



International Program Overview



ALGEBRA 1, GEOMETRY, AND ALGEBRA 2

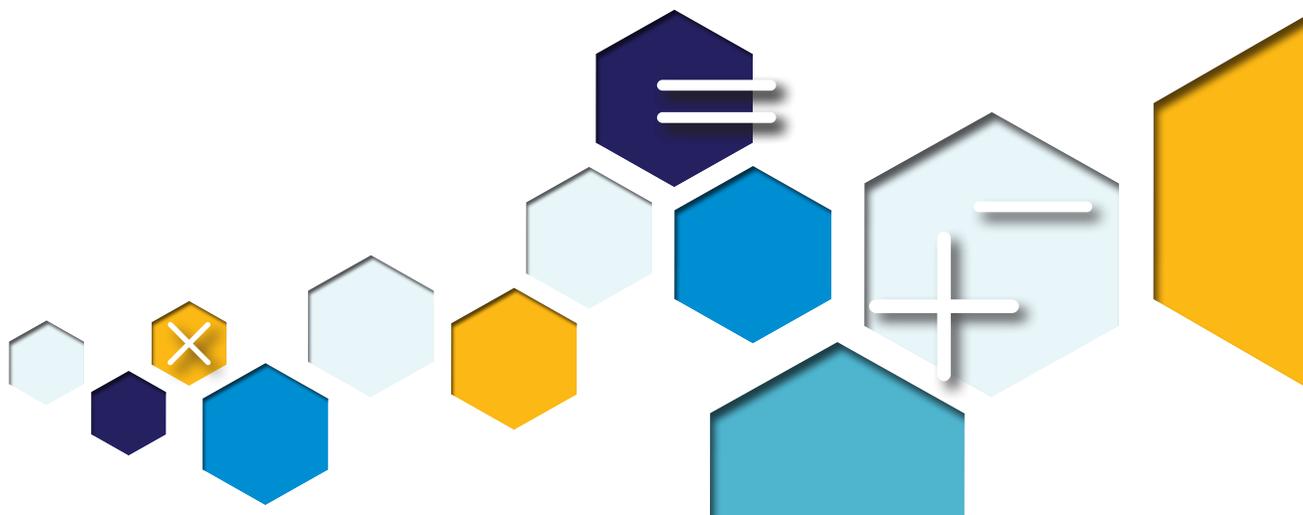


Connected Teaching and Learning

The world has changed. And we know that you are now being challenged to deliver the same quality instruction whether you are in a classroom or are delivering that instruction through remote learning.

We have been listening to you, and we understand you want a partner who delivers quality instruction, supports social and emotional learning, and allows you to pivot and provide distance learning as needed while still keeping a strong sense of your school community.

Our goal at HMH is simple. It is to support you the teacher in your goals and the inspirational work you do to create an unstoppable math classroom within and beyond its walls.





Foster a Culture of Growth

Build a learning culture where all embrace learning mathematics by using the research and support of Mindset Works® and social-emotional learning, combined with powerful data analytics and dynamic teacher supports.

Create Fearless Problem Solvers

Intentionally designed lessons and high-quality mathematical tasks help students develop productive perseverance in problem solving and apply knowledge to higher-level mathematics and beyond.



Invest in You

Embedded tools and technology ensure you have the time you need to focus on facilitating the mathematical discourse and differentiated instruction required to support students in reaching proficiency.





Transform Mathematics Fear

How is a child's first attempt at riding a bicycle similar to a student's first experience with higher-level mathematics? Fear. Your students are natural problem solvers. What they often lack is a set of strategies for overcoming fear and tapping into their innate perseverance.

Into AGA® emphasizes effort in learning to reignite your students' beliefs that they're unstoppable. From embedded growth mindset tasks and explicit **social-emotional** instruction that support students in unlocking higher-level mathematical concepts, to independent learning activities that encourage productive perseverance, *Into AGA* transforms mathematics fear into mathematics enthusiasm.





Harness the Power of Mindset with HMH's Exclusive Partnership

Embedded mindset tasks that emphasize effort in learning and reignite a sense of curiosity combine with independent learning tasks that encourage students to collaborate with their peers to solve complex problems. **The result? Mathematics fear transforms into mathematics enthusiasm.**

Learning Mindset
Resilience Monitors Knowledge and Skills

How do you know that you are learning? Whenever you approach a new topic, it is important that you monitor your understanding of it. Checking in with yourself before, during, and after learning can help you see that you're making progress and keep you focused on your learning goal. Here are some questions you can ask yourself to monitor your learning:

- What am I trying to learn? What is the goal or objective?
- How is the new topic connected to something I already know? What is the new information?
- What skills should I be able to perform in order to demonstrate my understanding of the topic?
- What additional knowledge about the topic did I gain today?
- What am I not understanding yet? What do I need to do to understand better?
- Can I explain or demonstrate to someone else what I have learned?

Reflect

- 🕒 How do you know that you are improving your understanding of a mathematical concept or skill?
- 🕒 What did you need to understand in order to balance the chemical equation in the STEM Task?

Learning Mindset

Resilience Monitors Knowledge and Skills

As students begin this module, remind them to refer to the glossary for the definitions of the terms they are using. Lead students to recognize that using the correct definition of a math term, such as *expression*, is a key step in mastering a math concept. *Remember to take advantage of the structure of the lesson, such as the I can statement that is listed at the beginning of the lesson, and the blue-highlighted vocabulary terms that are included in Build Understanding or Step it Out. What are the I can statement and vocabulary terms for this lesson?*

The research-based tasks and strategies from Mindset Works within each lesson allow students to see firsthand what they've learned and reflect on their progress.

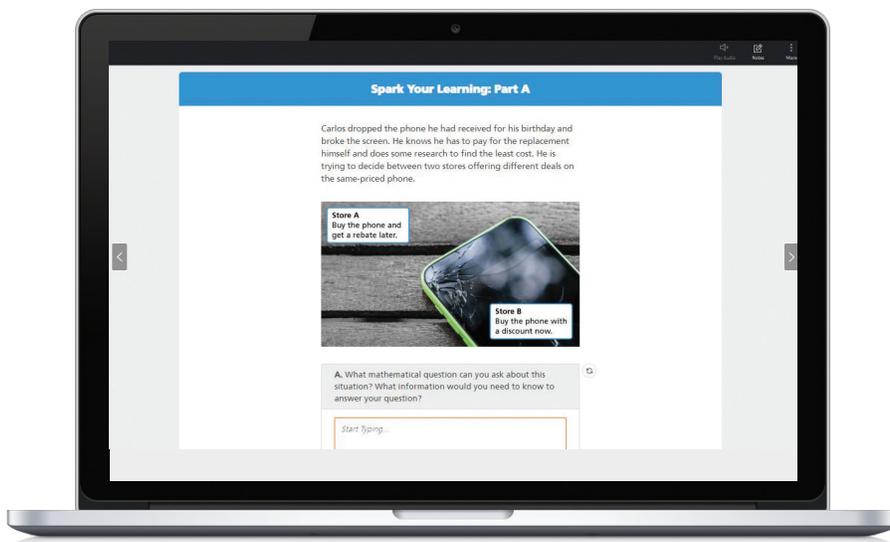


Inspire Students to Understand Their Effort Matters

What dictates motivation? Why are some students persistent at problem solving while others are quick to give up? The answer lies in mindset and each student's belief in the power of effort.

A growth mindset guides students to understand that with perseverance they can be successful. As students put forth effort and witness their own success, they'll **WANT** to continue to challenge themselves as learners. Through our exclusive partnership with Mindset Works, *Into AGA* helps teachers put strategies for developing a growth mindset into action.

How do we help students monitor their own learning with the appropriate supports?



Interactive lessons on *HMH Global Learning Platform* provide students with meaningful feedback and promote perseverance, using learning aids such as

- Helpful hints
- Multiple attempts
- Corrective feedback
- Correct answers



I Can



The scale below can help you and your students understand their progress on a learning goal.



4

I can explain how to write an algebraic expression, interpret its parts, and simplify it using the Distributive Property.

3

I can write an algebraic expression, interpret the parts of the expression, and use the Distributive Property to simplify the expression.

2

I can write an algebraic expression and interpret its parts.

1

I can interpret the parts of an algebraic expression.

Exit Ticket



Carlo's family picks 50 oranges and grapefruits. 20 are oranges. How many grapefruits does his family pick? Show how to solve this problem using any method you know.

Exit Tickets and **"I Can" scales** provide your students with tangible ways to monitor and celebrate their growth.

Put It in Writing



Describe some strategies you can use to evaluate $a^{\frac{m}{2}}$ for different values of a .

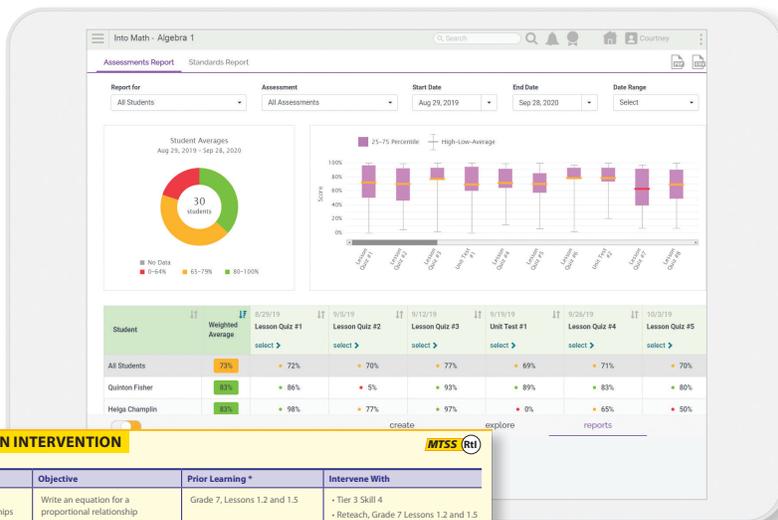
Put It in Writing provides opportunities for self-reflection and critical analysis.

Into AGA is . . . a solution designed
**TO HELP STUDENTS PERSEVERE AND
KNOW THEY CAN DO MATHEMATICS**
in your classroom and beyond.



Keep Your Finger on the Pulse of Student Progress

In order to help students grow, you need to be able to understand where they are academically and what they need. Assessment tools, embedded throughout, monitor individual student progress and provide you with valuable insights every step of the way. Monitoring student progress and providing the appropriate student supports is streamlined for your preferred instructional delivery method: face-to-face, blended, or virtual instructional delivery.



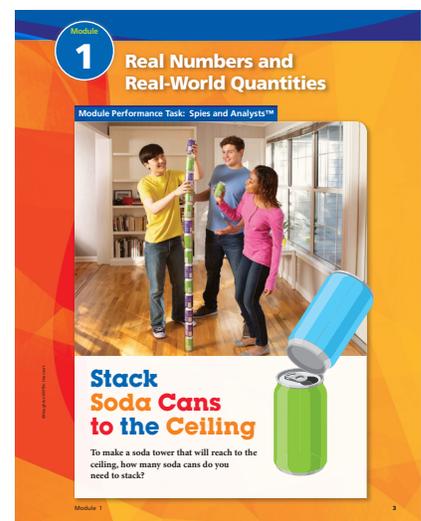
Are You Ready? diagnostic assessments help you pinpoint students' gaps in skills needed for success in the upcoming module. They are available in the Student Edition or as an interactive online assessment.

DATA-DRIVEN INTERVENTION MTSS

Concept/Skill	Objective	Prior Learning *	Intervene With
Write Equations for Proportional Relationships	Write an equation for a proportional relationship represented by a table or in words.	Grade 7, Lessons 1.2 and 1.5	- Tier 3 Skill 4 - Reteach, Grade 7 Lessons 1.2 and 1.5
Slopes of Lines	Find the slope of a line given two points on the line.	Grade 8, Lesson 5.1	- Tier 2 Skill 6 - Reteach, Grade 8 Lesson 5.1
Understand Functions	Determine whether a relation represented by a table of values or a graph is a function.	Grade 8, Lesson 6.1	- Tier 2 Skill 7 - Reteach, Grade 8 Lesson 6.1

* Your digital materials include access to resources from Grade 6–Algebra 2. The lessons referenced here contain a variety of resources you can use with students who need support with this content.

Spies and Analysts™ tasks from Into AGA author Robert Kaplinsky provide mathematical modeling opportunities for students and promote productive perseverance using practical applications to the mathematics.



Diagnostic, Summative, and Formative Assessments are easily accessible for teachers and students

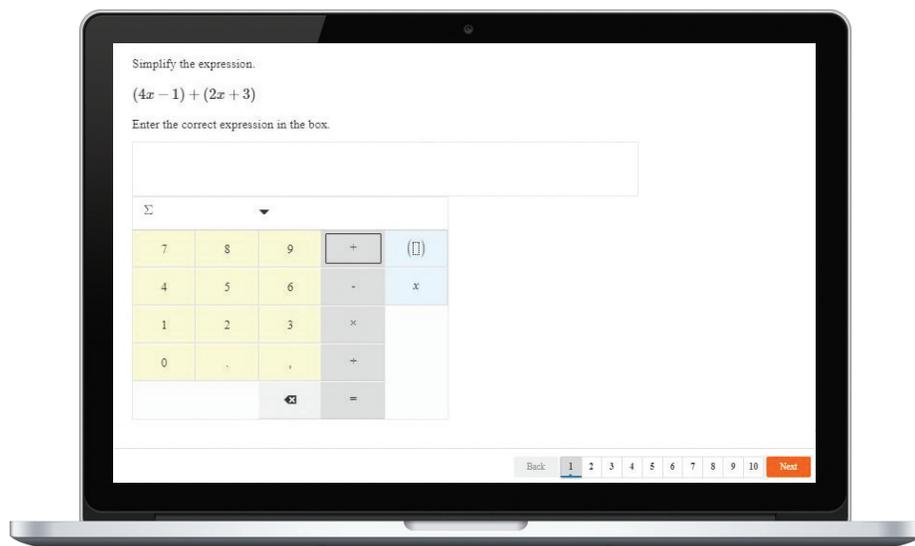
Check Understanding

1. What function is a vertical compression of $f(x) = x$? Explain.
 $g(x) = 2f(x) + 1$ $h(x) = -f(x) - \frac{4}{5}$ $j(x) = -\frac{1}{2}f(x)$
2. What function is a shift of $f(x) = x$? Explain.
 $g(x) = f(x) - 5$ $h(x) = -4f(x)$ $j(x) = 3f(x)$
3. In the function $g(x) = f(x) + k$, $f(x)$ is the parent linear function, and k is a constant added to the range values of the function. How is the graph of g related to the graph of f ?
4. Tracy has plans to save \$40 per week from the money she earns washing cars.
 - A. Write a rule $S(w)$ for the total amount of money she saves after w weeks.
 - B. Suppose Tracy decides to change her weekly savings to $\frac{3}{4}$ of her original weekly savings. Also, Tracy adds \$50 from birthday gifts to her savings. Write a rule $S_1(w)$ for the new total amount of money she saves after w weeks in terms of $S(w)$.
 - C. Explain how to transform the graph of S to create the graph of S_1 .



Check Understanding formative assessments are just one way teachers and students can monitor progress within the lesson.

Module and Unit Assessments have multiple forms that can be edited. The **High-Stakes Assessment** workbook provides sample tests, standards-based lessons, and more.



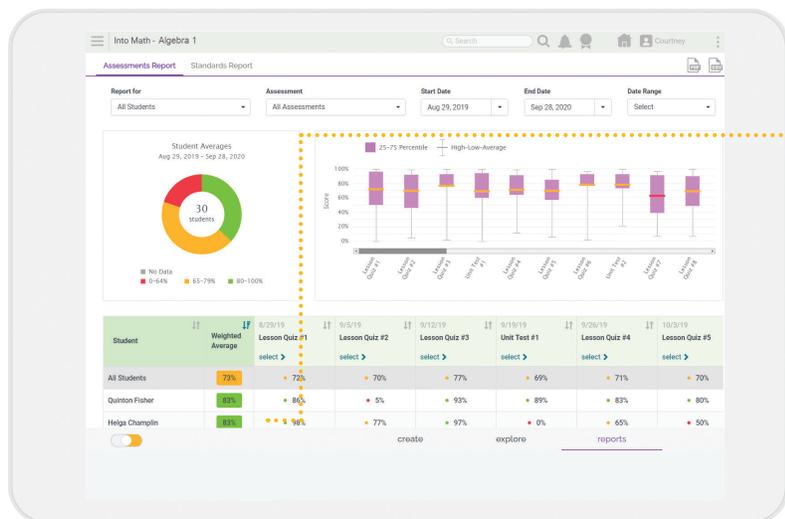
All assessments, including Benchmark Assessments, are assignable and autoscored online with multiple item-types, mirroring what students will encounter on high-stakes assessments.



Differentiate Learning and Assemble **Flexible Groups**

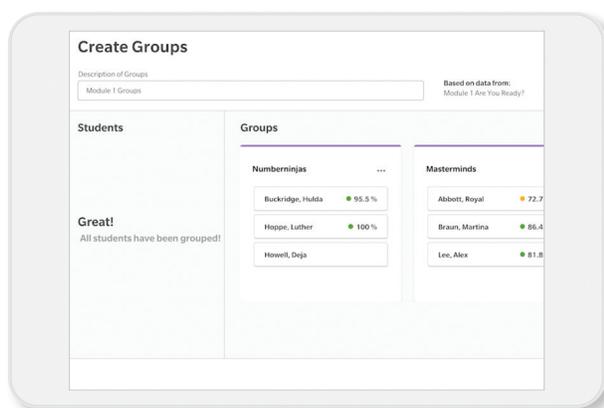
The data provided by our assessment tools help teachers identify the resources they can use to differentiate instruction in order to support student learning. Depending on their individual needs, students can move flexibly in and out of groups all year long. This equitable approach can be used when and where it is needed to ensure students thrive.



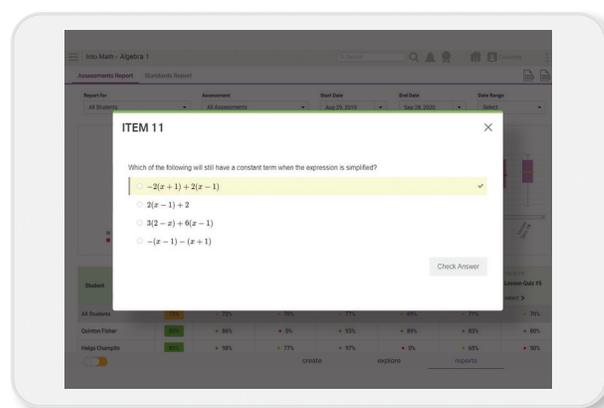


The average test score for the class is 73%. Mr. Baxter wants to see which students are ready to be challenged more, which students have mastered the concepts and skills, and which students need more targeted support.

After administering any assessment, Mr. Baxter can immediately review the class performance on *HMH GLP*. He can quickly see a class-level breakdown of performance, as well as which items he should review with his students. From here, he can use the grouping function in *HMH GLP* to sort the students into performance groups. **Item Analysis**, **Assessment Reports**, and **Standards Reports**, are just a click away for Mr. Baxter.



Groups can be made based on student performance on assessments. Teachers can then modify these to form mixed-ability and other groupings.



Drilling down into the data, teachers can analyze which items students have answered incorrectly or correctly. The items can be reviewed as a class, in groups, or one-on-one.



Success You Can Measure and Celebrate

Into AGA's unique lesson design provides a purposeful path to conceptual understanding and procedural fluency. This is achieved because *Into AGA*

- Emphasizes the importance of the "why" behind the "how"
- Allows students to build a deep understanding of mathematical concepts
- Connects conceptual to procedural lessons in a purposeful way
- Ensures students develop the ability to effectively apply understanding to higher level mathematical thinking
- Provides actionable data to identify gaps in knowledge with resources for teachers to target and repair these gaps

● A New Approach to Building Conceptual Understanding and Procedural Fluency

Into AGA's unique learning progression intentionally links the conceptual with the procedural to boost students' mathematical thinking skills.

Let t = time after 4:00 p.m. in hours.

t	Lynn's Distance (mi)	Anna's Distance (mi)
0	0	0
0.1	$5.4(0.1) = 0.54$	0
0.2	$5.4(0.2) = 1.08$	$6(0.2 - 0.1) = 0.6$
0.5	$5.4(0.5) = 2.7$	$6(0.5 - 0.1) = 2.4$
0.8	$5.4(0.8) = 4.32$	$6(0.8 - 0.1) = 4.2$
0.9	$5.4(0.9) = 4.86$	$6(0.9 - 0.1) = 4.8$
1	$5.4(1) = 5.4$	$6(1 - 0.1) = 5.4$

Anna catches up with Lynn 1 hour after 4:00 p.m., or at 5:00 p.m.

Conceptual



Connecting
Concepts to
Procedural
Tasks

Let t = Lynn's jogging time in hours.
Let $t - 0.1$ = Anna's jogging time in hours.

$$5.4t = 6(t - 0.1)$$

$$5.4t = 6t - 0.6$$

$$-0.6t = -0.6$$

$$t = 1$$

Anna catches up with Lynn 1 hour after Lynn starts jogging, or at 5:00 p.m.

Procedural



Lessons Build Off One Another to Make Learning Second Nature

Students are guided through lessons that build off one another to support students in developing the ability to apply what they're learning in your mathematics classroom to new situations.

During lessons, students are doing more than using manipulatives, drawings, or algorithms to solve a problem. Students are

- Analyzing how and why they're using a model or strategy
- Explaining their thinking to their peers
- Making sense of problems in ways that allow easier application to new situations
- Critiquing the thinking of others, constructing viable arguments, and persevering



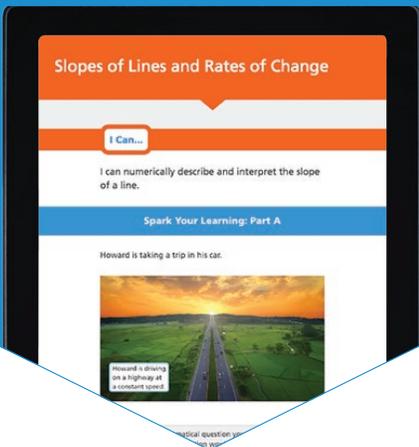


Unique Lessons Designed for Rigor Right from the Start



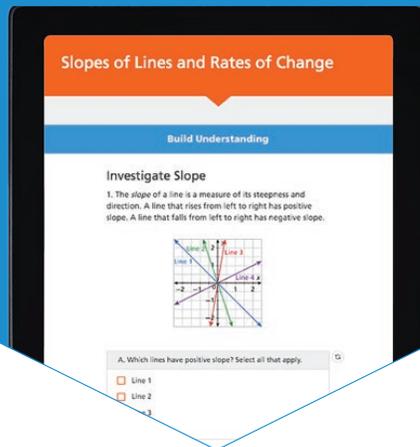
SPARK YOUR LEARNING

Teachers guide a whole-class discussion of a problem, help students persevere as they work in small groups to solve the problem, and build shared understanding by selecting groups to explain their solution method and reasoning.



LEARN TOGETHER

Teachers facilitate learning during *Build Understanding* tasks to ensure that students continue to play an active role in sharing their reasoning and understanding. In *Step It Out* tasks, students connect important processes and procedures to mathematical concepts.



CHECK UNDERSTANDING

Teachers utilize this quick formative assessment to determine whether students have mastered lesson content and to identify which differentiation resources will be most useful for each student.





DIFFERENTIATION OPTIONS

A variety of leveled resources are available to help teachers differentiate early and effectively.



WRAP-UP AND HOMEWORK

Teachers bring the class together to summarize the lesson using Exit Tickets, journal writing, or "I Can" self-assessment.

Every Into AGA lesson provides ample opportunities for teachers to

- Engage students
- Check students' understanding as it develops

And for students to

- Practice what they are learning
- Refine their problem-solving skills
- Showcase their growing positive mathematical mindset

Small Groups

Teachers use the Small-Group activities to guide small groups of students towards understanding.

Independent Practice

Students can continue to the *On Your Own* portion of the lesson.

Collaborative Work

Teachers use Reteach, Challenge, and, when appropriate, Illustrative Mathematics and Desmos activities to foster classroom collaboration and reinforce learning.

$f(x)$



Give Students an Empowering Solution That Motivates

As your students embark on their mathematics journey, they need the right supports at the right time. With *Into AGA*, high-quality mathematical tasks, opportunities for collaboration and mathematical discourse, digital tools, and games work together to deliver an equitable learning experience that keeps students engaged from beginning to end.

Spark Your Learning

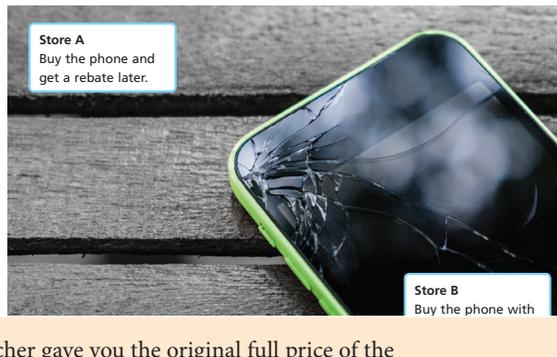
Students choose strategies and develop reasoning to make sense of problems.

Write, Interpret, and Simplify Expressions

I Can write an algebraic expression, interpret the parts of the expression, and use the Distributive Property to simplify the expression.

Spark Your Learning

Carlos dropped the phone he had received for his birthday and broke the screen. He knows he has to pay for the replacement himself and does some research to find the least cost. He is trying to decide between two stores offering different deals on the same-priced phone.



Turn and Talk Suppose your teacher gave you the original full price of the phone. How could you use that information to verify your answer about where Carlos should buy the phone?

Spark Your Learning tasks build a shared understanding and allow learners to engage in the task at their own level. These tasks develop students' productive problem-solving habits and critical mathematical language.

For English learners, embedded **Turn and Talk** activities, designed by our experts at Math Solutions®, build proficiency and confidence while promoting mathematical discourse opportunities.



4.1

Relations and Functions

1.CM Identify how functions and relations are related.

Spark Your Learning

Mr. Fry and some volunteers take a science class to a museum.



The group purchased 20 tickets before they visited the museum.

Complete Part A as a whole class. Then complete Parts B–D in small groups.

A. What is a mathematical question you can ask about this situation? What information would you need to know to answer your question?

B. What variable(s) are needed in this situation? What must be true of the values for these variables in this question? See **Additional Answers**.

C. To answer your question, what strategy and tool would you use along with all the information you have? What answer do you get? See **Strategies 1 and 2** on the facing page.

D. Does your answer make sense in the context of the situation? How do you know? See **Additional Answers**.

Turn and Talk. Predict how your answer would change for each of the following changes in the situation. See **Margin**.

- There are 25 people in the group.
- Tickets are \$15 each.
- The group discount is 15% for groups of 15 or more.

Module 4 • Lesson 4.1

LESSON 4.1 Build Conceptual Understanding

1 Spark Your Learning

MOTIVATE

- Have students look at the photo in their books and read the information contained in the photo. Then complete Part A as a whole-class discussion.
- Give the class the additional information they need to solve the problem. This information is available online as a printable and projectable page in the Teacher Resources.
- Have students work in small groups to complete Parts B–D.

PERSEVERE

If students need support, guide them by asking:

Advancing • Use Tools Which tool could you use to solve the problem? Why choose that tool and not some other? Students' choices of tools and reasons for choosing them will vary.

Assessing How can you find the total entrance cost? Possible answer: Multiply the number of tickets by the cost of each ticket.

Assessing How can you determine whether this group receives a 20% discount? The group receives a discount if the group size is 15 or more.

Advancing How are the total cost and the discounted cost related? The discounted cost is 80% of the total cost.

The **Teacher Edition** provides you with guiding questions to help students persevere with the tasks and supportive questions for your EL students.

EL CULTIVATE CONVERSATION • Co-Craft Questions

If students have difficulty formulating a mathematical question about the situation in the Spark Your Learning, ask them to visualize themselves at the entrance of a museum with a group. What are some natural questions to ask about this situation?

Work together to craft the following questions:

- How many people are in the group?
- What is the cost for a ticket?
- How much will the tickets cost the group?

Then have students think about what additional information, if any, they would need to answer these questions. Ask:

- Can you determine the total cost if you are only told that there are 20 people in all? Why or why not?
- Does every group of people receive a discount at the museum? Explain.

Spark Your Learning • Student Samples

During the *Spark Your Learning*, listen and watch for strategies students use. See samples of student work on this page.

Write an Equation Strategy 1

t = number of tickets purchased
 $12t$ = total cost before discount
 $12(20) = 240$
 Groups of 15 or more receive a 20% discount, so multiply the total cost before the discount by 0.8.
 $240(0.8) = 192$
 The total entrance cost will be \$192.

Subtract the Discount Strategy 2

Find the total cost for the tickets.
 $240(0.2) = 48$
 Groups of 15 or more receive a 20% discount, so find the discount.
 $240(0.2) = 48$
 Subtract the discount from the cost before the discount.
 $240 - 48 = 192$
 The total entrance cost will be \$192.

COMMON ERROR: Uses Wrong Percent

$20(\$12) =$ total cost before discount
 $= \$240$
 Groups of 15 or more receive a 20% discount, so multiply the total cost before the discount by 0.2.
 $\$240(0.2) = \48
 The total entrance cost will be \$48.

If students . . . write an equation to solve the problem, they are employing an efficient method and demonstrating an exemplary understanding of writing and solving multi-step real-life and mathematical problems with rational numbers and converting between forms as needed from Grade 7.

Have these students . . . explain how they wrote and solved their equations. Ask:

- How did you determine which variables were needed for the equation?
- How did you know whether to apply the 20% discount?

If students . . . subtract the amount of the discount from the total cost before the discount, they understand how to find a discounted amount, but they are not using the most efficient strategy.

Activate prior knowledge . . . by having students write a numeric expression showing 80% of 240. Ask:

- If the discount is 20%, what percent is the cost after the discount?
- How can you write a numerical expression to find 80% of 240?

If students . . . find the amount of the discount instead of finding the cost after the discount, they may be using the wrong percent to solve the problem.

Then intervene . . . by pointing out that the discount, not the cost after the discount, is 20%. Students need to find the cost after the discount. Ask:

- What percent discount is given to groups of 15 or more? How much did the group save?
- Since the discount is 20%, what percent is the cost after the discount?

950 Module 4

Corrective Feedback for common errors supports teachers at every step.





Ensure Growth with Handy Resources

Into AGA supports the potential growth within each and every student by providing

- English and mathematical language development embedded into every lesson
- Research-based routines that engage all students in listening, speaking, reading, and writing about mathematics
- English Proficiency Level supports that keep the rigor intact while students are mastering the language
- Ongoing assessments that enable teachers to offer targeted and specific instruction for every student's needs (also available in Spanish)

Co-Craft Questions and Problems Lesson 2.1, 2.2, 2.5

Students think of natural questions to ask about a given situation or problems similar to a given task and answer the questions they have developed or problems they have created.

Three Reads Lessons 2.2–2.5

Students read a problem three times with a specific focus each time.

1st Read What is the situation about?

2nd Read What are the quantities in the situation?

3rd Read What are the possible mathematical questions that we could ask for the situation?

Information Gap Lessons 2.1, 2.4

Students recognize when information given in a problem situation is incomplete and they pose questions and share knowledge with others to discover any missing facts or relationships and work together to solve the problem.

Critique, Correct, and Clarify Lessons 2.4, 2.5

Students correct the work in a flawed explanation, argument, or solution method and share with a partner and refine the sample work.

Embedded into every lesson, **Language Development Routines** guide you through the steps you need to take to ensure all learners succeed.

Integrating Talk Moves Into Instruction

Students' mathematical thinking is supported by evaluating their own thoughts and hearing what their classmates are thinking. There are four main purposes for using conversation talk. Talk moves—tasks used by teachers and students—help students achieve these purposes and, as a result, deepen their understanding.

Purpose 1	Purpose 2	Purpose 3	Purpose 4
Helping Individual Students Clarify and Share Their Own Thinking	Helping Individual Students Clarify and Share Their Own Thinking	Helping Individual Students Clarify and Share Their Own Thinking	Helping Individual Students Clarify and Share Their Own Thinking
What to Do	What to Do	What to Do	What to Do
Wait Time	Wait Time	Wait Time	Wait Time

A Look in the Classroom

Students in Ms. G's class are reviewing what they know about expressions. Ms. G asks students to work independently to graph the following expressions on a number line, focusing on relative rather than exact placement:

$x - 4$ $x - 2$ x $x + 2$ $x + 4$

After a few minutes of individual work time, Ms. G calls the class together for a discussion.

Ms. G: Showing two sticky notes, one with x and the other with $x + 2$ written on them, she asks, "How do you know these expressions on the number line and explain how you know that your placement is correct?"

Ms. G: "I know the sticky note showing x is to the left of the one showing $x + 2$ because before $x + 2$ because no matter what the value of x , two more than that will always be greater."

Ms. G: "Can you tell us more about what you are thinking or what you know to be confident of your placement?"

Ms. G: "I know the sticky note showing x is to the left of the one showing $x + 2$ because no matter what the value of x , two more than that will always be greater."

Ms. G: "Can you tell us more about what you are thinking or what you know to be confident of your placement?"

Ms. G: "I know the sticky note showing x is to the left of the one showing $x + 2$ because no matter what the value of x , two more than that will always be greater."



Step It Out

Solve Equations Using the Distributive Property

Previously, you solved one-step and two-step equations. Now you will solve multi-step equations. Such equations may contain grouping symbols. In order to free the terms in an equation that contain grouping symbols, you can use the Distributive Property.

2 The steps for solving the equation $5(2x - 3) + 4 = -6$ and checking the solution are shown below, but the steps have been scrambled.

A. Write the solution steps in the correct order.

B. Write the check steps in the correct order.

Turn and Talk Can you solve the equation $5(2x - 3) + 4 = -6$ without using the Distributive Property as one of the steps? Show how or explain why not. See margin.

Recall that the Distributive Property also allows you to combine like terms.

3 The steps for solving the equation $-2x + \frac{1}{2}(6x - 5) = \frac{3}{2}$ are shown, but some justifications are missing.

Given equation: $-2x + \frac{1}{2}(6x - 5) = \frac{3}{2}$

$-2x + 3x - \frac{5}{2} = \frac{3}{2}$

$-2x + 3x - \frac{5}{2} + \frac{5}{2} = \frac{3}{2} + \frac{5}{2}$

$(-2 + 3)x - \frac{5}{2} + \frac{5}{2} = \frac{3}{2} + \frac{5}{2}$

$x - \frac{5}{2} + \frac{5}{2} = \frac{3}{2} + \frac{5}{2}$

$x = 4$

A. Distributive Property
What property justifies rewriting $\frac{1}{2}(6x - 5)$ as $3x - \frac{5}{2}$?

B. What property justifies rewriting $-2x + 3x$ as $(-2 + 3)x$?

C. What property justifies adding $\frac{5}{2}$ to each side of the equation?

D. Distributive Property
What property justifies rewriting $(-2 + 3)x$ as x ?

E. Addition Property of Equality
What property justifies adding $\frac{5}{2}$ to each side of the equation?

Turn and Talk Is it possible to eliminate the fractions as a first step in solving the equation $-2x + \frac{1}{2}(6x - 5) = \frac{3}{2}$? Show how or explain why not. See margin.

Module 2 • Lesson 2.2

English Language Proficiency Level supports keep the rigor intact for all of your learners of the language of mathematics.

Step It Out

Task 2 **MP Use Structure** Encourage students to use the structure of addition to check whether the Distributive Property works for subtraction.

By writing subtraction as adding the opposite of a number, students can demonstrate that the Distributive Property also holds for a product of a number and a difference of two numbers:

$$a(b - c) = a[b + (-c)] = ab + a(-c) = ab - ac$$

Sample Guided Discussion:

1 What will be the last equation in the sequence of solution steps? Why? The equation $x = 0.5$ will be last because it is the only equation that has the variable by itself on one side.

2 Why do you substitute the solution you found into the original equation to check your work? Possible answer: I could have made a mistake when solving the original equation. If so, some of my intermediate equations may contain errors.

Turn and Talk Students may not know how to solve the equation without the Distributive Property. Point out that they can first follow steps to isolate the expression in parentheses, and then work to isolate the variable. Yes, I can subtract 4 from each side to get $5(2x - 3) = -10$. Then I can divide each side by 5 to get $2x - 3 = -2$. Next, I can add 3 to each side to get $2x = 1$. Finally, I can divide each side by 2 to get $x = 0.5$.

Task 4 **MP Use Structure** Encourage students to use the structure of the Distributive Property and the properties of equality to justify each step in the solution.

Sample Guided Discussion:

1 On the left side of the second equation, why is $\frac{5}{2}$ instead of 5 being subtracted? When you use the Distributive Property to rewrite $\frac{1}{2}(6x - 5)$, you must multiply both terms inside the parentheses by $\frac{1}{2}$, not just the first term.

Turn and Talk Help students realize that they can eliminate the fractions from an equation by multiplying each side by the LCD of the fractions. Yes, I can multiply both sides of the equation by 2 to eliminate the fractions. This gives the equation $-4x + 6x - 5 = 3$.

EL PROFICIENCY LEVEL

Beginning
Write the terms $-2x$ and $3x$. Say, "These are like terms because each term has the same variable, x , raised to the same power—the first power." Then write the term $4m^2$ and ask students to write a like term for $4m^2$.

Intermediate
Have students work in groups. Give each group a set of index cards. Each card should show two terms, such as $5x$ and $-3x$ or $6y^3$ and $6y^2$. Ask students to explain why the terms on each card either are or are not like terms.

Advanced
Have students explain how to use the Distributive Property to combine like terms.

Just-Right Questions stretch student thinking and help them work through challenges. Guided discussion questions offer opportunities for teachers to prompt conversations that build understanding.

Leveled question suggestions with associated Depth of Knowledge (DOK) levels within the Teacher Edition further support the strengthening of student understanding.

2 Learn Together

Build Understanding

Task 1 **MP Use Structure** Students identify fractions, decimal forms, and other number forms to classify different sets of numbers within the real number system.

CONNECT TO VOCABULARY
Have students use the **Interactive Glossary** to record their understanding of the vocabulary in this task.

Sample Guided Discussion:

1 In Part B, which is true: all rational numbers are integers or all integers are rational numbers? All integers are rational numbers. So -5 is both an integer and a rational number.

2 In Part C, what is the difference between $5.26262626\dots$ and $5.261987\dots$? The first is a repeating decimal and, therefore, is a rational number. The second is a non-repeating decimal and, therefore, is an irrational number.

Turn and Talk Help students understand that approximations are not equal to the values they represent, but rather reasonable estimates that can be used when making numerical calculations. no; Although 3.14 and $\frac{22}{7}$ are rational numbers, they are just approximations for π .

Build Understanding

Investigate the Set of Real Numbers

Every point on the number line represents a **real number**, including both rational and irrational numbers. A **rational number** is a number that can be written in the form $\frac{a}{b}$, where a and b are integers and $b \neq 0$. An **irrational number** cannot be expressed as the ratio of two integers, and its decimal form is non-repeating and non-terminating. For example, the decimal form of π , $3.14159265\dots$, neither repeats nor terminates.

Real Numbers

Rational Numbers: $\frac{2}{3}, -\frac{1}{11}, -5, -3, -12, \pi, \frac{1}{2}, \sqrt{2}, -\sqrt{10}$

Integers: $-5, -3, -12$

Whole Numbers: $0, 1, 2, 3, 4, 5$

Irrational Numbers: $\pi, \sqrt{2}, -\sqrt{10}$

Every real number can be classified as a rational or irrational number.

1 Use the definitions of rational and irrational numbers to justify each statement.

A. $\sqrt{5}$ is an irrational number. A-C. See Additional Answers.
B. -5 is a rational number.
C. $5.26262626\dots$ is a rational number.

Turn and Talk John says that the number π is a rational number because it is equivalent to 3.14 and $\frac{22}{7}$. Is John correct? Explain. See margin.

Prove Closure
Examine the following closure statements.
under addition, subtraction, and multiplication.
 $+50 - -70$
 $(-5) - 3$
 -24
self under division.
 $> 14 - -\frac{1}{2}$
 $+6 - -2.5$

Connect to Vocabulary
A set of numbers is said to be closed, or to have **closure**, under a given operation if the result of the operation on any two numbers in the set is also in the set.

EL Support at Point-of-Use

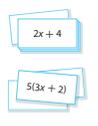




More Resources When You Need Them

PLAN FOR DIFFERENTIATED INSTRUCTION AFSS (en)

Small-Group Options
Use these teacher-guided activities with pulled small groups.

<p>On Track</p> <p>Materials: index cards</p> <p>Give each student a card with a linear expression such as $2x + 4$ or $5(3x + 2)$ written on it. Have students pair up and solve the equation formed by setting their expressions equal to each other. Each student should pair up with as many other students as time allows.</p> 	<p>Almost There</p> <p>Materials: algebra tiles</p> <p>Write the equation $3x + 2 + 1 = 13$. Have students do the following:</p> <ul style="list-style-type: none"> Model the equation with algebra tiles, using three groups of one x tile and two 1 tiles to represent $3x + 2$. Use the model to write an equivalent equation without grouping symbols. Solve the equation by performing the same operation on each "side" of the model, such as adding tiles to or removing tiles from each side. Continue until you have an x tile by itself on one side and only 1 tiles on the other side. After each step, write the corresponding equation. Review your solution steps. Then solve the equation $4x - 5 = 7 = 9$ without using algebra tiles. 	<p>Ready for More</p> <p>Write the equation $2x + a = bx + 8$. Have students find values of a and b for which the following are true:</p> <ul style="list-style-type: none"> The equation has infinitely many solutions. The equation has no solution. The equation has 3 as its only solution. 
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Math Center Options
Use these student self-directed activities at centers or stations.

<p>On Track</p> <ul style="list-style-type: none"> Interactive Digital Lesson Interactive Glossary: equation, equivalent equations, solution of an equation in one variable Spice and Analysis Task: Clothing Coupon Choices Journal and Practice Workbook 	<p>Almost There</p> <ul style="list-style-type: none"> Reach 2.2 Interactive Reach 2.2 Tier 3 Skills Worksheet 8: Solve Two-Step Equations 	<p>Ready for More</p> <ul style="list-style-type: none"> Challenge 2.2 Interactive Challenge 2.2 Illustrative Mathematics: Harvesting the Fields
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Differentiate for every student with embedded recommendations and resource suggestions.

Lesson Tutorial
Comparing Precision of Measurements



English CC Professor Edward Burger

Hey, I want to talk to you about precision. Now this is where we want to get as close and as fine of a measurement as possible. So we're

Key Objectives

- Analyze and compare measurements for precision and accuracy.

Precision is the level of detail in a measurement and is determined by the smallest unit or fraction of a unit that you can reasonably measure.

Math on the Spot videos provide students and families with interactive experiences that help with homework.

Chemist

Chemists work in labs or in the field investigating how different substances interact with one another. In their work, chemists sometimes mix substances together. The substances, called reactants, may react to form new substances, called products. Chemists use a chemical equation to describe the reaction.

STEM Task

A *balanced* chemical equation has the same number of atoms for each element before and after the reaction.

Suppose you are combining molecules of the elements nitrogen (N_2) and hydrogen (H_2) to form ammonia (NH_3). The subscripts indicate the number of atoms of an element in each molecule.

$?\ N_2 + ?\ H_2 \Rightarrow ?\ NH_3$

1 nitrogen atom and 3 hydrogen atoms

Find the missing numbers of nitrogen, hydrogen, and ammonia molecules to balance the equation.

Contextualized Learning gives students the opportunity to see that mathematics has purpose. Each unit is tied to a career theme and offers related problems that link students' career aspirations to mathematics.





A Seamless Digital Experience

Everything you need, organized in one simple place.

On the HMH GLP, the teacher and student experiences are very much the same. Content tagged with the teacher-only badge will not show in the student view.



Table of Contents

Navigate and easily reorganize course content using the traditional table of contents. The TOC is typically closed to increase the size of the learning window.



Explore Carousel

Students and teachers love to explore the course content with the visual navigation carousel, which presents itself when you hover over the explore bar.

Create Content

Allows you to create and add content as an administrator at the school level before distribution, or as a teacher in your classroom. Not visible in the student view.





Home

Takes you to your personal school dashboard where you can quickly access all your courses.



Gradebook

Fully integrated course gradebook allows teachers to create custom categories and weights for graded assignments and student participation.



Assign

Teachers can browse content—and then assign the material with written instructions—directly from the content page. Assigned content immediately appears in the Assignments Overview and activates the icons.

Search

Home Courtney

Assignments Gradebook Done!

Functions and Equations

Notes & Discussion

Add Note

Ask each group to choose one person to graph a linear equation. The other group members will give that student clues about the graph. • One student says either a point on the line, the x-intercept, or the y-intercept. • Another student either says another point on the line or an intercept, or indicates that the line is horizontal, vertical, or through the origin. • The student then graphs the line using the clues. Have students switch roles and repeat the activity.

10:39 AM 11/10/20 [Add comment](#)

Two Variables

Module 4: Linear Functions and Models

Module 5: Relationships Among Functions

assignments reports



Assignment Status

Students can see their assignment status while viewing the content. They get satisfaction from checking DONE! when they feel they have covered the material. This action puts marker badges within their navigation and within the Assignments Overview that the teacher can also see.



Notes & Online Discussions

Teachers and students can take notes on the page. Teachers are also able to moderate class discussions.



Emoji

While not always required, emoji help students express how they feel about the learning material and can provide teachers a guide for early intervention.

Assignments Overview

tracks all assigned assessments and progress.

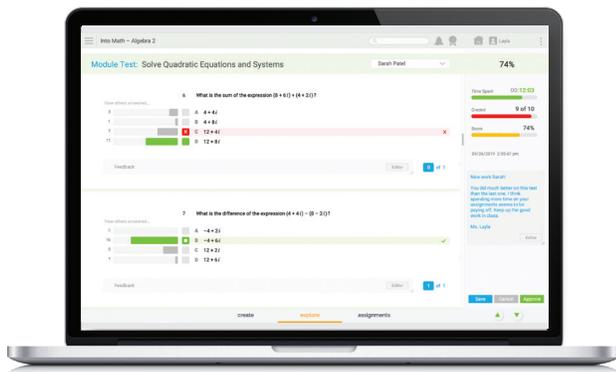
Reports Dashboard

Shows flexible view of assessment proficiency of students, groups, and class.



Empowered Decisions through **Assessment & Reporting**

- Customizable print and digital assessments
- Intuitive data reports and growth tracking
- Time-saving analysis of mathematics skills and standards mastery



Feedback

Provide students with automated and/or custom feedback for each question, as well personalized feedback on assessments or graded assignments.

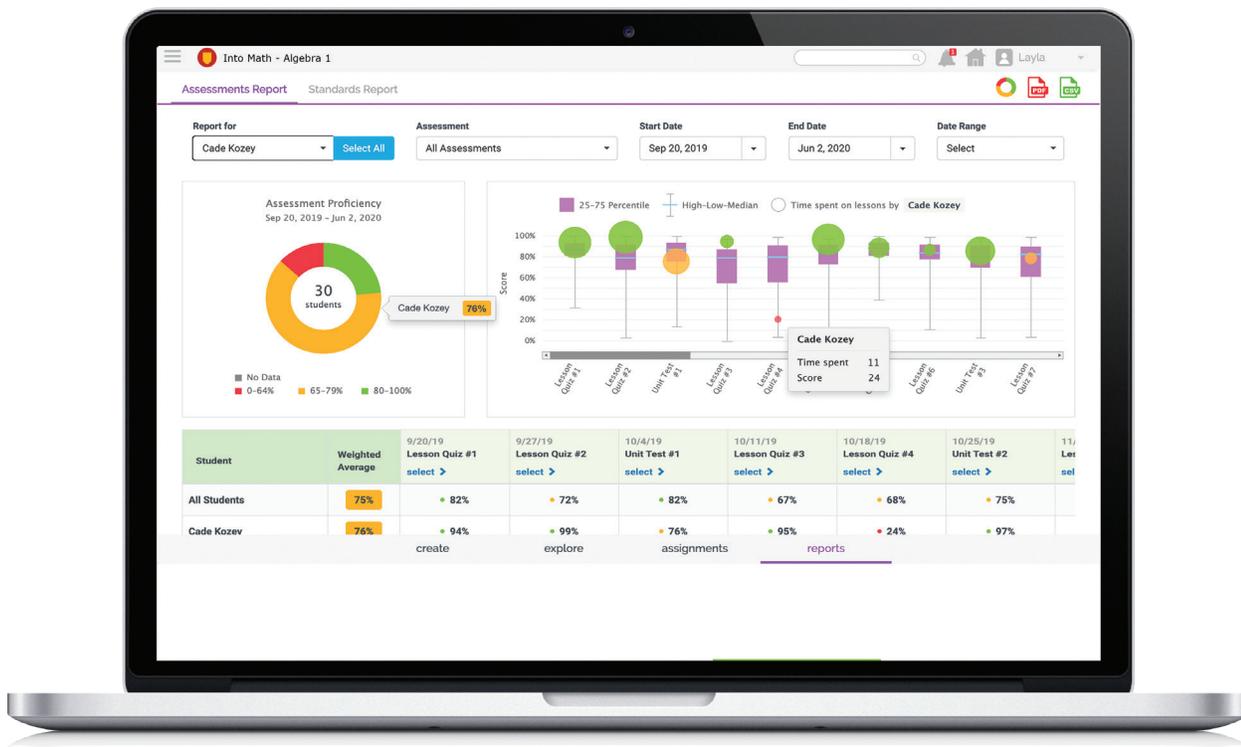
Assessment Settings

- **Set time limits**—and number of attempts.
- **Maintain question pool integrity** for exams by creating quizzes with a random set of questions.
- **Define review parameters**—from only showing questions as correct/incorrect to graphically showing students their results versus peers.

Gradebook and Grading

- **Create preset assessment categories** with weights that automatically apply to the assessments results in the gradebook.
- **Set participation scores** for ungraded activities.
- **Manually add offline assessment** and participation scores.

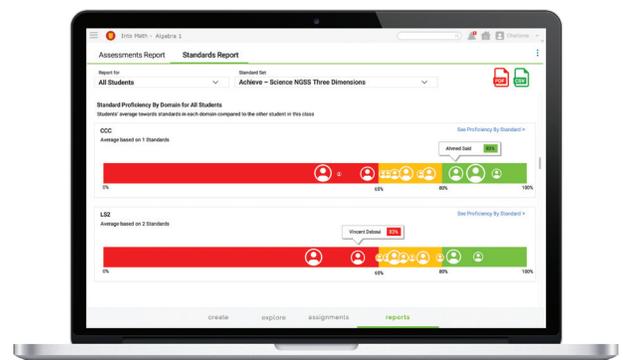




Actionable Data to Guide Instruction

The **Assessment Report Dashboard** provides a flexible view of the proficiency of an entire class. Designed to allow fluid movement between selected student's and groups' performance to gain the insights needed for the implementation of differentiation and reteach strategies, as well as to keep all students and the class schedule on track.

- **Easily compare** individual student's or group scores against the backdrop of the class high-low-median and average.
- **Time-Spent bubbles** represent a student's cumulative time spent in online assessments, indicating level of effort and engagement.
- **Colored score ranges**, set to local standards, provide a quick visual on student performance throughout the report's grading tables.
- **PDF and CSV report generation** GLP Reports function to easily keep parents and school administrators up to date.
- **Standards Report** allows teachers to view student performance against Common Core standards and easily compare against class performance to standards.
- **View results** by skills and standard.



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Assignments Overview

Due Date	Title	Time Spent	Not Started	In Progress	Done
6 days ago Mar 31, 2020	Module Opener: Real Numbers and Real-World Quantities		0	0	6
4 days ago Apr 02, 2020	Spark Your Learning: Simplify Expressions Involving Radicals and Rational Exponents		0	0	6
3 days ago Apr 03, 2020	Module Opener: Interpret and Solve Problem Situations		1	1	4
Today Apr 06, 2020	Module Opener: Interpret and Solve Problem Situations		2	1	3

Completed	Student	Time Spent	Emoji	Status
	Amira Malik	09:39		In progress
04/06 17:50	Anna Mejler	47:19	👍	Done
04/06 18:12	Hamad Khalid	36:16	👍	Done
04/06 18:03	Jose Martinez	27:19	👍	Done
	Salma Ayad			Not started
	Vincent Deboul			Not started

In 1 day Apr 07, 2020	Spark Your Learning: Simplify Expressions Involving Radicals and Rational Exponents	Time Spent	Attempts	Emoji	Status
	Amira Malik		0		Not started
04/06 17:54	Anna Mejler	17:12	1	👍	Done
04/06 18:17	Hamad Khalid	16:21	1	👍	Done
04/06 18:02	Jose Martinez	17:44	1	👍	Done
	Salma Ayad		0		Not started
	Vincent Deboul		0		Not started



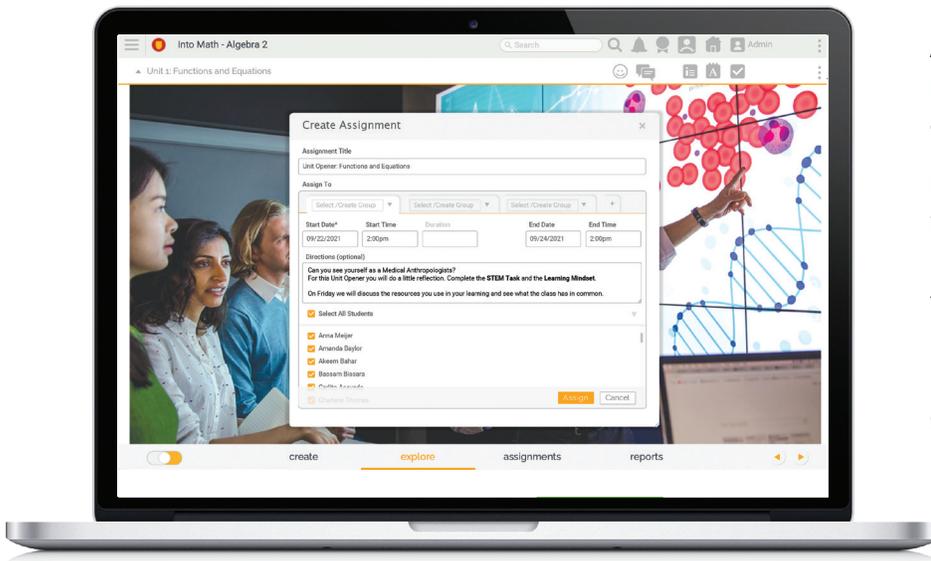
Plan activities and monitor progress with an easy-to-follow learning sequence.

Assign any lesson or assessment directly from the material or from the content search and filter dashboard to any student, groups of students, or the entire class.

Assignment Overview provides the ability to track aggregate and individual student performance, such as time spent, progress, and scores.

Allows students to easily see what they need to work on next and monitor their own progress.

Flexible, ready to fit different instructional approaches. HMH GLP makes it easy to plan how to implement the *Into AGA* program. –whether broadly before the students are rostered, over the coming week, in groups of students, or on their own.



The ability to monitor student progress begins when you assign a resource.



Customize HMH Courses and Create New Content

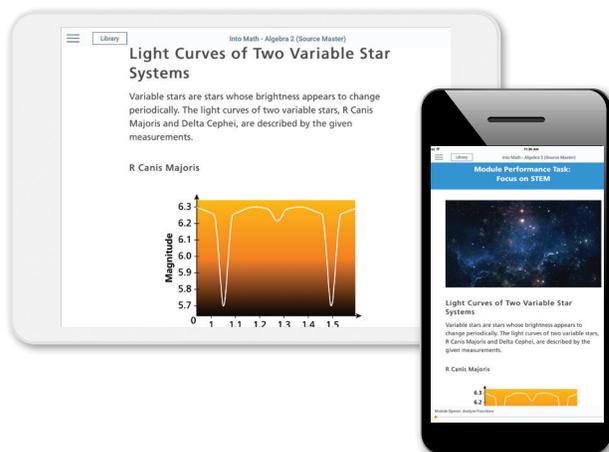
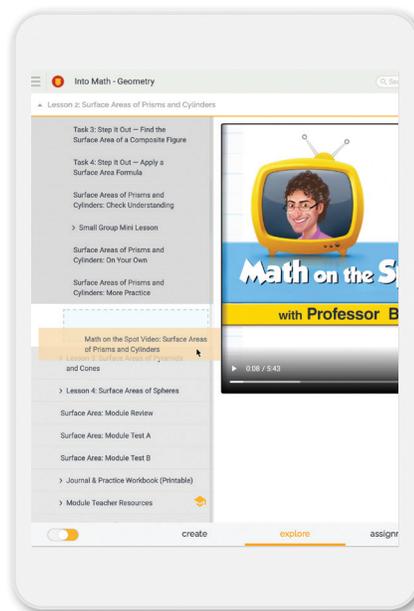
Built-in authoring capabilities allow you to add new material and to customize any course at the country, school, and classroom level.

License your custom versions from year to year while still receiving all the publisher updates. If your needs grow, group repositories to manage and share master versions of your own custom content are available.

Question Pools & Assessments

Modify provided assessments or create your own. Select a variety of parameters and choose from your own preset weights and categories.

For printed assessments not done online, assessment scores and participation grades can be added manually.



Go Mobile

- *HMH Global*, the app for iOS® mobile devices, allows students to take any material, including interactive lessons, offline.
- Provides a seamless experience between multiple devices and between school and home.

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Continuous Support at Your Fingertips

We're committed to ensuring your success with *Into AGA* throughout the year. You don't expect your students to master all their skills within the first week of school, and the same shouldn't be expected of you. That's why we've designed our professional learning to be ongoing, flexible, and actionable.

Whether you're a first-year mathematics teacher or a teaching veteran, *Into AGA* was designed to place learning opportunities at your fingertips every step of the way. From embedded professional learning to job-embedded coaching, experts from Math Solutions take the guesswork out of your implementation and ensure you and your students are successful with *Into AGA*.

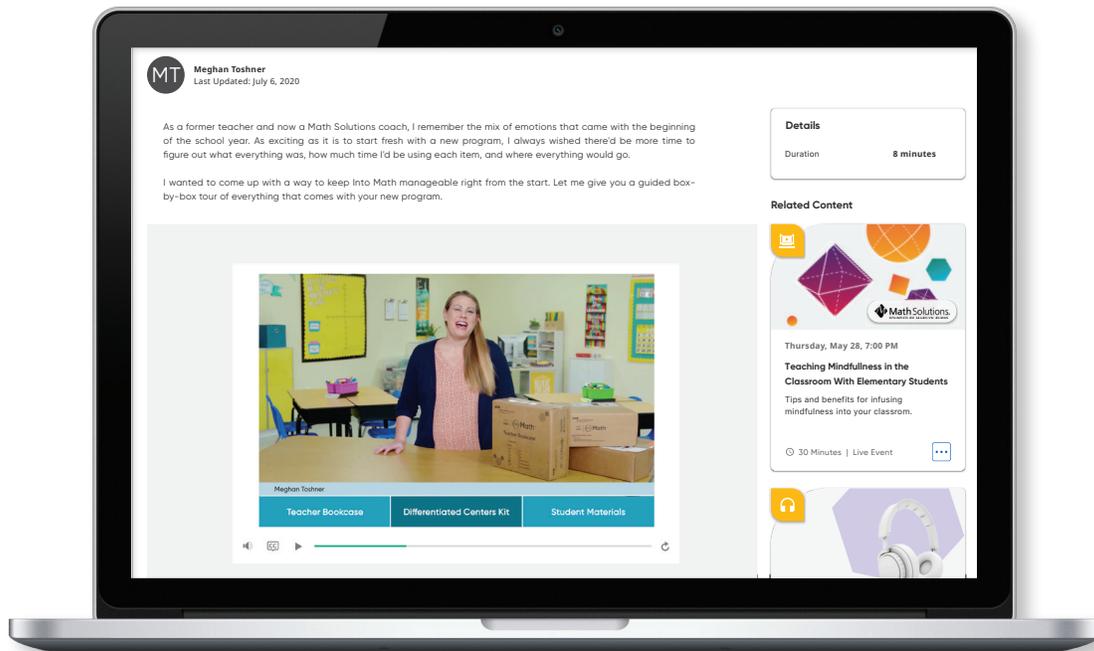


Follow-Up Tailored To Your

Needs: Once you begin teaching, you'll have more questions and need more support. That's why we provide additional opportunities for you to connect with a Math Solutions coach throughout the year.

Follow-up topics range from support with instructional routines to differentiating instruction. These shorter sessions allow you to stay engaged and build your expertise in a manageable way.



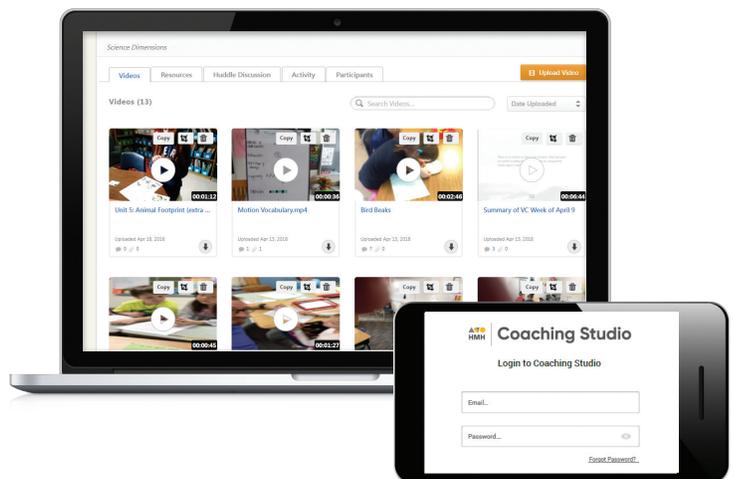


Extend Your Professional Learning

Whether you are interested in focusing on instructional best practices, deepening your content knowledge at each grade level, or closing the achievement gap, Math Solutions can provide the support you need to grow your practice with online coaching, courses, and professional learning communities.

Coaching Studio

Award-winning **HMH Coaching Studio** platform allows you to stay connected with your coach and your colleagues, share and upload resources, and access a library of on-demand lesson-modeling videos.



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2019 SIIA CODiE FINALIST



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Extend Fearless Problem Solving **beyond the Classroom**

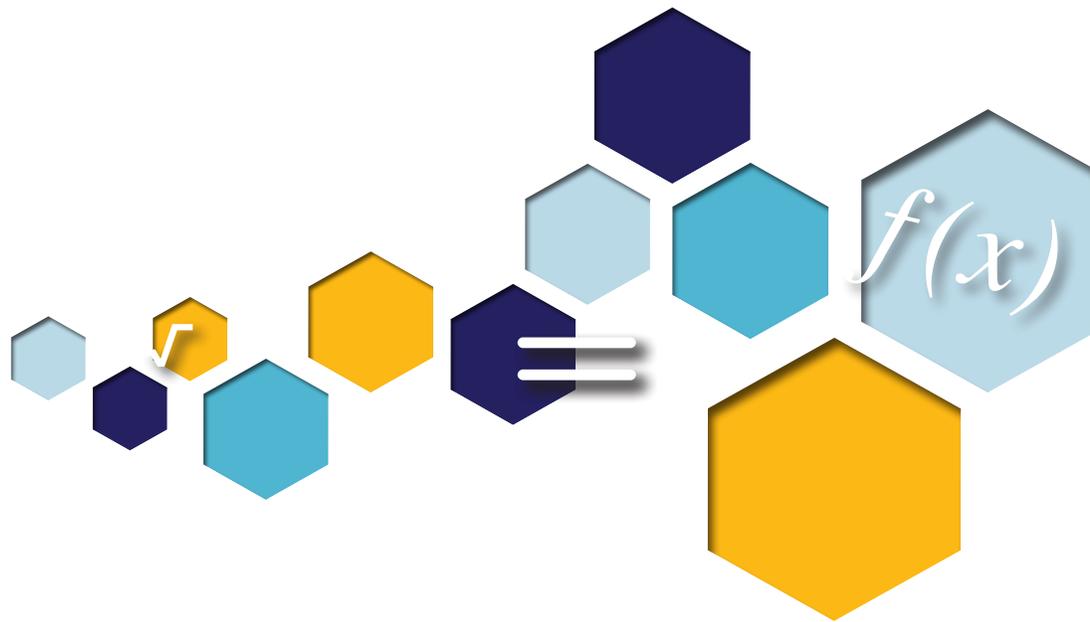
As our world increasingly depends on STEM careers and competition builds for future jobs, we are focused on the bigger picture: extending fearless problem solving beyond the classroom.

Preparing our students to tackle the challenges ahead starts with a continual investment in you, their educators. *Into AGA* provides you with the tools you need to save time, simplify planning, and expand your ability to inspire young minds. You'll see learners become engaged as they master mathematical concepts and skills and discover the power of perseverance.

Let's get *Into AGA!*







A Vision for **Student Growth**

Contact us to learn more and request a preview

learning.hmhco.com/into-aga-international

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