Self Check

Let students check off skills they already know before starting a unit, and then reflect on their progress at the end of a unit.

## UNIT 4 Self Reflection

### Support Positive Learning Habits

#### Growth Mindset

Have students review the skills on the **Self Reflection** page and work in pairs to respond to the prompts. Encourage students to revisit the work they did in each lesson in order to help develop growth mindset.

- Remind students that this is the same list of skills that they saw on the **Self Check** page at the beginning of the unit.
- Tell students that revisiting the list of skills is an opportunity for them to reflect on their learning and progress during the unit.
- Have students read through the list of skills independently and then work in pairs to respond to the prompts. Encourage students to revisit the work they did in each lesson as they think about how to respond to the prompts.
- Discuss students' responses to the prompts as a class if time permits. Tell students that they will build on these skills in later lessons during the year and/or in other 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. Students might also mention trying different visual representations to think about problems in new ways.

**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
Find equivalent expressions.	15
Rewrite expressions in different forms.	15, 16
Solve multi-step equations.	17, 18
Solve problems using equations.	18
Solve inequalities.	19
Solve problems using inequalities.	19
Graph the solution set of an inequality.	19
Actively participate in discussions by asking questions and replying or building on classmates' ideas.	15-19

### Think about what you have learned.

Use words, numbers, and drawings.

- Three examples of what I learned are ...
- The hardest thing I learned to do is \_\_\_\_\_ because ...
- A question I still have is ...

## Support Positive Learning Habits

Embedded support helps teachers promote and maintain healthy learning environments.

## Encourage Individual and Social Responsibility

Students reflect on their understanding and develop self-awareness, self-management, social awareness, relationship skills, and responsible decision making.



# Develop Persistent Problem Solvers

**Supports for Growth Mindset:** The Try–Discuss–Connect framework provides a structure to help students embrace challenge, collaborate with others, and reflect on what they have learned.



**Try It**

Students persevere through a novel problem independently.



**Discuss It**

Students share their thinking and learn how to agree or disagree respectfully.



**Connect It**

Students evaluate methods and consider the merits of different solution strategies.



## Promote Self-Management

Learning Games give students immediate feedback they can use to test strategies. After completing a level, students can choose whether the next round is harder or not, giving them agency over their learning.



# Get What You Need, When You Need It

Whether you're a 30-year veteran refining your craft or a first-year teacher exploring your new profession, our time-saving resources and support enable you to build your expertise. Choose from our wealth of resources to get what you need, when you need it.

## Support That Works for You

An abundance of resources and support are available to meet the unique needs of each teacher.

### Plan Lessons with Ease

Lesson Overview pages cover everything you need to quickly and effectively plan instruction.



### Embedded Support

Strategies, prompts, and in-the-moment guidance are available in the Teacher's Guide.

**Common Misconception** Listen for students who identify  $192\frac{1}{2}$  miles as the distance Chloe can travel in  $3\frac{1}{2}$  hours but conclude that since the distance is less than 200, the time to reach the destination would also be less. As students share their strategies, ask them to apply their reasoning to explain the steps they used to solve the problem.

### Facilitate Whole Class Discussion

Call on students to share selected strategies. Prompt students to describe what they noticed or assumed about the problem, what they decided to do as a result, and why.

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

**ASK** How does [student name]'s strategy use the rate given in the problem?

**LISTEN FOR** The given rate is 55 miles in 1 hour. Use the rate and equivalent ratios to find how many miles Chloe can drive in  $3\frac{1}{2}$  hours.

### Select and Sequence Student Strategies

Select 2–3 samples that represent the range of student thinking in your classroom. Here is one possible order for class discussion:

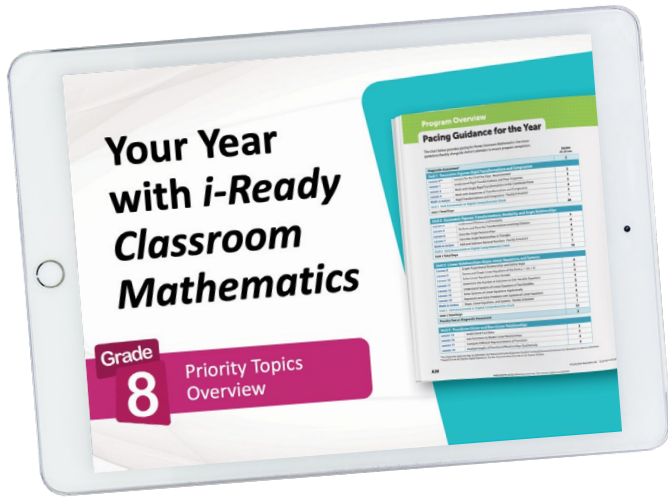
- tables of equivalent ratios that show the number of miles traveled each hour and half hour when moving at a constant speed of 55 miles per hour
- **(misconception)** strategies that identify the distance of  $192\frac{1}{2}$  miles in  $3\frac{1}{2}$  hours but conclude that since the distance is less than 200 miles, the time to reach the destination would be less
- double number lines that show the number of miles traveled in  $3\frac{1}{2}$  hours when traveling at a constant speed of 55 miles per hour
- equations that find the number of miles Chloe can travel in  $3\frac{1}{2}$  hours when traveling at a constant speed of 55 miles per hour

# Professional Learning That Empowers

Teacher support designed to enhance the art and science of teaching mathematics

## Math Background

See how the models and strategies used in the unit fit into the learning progression.



## 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*.

UNIT 1  
Math Background

### Proportional Relationships

INSIGHTS ON ...

#### Scale and Scale Drawings

- Studying scale and scale drawings makes use of ratio reasoning students developed in Grade 6. It serves as a bridge to the subsequent work with proportional relationships in this unit, and it lays the foundation for students' understanding of dilations and similarity in Grade 8.
- A scale describes the relationship between lengths in the original figure and lengths in the scale drawing. A scale factor is the number you multiply an original length by to get the corresponding length in the scale drawing.
- Students apply equivalent ratios and unit rates as they interpret real-world scale drawings, such as maps and blueprints.
- EXAMPLE A map with a scale 1 cm : 5 mi has a scale factor of 5. You can find the distance in centimeters between two cities on the map and then multiply by 5 to find the actual distance in miles between the cities.
- Students use proportional reasoning to recreate a scale drawing of an object using a different scale, recognizing that the new drawing is a scale drawing of the original drawing.
- EXAMPLE On a scale drawing where 1 cm represents 12 ft, the length of a hallway is 2.5 cm. If you make a new scale drawing where 1 cm represents 6 ft, the length of the hallway in the new drawing is 5 cm.
- Common Misconception** Students may think that area scales by the same factor as length. Point out that the scale factor from a 2-cm square to a 4-cm square is 2, but the area of the larger square is 4 times the area of the smaller one.
- After students have learned about the constant of proportionality, they can revisit scale factor to connect the two concepts.

Students use **equivalent ratios** to explore **scale drawings** ...

$\triangle DEF$  is a scale drawing of  $\triangle ABC$ .

The ratio  $AB : DE$  is  $1 : 3$ .

The ratio  $BC : EF$  is  $2 : 6$ , or  $1 : 3$ .

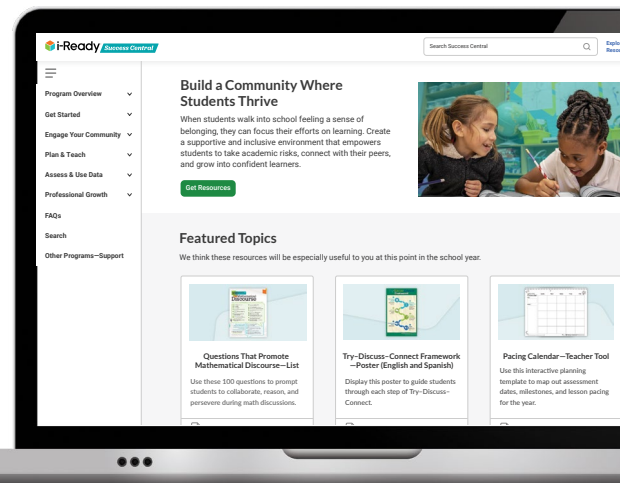
... and multiply by **scale factors** to find **unknown dimensions**.

The scale factor from  $\triangle ABC$  to  $\triangle DEF$  is 3.

$$AC = 2.5 \rightarrow DF = 2.5 \cdot 3 = 7.5$$

So,  $x = 7.5$ .

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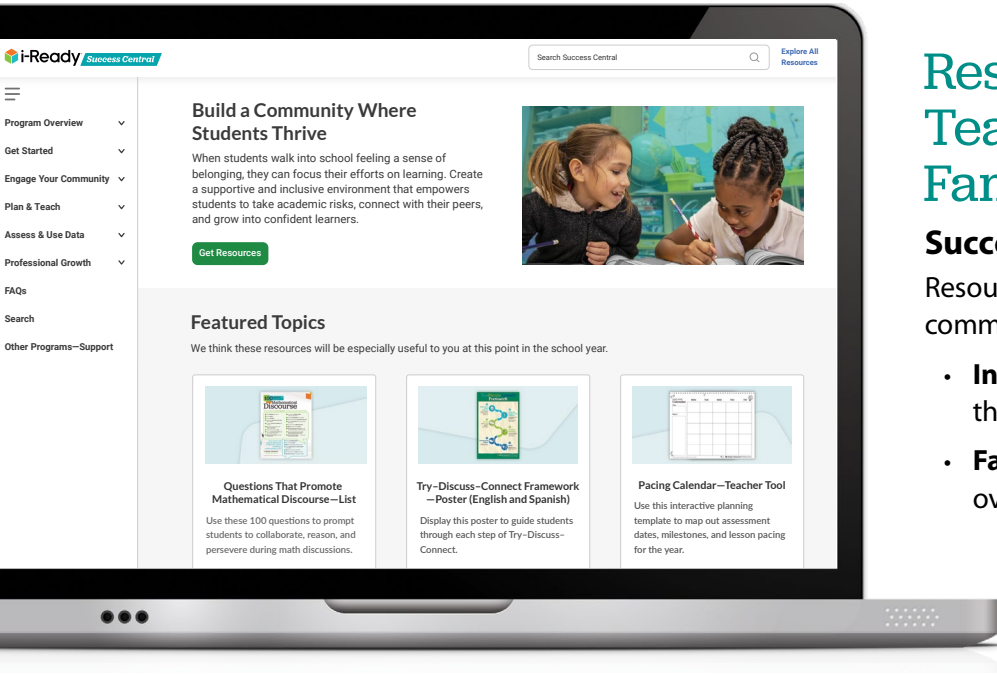
## Onsite, Online, and On-Demand Professional Development (PD)

Our ongoing, classroom-focused PD supports teachers in using students' thinking and mathematical practices to transform mathematics classrooms.



# Bring Classrooms and Communities Together

Extend learning beyond the classroom. *i-Ready Classroom Mathematics* has a wealth of resources families can use at home to support their students' mathematical growth.

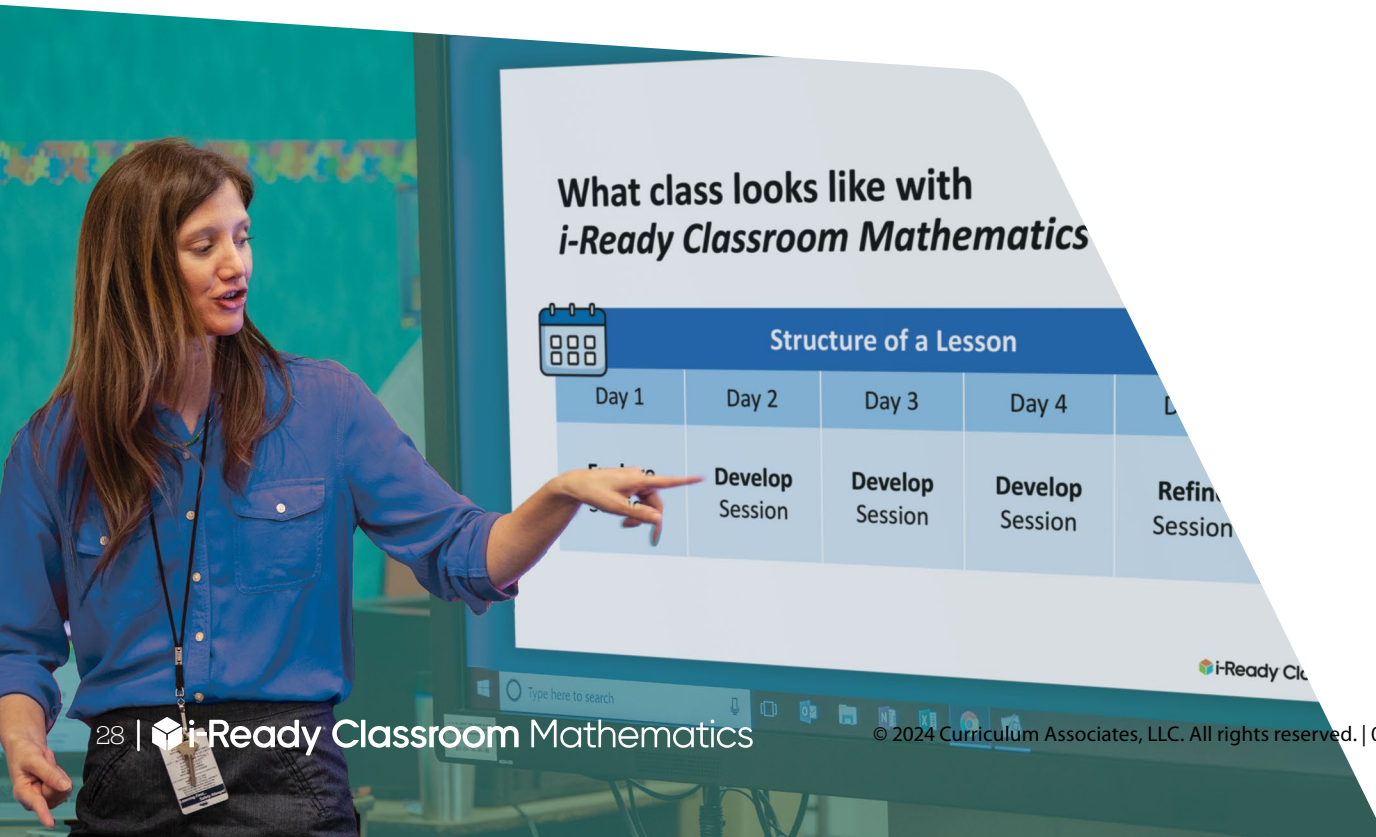


## Resources to Help Teachers Engage Families

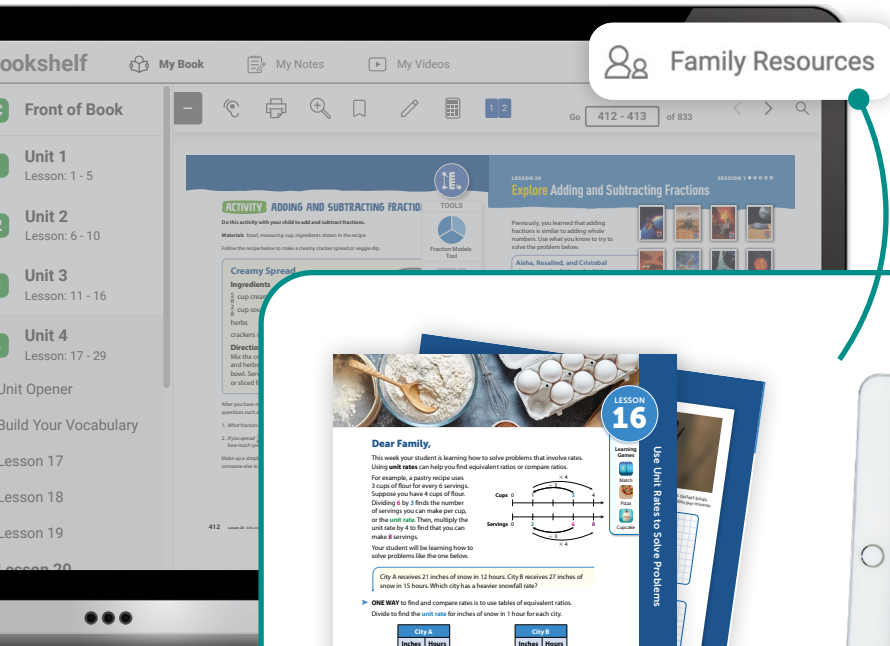
### Success Central

Resources for teachers to use to make family communication easier, including:

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



# Resources for Families



## Family Resources

### Resources Families Can Use to Understand Math Ideas

The Student Bookshelf provides access to the Student Worktext in a digital format and other Family Resources.

**Dear Family,**  
This week your student is learning how to solve problems that involve rates. Using **unit rates** can help you find equivalent ratios or compare rates. For example, a pastry recipe uses 3 cups of flour for every 6 servings. Suppose you have 4 cups of flour. Dividing by 3 finds the number of servings you can make per cup, or the unit rate. Then, multiply the unit rate by 4 to find that you can make 8 servings.

Your student will be learning how to solve problems like the one below.

City A receives 21 inches of snow in 12 hours. City B receives 27 inches of snow in 15 hours. Which city has a heavier snowfall rate?

**ONE WAY** is to find and compare rates. It is to use tables of equivalent ratios. Decide to find the unit rate for inches of snow in 1 hour for each city.

City A	City B
Inches	Inches
Hours	Hours
21	27
12	15
1.75	1.8
1	1

**ANOTHER WAY** is to use equations to find the unit rates.

Inches per hour for City A:  $\frac{21}{12} = 21 \div 12 = 1.75$   
Inches per hour for City B:  $\frac{27}{15} = 27 \div 15 = 1.8$   
Since  $1.8 > 1.75$ , City B receives more snow per hour than City A. Using either method, City B has the heavier snowfall rate.

**Equivalent Expressions**

Poster

6	Logo	Title
6	Picture	Details
15	x	18

Total Area:  
 $6x + 6(18) + 15x + 15(18)$   
 OR  
 $(x + 18)(6 + 15)$

**Family Letters**, available in 11 languages for every lesson, provide math background and an activity related to the lesson.

**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.



# Need Help? We're Here for You!

No matter how big or small your school is, you have an *i-Ready* partner dedicated to your account. We're experts in our product, so if you have a question or a problem, we can give you the answer—so you can get back to your students.



*“i-Ready Classroom Mathematics resources provide teachers with routines and structures that support the implementation of the effective teaching practices. This allows students to build a deep understanding of mathematical concepts, and it creates a seamless connection that supports both students and teachers.”*

—Marsha Burkholder  
Elementary Curriculum Specialist  
Columbus City Schools

*“Curriculum Associates . . . developed the tools and customer support systems that provide us with real-time information so we may maximize the skillset of our staff to do what’s in the best interest of our students.”*

—Josh Almeida  
Curriculum, Data, and Assessment Manager for Mathematics  
New Bedford Public Schools





# The Data Speaks for Itself

To help students thrive, teachers need high-quality instructional materials that make an impact. Our programs are designed, tested, and refined to maximize students' success. Don't take our word for it. Check out our proven results and top ratings from third parties.



*Ready® Mathematics* receives a **perfect score and an exemplary rating** during the Oregon Instructional Materials Evaluation Process.

2015



*Ready Mathematics* was the **only program approved** for Grades K–5 and 6–8 by the Idaho State Department of Education's mathematics review.

2016



Louisiana rates *Ready Mathematics* for Grades K–5 as Tier 1, signifying that the program **“meets all non-negotiable criteria and meets all required indicators of superior quality.”**  
In 2019, *Ready Mathematics* for Grades 6–8 was also rated as Tier 1.

2018

2019

*Ready Mathematics* for Grades K–8 received **all-green ratings from EdReports.**





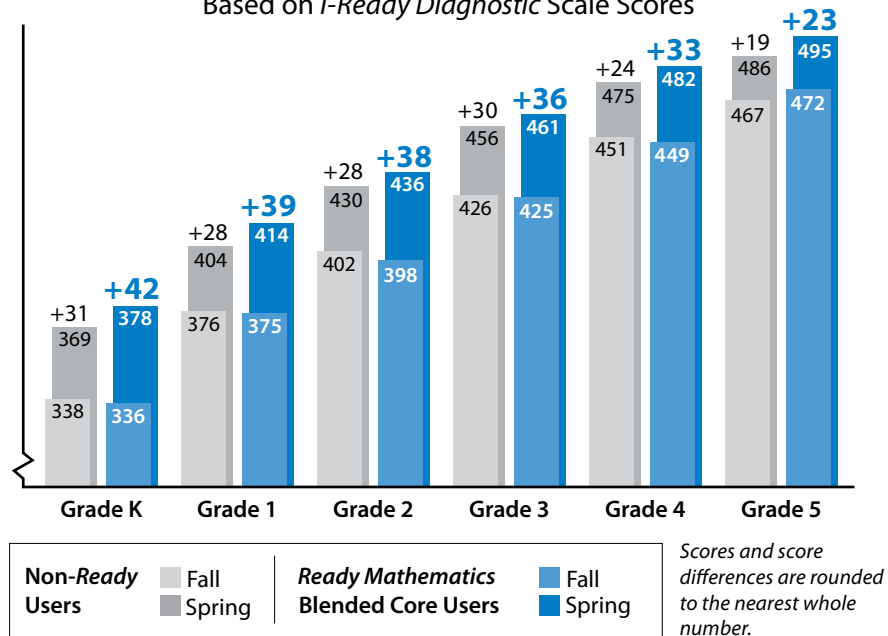
Third-party research conducted in three states, with 32 schools and 21,000 students, provides evidence of *Ready Mathematics*' success.

Read the full report: [CurriculumAssociates.com/Ready-Math-Blended-ESSA](https://CurriculumAssociates.com/Ready-Math-Blended-ESSA)

Because our program has been top rated from the beginning, **educators have had time to teach with and see real results from our blended instructional approach.**

### Growth in Student Performance

Based on *i-Ready Diagnostic Scale Scores*



2020

*i-Ready Classroom Mathematics* ©2020 for Grades K–8—the next evolution of *Ready Mathematics*—received **all-green ratings from EdReports.**

2021

2022

2023

2024

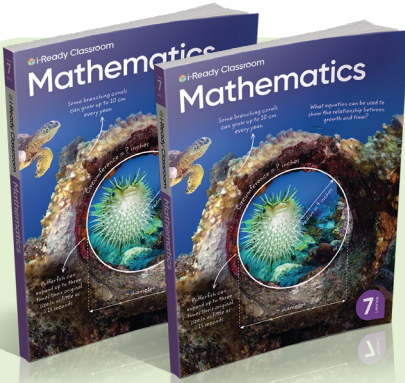
*i-Ready Classroom Mathematics* ©2024 received **all-green ratings and a perfect score for all Grades K–8 from EdReports.**

**Perfect Scores on EdReports**

Scan to learn more!

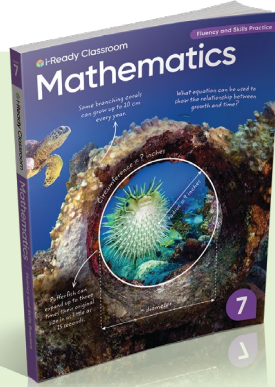


## Student Materials



### Student Worktext E/S

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



### Fluency and Skills Practice Book

Targeted fluency practice for every lesson. *Included on the Teacher Toolbox and available in print for additional purchase*



### Hands-On Materials

Engage students in hands-on learning. *Available at:*  
[Hand2Mind.com/](http://Hand2Mind.com/)  
[Curriculum-Associates](http://Curriculum-Associates)

## Student Digital Experience

The Student Digital Experience, accessible through [i-ReadyConnect.com](http://i-ReadyConnect.com), provides access to all student components of *i-Ready Classroom Mathematics*.

**Student Bookshelf** provides online access to student resources, including:

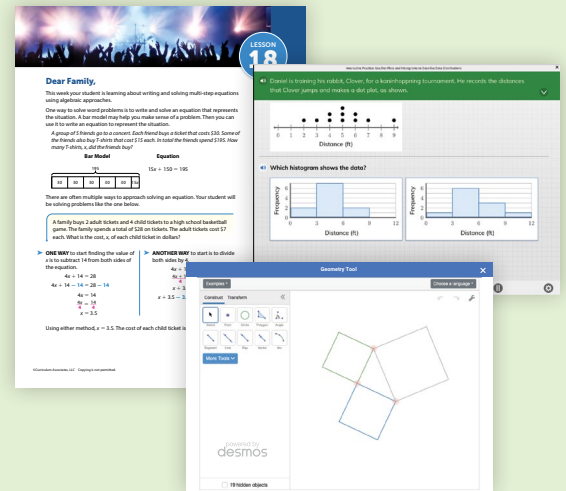
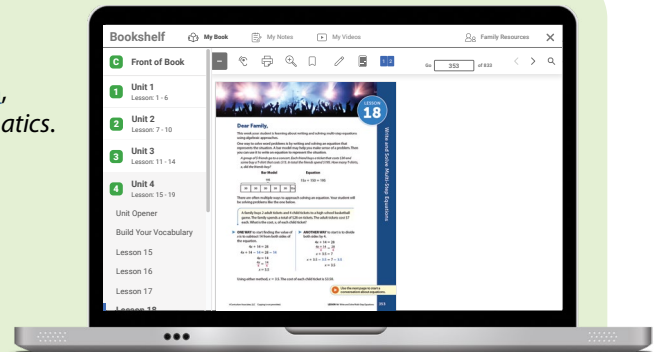
- **Digital Student Worktext E/S** includes tools, such as note-taking, text-to-speech, highlighting, and a calculator.
- **Family Resources E/S** include a Family Letter for every lesson and Unit Flow & Progression Videos.
- **Multilingual Glossary E/S** available in 11 languages
- **Student Handbook E/S** with a guide to the Standards for Mathematical Practice, a mathematical language reference tool, and 100 Mathematical Discourse Questions
- **Develop Session Video Library** offers instructional videos for remote learning, homework support, or reteaching concepts.

**Digital Math Tools** powered by Desmos provide virtual representations of various models.

**Interactive Learning Games E/S** develop conceptual understanding, improve fluency, and build a positive relationship to challenge.

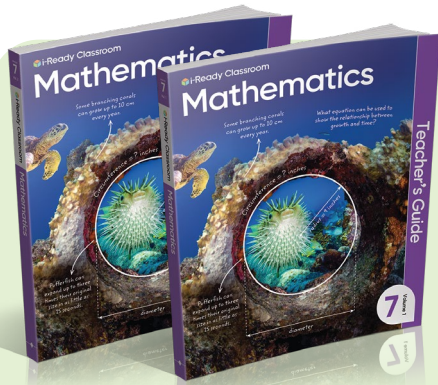
**Interactive Practice E/S** helps students build procedural fluency and skills by providing immediate, meaningful feedback.

**Optional Add-On: *i-Ready Personalized Instruction* E/S**



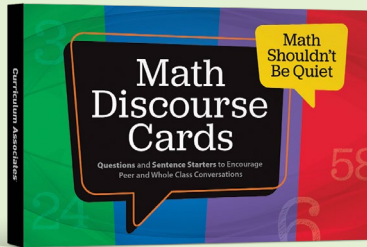
E/S = Available in English and Spanish

# Teacher Materials



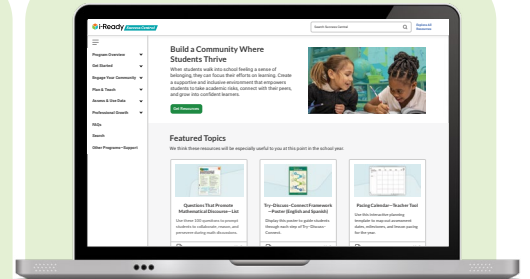
## Teacher's Guide E/S

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



## Discourse Cards E/S

This resource provides questions and sentence starters to get students talking about mathematics. Available in print and online



## Success Central

Online teacher portal provides on-demand access to tips and resources for a successful implementation.

## Teacher Digital Experience

The Teacher Digital Experience, accessible through [i-ReadyConnect.com](https://i-ReadyConnect.com), provides access to all teacher components of *i-Ready Classroom Mathematics*.

**Teacher Toolbox** provides access to all Grades K–8 resources in one convenient location. A few highlights include:

- Interactive Tutorials E/S
- Digital Math Tools Powered by Desmos
- Lesson PowerPoint® Slides E/S
- Fluency and Skills Practice E/S
- Center Activities E/S
- Enrichment Activities E/S
- Assessment Resources E/S
- Unit Flow & Progression Videos\*
- Literacy Connections E/S
- Unit Games E/S
- Develop Session Video Library

### Digital Practice Resources

- Learning Games E/S
- Interactive Practice E/S

### Digital Assessments

- Diagnostic E/S
- Comprehension Checks E/S

### Reports

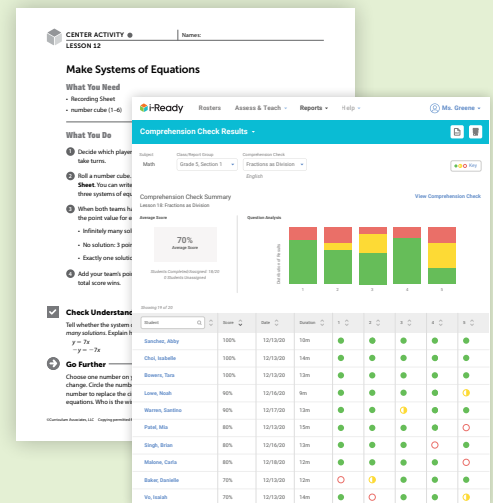
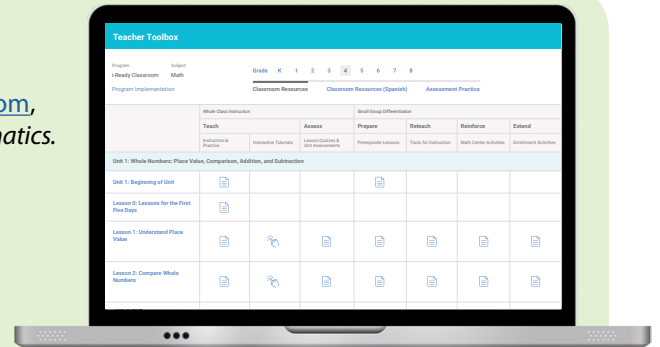
- Diagnostic Results
- Comprehension Check Results
- Prerequisites
- Learning Games

### Professional Learning

- Online Educator Learning

### Optional Add-On

- *i-Ready Personalized Instruction* E/S



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Learn more at  
[i-ReadyClassroomMathematics.com/24](https://i-ReadyClassroomMathematics.com/24).

To see how other educators are maximizing their  
*i-Ready Classroom Mathematics* experience, follow us on social media!



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