i-Ready Classroom Mathematics

Algebra 1

Program Overview

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 Algebra 1 is a seamless extension of our trusted Grades K–8 core mathematics program, designed to support students in being successful with the rigorous mathematics expectations and content in Algebra 1. Here's how . . .

Promote Meaningful Math Learning with a Purposeful Plan

Provide students with a variety of experiences through lessons that give them the time they need to develop conceptual understanding, build procedural fluency, and apply concepts they've learned to new situations.

Make the Most of Instructional Time with Multiple-Day Lessons

Within a lesson, each session (or day) plays a different role in supporting student understanding. The amount of time for each session can be adjusted to fit a 45- to 60-minute math block.

- ✓ Abundant, high-quality print and digital resources for practice both at school and at home
- ✓ Standards-based lesson instruction grounded in the National Council of Teachers of Mathematics (NCTM)'s Effective Mathematics Teaching Practices (EMTPs)
- ✓ Built-in time to bridge prerequisite skills and differentiate instruction

Structure of a Lesson

Help students make connections and develop a deep conceptual understanding through multiple-day lessons that make the best use of instructional time.

Day 1	Day 2	Day 3	Day 4	Day 5
Explore Session	**Develop** Sessions *One to Four Develop Sessions in Each Lesson*			**Refine** Session
Connect prior knowledge that relates to the lesson and introduce new lesson content.	Build multidimensional understanding using rich tasks, problem solving, discourse, and multiple representations alongside opportunities to practice new skills and apply new learning.			Strengthen skills and understanding with in-class practice time and differentiation.

Lessons in *i-Ready Classroom Mathematics Algebra 1* 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 NCTM's EMTPs** 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)** for the benefit of all students.

Spark Curiosity: *Explore Session*

1 Day
Explore Session

1–4 Days **Develop** Sessions

1 Day **Refine** Session

The first session of the multiple-day lesson starts by activating students' prior knowledge and introduces new, related content taught in each lesson.

Effective Math Teaching Practices

NCTM's 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 . . .

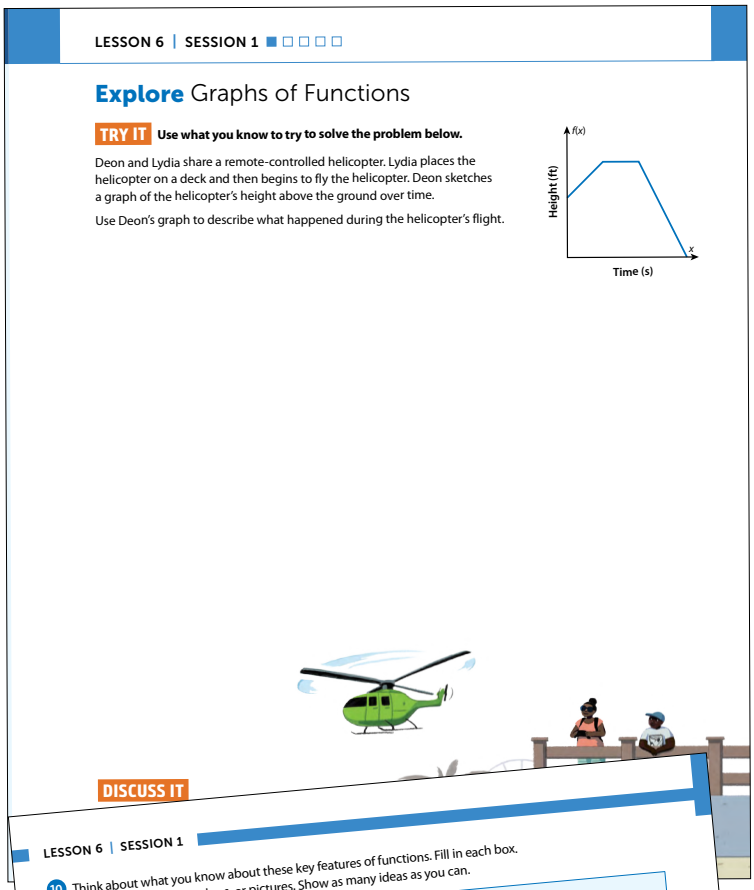
1. Establish mathematics goals that focus on learning.
2. Implement tasks that promote reasoning and problem solving.
3. Use and connect mathematical representations.
4. Facilitate meaningful mathematical discourse.
5. Pose purposeful questions.
6. Build procedural fluency from conceptual understanding.
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 an engaging problem they can solve using previously learned models and strategies that are relevant to the new content of the lesson.

NCTM EMTP 2



LESSON 6 | SESSION 1

Explore Graphs of Functions

TRY IT **Use what you know to try to solve the problem below.**

Deon and Lydia share a remote-controlled helicopter. Lydia places the helicopter on a deck and then begins to fly the helicopter. Deon sketches a graph of the helicopter's height above the ground over time.

Use Deon's graph to describe what happened during the helicopter's flight.

DISCUSS IT

LESSON 6 | SESSION 1

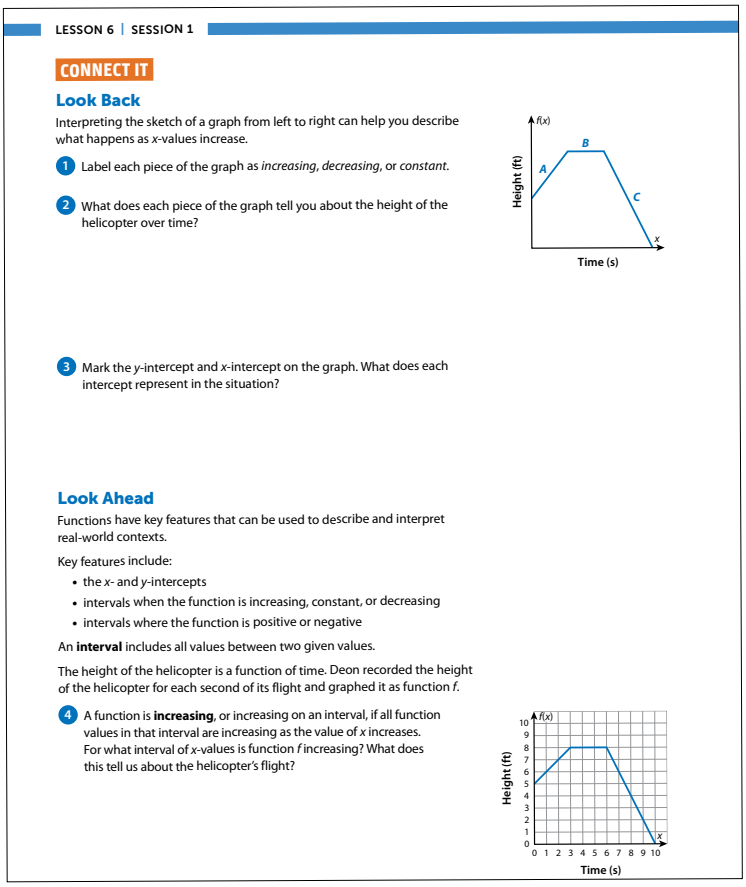
10 Think about what you know about these key features of functions. Fill in each box. You can use words, numbers, or pictures. Show as many ideas as you can.

Word	In My Own Words	Examples
increasing interval		
decreasing interval		
constant interval		
positive function value		
negative function value		

Build a Bridge to New Lesson Content

Look Back/Look Ahead prompts solidify conceptual understanding and help students connect what they know to what they're learning.

NCTM EMTP 5



LESSON 6 | SESSION 1

CONNECT IT

Look Back

Interpreting the sketch of a graph from left to right can help you describe what happens as *x*-values increase.

1 Label each piece of the graph as *increasing*, *decreasing*, or *constant*.

2 What does each piece of the graph tell you about the height of the helicopter over time?

3 Mark the *y*-intercept and *x*-intercept on the graph. What does each intercept represent in the situation?

Look Ahead

Functions have key features that can be used to describe and interpret real-world contexts.

Key features include:

- the *x*- and *y*-intercepts
- intervals when the function is increasing, constant, or decreasing
- intervals where the function is positive or negative

An **interval** includes all values between two given values.

The height of the helicopter is a function of time. Deon recorded the height of the helicopter for each second of its flight and graphed it as function *f*.

4 A function is **increasing**, or increasing on an interval, if all function values in that interval are increasing as the value of *x* increases. For what interval of *x*-values is function *f* increasing? What does this tell us about the helicopter's flight?

Develop Mathematical Vocabulary

Students use a graphic organizer to review previously learned terms that play a key role in the lesson.

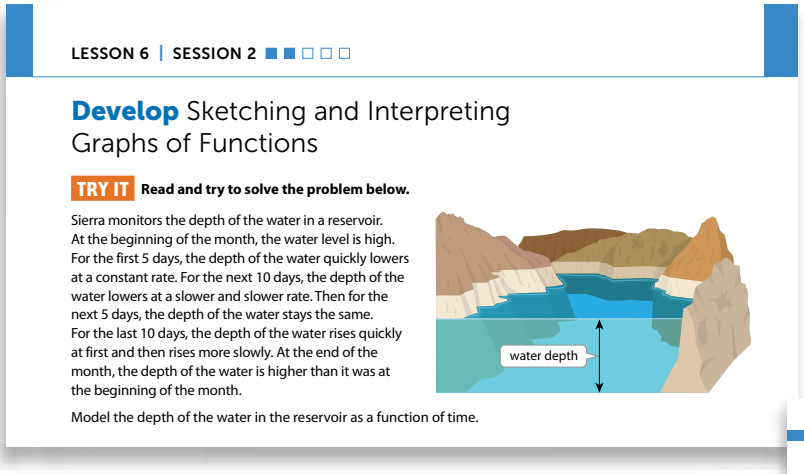
Build Understanding: *Develop Sessions*

1 Day Explore Session | **1–4 Days Develop Sessions** | 1 Day Refine Session

Help students make sense of mathematics by making connections across multiple representations through discourse. Each lesson includes one to four sessions devoted to helping students build a lasting understanding of Algebra 1 concepts.

A Powerful Framework for Instruction

The **Try–Discuss–Connect instructional framework** in Explore and Develop sessions seamlessly incorporates multiple routines and best practices into instruction while integrating language and mathematics to help students develop deeper mathematics understanding.



LESSON 6 | SESSION 2 ■ ■ □ □ □

Develop Sketching and Interpreting Graphs of Functions

TRY IT **Read and try to solve the problem below.**

Sierra monitors the depth of the water in a reservoir. At the beginning of the month, the water level is high. For the first 5 days, the depth of the water quickly lowers at a constant rate. For the next 10 days, the depth of the water lowers at a slower and slower rate. Then for the next 5 days, the depth of the water stays the same. For the last 10 days, the depth of the water rises quickly at first and then rises more slowly. At the end of the month, the depth of the water is higher than it was at the beginning of the month.

Model the depth of the water in the reservoir as a function of time.

Try It

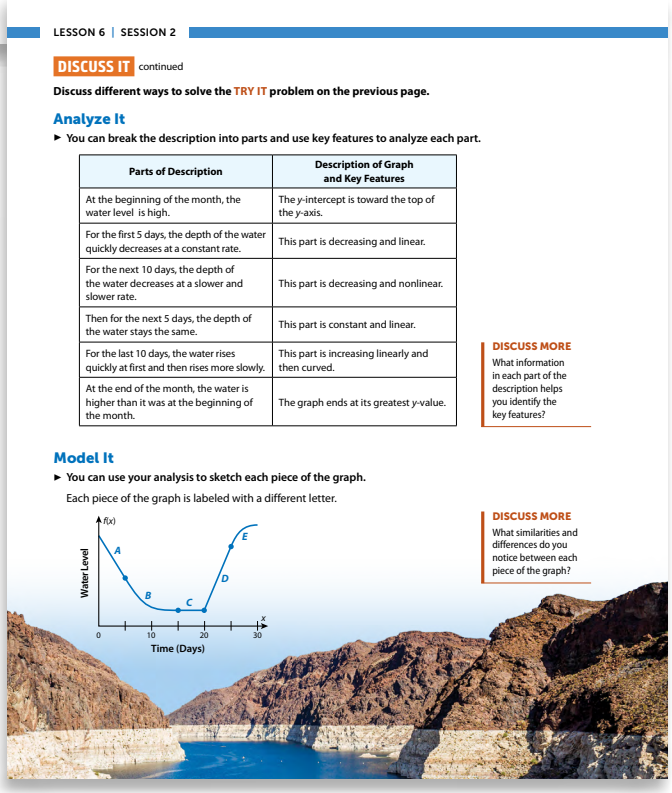
Students make sense of an engaging, real-world problem and persevere in solving and supporting their thinking. NCTM EMTP 7

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

Discuss It

Students share their thinking in partner and whole class discussions and compare strategies. NCTM EMTP 2

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



LESSON 6 | SESSION 2

DISCUSS IT continued

Discuss different ways to solve the TRY IT problem on the previous page.

Analyze It

► You can break the description into parts and use key features to analyze each part.

Parts of Description	Description of Graph and Key Features
At the beginning of the month, the water level is high.	The *y*-intercept is toward the top of the *y*-axis.
For the first 5 days, the depth of the water quickly decreases at a constant rate.	This part is decreasing and linear.
For the next 10 days, the depth of the water decreases at a slower and slower rate.	This part is decreasing and nonlinear.
Then for the next 5 days, the depth of the water stays the same.	This part is constant and linear.
For the last 10 days, the water rises quickly at first and then rises more slowly.	This part is increasing linearly and then curved.
At the end of the month, the water is higher than it was at the beginning of the month.	The graph ends at its greatest *y*-value.

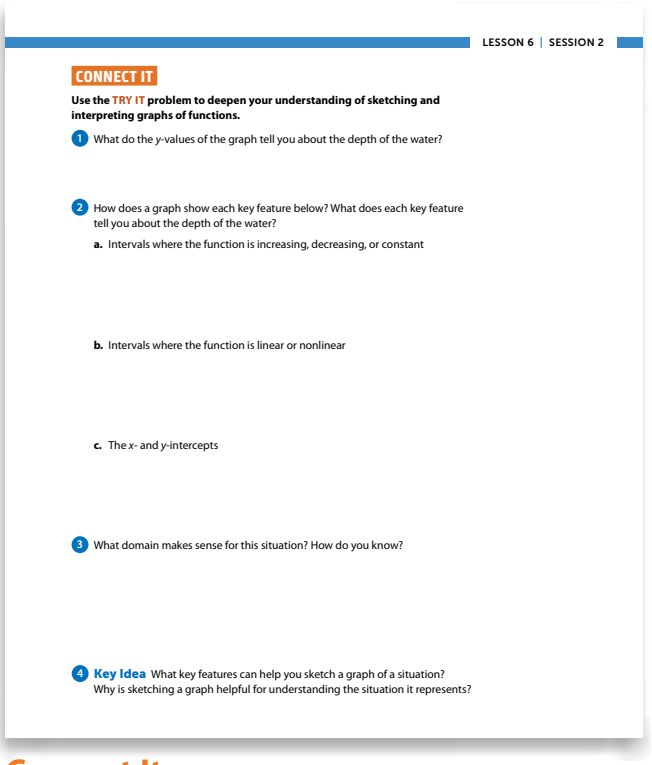
DISCUSS MORE
What information in each part of the description helps you identify the key features?

Model It

► You can use your analysis to sketch each piece of the graph.

Each piece of the graph is labeled with a different letter.

DISCUSS MORE
What similarities and differences do you notice between each piece of the graph?



LESSON 6 | SESSION 2

CONNECT IT

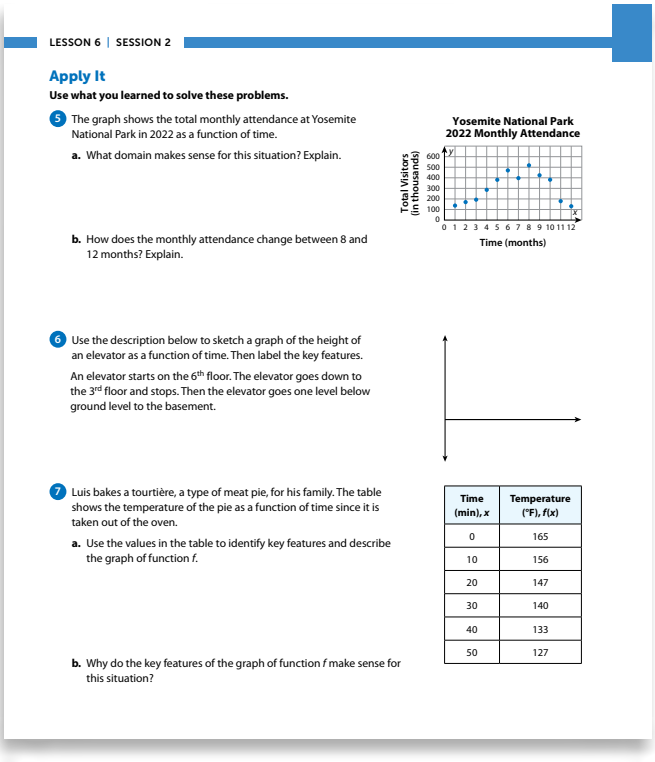
Use the TRY IT problem to deepen your understanding of sketching and interpreting graphs of functions.

1. What do the *y*-values of the graph tell you about the depth of the water?

2. How does a graph show each key feature below? What does each key feature tell you about the depth of the water?
   - **a.** Intervals where the function is increasing, decreasing, or constant
   - **b.** Intervals where the function is linear or nonlinear
   - **c.** The *x*- and *y*-intercepts

3. What domain makes sense for this situation? How do you know?

4. **Key Idea** What key features can help you sketch a graph of a situation? Why is sketching a graph helpful for understanding the situation it represents?



LESSON 6 | SESSION 2

Apply It

Use what you learned to solve these problems.

5. The graph shows the total monthly attendance at Yosemite National Park in 2022 as a function of time.
   - **a.** What domain makes sense for this situation? Explain.
   - **b.** How does the monthly attendance change between 8 and 12 months? Explain.

6. Use the description below to sketch a graph of the height of an elevator as a function of time. Then label the key features.

   An elevator starts on the 6th floor. The elevator goes down to the 3rd floor and stops. Then the elevator goes one level below ground level to the basement.

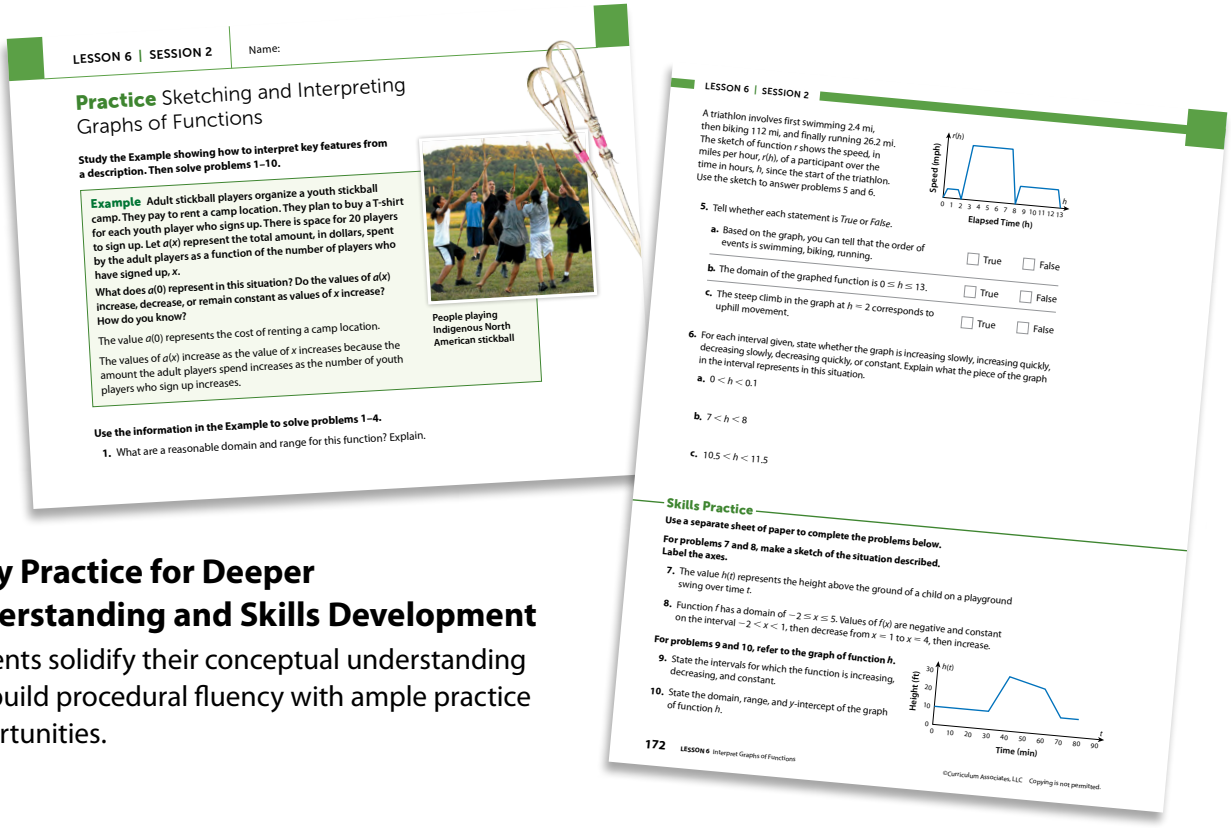
7. Luis bakes a tourtière, a type of meat pie, for his family. The table shows the temperature of the pie as a function of time since it is taken out of the oven.
   - **a.** Use the values in the table to identify key features and describe the graph of function *f*.
   - **b.** Why do the key features of the graph of function *f* make sense for this situation?

Time (min), x	Temperature (°F), $f(x)$
0	165
10	156
20	147
30	140
40	133
50	127

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.



LESSON 6 | SESSION 2 Name:

Practice Sketching and Interpreting Graphs of Functions

Study the Example showing how to interpret key features from a description. Then solve problems 1–10.

Example Adult stickball players organize a youth stickball camp. They pay to rent a camp location. They plan to buy a T-shirt for each youth player who signs up. There is space for 20 players to sign up. Let $a(x)$ represent the total amount, in dollars, spent by the adult players as a function of the number of players who have signed up, x.

What does $a(0)$ represent in this situation? Do the values of $a(x)$ increase, decrease, or remain constant as values of x increase? How do you know?

The value $a(0)$ represents the cost of renting a camp location.

The values of $a(x)$ increase as the value of x increases because the amount the adult players spend increases as the number of youth players who sign up increases.

People playing Indigenous North American stickball

Use the information in the Example to solve problems 1–4.

1. What are a reasonable domain and range for this function? Explain.

LESSON 6 | SESSION 2

A triathlon involves first swimming 2.4 mi, then biking 112 mi, and finally running 26.2 mi. The sketch of function r shows the speed, in miles per hour, $r(h)$, of a participant over the time in hours, h, since the start of the triathlon. Use the sketch to answer problems 5 and 6.

5. Tell whether each statement is *True* or *False*.
   - **a.** Based on the graph, you can tell that the order of events is swimming, biking, running. ☐ True ☐ False
   - **b.** The domain of the graphed function is $0 \leq h \leq 13$. ☐ True ☐ False
   - **c.** The steep climb in the graph at $h = 2$ corresponds to uphill movement. ☐ True ☐ False

6. For each interval given, state whether the graph is increasing slowly, increasing quickly, decreasing slowly, decreasing quickly, or constant. Explain what the piece of the graph in the interval represents in this situation.
   - **a.** $0 < h < 0.1$
   - **b.** $7 < h < 8$
   - **c.** $10.5 < h < 11.5$

Skills Practice

Use a separate sheet of paper to complete the problems below.

For problems 7 and 8, make a sketch of the situation described. Label the axes.

7. The value $h(t)$ represents the height above the ground of a child on a playground swing over time t.

8. Function f has a domain of $-2 \leq x \leq 5$. Values of $f(x)$ are negative and constant on the interval $-2 < x < 1$, then decrease from $x = 1$ to $x = 4$, then increase.

For problems 9 and 10, refer to the graph of function h.

9. State the intervals for which the function is increasing, decreasing, and constant.

10. State the domain, range, and y-intercept of the graph of function h.

172 LESSON 6 Interpret Graphs of Functions

Daily Practice for Deeper Understanding and Skills Development

Students solidify their conceptual understanding and build procedural fluency with ample practice opportunities.

Make Learning Stick: *Refine Session*

1 Day Explore Session | 1–4 Days Develop Sessions | **1 Day Refine Session**

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

Dedicated Class Time for Practice and Differentiation

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

Assess students' understanding and progress by analyzing students' accuracy on initial problems. 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

Visual Model
Use a table to analyze the behavior of a function.

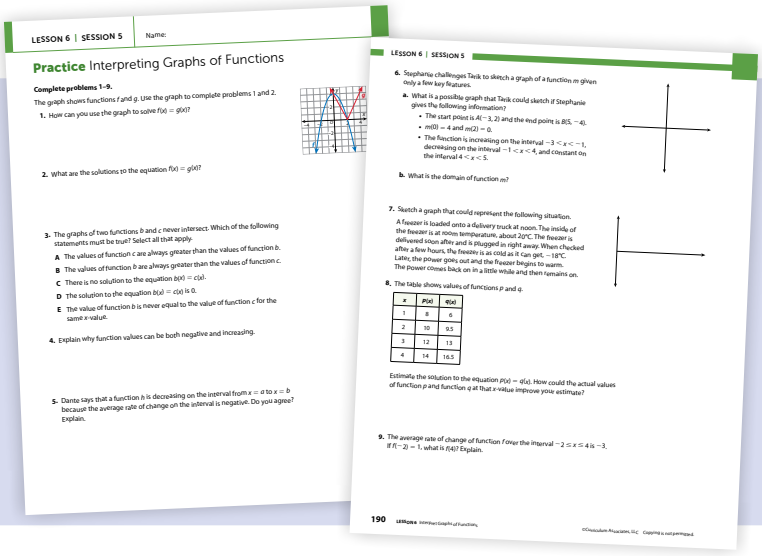
Students approaching proficiency with analyzing graphs of functions will benefit from adapting their procedures to analyze the information provided in a table.

x	−4	−3	−2	−1	0	1	2	3	4
$f(x)$	9	6	3	0	−3	−6	−9	−12	−15
$g(x)$	0	−3.5	−6	−7.5	−8	−7.5	−6	−3.5	0

- Display the table above. Ask: *What intercepts for the graphs of f and g can you identify?* [*f*: *y*-intercept: −3, *x*-intercept: −1; *g*: *y*-intercept: −8, *x*-intercepts: −4, 4]
- Ask: *On what intervals does each function appear to be increasing or decreasing?* [*f*: appears to be decreasing from $x = -4$ to $x = 4$; *g*: appears to be decreasing from $x = 0$ to $x = -8$, then increasing from $x = -8$ to $x = 0$]
- Ask: *Why can we only say that the function appears to be increasing and decreasing at these intervals?* [It is unclear what is happening between the given *x*-values.]
- Ask: *Are the graphs of f and g linear or nonlinear?* [*f*: linear; *g*; nonlinear]
- Have students estimate the solution to the equation $f(x) = g(x)$. [Sample: $x \approx 1.5$]
- Display graphs of $f(x) = -3x - 3$ and $g(x) = -\frac{1}{2}x^2 - 8$. Have students use the graphs to confirm or modify their initial analyses.

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

NCTM EMTP 6


LESSON 6 | SESSION 5 Name:

Practice Interpreting Graphs of Functions

Complete problems 1–9.

The graph shows functions *f* and *g*. Use the graph to complete problems 1 and 2.

1. How can you use the graph to solve $f(x) = g(x)$?

2. What are the solutions to the equation $f(x) = g(x)$?

3. The graphs of two functions *b* and *c* never intersect. Which of the following statements must be true? Select all that apply.
   - A The values of function *c* are always greater than the values of function *b*.
   - B The values of function *b* are always greater than the values of function *c*.
   - C There is no solution to the equation $b(x) = c(x)$.
   - D The solution to the equation $b(x) = c(x)$ is 0.
   - E The value of function *b* is never equal to the value of function *c* for the same *x*-value.

4. Explain why function values can be both negative and increasing.

5. Dante says that a function *h* is decreasing on the interval from $x = a$ to $x = b$ because the average rate of change on the interval is negative. Do you agree? Explain.

LESSON 6 | SESSION 5

6. Stephanie challenges Tarik to sketch a graph of a function *m* given only a few key features.
   a. What is a possible graph that Tarik could sketch if Stephanie gives the following information?
      - The start point is $A(-3, 2)$ and the end point is $B(5, -4)$.
      - $m(0) = 4$ and $m(2) = 0$.
      - The function is increasing on the interval $-3 < x < -1$, decreasing on the interval $-1 < x < 4$, and constant on the interval $4 < x < 5$.
   b. What is the domain of function *m*?

7. Sketch a graph that could represent the following situation.
   A freezer is loaded onto a delivery truck at noon. The inside of the freezer is at room temperature, about 20°C. The freezer is delivered soon after and is plugged in right away. When checked after a few hours, the freezer is as cold as it can get, −18°C. Later, the power goes out and the freezer begins to warm. The power comes back on in a little while and then remains on.

8. The table shows values of functions *p* and *q*.

x	$p(x)$	$q(x)$
1	8	6
2	10	9.5
3	12	13
4	14	16.5

Estimate the solution to the equation $p(x) = q(x)$. How could the actual values of function *p* and function *q* at that *x*-value improve your estimate?

9. The average rate of change of function *f* over the interval $-2 \le x \le 4$ is −3. If $f(-2) = 1$, what is $f(4)$? Explain.

190 LESSON 6 Interpreting Graphs of Functions

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

NCTM EMTPs 2 and 3

EXTEND

Challenge
Model real-world situations with graphs.

Students extending beyond proficiency will benefit from sketching graphs that represent real-world situations.

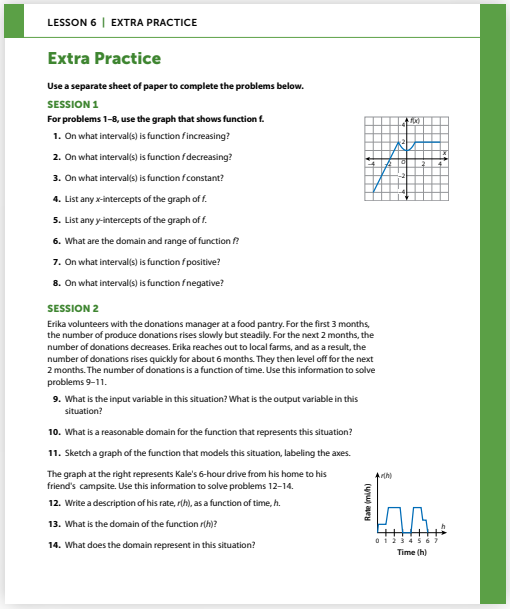
- Have students sketch and label a graph showing distance from home as a function of time for a trip in which they leave home, visit three different locations, and then return home.
- For the same trip, have students sketch and label a graph showing the total distance traveled along the trip.
- Have students interpret each other's graphs, paying special attention to how the features of the distance from home and total distance graphs differ.

Strengthen and Reinforce Learning

Build students' conceptual understanding, develop procedural fluency, and provide opportunities to apply their learning to novel situations with a variety of high-quality print and digital practice and enrichment resources. **NCTM EMTP 6**

Provide Practice Geared for Independence

Opportunities to practice through a variety of practice problem types help students recognize patterns and connections and develop a more flexible approach to problem solving as they build conceptual understanding, procedural fluency, and confidence with algebraic concepts.



LESSON 6 | EXTRA PRACTICE

Extra Practice

Use a separate sheet of paper to complete the problems below.

SESSION 1

For problems 1–8, use the graph that shows function f.

1. On what interval(s) is function *f* increasing?
2. On what interval(s) is function *f* decreasing?
3. On what interval(s) is function *f* constant?
4. List any *x*-intercepts of the graph of *f*.
5. List any *y*-intercepts of the graph of *f*.
6. What are the domain and range of function *f*?
7. On what interval(s) is function *f* positive?
8. On what interval(s) is function *f* negative?

SESSION 2

Erika volunteers with the donations manager at a food pantry. For the first 3 months, the number of produce donations rises slowly but steadily. For the next 2 months, the number of donations decreases. Erika reaches out to local farms, and as a result, the number of donations rises quickly for about 6 months. They then level off for the next 2 months. The number of donations is a function of time. Use this information to solve problems 9–11.

9. What is the input variable in this situation? What is the output variable in this situation?
10. What is a reasonable domain for the function that represents this situation?
11. Sketch a graph of the function that models this situation, labeling the axes.

The graph at the right represents Kale's 6-hour drive from his home to his friend's campsite. Use this information to solve problems 12–14.

12. Write a description of his rate, *r*(*h*), as a function of time, *h*.
13. What is the domain of the function *r*(*h*)?
14. What does the domain represent in this situation?

Rate (mi/h)

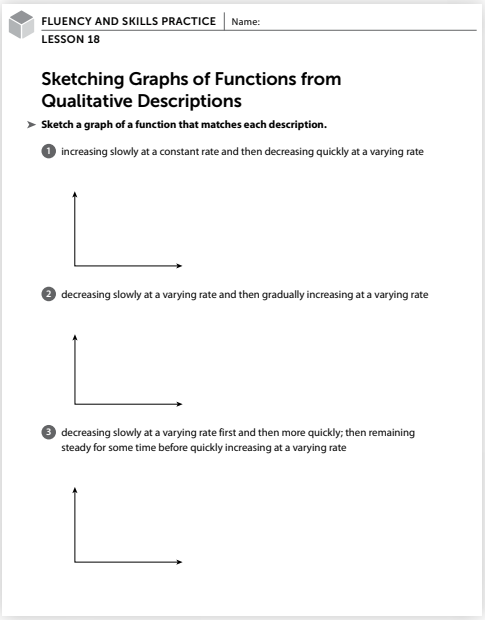
Time (h)

Abundant Practice in the Student Worktext

Practice is included for each session, and extra practice is available for each day of the multiple-day lesson.

Fluency and Skills Practice

Optional targeted practice for each lesson. Available as a student workbook or as assignable PDFs on the Teacher Toolbox, a digital resource for all instructional material located in one convenient place.



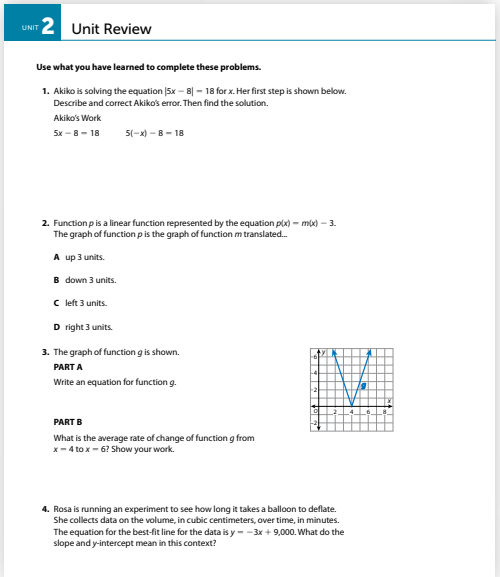
FLUENCY AND SKILLS PRACTICE | Name:

LESSON 18

Sketching Graphs of Functions from Qualitative Descriptions

➤ **Sketch a graph of a function that matches each description.**

1. increasing slowly at a constant rate and then decreasing quickly at a varying rate
2. decreasing slowly at a varying rate and then gradually increasing at a varying rate
3. decreasing slowly at a varying rate first and then more quickly; then remaining steady for some time before quickly increasing at a varying rate



UNIT 2 Unit Review

Use what you have learned to complete these problems.

1. Akiko is solving the equation $|5x - 8| = 18$ for *x*. Her first step is shown below. Describe and correct Akiko's error. Then find the solution.

   Akiko's Work

   $5x - 8 = 18 \qquad 5(-x) - 8 = 18$

2. Function *p* is a linear function represented by the equation $p(x) = m(x) - 3$. The graph of function *p* is the graph of function *m* translated...

   A up 3 units.

   B down 3 units.

   C left 3 units.

   D right 3 units.

3. The graph of function *g* is shown.

   PART A

   Write an equation for function *g*.

   PART B

   What is the average rate of change of function *g* from $x = 4$ to $x = 6$? Show your work.

4. Rosa is running an experiment to see how long it takes a balloon to deflate. She collects data on the volume, in cubic centimeters, over time, in minutes. The equation for the best-fit line for the data is $y = -3x + 9{,}000$. What do the slope and *y*-intercept mean in this context?

Cumulative Practice

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

Google Classroom

Easily assign resources to Google Classroom.

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

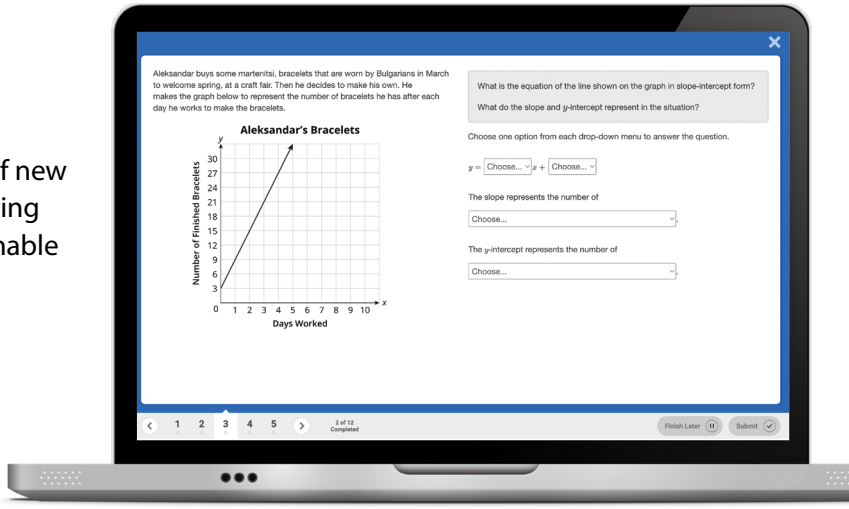
Desmos Graphing Calculator Quick Connects

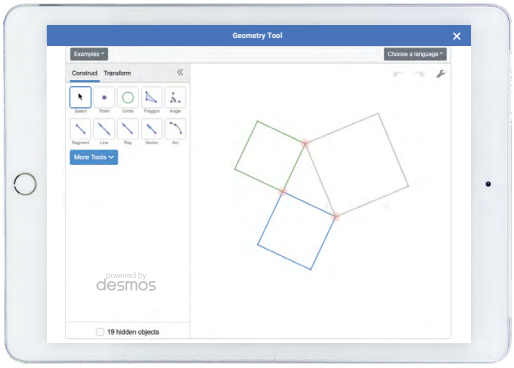
Specific problems in Algebra 1 are pre-configured in Desmos Graphing Calculator Quick Connects and provide a way to explore the mathematics of the problem digitally.

Digital Practice System

Students engage in dynamic, ongoing practice of new and previously learned mathematics skills, receiving immediate feedback with on-demand and assignable digital practice.

Available beginning in the 2025–2026 school year



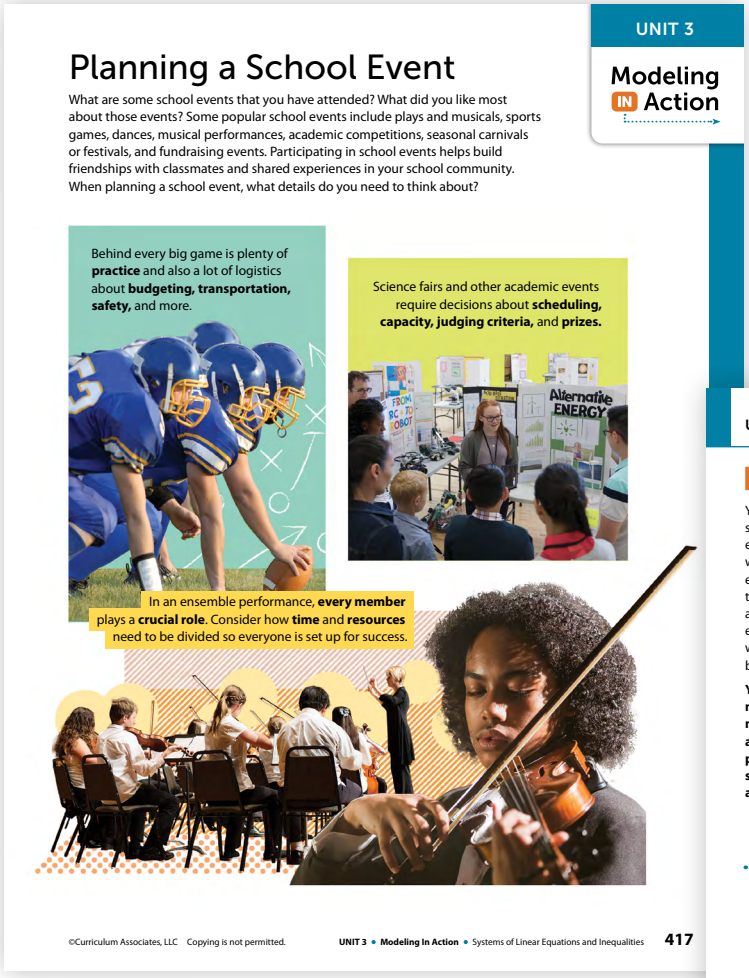


Digital Math Tools Powered by Desmos

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

Engage in Every Step of the Modeling Cycle

Students take ownership of the six-step modeling cycle and build confidence in their ability to apply mathematics creatively to authentic scenarios.



UNIT 3

Modeling IN Action

Planning a School Event

What are some school events that you have attended? What did you like most about those events? Some popular school events include plays and musicals, sports games, dances, musical performances, academic competitions, seasonal carnivals or festivals, and fundraising events. Participating in school events helps build friendships with classmates and shared experiences in your school community. When planning a school event, what details do you need to think about?

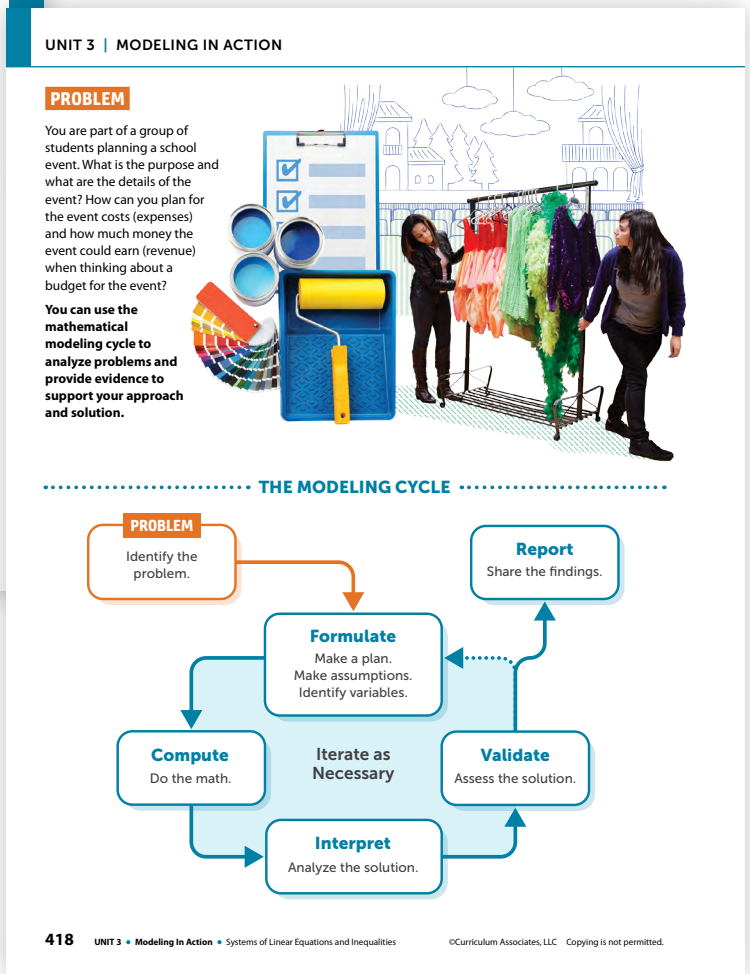
Behind every big game is plenty of **practice** and also a lot of logistics about **budgeting, transportation, safety,** and more.

Science fairs and other academic events require decisions about **scheduling, capacity, judging criteria,** and **prizes.**

In an ensemble performance, **every member** plays a **crucial role**. Consider how **time** and **resources** need to be divided so everyone is set up for success.

Modeling in Action

The last lesson in every unit is a Modeling in Action lesson that focuses on the application of the modeling standards that were taught in the unit, providing students with a foundation for problem solving they can use well beyond high school mathematics.



PROBLEM

You are part of a group of students planning a school event. What is the purpose and what are the details of the event? How can you plan for the event costs (expenses) and how much money the event could earn (revenue) when thinking about a budget for the event?

You can use the mathematical modeling cycle to analyze problems and provide evidence to support your approach and solution.

THE MODELING CYCLE

PROBLEM
Identify the problem.

Report
Share the findings.

Formulate
Make a plan.
Make assumptions.
Identify variables.

Compute
Do the math.

Iterate as Necessary

Validate
Assess the solution.

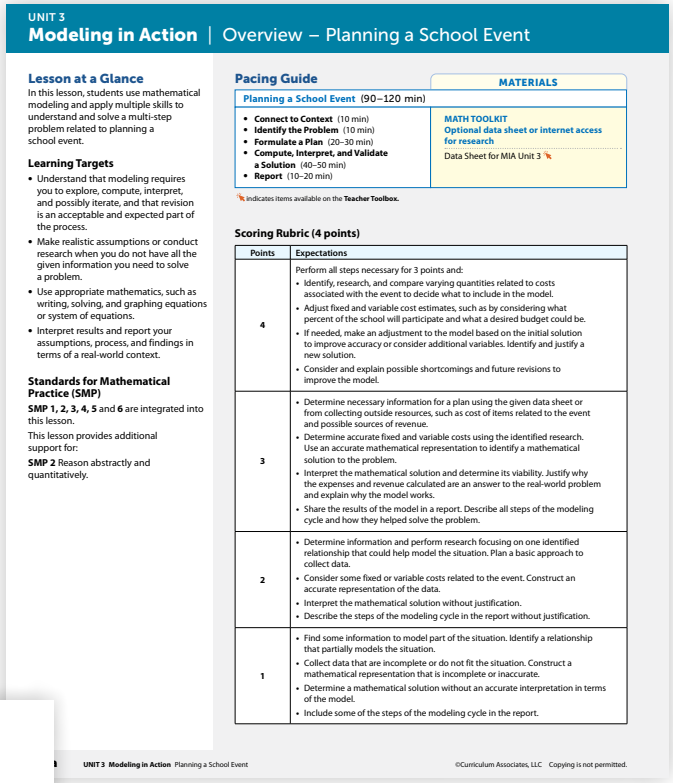
Interpret
Analyze the solution.

Apply Modeling to Real-World Contexts

Students engage with relevant contexts and make genuine decisions that guide their process as they engage with each step of the modeling cycle.

Support Modeling with Embedded Instructional Tools

Teachers have access to scoring rubrics, guidance, and resources they need to support students as they engage in the modeling cycle during Modeling in Action lessons.



UNIT 3
Modeling in Action | Overview – Planning a School Event

Lesson at a Glance
In this lesson, students use mathematical modeling and apply multiple skills to understand and solve a multi-step problem related to planning a school event.

Learning Targets
- Understand that modeling requires you to explore, compute, interpret, and possibly iterate, and that revision is an acceptable and expected part of the process.
- Make realistic assumptions or conduct research when you do not have all the given information you need to solve a problem.
- Use appropriate mathematics, such as writing, solving, and graphing equations or system of equations.
- Interpret results and report your assumptions, process, and findings in terms of a real-world context.

Standards for Mathematical Practice (SMP)
SMP 1, 2, 3, 4, 5 and **6** are integrated into this lesson.
This lesson provides additional support for:
SMP 2 Reason abstractly and quantitatively.

Pacing Guide

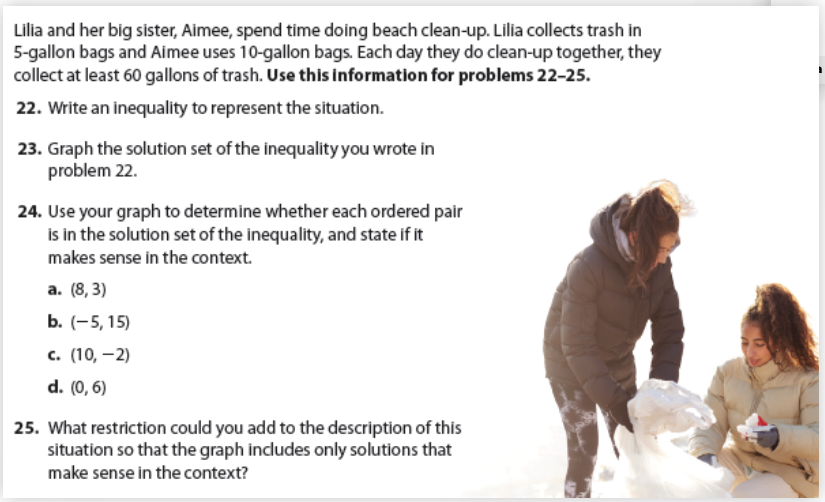
Planning a School Event (90–120 min)	MATERIALS
• **Connect to Context** (10 min) • **Identify the Problem** (10 min) • **Formulate a Plan** (20–30 min) • **Compute, Interpret, and Validate a Solution** (40–50 min) • **Report** (10–20 min)	**MATH TOOLKIT** **Optional data sheet or internet access for research** Data Sheet for MIA Unit 3

indicates items available on the **Teacher Toolbox.**

Scoring Rubric (4 points)

Points	Expectations
4	Perform all steps necessary for 3 points and: • Identify, research, and compare varying quantities related to costs associated with the event to decide what to include in the model. • Adjust fixed and variable cost estimates, such as by considering what percent of the school will participate and what a desired budget could be. • If needed, make an adjustment to the model based on the initial solution to improve accuracy or consider additional variables. Identify and justify a new solution. • Consider and explain possible shortcomings and future revisions to improve the model.
3	• Determine necessary information for a plan using the given data sheet or from collecting outside resources, such as cost of items related to the event and possible sources of revenue. • Determine accurate fixed and variable costs using the identified research. Use an accurate mathematical representation to identify a mathematical solution to the problem. • Interpret the mathematical solution and determine its viability. Justify why the expenses and revenue calculated are an answer to the real-world problem and explain why the model works. • Share the results of the model in a report. Describe all steps of the modeling cycle and how they helped solve the problem.
2	• Determine information and perform research focusing on one identified relationship that could help model the situation. Plan a basic approach to collect data. • Consider some fixed or variable costs related to the event. Construct an accurate representation of the data. • Interpret the mathematical solution without justification. • Describe the steps of the modeling cycle in the report without justification.
1	• Find some information to model part of the situation. Identify a relationship that partially models the situation. • Collect data that are incomplete or do not fit the situation. Construct a mathematical representation that is incomplete or inaccurate. • Determine a mathematical solution without an accurate interpretation in terms of the model. • Include some of the steps of the modeling cycle in the report.

UNIT 3 **Modeling in Action** Planning a School Event ©Curriculum Associates, LLC Copying is not permitted.



Lilia and her big sister, Aimee, spend time doing beach clean-up. Lilia collects trash in 5-gallon bags and Aimee uses 10-gallon bags. Each day they do clean-up together, they collect at least 60 gallons of trash. **Use this information for problems 22–25.**

22. Write an inequality to represent the situation.

23. Graph the solution set of the inequality you wrote in problem 22.

24. Use your graph to determine whether each ordered pair is in the solution set of the inequality, and state if it makes sense in the context.

a. (8, 3)

b. (−5, 15)

c. (10, −2)

d. (0, 6)

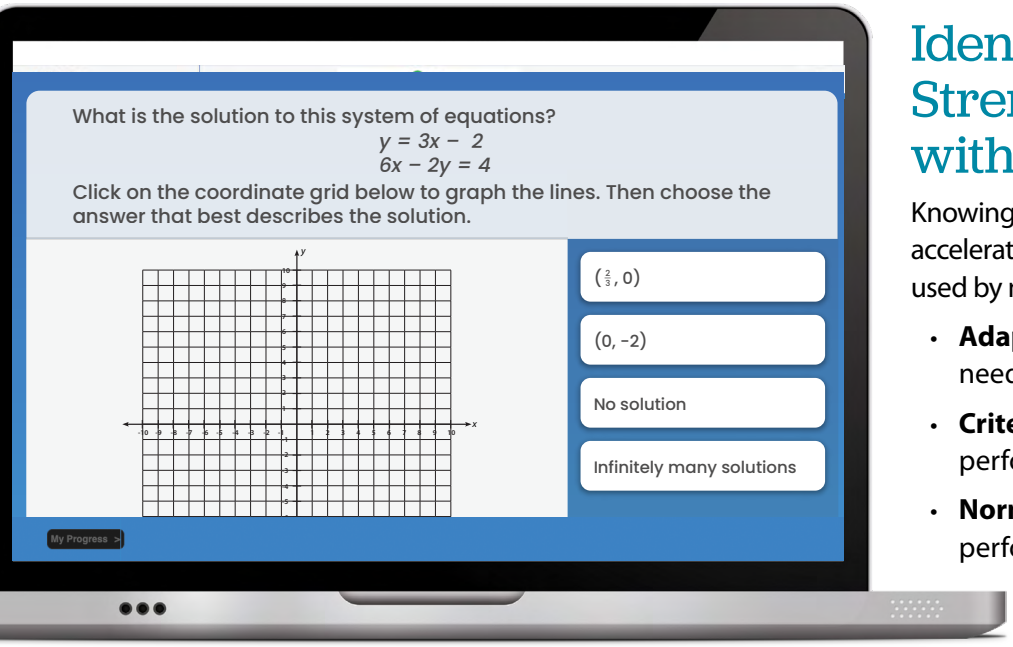
25. What restriction could you add to the description of this situation so that the graph includes only solutions that make sense in the context?

Frequent Modeling Practice

Students have ample opportunities to apply mathematical problem solving through modeling with practice problems that incorporate elements of the modeling cycle throughout each unit.

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' Strengths and Needs with the Diagnostic

Knowing every students' strengths is critical for accelerating students' learning. The Diagnostic is used by more than 13 million students because it's:

- **Adaptive:** 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.

THE Journal 2020 New Product Award

THE EDTECH AWARDS COOL TOOL WINNER 2022

Tech & Learning Best of Show ISTE20 Live Winner

Tech & Learning Awards of Excellence Remote Learning Winner

//CODiE// 2022 SIIA CODiE FINALIST

BUROS CENTER FOR TESTING

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

NCII National Center on Intensive Intervention at American Institutes for Research

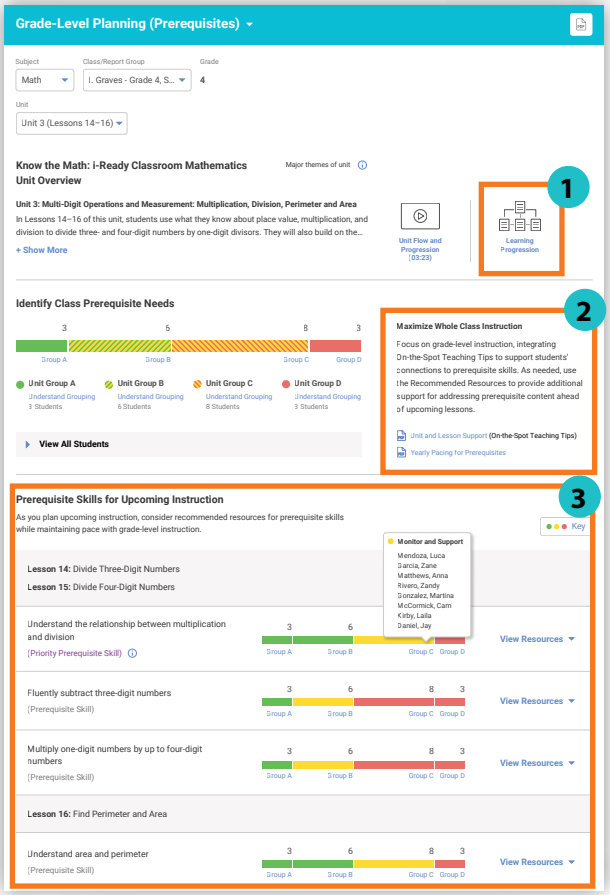
i-Ready received high ratings from the National Center on Intensive Intervention (NCII).

To see evidence that the Diagnostic is proven to work, visit CurriculumAssociates.com/Research-and-Efficacy.

Address Prerequisite Skills to Support Learning

Based on results from the Diagnostic, the Grade-Level Planning (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:** Receive recommended groupings based on students' needs and get targeted resources for addressing each groups' needs through teacher-led, partner, and independent activities.



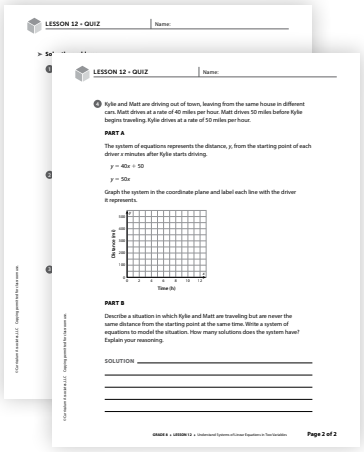
Grade 4 example shown—Algebra 1 Grade-Level Planning (Prerequisites) report available beginning in the 2025–2026 school year

Track, Support, and Celebrate Students' Learning

Know what your students know. *i-Ready Classroom Mathematics Algebra 1* 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.

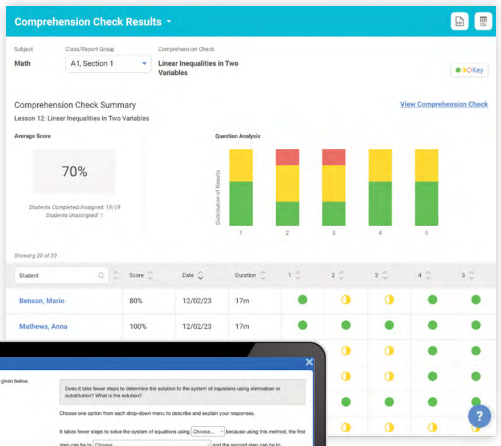
Assess Students' Understanding and Monitor Progress

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 Lesson Quizzes and Unit Assessments.

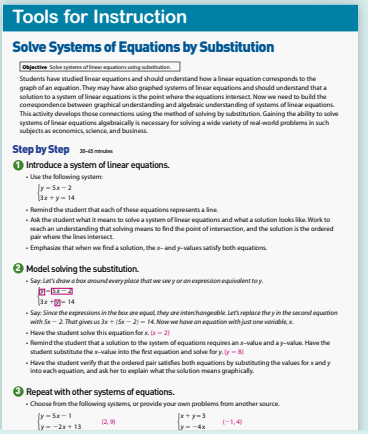


Digital Assessments

Comparable to the paper/pencil options, digital Comprehension Checks with audio support provide in-depth reports analyzing students' understanding of concepts. *Available beginning in the 2025–2026 school year*

Differentiation Resources for Each Lesson

Use assessments to identify instructional needs for each student, and choose from a variety of resources to best support each student's learning.


Tools for Instruction

Solve Systems of Equations by Substitution

Objective Solve systems of linear equations using substitution.

Students have studied linear equations and should understand how a linear equation corresponds to the graph of an equation. They may have also graphed systems of linear equations and should understand that a solution to a system of linear equations is the point where the equations intersect. Now we need to build the correspondence between graphical understanding and algebraic understanding of systems of linear equations. This activity develops those connections using the method of solving by substitution. Gaining the ability to solve systems of linear equations algebraically is necessary for solving a wide variety of real-world problems in such subjects as economics, science, and business.

Step by Step 20–45 minutes

1 Introduce a system of linear equations.

- Use the following system:

$$\begin{cases} y = 5x - 2 \\ 3x + y = 14 \end{cases}$$

- Remind the student that each of these equations represents a line.
- Ask the student what it means to solve a system of linear equations and what a solution looks like. Work to reach an understanding that solving means to find the point of intersection, and the solution is the ordered pair where the lines intersect.
- Emphasize that when we find a solution, the x– and y–values satisfy both equations.

2 Model solving the substitution.

- *Say: Let's draw a box around every place that we see y or an expression equivalent to y.*

$$\begin{cases} \square = 5x - 2 \\ 3x + \square = 14 \end{cases}$$

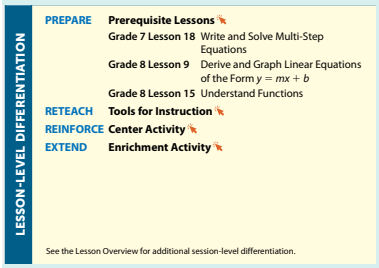
- *Say: Since the expressions in the box are equal, they are interchangeable. Let's replace the y in the second equation with 5x − 2. That gives us 3x + (5x − 2) = 14. Now we have an equation with just one variable, x.*
- Have the student solve this equation for x. ($x = 2$)
- Remind the student that a solution to the system of equations requires an x–value and a y–value. Have the student substitute the x–value into the first equation and solve for y. ($y = 8$)
- Have the student verify that the ordered pair satisfies both equations by substituting the values for x and y into each equation, and ask her to explain what the solution means graphically.

3 Repeat with other systems of equations.

- Choose from the following systems, or provide your own problems from another source.

$$\begin{cases} y = 5x - 1 \\ y = -2x + 13 \end{cases} \quad (2, 9) \qquad \begin{cases} x + y = 3 \\ y = -4x \end{cases} \quad (-1, 4)$$

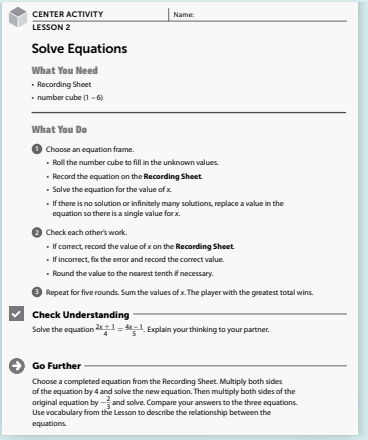
Reteach: Tools for Instruction are mini-lessons for reteaching lesson concepts.


LESSON-LEVEL DIFFERENTIATION

PREPARE **Prerequisite Lessons**
Grade 7 Lesson 18 Write and Solve Multi-Step Equations
Grade 8 Lesson 9 Derive and Graph Linear Equations of the Form $y = mx + b$
Grade 8 Lesson 15 Understand Functions
RETEACH **Tools for Instruction**
REINFORCE **Center Activity**
EXTEND **Enrichment Activity**

See the Lesson Overview for additional session-level differentiation.

Address Prerequisite Skills: Each lesson includes recommendations for Prerequisite Lessons that can be used to support students in preparing for upcoming instruction.


CENTER ACTIVITY Name:
LESSON 2

Solve Equations

What You Need
- Recording Sheet
- number cube (1 – 6)

What You Do

1 Choose an equation frame.
- Roll the number cube to fill in the unknown values.
- Record the equation on the **Recording Sheet**.
- Solve the equation for the value of x.
- If there is no solution or infinitely many solutions, replace a value in the equation so there is a single value for x.

2 Check each other's work.
- If correct, record the value of x on the **Recording Sheet**.
- If incorrect, fix the error and record the correct value.
- Round the value to the nearest tenth if necessary.

3 Repeat for five rounds. Sum the values of x. The player with the greatest total wins.

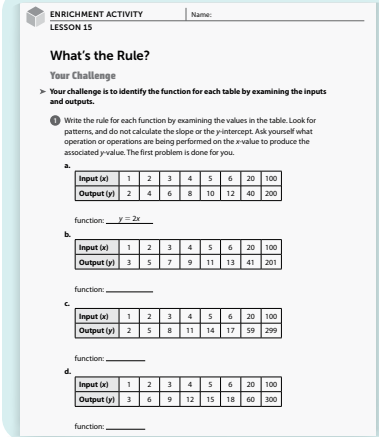
Check Understanding

Solve the equation $\frac{2x+1}{4} = \frac{6x-1}{5}$. Explain your thinking to your partner.

Go Further

Choose a completed equation from the Recording Sheet. Multiply both sides of the equation by 4 and solve the new equation. Then multiply both sides of the original equation by $-\frac{2}{3}$ and solve. Compare your answers to the three equations. Use vocabulary from the Lesson to describe the relationship between the equations.

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


ENRICHMENT ACTIVITY Name:
LESSON 15

What's the Rule?

Your Challenge

➤ **Your challenge is to identify the function for each table by examining the inputs and outputs.**

1 Write the rule for each function by examining the values in the table. Look for patterns, and do not calculate the slope or the y-intercept. Ask yourself what operation or operations are being performed on the x-value to produce the associated y-value. The first problem is done for you.

a.

Input (x)	1	2	3	4	5	6	20	100
Output (y)	2	4	6	8	10	12	40	200

function: $y = 2x$

b.

Input (x)	1	2	3	4	5	6	20	100
Output (y)	3	5	7	9	11	13	41	201

function: _____

c.

Input (x)	1	2	3	4	5	6	20	100
Output (y)	2	5	8	11	14	17	59	299

function: _____

d.

Input (x)	1	2	3	4	5	6	20	100
Output (y)	3	6	9	12	15	18	60	300

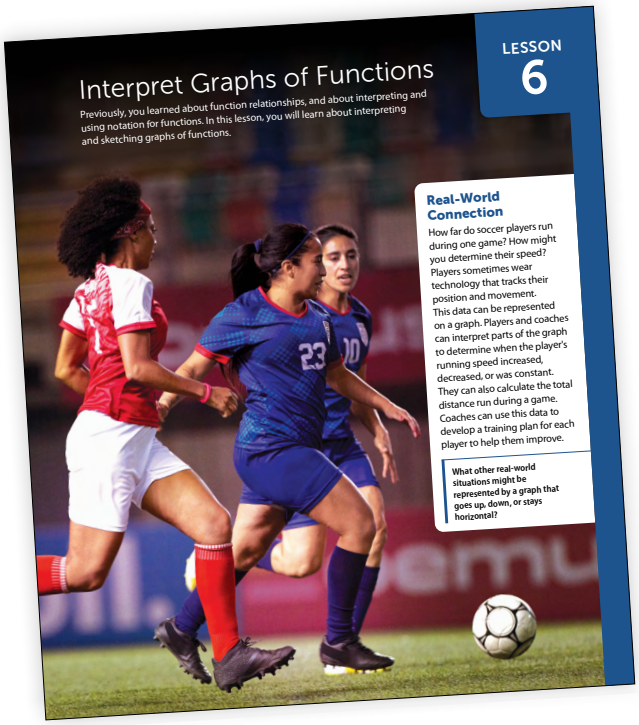
function: _____

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.

Embrace Students as Individuals

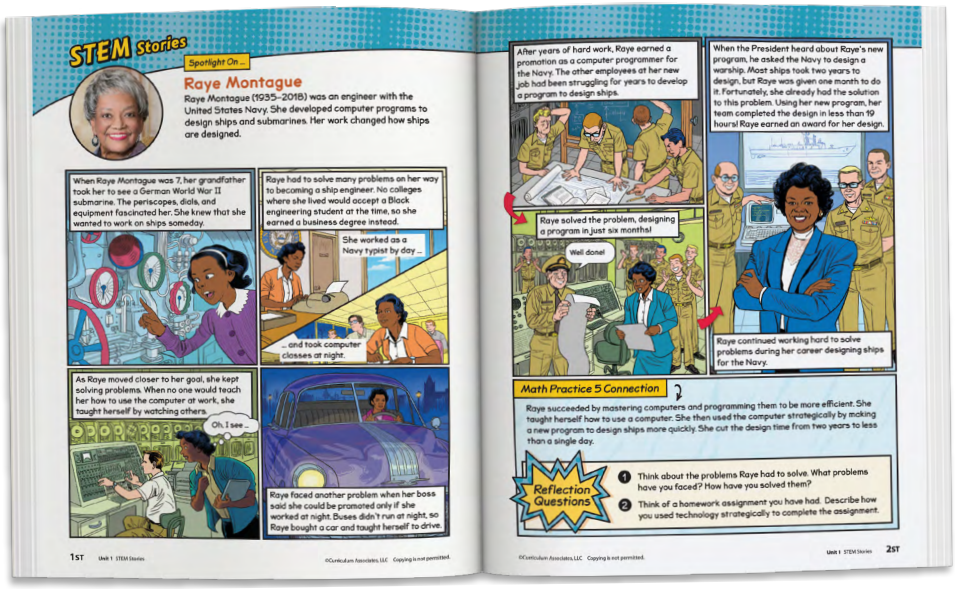
Engage all students and deepen their understanding of mathematical concepts with an asset-based approach to instruction that strives for engagement through investigations, connections, and culturally and linguistically relevant content.



Make Math Relevant
Each lesson opens with a relevant, real-world connection to the content of the upcoming lesson to engage students and prepare them for learning.

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. *Available beginning in the 2025–2026 school year*



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
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.

CONNECT TO CULTURE

SESSION 1 ■ □ □ □ □

Try It Ask partners to share what they know about boat racing. Explain that the Dragon Boat Festival includes a race that takes place on the 5th day of the 5th month of the Chinese lunar calendar. Each boat has pairs of rowers who face forward, one drummer at the front to keep the rowers in sync, and one person to steer. The dragon head and tail are attached to the boats for races, which take just 2 to 4 minutes! Take a quick poll to see if students would rather row, steer, beat the drum, or watch Dragon Boat races.

SESSION 4 ■ ■ ■ ■ □

Try It Invite students to recall who is pictured on U.S. currency and their role in the country. Explain that the Haitian 100 gourdes note pictures Henri Christophe, who helped lead The Haitian Revolution, in which self-liberated formerly enslaved people successfully ended French rule in 1804. The 10 gourdes note pictures Catherine Flon, who designed and sewed Haiti's first flag. Catherine was a nurse during the revolution and may have also been a spy. Encourage students to name and describe images on currency from outside the U.S. that they are familiar with.

TRY IT (5-10 min.) SMP 1, 2, 4, 5, 6

Make Sense of the Problem

See ***Connect to Culture*** to support student engagement. Use **Three Reads** to help students make sense of the problem. Check that students understand that the values in the distance column are decreasing because they represent the number of meters the team has not yet rowed.

DISCUSS IT (10-15 min.) SMP 2, 3, 6

Support Partner Discussion

As partners respond to Discuss It and further discuss Try It, listen for:

- The speed and the values in the table can help me find the distance the team rowed.
- The speed is a constant rate of change; it is the change in distance divided by the change in time.

Select and Sequence Student Strategies

Select 2–3 samples of student work for class discussion:

- uses the table of values to draw a graph to model this situation
- notices a pattern in the table of values and extends that pattern
- **Common Misconception: identifies the slope as 3.2 instead of −3.2;** Have students plot the values in the table on a coordinate grid, describe the direction, and relate it to the team's actions.
- writes and solves an equation

Facilitate Whole Class Discussion

Guide students to **Compare and Connect** the representations.

ASK *What does the boat being rowed at a constant speed tell you about the relationship between distance and time?*

LISTEN FOR The relationship between distance and time is linear.

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 Algebra 1* includes the resources to support both of these goals as students engage in reading, writing, speaking, and listening.

Increase Student Engagement

Supports for Language Development: Try–Discuss–Connect incorporates language routines to increase class participation and support students as they learn content, apply mathematical practices, and develop language.

Try It	Discuss It	Connect It
Language Routines • Three Reads • Co-craft Questions • Notice and Wonder • Say It Another Way **Teacher Moves** • Turn and Talk • Individual Think Time	**Language Routines** • Compare and Connect • Collect and Display **Teacher Moves** • Turn and Talk • Individual Think Time • Four Rs **Conversation Tips**	**Language Routines** • Collect and Display • Compare and Connect **Teacher Moves** • Turn and Talk • Individual Think Time • Four Rs

Differentiation For English Learners | **USE WITH CONNECT IT PROBLEM 1**

Levels 1–3: Speaking/Writing	**Levels 2–4:** Speaking/Writing	**Levels 3–5:** Speaking/Writing
Support students in writing responses to Connect It problem 1 using comparative language and sentence structures. Use **Notice and Wonder**. Ask: *What is the same in Model It and Analyze It?* Invite students to make comparisons with words or by pointing to their worktexts. Rephrase and record details in a Venn diagram. Repeat for what is different. Demonstrate how to use the sentence frames for comparisons. Then have partners discuss and write using: • *Both Model It and Analyze It _____.* • *Model It uses _____, but Analyze It uses _____.*	Support students in writing responses to Connect It problem 1 using comparative language and sentence structures. Have partners use **Notice and Wonder** with Model It and Analyze It. Prompt them to add details to a Venn diagram that compares the two approaches. Say: *You can use "both" and "and" to discuss similarities. You can use "however" to introduce a difference.* Guide practice comparing before students speak and write about the problem using: • *Both Model It and Analyze It _____.* • *However, Model It uses _____, while Analyze It uses _____.*	Support students in writing responses to Connect It problem 1 using comparative language and sentence structures. Have students use **Notice and Wonder** to make a Venn diagram comparing the strategies in Model It and Analyze It. Ask: *What words or sentence structures can you use to describe a similarity? A difference?* Have pairs write sentence frames for comparison and then share with the group. Record strong examples that include connecting words, such as *both, and, but, however,* and *while.* Have students write responses independently using the sentence frames.

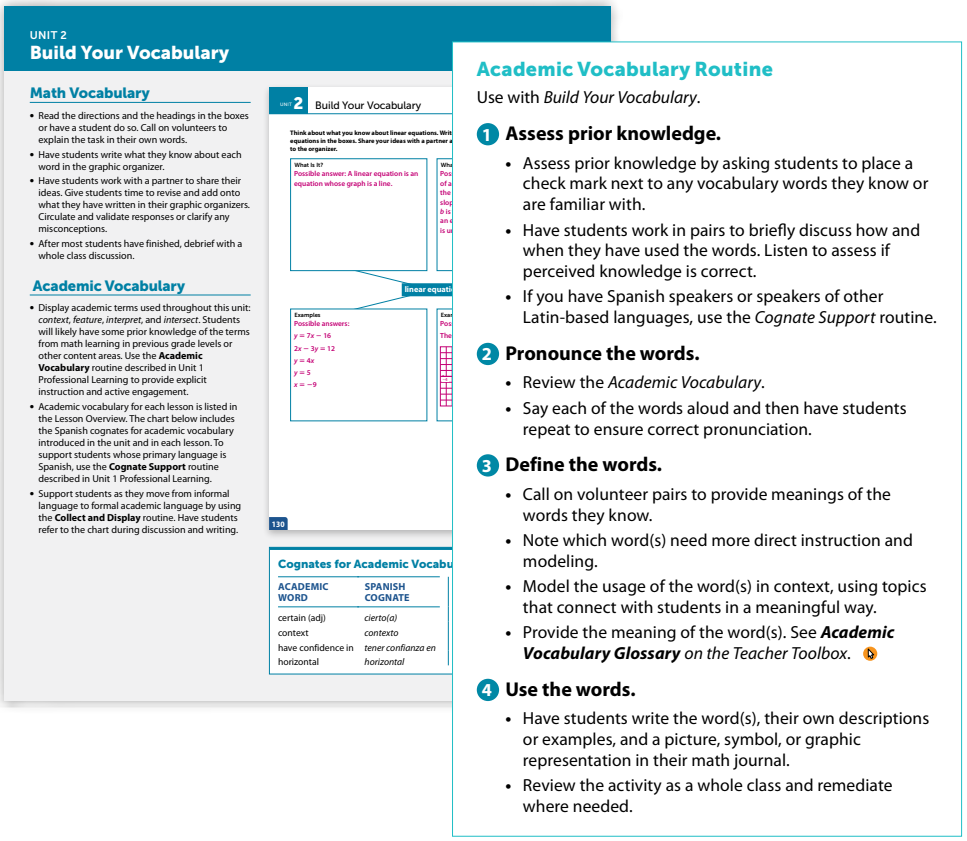
Differentiation for English Learners

Scaffolds for three different levels of language proficiency are provided for each session to support English Learners with engaging with speaking, reading, writing, and listening to mathematical ideas.

Teach Academic Language

Academic Vocabulary Activities and Routine

The beginning of each unit starts with activities that help students develop mathematical and academic vocabulary.


UNIT 2
Build Your Vocabulary

Math Vocabulary

- Read the directions and the headings in the boxes or have a student do so. Call on volunteers to explain the task in their own words.
- Have students write what they know about each word in the graphic organizer.
- Have students work with a partner to share their ideas. Give students time to revise and add onto what they have written in their graphic organizers. Circulate and validate responses or clarify any misconceptions.
- After most students have finished, debrief with a whole class discussion.

Academic Vocabulary

- Display academic terms used throughout this unit: *context*, *feature*, *interpret*, and *intersect*. Students will likely have some prior knowledge of the terms from math learning in previous grade levels or other content areas. Use the **Academic Vocabulary** routine described in Unit 1 Professional Learning to provide explicit instruction and active engagement.
- Academic vocabulary for each lesson is listed in the Lesson Overview. The chart below includes the Spanish cognates for academic vocabulary introduced in the unit and in each lesson. To support students whose primary language is Spanish, use the **Cognate Support** routine described in Unit 1 Professional Learning.
- Support students as they move from informal language to formal academic language by using the **Collect and Display** routine. Have students refer to the chart during discussion and writing.

UNIT 2 Build Your Vocabulary

Cognates for Academic Vocabu

ACADEMIC WORD	SPANISH COGNATE
certain (adj)	*cierto(a)*
context	*contexto*
have confidence in	*tener confianza en*
horizontal	*horizontal*

Academic Vocabulary Routine

Use with *Build Your Vocabulary*.

1 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.

2 Pronounce the words.

- Review the *Academic Vocabulary*.
- Say each of the words aloud and then have students repeat to ensure correct pronunciation.

3 Define the words.

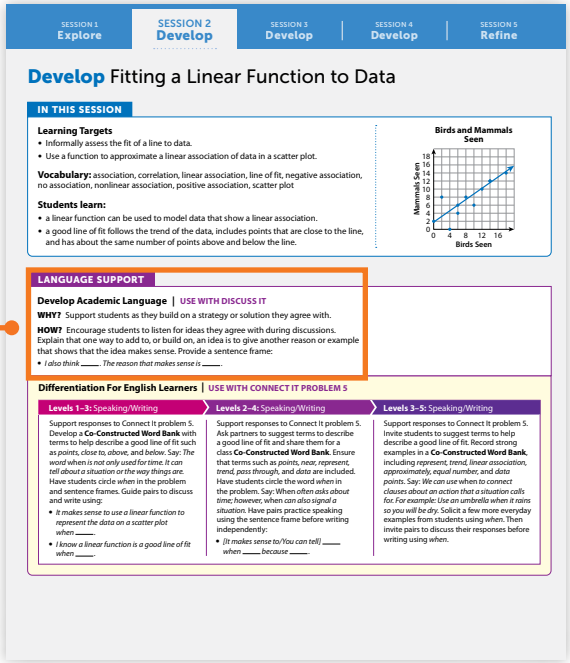
- Call on volunteer pairs to provide meanings of the words they know.
- Note which word(s) need more direct instruction and modeling.
- Model the usage of the word(s) in context, using topics that connect with students in a meaningful way.
- Provide the meaning of the word(s). See ***Academic Vocabulary Glossary*** *on the Teacher Toolbox*.

4 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.

Language Support Embedded in Each Session

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


SESSION 1 Explore | SESSION 2 Develop | SESSION 3 Develop | SESSION 4 Develop | SESSION 5 Refine

Develop Fitting a Linear Function to Data

IN THIS SESSION

Learning Targets
- Informally assess the fit of a line to data.
- Use a function to approximate a linear association of data in a scatter plot.

Vocabulary: association, correlation, linear association, line of fit, negative association, no association, nonlinear association, positive association, scatter plot

Students learn:
- a linear function can be used to model data that show a linear association.
- a good line of fit follows the trend of the data, includes points that are close to the line, and has about the same number of points above and below the line.

Birds and Mammals Seen

LANGUAGE SUPPORT

Develop Academic Language | USE WITH DISCUSS IT

WHY? Support students as they build on a strategy or solution they agree with.

HOW? Encourage students to listen for ideas they agree with during discussions. Explain that one way to add to, or build on, an idea is to give another reason or example that shows that the idea makes sense. Provide a sentence frame:
- *I also think ____. The reason that makes sense is ____.*

Differentiation For English Learners | USE WITH CONNECT IT PROBLEM 5

Levels 1–3: Speaking/Writing

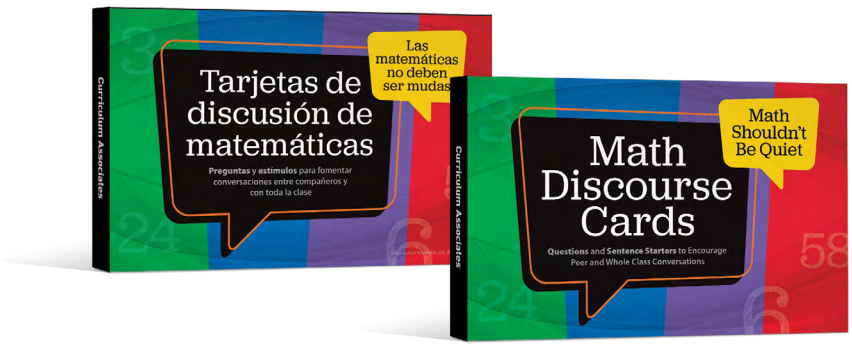
Support responses to Connect It problem 5. Develop a **Co-Constructed Word Bank** with terms to help describe a good line of fit such as *points*, *close to*, *above*, and *below*. Say: *The word when is not only used for time. It can tell about a situation or the way things are.* Have students circle *when* in the problem and sentence frames. Guide pairs to discuss and write using:
- *It makes sense to use a linear function to represent the data on a scatter plot when ____.*
- *I know a linear function is a good line of fit when ____.*

Levels 2–4: Speaking/Writing

Support responses to Connect It problem 5. Ask partners to suggest terms to describe a good line of fit and share them for a class **Co-Constructed Word Bank**. Ensure that terms such as *points*, *near*, *represent*, *trend*, *pass through*, and *data* are included. Have students circle the word *when* in the problem. Say: *When often asks about time; however, when can also signal a situation.* Have pairs practice speaking using the sentence frame before writing independently:
- *[It makes sense to/You can tell] ____ when ____ because ____.*

Levels 3–5: Speaking/Writing

Invite students to suggest terms to help describe a good line of fit. Record strong examples in a **Co-Constructed Word Bank**, including *represent*, *trend*, *linear association*, *approximately*, *equal number*, and *data points*. Say: *We can use when to connect clauses about an action that a situation calls for. For example: Use an umbrella when it rains so you will be dry.* Solicit a few more everyday examples from students using *when*. Then invite pairs to discuss their responses before writing using *when*.



Additional Language and Discourse Supports

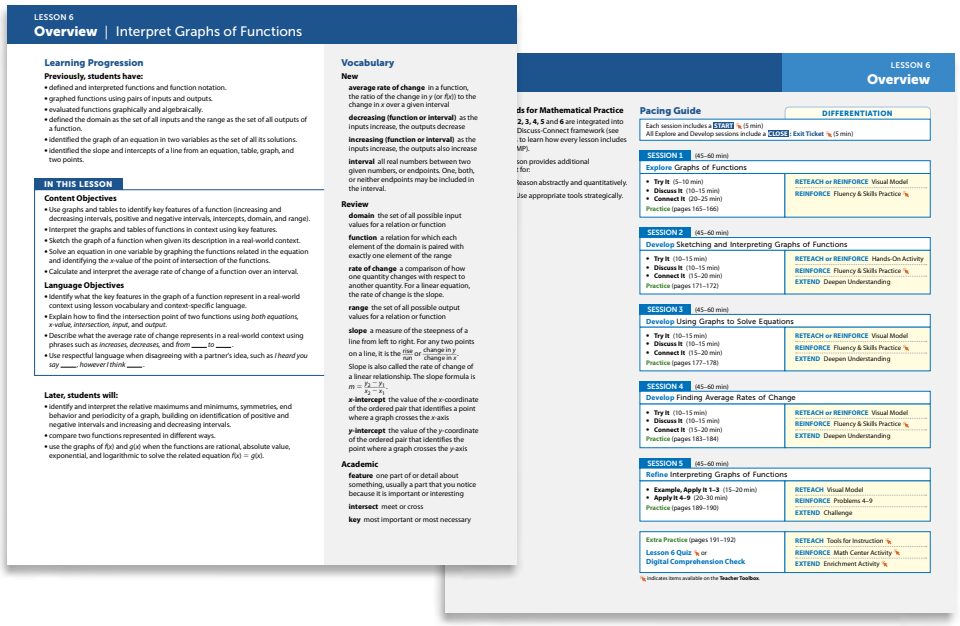
Resources like the Discourse Cards and Multilingual Glossaries help students talk through their ideas using academic language.

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.

Reduce Teacher Planning Time

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


LESSON 6
Overview | Interpret Graphs of Functions

Learning Progression

Previously, students have:
- defined and interpreted functions and function notation.
- graphed functions using pairs of inputs and outputs.
- evaluated functions graphically and algebraically.
- defined the domain as the set of all inputs and the range as the set of all outputs of a function.
- identified the graph of an equation in two variables as the set of all its solutions.
- identified the slope and intercepts of a line from an equation, table, graph, and two points.

IN THIS LESSON

Content Objectives
- Use graphs and tables to identify key features of a function (increasing and decreasing intervals, positive and negative intervals, intercepts, domain, and range).
- Interpret the graphs and tables of functions in context using key features.
- Sketch the graph of a function when given its description in a real-world context.
- Solve an equation in one variable by graphing the functions related in the equation and identifying the *x*-value of the point of intersection of the functions.
- Calculate and interpret the average rate of change of a function over an interval.

Language Objectives
- Identify what the key features in the graph of a function represent in a real-world context using lesson vocabulary and context-specific language.
- Explain how to find the intersection point of two functions using *both equations, x-value, intersection, input,* and *output.*
- Describe what the average rate of change represents in a real-world context using phrases such as *increases, decreases,* and *from* ____ *to* ____.
- Use respectful language when disagreeing with a partner's idea, such as *I heard you say* ____, *however I think* ____.

Later, students will:
- identify and interpret the relative maximums and minimums, symmetries, end behavior and periodicity of a graph, building on identification of positive and negative intervals and increasing and decreasing intervals.
- compare two functions represented in different ways.
- use the graphs of *f*(*x*) and *g*(*x*) when the functions are rational, absolute value, exponential, and logarithmic to solve the related equation *f*(*x*) = *g*(*x*).

Vocabulary

New

average rate of change in a function, the ratio of the change in *y* (or *f*(*x*)) to the change in *x* over a given interval

decreasing (function or interval) as the inputs increase, the outputs decrease

increasing (function or interval) as the inputs increase, the outputs also increase

interval all real numbers between two given numbers, or endpoints. One, both, or neither endpoints may be included in the interval.

Review

domain the set of all possible input values for a relation or function

function a relation for which each element of the domain is paired with exactly one element of the range

rate of change a comparison of how one quantity changes with respect to another quantity. For a linear equation, the rate of change is the slope.

range the set of all possible output values for a relation or function

slope a measure of the steepness of a line from left to right. For any two points on a line, it is the $\frac{\text{rise}}{\text{run}}$ or $\frac{\text{change in } y}{\text{change in } x}$. Slope is also called the rate of change of a linear relationship. The slope formula is $m = \frac{y_2 - y_1}{x_2 - x_1}$.

***x*-intercept** the value of the *x*-coordinate of the ordered pair that identifies a point where a graph crosses the *x*-axis

***y*-intercept** the value of the *y*-coordinate of the ordered pair that identifies the point where a graph crosses the *y*-axis

Academic

feature one part of or detail about something, usually a part that you notice because it is important or interesting

intersect meet or cross

key most important or most necessary

LESSON 6
Overview

ds for Mathematical Practice
2, 3, 4, 5 and **6** are integrated into Discuss-Connect framework (see to learn how every lesson includes MP).
son provides additional for:
eason abstractly and quantitatively.
Use appropriate tools strategically.

Pacing Guide | DIFFERENTIATION

Each session includes a START (5 min)
All Explore and Develop sessions include a CLOSE: Exit Ticket (5 min)

SESSION 1 (45–60 min)
Explore Graphs of Functions
- **Try It** (5–10 min)
- **Discuss It** (10–15 min)
- **Connect It** (20–25 min)

Practice (pages 165–166)

RETEACH or REINFORCE Visual Model
REINFORCE Fluency & Skills Practice

SESSION 2 (45–60 min)
Develop Sketching and Interpreting Graphs of Functions
- **Try It** (10–15 min)
- **Discuss It** (10–15 min)
- **Connect It** (15–20 min)

Practice (pages 171–172)

RETEACH or REINFORCE Hands-On Activity
REINFORCE Fluency & Skills Practice
EXTEND Deepen Understanding

SESSION 3 (45–60 min)
Develop Using Graphs to Solve Equations
- **Try It** (10–15 min)
- **Discuss It** (10–15 min)
- **Connect It** (15–20 min)

Practice (pages 177–178)

RETEACH or REINFORCE Visual Model
REINFORCE Fluency & Skills Practice
EXTEND Deepen Understanding

SESSION 4 (45–60 min)
Develop Finding Average Rates of Change
- **Try It** (10–15 min)
- **Discuss It** (10–15 min)
- **Connect It** (15–20 min)

Practice (pages 183–184)

RETEACH or REINFORCE Visual Model
REINFORCE Fluency & Skills Practice
EXTEND Deepen Understanding

SESSION 5 (45–60 min)
Refine Interpreting Graphs of Functions
- **Example, Apply It 1–3** (15–20 min)
- **Apply It 4–9** (20–30 min)

Practice (pages 189–190)

RETEACH Visual Model
REINFORCE Problems 4–9
EXTEND Challenge

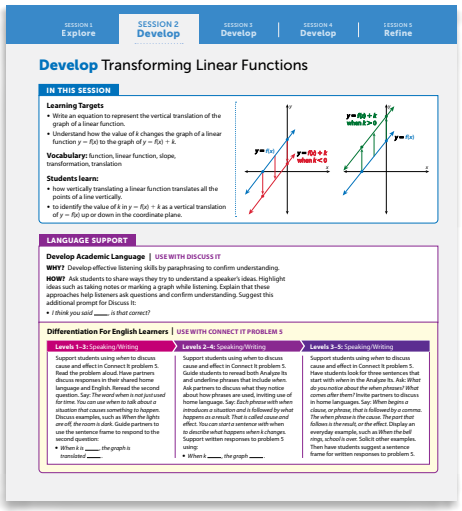
Extra Practice (pages 191–192)
Lesson 6 Quiz or
Digital Comprehension Check

RETEACH Tools for Instruction
REINFORCE Math Center Activity
EXTEND Enrichment Activity

Indicates items available on the **Teacher Toolbox**

Plan Lessons with Ease

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


SESSION 1 Explore | SESSION 2 Develop | SESSION 3 Develop | SESSION 4 Develop | SESSION 5 Refine

Develop Transforming Linear Functions

IN THIS SESSION

Learning Targets
- Write an equation to represent the vertical translation of the graph of a linear function.
- Understand how the value of *k* changes the graph of a linear function $y = f(x)$ to the graph of $y = f(x) + k$.

Vocabulary: function, linear function, slope, transformation, translation

Students learn:
- how vertically translating a linear function translates all the points of a line vertically.
- to identify the value of *k* in $y = f(x) + k$ as a vertical translation of $y = f(x)$ up or down in the coordinate plane.

LANGUAGE SUPPORT

Develop Academic Language | USE WITH DISCUSS IT

WHY? Develop effective listening skills by paraphrasing to confirm understanding.

HOW? Ask students to share ways they try to understand a speaker's ideas. Highlight ideas such as taking notes or marking a graph while listening. Explain that these approaches help listeners ask questions and confirm understanding. Suggest this additional prompt for Discuss It:
- *I think you said* ____, *is that correct?*

Differentiation For English Learners | USE WITH CONNECT IT PROBLEM 5

Levels 1–3: Speaking/Writing
Support students using when to discuss cause and effect in Connect It problem 5. Read the problem aloud. Have partners discuss responses in their shared home language and English. Reread the second question. Say: *The word when is not just used for time. You can use when to talk about a situation that causes something to happen.* Discuss examples, such as *When the lights are off, the room is dark.* Guide partners to use the sentence frame to respond to the second question.
- *When it is* ____, *the graph is translated* ____.

Levels 2–4: Speaking/Writing
Support students using when to discuss cause and effect in Connect It problem 5. Guide students to reread both Analyze It and underline phrases that include when. Ask partners to discuss what they notice about how phrases are used, inviting use of home language. Say: *Each phrase with when introduces a situation and is followed by what happens as a result. That is called cause and effect. You can start a sentence with when to describe what happens when k changes.* Support written responses to problem 5 using:
- *When k* ____, *the graph* ____.

Levels 3–5: Speaking/Writing
Support students using when to discuss cause and effect in Connect It problem 5. Have students look for three sentences that start with *when* in the Analyze It. Ask: *What do you notice about the when phrases? What comes after them?* Invite partners to discuss in home languages. Say: *When begins a clause, or phrase, that is followed by a comma. The when phrase is the cause. The part that follows is the result, or the effect.* Display an everyday example, such as *When the bell rings, school is over.* Solicit other examples. Then have students suggest a sentence frame for written responses to problem 5.

Prepare for Each Day of Instruction at a Glance

Session Overview pages provide you with information about the main mathematical concepts covered within the session without you having to review all the Teacher's Guide pages.

Facilitate Whole Class Discussion

Guide students to **Compare and Connect** the representations.

To engage all students, ask them to **turn and talk** to discuss how they described the height of the helicopter.

ASK *Where do you see the initial height of the helicopter on the graph?*

LISTEN FOR I looked at where the graph started on the *y*-axis.

Select and Sequence Student Strategies

Select 2–3 samples of student work for class discussion:
- sketches a curve showing increasing or decreasing water depths without consideration of time
- **Error Alert: sketches a graph using only straight segments;** Ask what it means for the water to change at a slower and slower rate.
- makes a table of hypothetical water depths to sketch a graph
- sketches a graph showing the change over time with approximately correct *x*-values and labels of each piece

Embedded Support

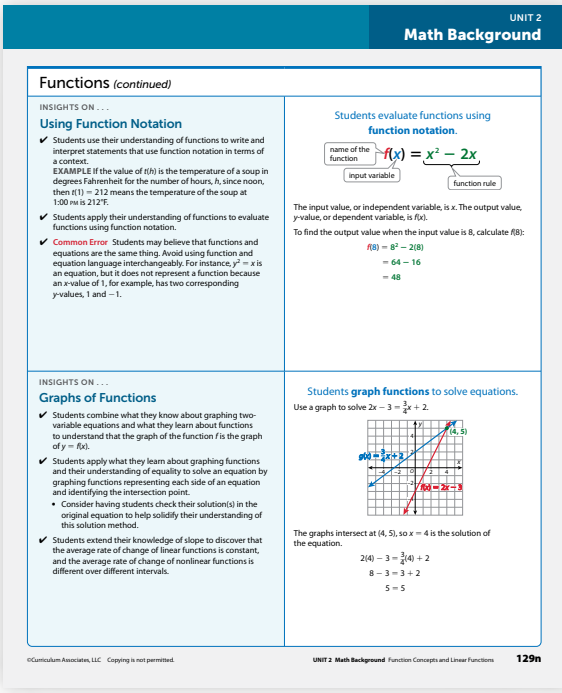
Strategies, prompts, and in-the-moment guidance are available in the Teacher's Guide.

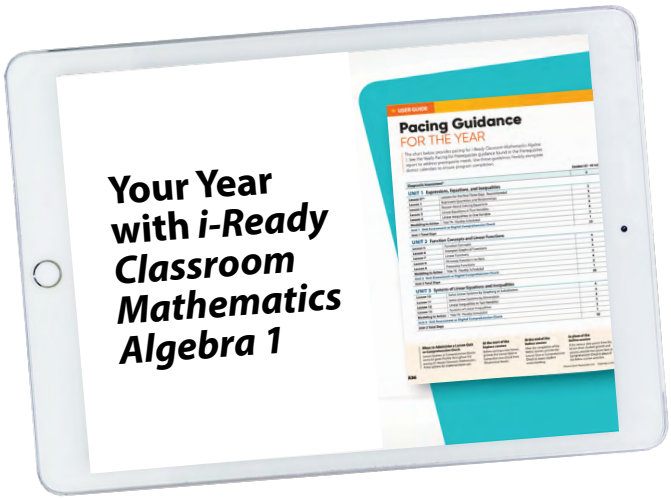
Professional Learning (PL) That Empowers

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.



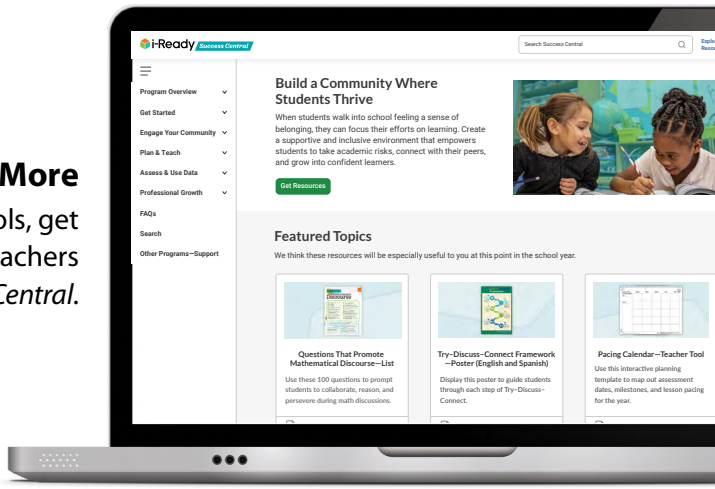


Pacing Video Series

Stay on track to deliver all grade-level content by the end of the year. *Available beginning in the 2025–2026 school 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*.

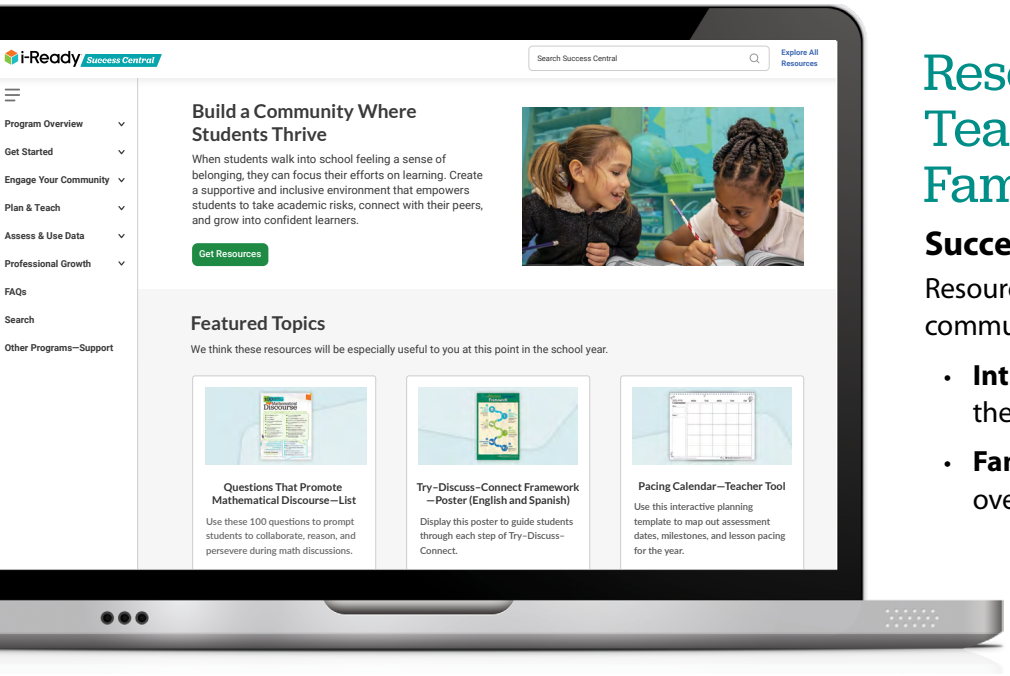


Onsite, Online, and On-Demand PL

Our ongoing, classroom-focused PL 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 Algebra 1* has a wealth of resources families can use at home to support their students' mathematical growth.

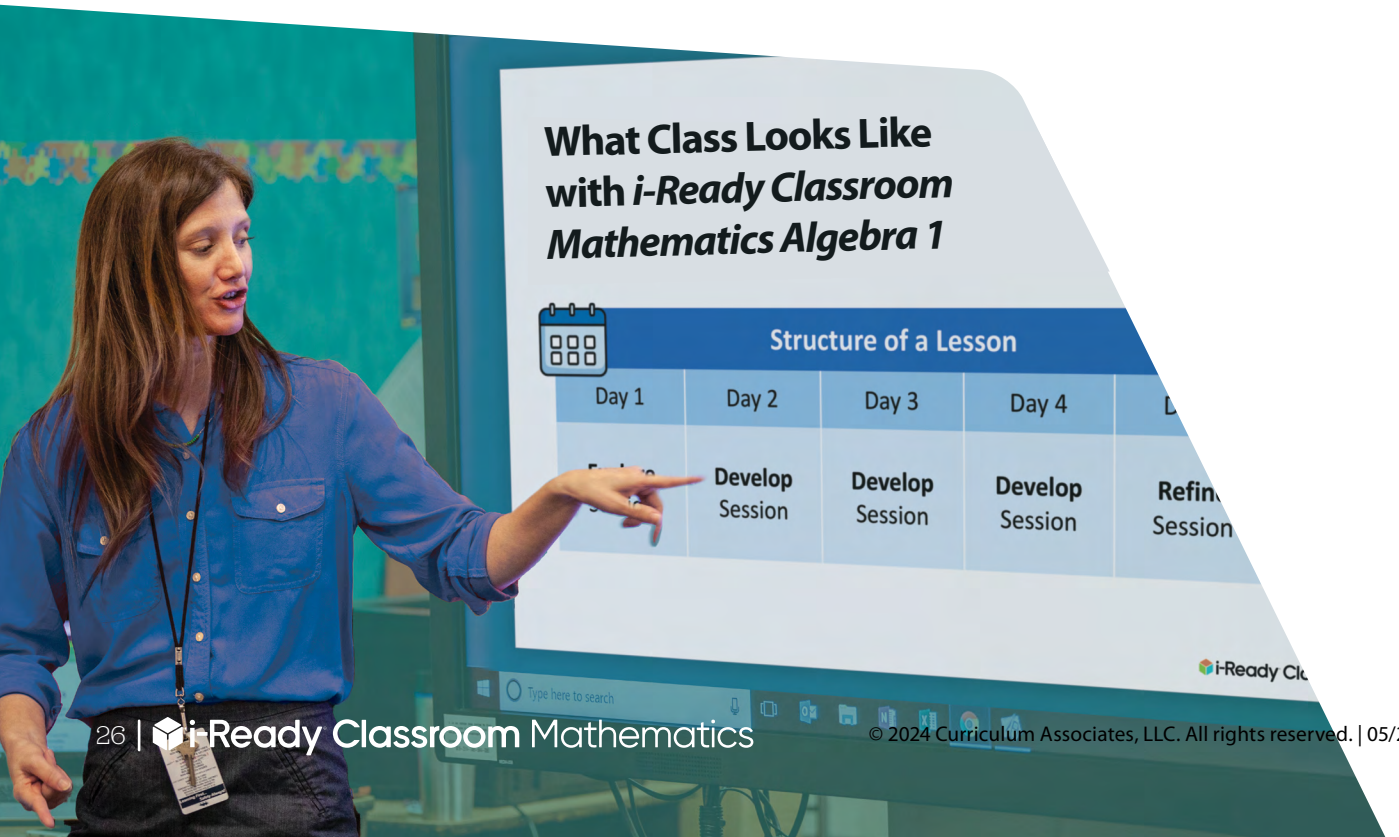


Resources to Help Teachers Engage Families

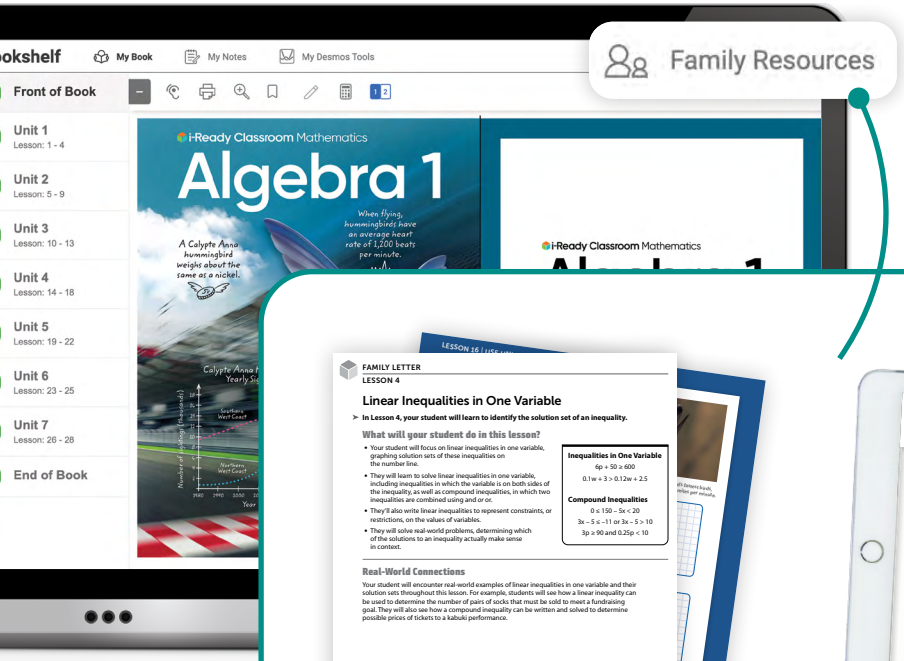
Success Central

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.



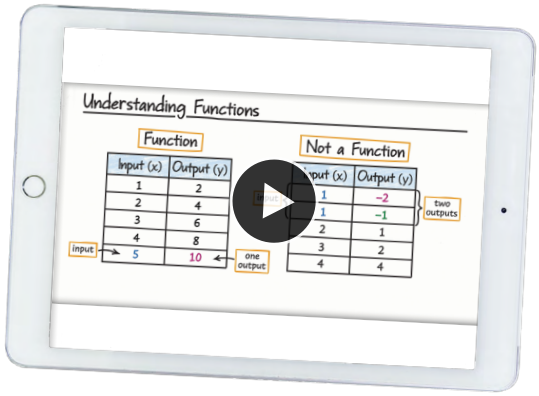
Resources for Families



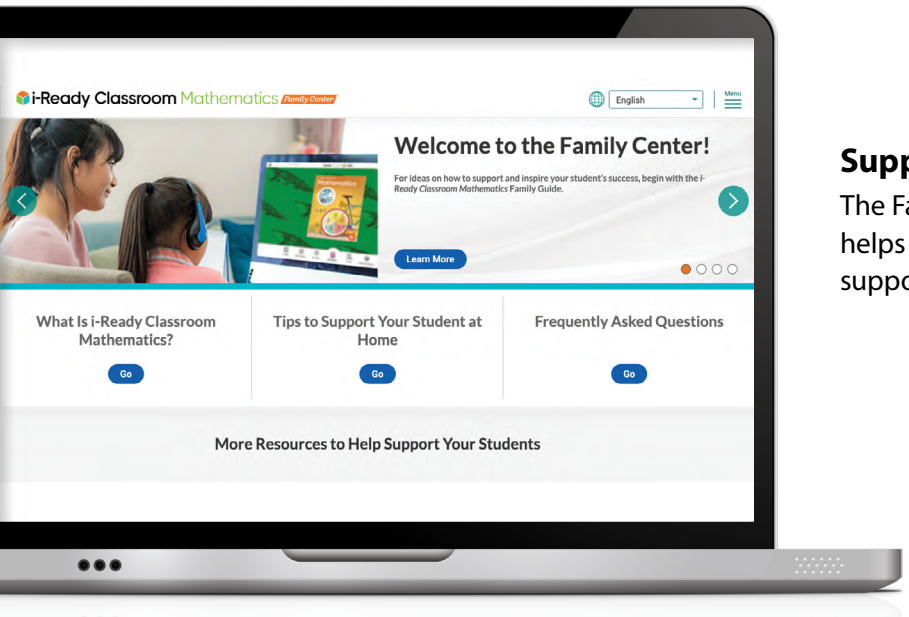
Resources Families Can Use to Understand Math Ideas

The Student Bookshelf provides access to the Student Worktext in a digital format as well as other family resources.

Family Letters, available in eight languages for every lesson, provide mathematics 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. *Available beginning in the 2025–2026 school year*



Support Website Dedicated to Families

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

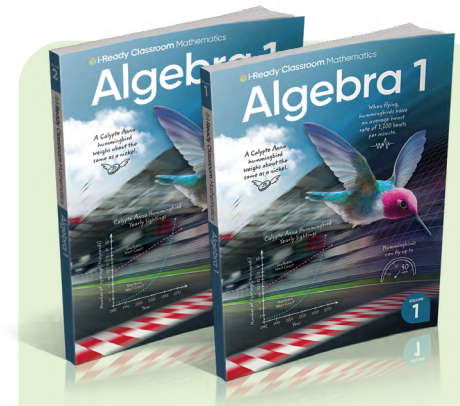
Need Help? We're Here for You!

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.

"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.**"

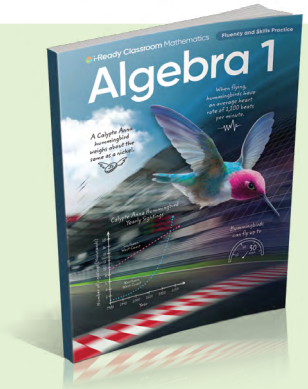
—Josh Almeida
Curriculum, Data, and Assessment Manager for Mathematics,
New Bedford Public Schools

Student Materials



Student Worktext

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

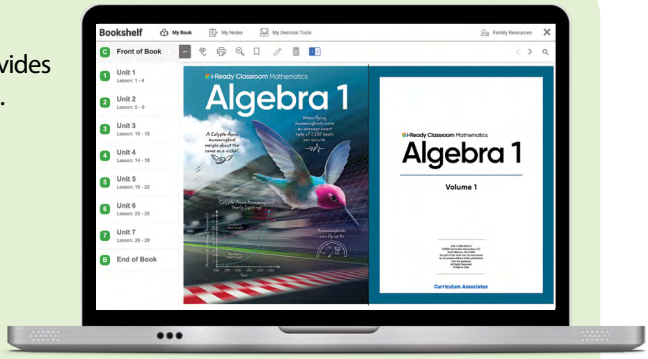
Engage students in hands-on learning. *Available at:* *Hand2Mind.com/Curriculum-Associates*

Student Digital Experience

The Student Digital Experience, accessible through i-ReadyConnect.com, provides access to all student components of *i-Ready Classroom Mathematics Algebra 1*.

Student Bookshelf provides online access to student resources, including:

- **Digital Student Worktext** includes tools, such as note-taking, text-to-speech, Digital Math Tools, and a calculator.
- **Family Resources** include a Family Letter for every lesson and Unit Flow & Progression Videos.*
- **Multilingual Glossary** available in eight languages
- **Student Handbook** with a guide to the Standards for Mathematical Practice, a mathematical language reference tool, 100 Mathematical Discourse Questions, and a modeling section with information and support for the modeling cycle

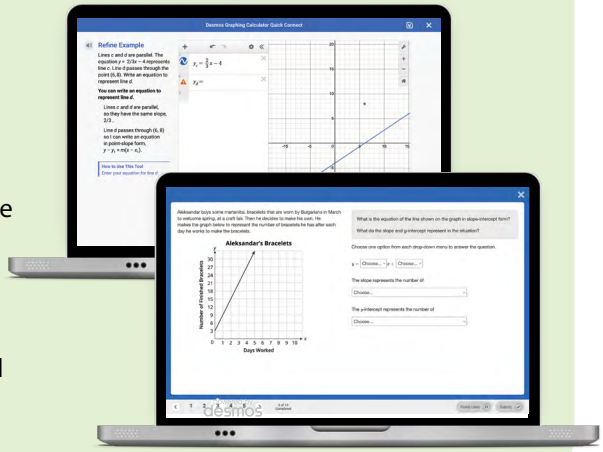


Digital Math Tools powered by Desmos provide virtual representations of various models.

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

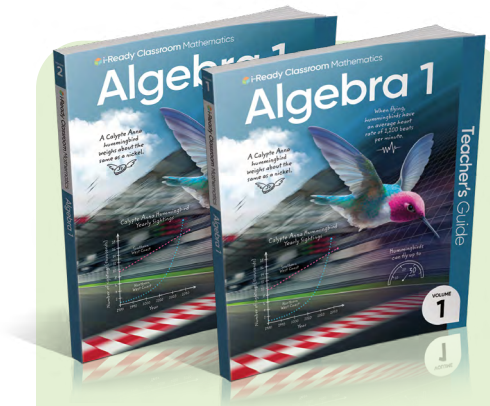
Desmos Graphing Calculator Quick Connects provide Algebra 1 tasks pre-configured in the Desmos Graphing Calculator.

Digital Practice System provides students with ongoing practice of new and previously learned content.*



*Available beginning in the 2025–2026 school year

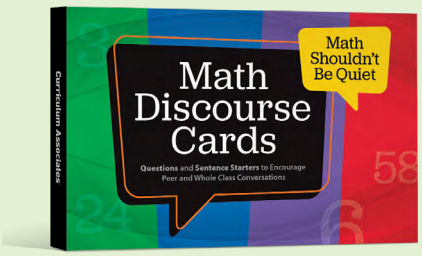
Teacher Materials



Teacher's Guide

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

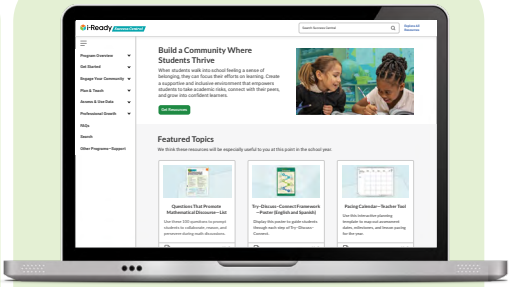
Available in print and online



Discourse Cards

This resource provides questions and sentence starters to get students talking about mathematics.

Available in print and online

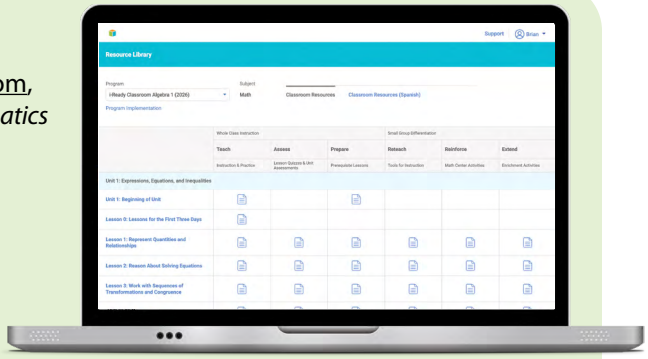


Success Central

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, provides access to all teacher components of *i-Ready Classroom Mathematics Algebra 1*.



Teacher Toolbox provides access to all resources in one convenient location. A few highlights include:

- Digital Math Tools Powered by Desmos
- Instructional presentation slides for Google and PowerPoint®*
- Fluency and Skills Practice
- Center Activities
- Enrichment Activities
- Assessment Resources
- Unit Flow & Progression Videos*
- Pythagorean theorem and inverse functions lesson content
- Desmos Graphing Calculator Quick Connects
- Tools for Instruction

Digital Practice Resources

- Learning Games

Digital Assessments

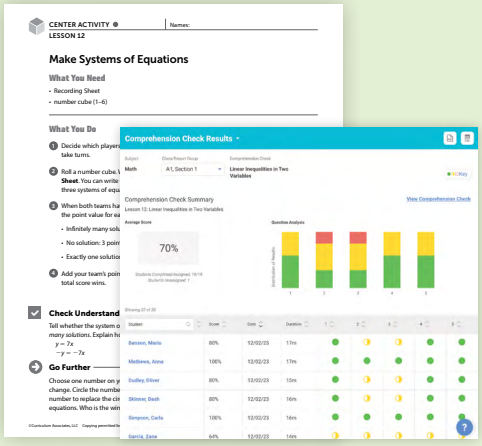
- Diagnostic
- Comprehension Checks*

Reports

- Diagnostic Results
- Comprehension Check Results*
- Grade-Level Planning (Prerequisites)*
- Learning Games

Professional Learning

- Online Educator Learning



*Available beginning in the 2025–2026 school year

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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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