STEMscopes TEXAS MATH
POWERED BY ACCELERATE LEARNING

Grade 6

Lesson Sample

Content Review

Built for Texas Math

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A Math Program for Texas Educators

GUIDED LESSON TOUR

Welcome to Your Lesson Sample

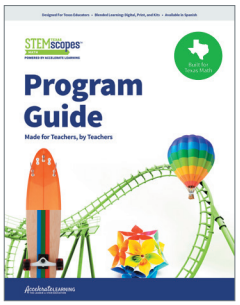
The following pages feature resources that mirror what teachers and students can access digitally. Each section includes clear navigation steps that seamlessly guide you through the content online, ensuring quick and easy access. Look for red circle callouts in the top left corner, which correspond directly to the titles of online documents.

Our lessons are also referred to as Scopes online. Scopes are built on a solid foundation of proven educational strategies, featuring a wealth of resources and materials fully aligned to the TEKS.

From our online platform, you can:

- Personalize your experience by bookmarking your favorite elements, crafting lesson plans, and effortlessly managing your students and classes.
- Access detailed preparation instructions, facilitation prompts, discussion questions, and sample student answers, providing everything you need for successful hands-on learning.
- Preview assignments from the student's view.
- Assign activities and assignments to students digitally, grade submissions, and provide feedback seamlessly within our user-friendly interface.
- Download and print files for added flexibility!

Explore the STEMscopes Texas Math Program Guide for a deeper dive into our lesson design and comprehensive program details.



Log In and Review!

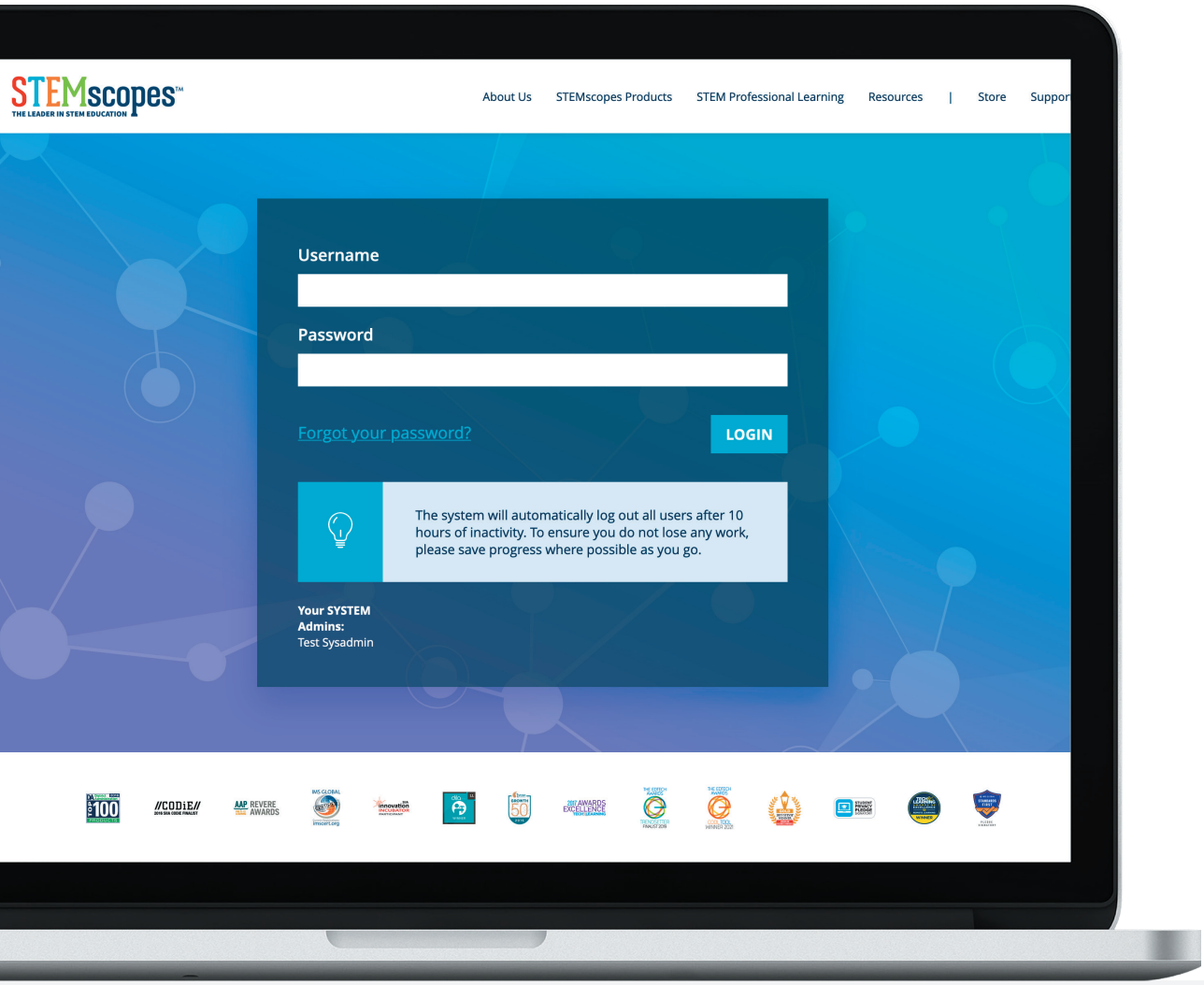
The entire STEMscopes Texas Math curriculum is online.

Use the **navigation steps** to follow along online and explore all that STEMscopes Texas Math offers educators and students.

Access our full curriculum online in two easy ways:

1. Log in using your district's unique review URL and credentials.
2. Sign up at ***accelerateLearning.com/math/tx***.

All student digital and print resources are available in English and Spanish.



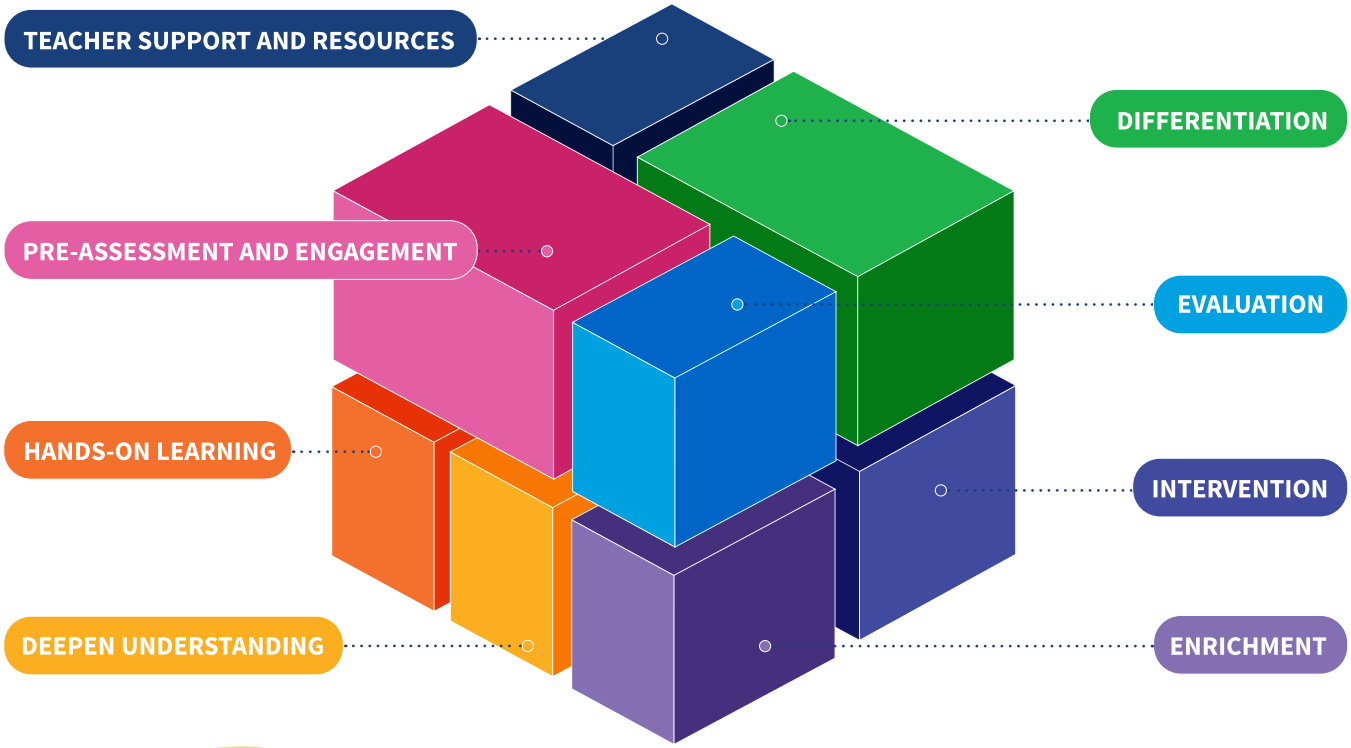
AccelerateLEARNING
THE LEADER in STEM EDUCATION

Lesson Design

A Comprehensive Math Solution

Each lesson is intentionally designed to provide teachers and students with everything they need for engaging and meaningful math instruction and learning.

Everything You Need, All In One Place



Grade 6 Lessons

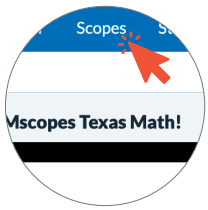
LESSON	TEKS
Fractions, Decimals, and Percents	6.4E, 6.4F, 6.5C, 6.4G, 6.5B
Rational Numbers	6.2A, 6.2B, 6.2C, 6.2D
Positive Rational Number Operations	6.2E, 6.3A, 6.3B, 6.3E
Integer Operations	6.3C, 6.3D
Equivalent Numerical Expressions	6.7A
Algebraic Expressions	6.7B, 6.7C, 6.7D
Equations and Inequalities	**6.9A, 6.9B, 6.9C, 6.10A, 6.10B**
Ratios, Rates, and Unit Rates	6.4B, 6.4C, 6.4D, 6.4E, 6.4H, 6.5A
Coordinate Planes	6.11A
Two-Variable Relationships	6.4A, 6.6A, 6.6B, 6.6C
Triangle Properties	6.8A
Area and Volume	6.8B, 6.8C, 6.8D
Represent and Interpret Data	6.12A, 6.12B, 6.13A
Measures of Data	6.12A, 6.12B, 6.12C, 6.12D, 6.13B
Banking and Credit	6.14A, 6.14B, 6.14C, 6.14D, 6.14E, 6.14F
Future Planning	6.14G, 6.14H

Grade 6,
Equations and Inequalities

NAVIGATION STEPS

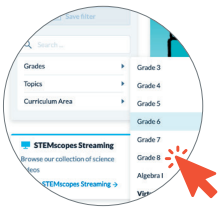
Log In

Use Your Credentials



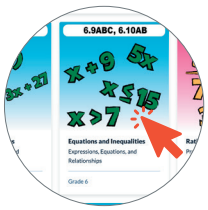
Click Scopes

Click on Scopes in the Blue Navigation Bar



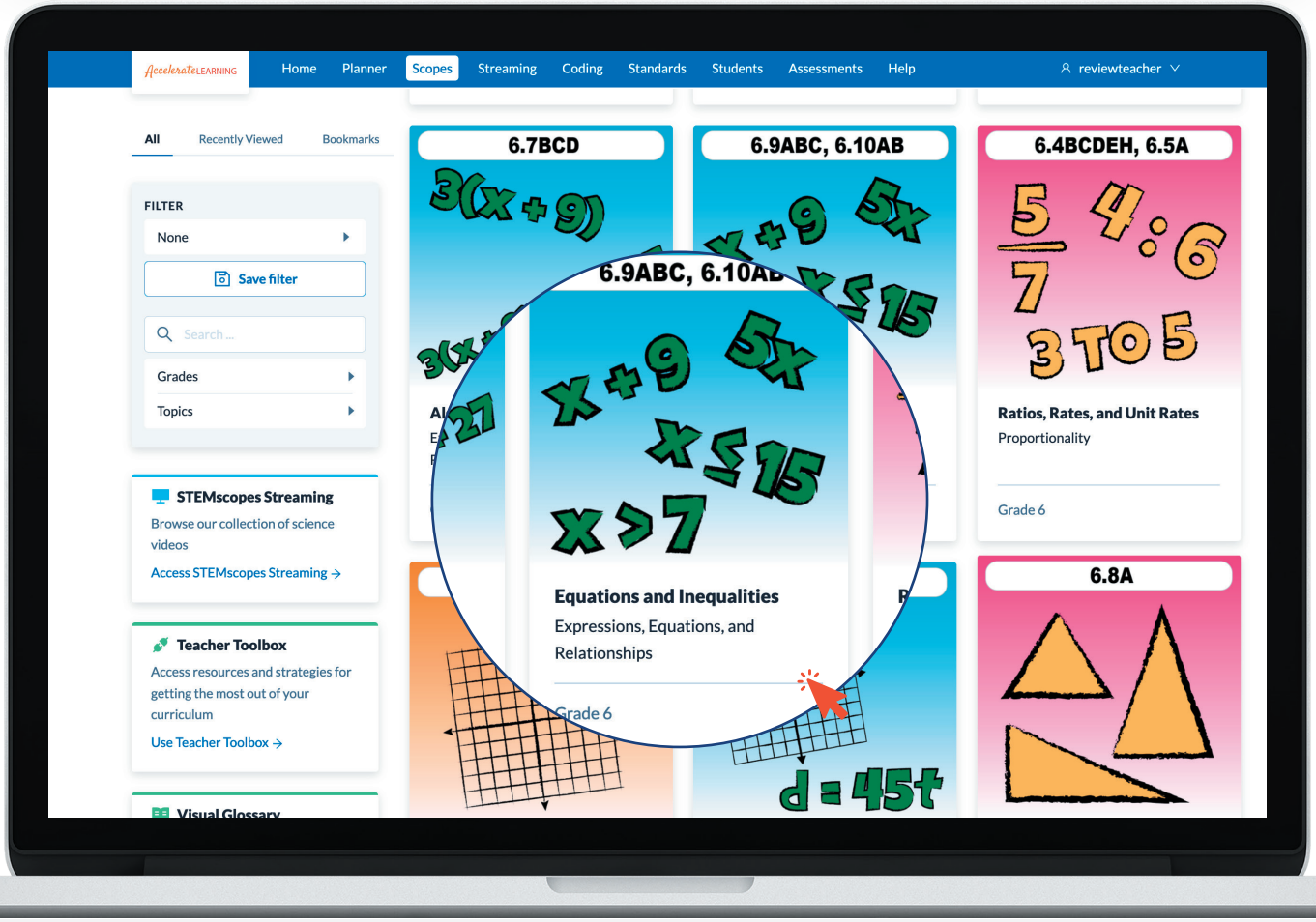
Filter

Filter to 6th Grade on the Left-Hand Side



Select Tile

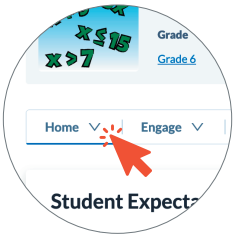
Select and Click on the Equations and Inequalities Scope Tile



Home | Engage | Explore | Explain | Elaborate | Evaluate | Intervention | Acceleration

Home

NAVIGATION STEPS



Click Home

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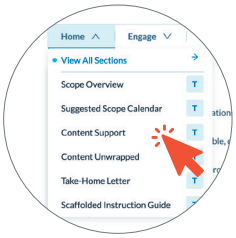


Review Content

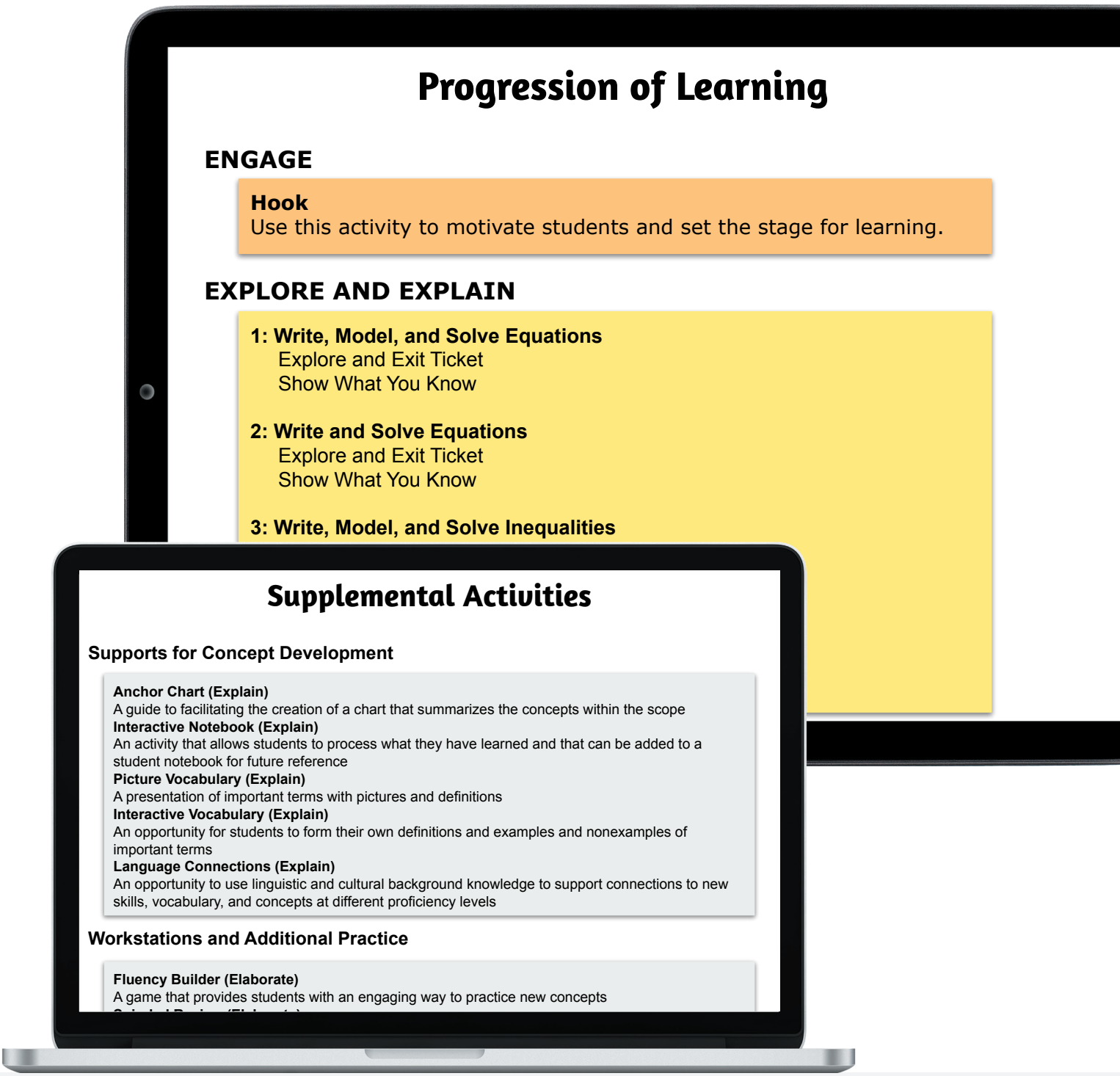
Use the Dropdown to Review Teacher Support and Resources

Our program is built by practicing and former teachers, so we know what you need to teach and that your curriculum should provide it all.

Each lesson starts with a tailored **Home** section with planning essentials, including a daily lesson calendar, comprehensive standards analysis, and letters for communicating with families.

SCOPE OVERVIEW

The Scope Overview provides a comprehensive insight into the key components that enable teachers to deliver a well-rounded and effective learning experience. It includes a Progression of Learning, which details the essential elements for mastering the standards and offers Supplemental Activities that present various options for assessment, intervention, and enrichment of the core content.



CONTENT SUPPORT

Content Support is a comprehensive unit overview that provides the background content knowledge and academic vocabulary necessary to effectively teach the concepts in the unit.

6.9A Write one-variable, one-step equations and inequalities to represent constraints or conditions within problems.

6.9B Represent solutions for one-variable, one-step equations and inequalities on number lines.

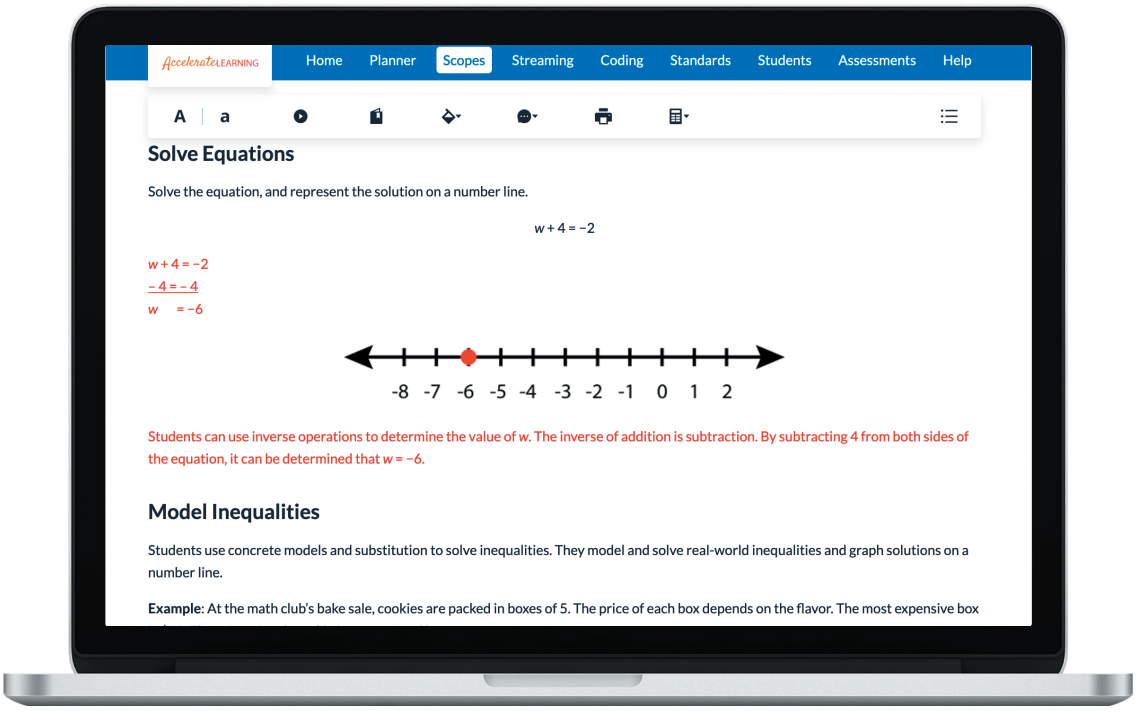
6.9C Write corresponding real-world problems given one-variable, one-step equations or inequalities.

6.10A Model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts.

6.10B Determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.

Background Knowledge

In 5th grade, students represent and solve multistep problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity. Students also simplify numerical expressions that do not involve exponents, including up to two levels of grouping.



CONTENT UNWRAPPED

Content Unwrapped breaks down the TEKS by identifying the nouns and verbs within the standards, includes a list of instructional implications, and provides a vertical alignment.

Standards

6.9A Write one-variable, one-step equations and inequalities to represent constraints or conditions within problems.

6.9B Represent solutions for one-variable, one-step equations and inequalities on number lines.

6.9C Write corresponding real-world problems given one-variable, one-step equations or inequalities.

6.10A Model and solve one-variable, one-step equations and inequalities that represent problems, including geometric concepts.

6.10B Determine if the given value(s) make(s) one-variable, one-step equations or inequalities true.

Dissecting the Standard

Breakouts

6.9A

(i) Write one-variable, one-step equations to represent constraints or conditions within problems.

(ii) Write one-variable, one-step inequalities to represent constraints or conditions within problems.

6.9B

(i) Represent solutions for one-variable, one-step equations on number lines.

(ii) Represent solutions for one-variable, one-step inequalities on number lines.

6.9C

(i) Write corresponding real-world problems given one-variable, one-step equations.

(ii) Write corresponding real-world problems given one-variable, one-step inequalities.

6.10A

(i) Model one-variable, one-step equations that represent problems, including geometric concepts.

(ii) Model one-variable, one-step inequalities that represent problems, including geometric concepts.

(iii) Solve one-variable, one-step equations that represent problems, including geometric concepts.

(iv) Solve one-variable, one-step inequalities that represent problems, including geometric concepts.

6.10B

(i) Determine if given value(s) make(s) one-variable, one-step equations true.

(ii) Determine if given value(s) make(s) one-variable, one-step inequalities true.

Verbs: What should students be doing?

- *determine*: to solve for; to figure out
- *model*: to show with a pictorial representation or numerical expression
- *represent*: to show how terms are related; to stand for something else
- *solve*: to find a value that answers a question and/or makes an equation true
- *write*: to record a mathematical statement

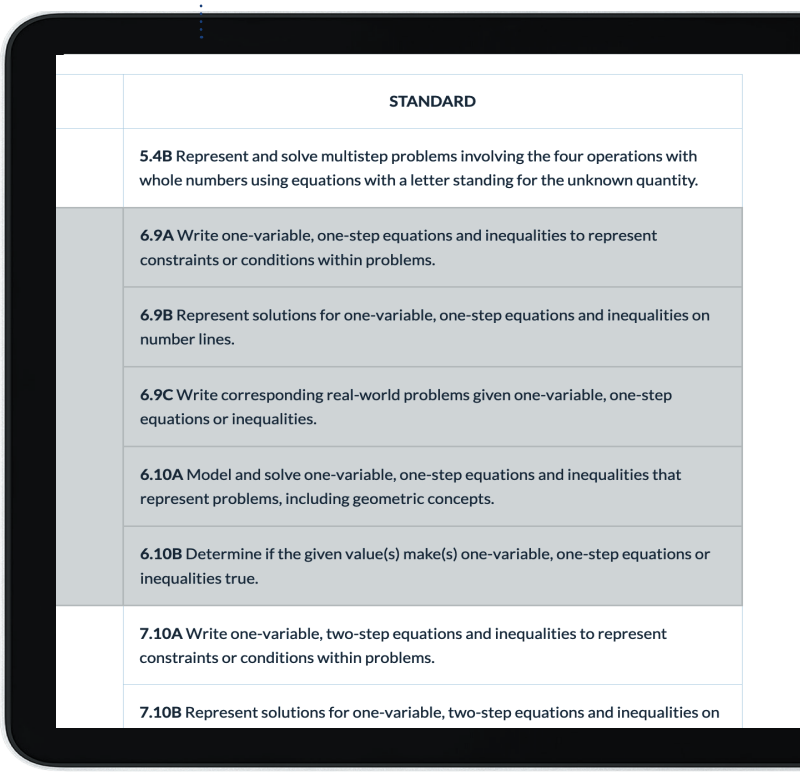
Nouns: What concrete words should students know?

- *coefficient*: the number placed directly before a variable that tells you to multiply that number by the variable
- *constant*: a fixed number that stands alone in an equation or expression
- *equation*: a mathematical sentence that uses numbers, one or more operation symbols, and an equal sign
- *greater than (>)*: more than another (e.g., 49 > 12)
- *greater than or equal to (≥)*: more than or the same as another
- *inequality*: a mathematical sentence that uses symbols such as <, ≤, >, or ≥ to compare two quantities
- *less than (<)*: smaller than another (e.g., 432 < 501)
- *less than or equal to (≤)*: smaller than or the same as another
- *maximum*: the greatest or highest amount possible or attained
- *minimum*: the least or smallest amount or quantity possible, attainable, or required
- *number line*: a line on which numbers are marked at intervals
- *real-world problem*: a contextual based problem that can be interpreted, represented, and analyzed through the application of mathematics
- *solution set*: a set of numbers that makes an inequality statement true
- *variable*: a letter or symbol that takes the place of a number that can change; a letter that can stand for an unknown number or a set of numbers

Implications for Instruction

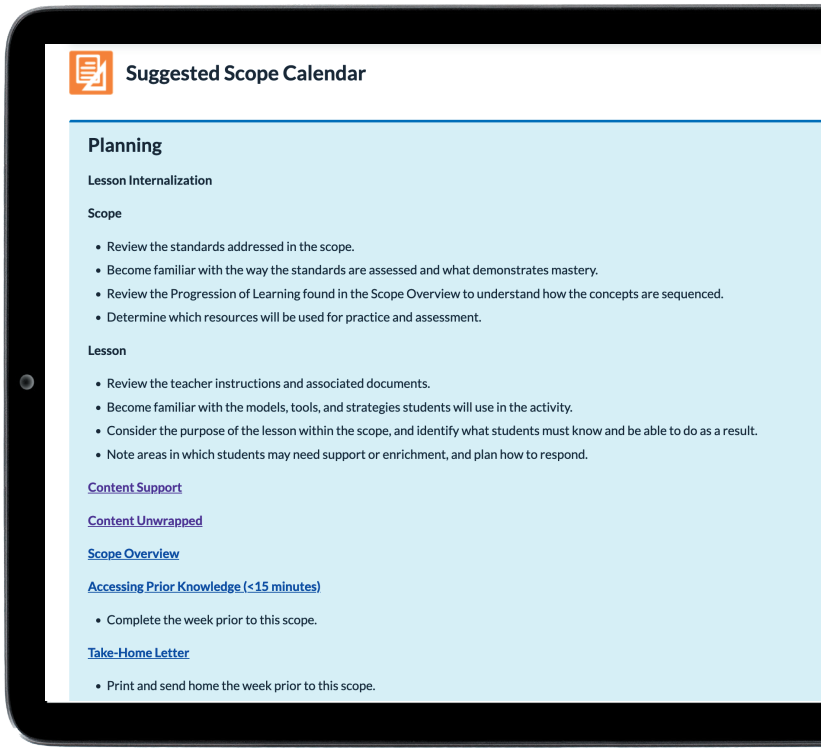
- In previous grade levels, students worked with writing and solving equations. In this grade level, students are expected to solve equations using inverse operations. Students will also learn how to write a variety of real-world problems for equations and inequalities.
- When students solve problems, they will solve equations and inequalities on both sides of the equation or inequality. Students might make the mistake of disregarding the equation or inequality symbol and performing an operation on only one side of the equation or inequality.
- Students must also understand that equations will only have one solution, whereas inequalities yield more than one solution.
- Students need to be able to understand the difference between situations that represent an equation and situations that represent an inequality. Instruction should include problem situations that involve constraints and conditions for equations and inequalities.

Vertical Alignment

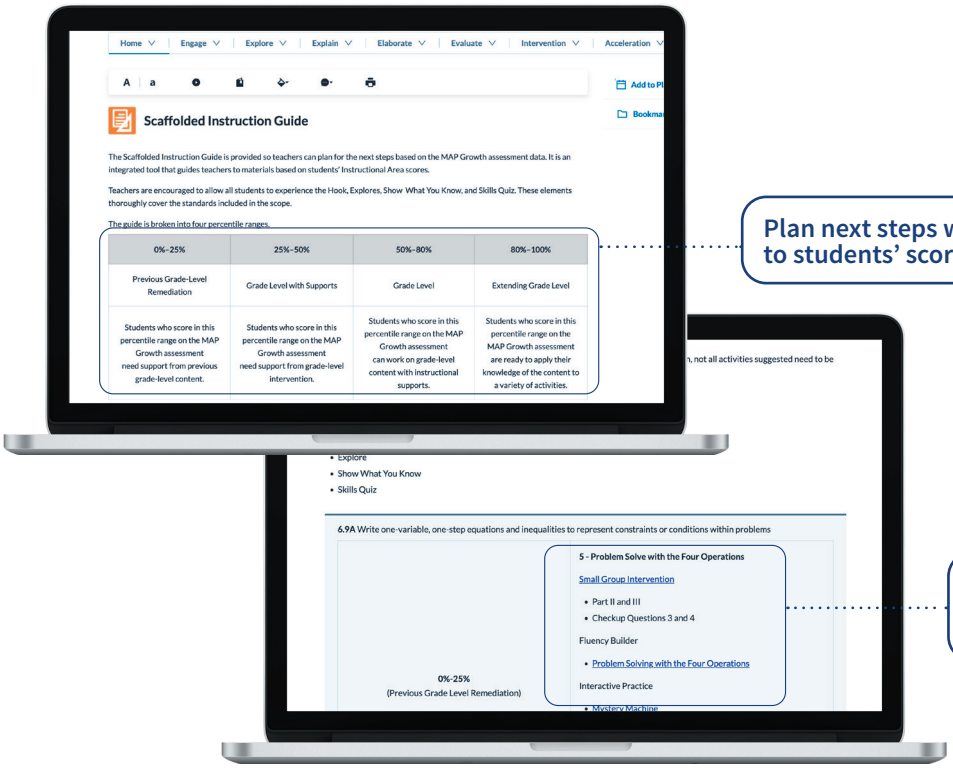


SUGGESTED SCOPE CALENDAR

Dive deep into comprehensive, structured unit and lesson plans that detail daily objectives, questions, tasks, materials, instructional assessments, and suggested timing.



SCAFFOLDED INSTRUCTION GUIDE



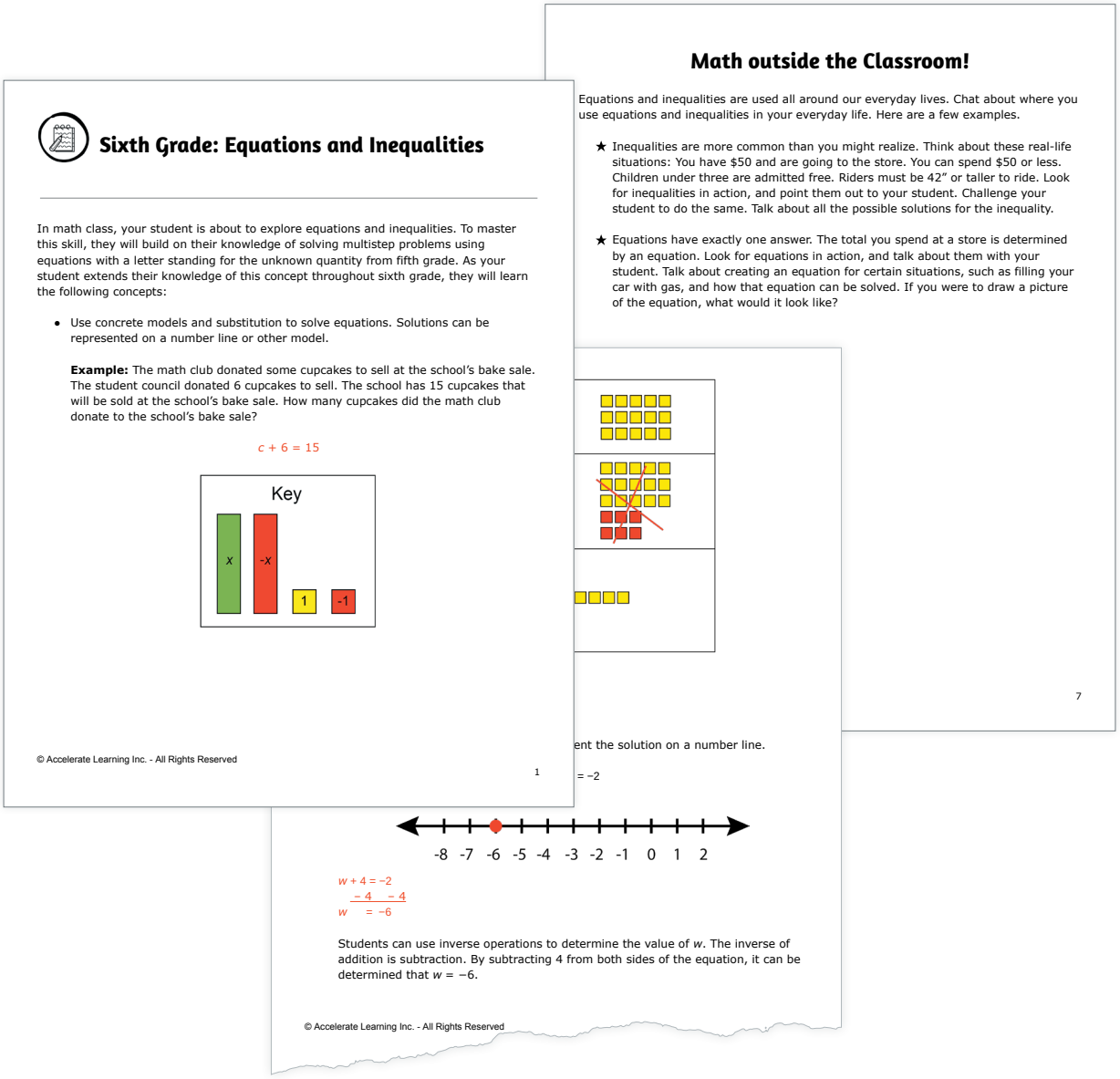
Plan next steps with activities tailored to students' scores.

Access activities through direct links and then print or digitally assign.

TAKE-HOME LETTER

Procedure and Facilitation Points

1. As you prepare for each scope, send a Take-Home Letter with students the week before to explain planned concepts.
2. Be prepared to explain Math outside the Classroom! conversation starters as questions arise.



Sixth Grade: Equations and Inequalities

In math class, your student is about to explore equations and inequalities. To master this skill, they will build on their knowledge of solving multistep problems using equations with a letter standing for the unknown quantity from fifth grade. As your student extends their knowledge of this concept throughout sixth grade, they will learn the following concepts:

- Use concrete models and substitution to solve equations. Solutions can be represented on a number line or other model.

  Example: The math club donated some cupcakes to sell at the school's bake sale. The student council donated 6 cupcakes to sell. The school has 15 cupcakes that will be sold at the school's bake sale. How many cupcakes did the math club donate to the school's bake sale?

$c + 6 = 15$

Key: x, $-x$, 1, -1

1

Math outside the Classroom!

Equations and inequalities are used all around our everyday lives. Chat about where you use equations and inequalities in your everyday life. Here are a few examples.

★ Inequalities are more common than you might realize. Think about these real-life situations: You have $50 and are going to the store. You can spend $50 or less. Children under three are admitted free. Riders must be 42" or taller to ride. Look for inequalities in action, and point them out to your student. Challenge your student to do the same. Talk about all the possible solutions for the inequality.

★ Equations have exactly one answer. The total you spend at a store is determined by an equation. Look for equations in action, and talk about them with your student. Talk about creating an equation for certain situations, such as filling your car with gas, and how that equation can be solved. If you were to draw a picture of the equation, what would it look like?

7

ent the solution on a number line.

= −2

-8 -7 -6 -5 -4 -3 -2 -1 0 1 2

$w + 4 = -2$

$-4 \quad -4$

$w = -6$

Students can use inverse operations to determine the value of w. The inverse of addition is subtraction. By subtracting 4 from both sides of the equation, it can be determined that $w = -6$.

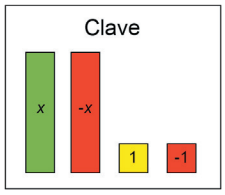
Sexto grado. Ecuaciones y desigualdades

En la clase de Matemáticas, su estudiante está por explorar ecuaciones y desigualdades. Para dominar esta destreza, desarrollará su conocimiento de resolución de problemas de varios pasos con el uso de ecuaciones con una letra en el lugar de la cantidad desconocida de quinto grado. A medida que su estudiante amplíe su conocimiento de este concepto a lo largo de sexto grado, aprenderá los siguientes conceptos:

- usar modelos concretos y sustitución para resolver ecuaciones. Las soluciones se pueden representar en la recta numérica u otro modelo;

  Ejemplo: El club de matemáticas donó algunas magdalenas para vender en la venta de pastelería del colegio. El consejo estudiantil donó 6 magdalenas para la venta. El colegio tiene 15 magdalenas que se venderán en la venta de pastelería del colegio. ¿Cuántas magdalenas donó el club de matemáticas para la venta de pastelería del colegio?

$c + 6 = 15$

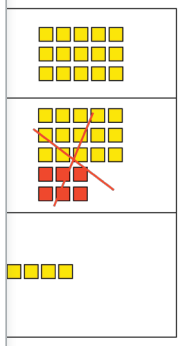


¡Matemáticas fuera del salón de clases!

Las ecuaciones y desigualdades son utilizadas a nuestro alrededor en nuestra vida cotidiana. Platique sobre dónde se usan las ecuaciones y desigualdades en la vida diaria. Abajo hay algunos ejemplos:

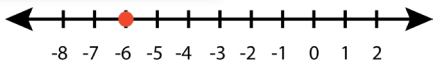
★ Las desigualdades son más comunes de lo que podemos darnos cuenta. Piense en estas situaciones de la vida real. Tiene $50 y va a la tienda. Puede gastar $50 o menos. Los niños menores de tres años entran gratis. Los usuarios deben medir 42" o más para subir. Busque desigualdades en acción y señálelas a su estudiante. Rete a su estudiante a hacer lo mismo. Platiquen sobre todas las posibles soluciones para la desigualdad.

★ Las ecuaciones tienen una respuesta exacta. El total gastado en una tienda viene determinado por una ecuación. Busque ecuaciones en acción y platique sobre ellas con su estudiante. Hable sobre la creación de una ecuación para ciertas situaciones, como llenar el carro con gasolina, y cómo se puede resolver esa ecuación. Si tuvieras que hacer un dibujo de la ecuación, ¿qué aspecto tendría?



...ta la solución en una recta numérica.

$= -2$



$w + 4 = -2$
$\quad -4 \quad -4$
$w \quad = -6$

Los estudiantes pueden usar operaciones inversas para determinar el valor de *w*. La inversa de la suma es la sustracción. Al sustraer 4 de los dos lados de la ecuación, se puede determinar que $w = -6$.

Available in Spanish!

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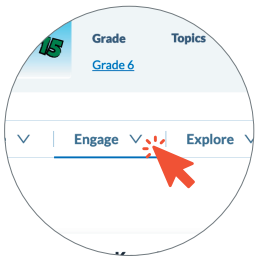
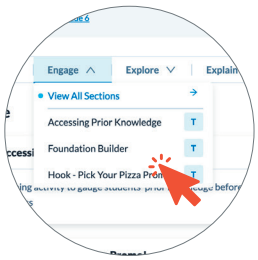
Engage

NAVIGATION STEPS



Click Engage

Click on Engage in the White Menu Bar



Review Content

Use the Dropdown to Review Engage Content

Our **Engage** activities kick off student learning by capturing students' attention and making math approachable! Use these elements to pinpoint knowledge gaps and inform your instructional approach.

ACCESSING PRIOR KNOWLEDGE

Diagnostic

Accessing Prior Knowledge is a brief, teacher-led activity to gauge students' prior knowledge before engaging in the inquiry process. This diagnostic assessment is aligned with previously taught content standards. Students read different student responses to a posed question on evaluating expressions with grouping symbols, decide whether they agree or disagree with the student, and explain their reasoning.

Preparation

- Print one Agree or Disagree for each student.

Procedure and Facilitation Points

1. Instruct students to complete the Agree or Disagree independently.
2. Once students have completed the activity on their own, have them stand up.
3. Instruct all students to walk around the classroom with their hands raised in a high-five position.
4. On your instruction, students will stop and high-five the closest person. This will be their partner.
5. Give students a couple of minutes to discuss their answers and justifications together.
6. Facilitate a discussion about the handout. This provides an opportunity to gather an understanding of prior student knowledge before beginning the lessons. Encourage students to support their answers, and check for understanding and misconceptions. Sample student responses include the following:
   a. *I agree with Sanjay*
   b. *I disagree with Kai because t is equal to 12.*
   c. *I agree with Miko*
7. If students are struggling to complete this task, do the Foundation Builder to fill the gap in prior knowledge before moving on to other parts of the scope.

Agree or Disagree

Equations and Inequalities

...essing Prior Knowledge

Name:_____ Date:_____

Agree or Disagree

Decide whether you agree or disagree with each student in the following scenarios, and circle the corresponding word. Justify your answer.

1. Sanjay says his evaluation of the following equation is correct.

$$(25 + 55) + 20 \div 5 = a$$
$$84 = a$$

Agree **Disagree**

Reasoning:

2. Kai believes that his evaluation of the following equation is correct.

$$4(15 - 5) \div 2 + t = 32$$
$$t = 20$$

Agree **Disagree**

Reasoning:

3. Miko thinks that her evaluation of the following equation is correct.

$$y - 3(20 - 5) = 55$$
$$y = 100$$

Agree **Disagree**

Reasoning:

Equations and Inequalities

...nowledge

_____ Date:_____

...rdo o en desacuerdo

...esacuerdo con cada estudiante en las siguientes ...alo la palabra correspondiente. Justifica tu respuesta.

...ón de la siguiente ecuación es correcta.

$$...5 + 55) + 20 \div 5 = a$$
$$84 = a$$

En desacuerdo

...le la siguiente ecuación es correcta.

$$...15 - 5) \div 2 + t = 32$$
$$t = 20$$

En desacuerdo

...ón de la siguiente ecuación es correcta.

$$...y - 3(20 - 5) = 55$$
$$y = 100$$

En desacuerdo

FOUNDATION BUILDER

This early intervention activity fills gaps in understanding before diving into new content. Students work in pairs to put cards in a logical order to show the steps.

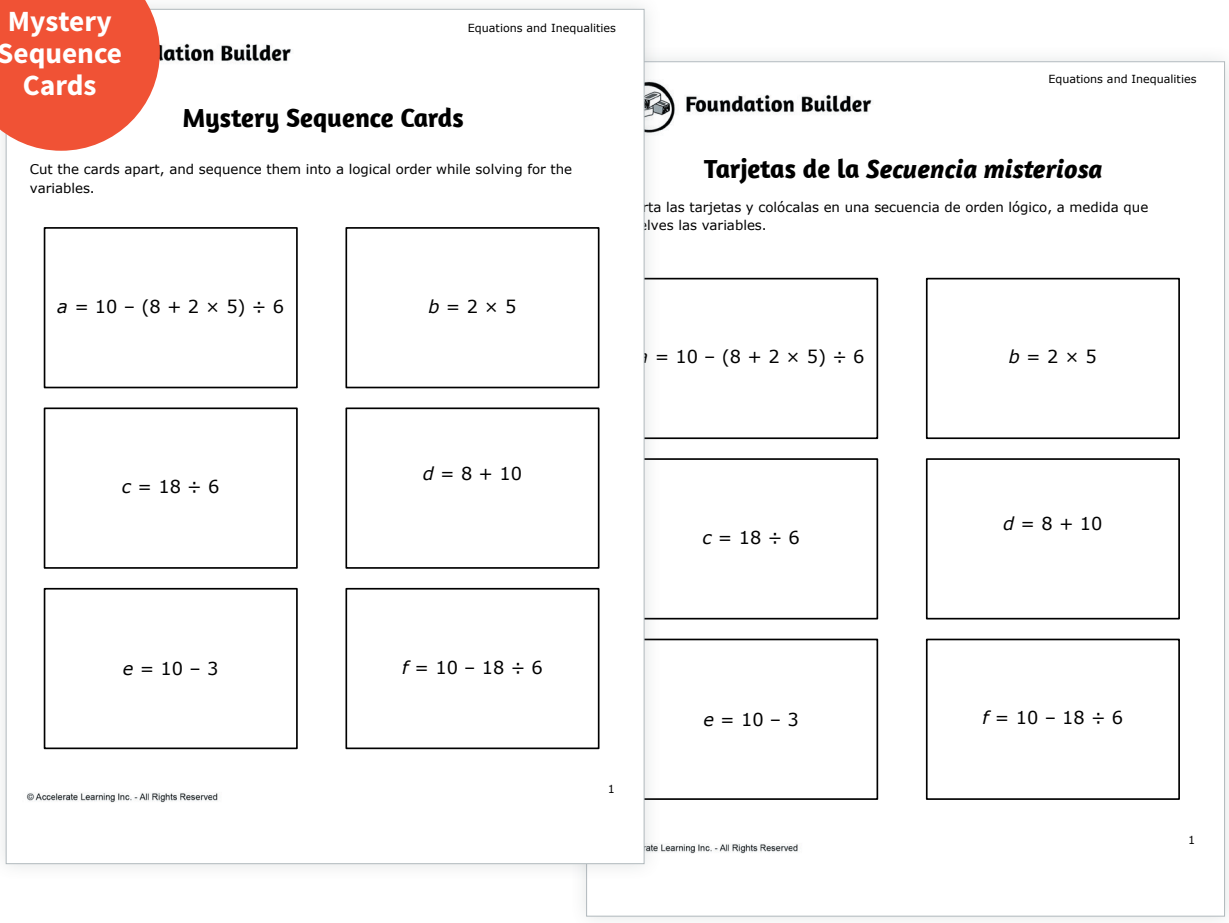
Preparation

- Plan to have students work in pairs to complete the activity.
- Print the Mystery Sequence Cards, with the option to laminate for future use.

Procedure and Facilitation Points

1. Have students work together in pairs to cut, sequence the cards in a logical order, and justify their thinking.
2. Have each pair of students compare their sequence with another pair's. Ask them the following question: *Do you need to rethink and revise, or will you stand your ground?*

Mystery Sequence Cards



Equations and Inequalities

lation Builder

Mystery Sequence Cards

Cut the cards apart, and sequence them into a logical order while solving for the variables.

$a = 10 - (8 + 2 \times 5) \div 6$	$b = 2 \times 5$
$c = 18 \div 6$	$d = 8 + 10$
$e = 10 - 3$	$f = 10 - 18 \div 6$

1

Equations and Inequalities

Foundation Builder

Tarjetas de la *Secuencia misteriosa*

rta las tarjetas y colócalas en una secuencia de orden lógico, a medida que elves las variables.

= 10 − (8 + 2 × 5) ÷ 6	$b = 2 \times 5$
$c = 18 \div 6$	$d = 8 + 10$
$e = 10 - 3$	$f = 10 - 18 \div 6$

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1

HOOK - PICK YOUR PIZZA PROMO!

Use the Hook to motivate students and start to connect their learning to real-world contexts. Students determine the cost of a pizza using equations. Students compare the costs of pizzas in two different equations to determine the best deal for pizza.

Preparation

- Plan to show the Phenomena.
- Prepare to project Pick Your Pizza Promo! for the whole class to view.
- Prepare to introduce the scenario and to encourage students to think about how to solve it. Be prepared to move to the Explore activities, returning students to the Hook activity with newly gained knowledge after the Explores have been completed.

Procedure and Facilitation Points

Part I: Pre-Explore

1. Introduce this activity toward the beginning of the scope. The class will revisit the activity and solve the original problem after students have completed the corresponding Explore activities.
2. Show the Phenomena. Ask students the following questions: *What do you notice? Where can you see math in this situation? Allow students to share all ideas.*
3. Explain the scenario to the class: *Tony loves the handmade pizza from Giovanni's. He wants to order it for the Romano family dinner on Sunday, but Tony knows it is more expensive than regular pizza, so he looks for coupons. He wonders which promo is the best deal for the price of a pizza. Once Tony has determined the best deal, he will present the coupon to his parents and try to get them to order his favorite pepperoni pizza from Giovanni's.*
4. Allow the students to ask questions and clarify the context as needed. Encourage them to share their thoughts and experiences with the class using the following questions:
    a. Have you ever purchased something with a coupon?
    b. How do coupons affect the price of an object?
5. Project Pick Your Pizza Promo!
6. Explain to students that Tony has narrowed it down to the two promo coupons he thinks best suit the needs of his large family. Now he needs to decide which coupon gives the best deal for the price of a pizza. Discuss the following questions with the class:
    a. **DOK-1** What is important about the pizzas listed in both coupons? *Answers will vary. The types and sizes of pizzas are the same on both coupons, so it is fair to compare their prices.*
    b. **DOK-1** How would we represent the cost of the pizza in the equations for each coupon? *Answers will vary. The cost of the pizza will be a variable such as p.*
7. Move on to complete the Explore activities.

Part II: Post-Explore

1. After students have completed the Explore activities for this topic, show the Phenomena again, and repeat the scenario.
2. Refer to Pick Your Pizza Promo! and discuss the following questions with the class:
   a. **DOK-1** What is important about the pizzas listed in both coupons? *Answers will vary. The types and sizes of pizzas are the same on both coupons, so it is fair to compare their prices.*
   b. **DOK-1** How would we represent the cost of the pizza in the equations for each coupon? *Answers will vary. The cost of the pizza will be a variable such as p.*
   c. **DOK-1** How can you determine the cost of the pizza in a coupon? *Write an equation with the cost of the pizza represented by a variable. Then solve the equation.*
   d. **DOK-2** What is the equation for the first coupon? $3p = 39$
   e. **DOK-2** Describe the process you used to create this equation. *We are looking for the cost of one pizza, p, and we know that 3 of the pizzas cost $39. So if I multiply 3 × p, that would equal 39.*
   f. **DOK-2** What is the equation for the second coupon? $5p = 70$
   g. **DOK-2** Describe the process you used to create this equation. *We are looking for the cost of one pizza, p, and we know that 5 of the pizzas cost $70. So if I multiply 53 × p, that would equal 70.*
   h. **DOK-1** Solve both equations. What is the cost of a pizza for each coupon?

      $3p = 39 \rightarrow 3p \div 3 = 39 \div 3 \rightarrow p = 13$

      $5p = 70 \rightarrow 5p \div 5 = 70 \div 5 \rightarrow p = 14$
   i. **DOK-1** Which coupon supplies the better deal for large pepperoni pizzas? Why? *The first coupon is the better deal because large pepperoni pizzas are $13 each, and they are $14 each in the second coupon. $13 is less than $14.*
3. As time allows, challenge students to generate equations for additional real-world coupon examples from local restaurants or other community experiences.

Hook

¡Escoge tu promoción de *pizza*!

Promoción 1	Promoción 2
Tres *pizzas* grandes de p por un costo tota	

Pick Your Pizza Promo!

Hook

¡Escoge tu promoción de *pizza*!

Promoción 1	Promoción 2
Tres *pizzas* grandes de peperoni especiales por un costo total de $39.	Cinco *pizzas* grandes de peperoni especiales por un costo total de $70.

Scan and Watch the Hook Phenomena Video

Home | Engage | **Explore** | Explain | Elaborate | Evaluate | Intervention | Acceleration

Explore

NAVIGATION STEPS

Click Explore

Click on Explore in the White Menu Bar

Review Content

Use the Dropdown to Review Explore Content

Scaffolded, hands-on **Explore** activities are at the heart of each lesson. We know students learn best by doing, so we go beyond worksheets and memorization, providing opportunities to engage in rich mathematical discourse within real-world contexts.

EXPLORE 1 - WRITE, MODEL, AND SOLVE EQUATIONS

Students define variables to write, model, and solve equations.

Mathematical Process Standards

- (A) Apply mathematics to problems arising in everyday life, society, and the workplace.
- (D) Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.
- (E) Create and use representations to organize, record, and communicate mathematical ideas.

Preparation

- Plan to have students work in groups of 4 to complete this activity.
- Print a Student Journal and an Exit Ticket for each student.
- Print a Balance Scale for each group. If desired, print it on card stock, and laminate it for future use.
- Print a set of Amusement Park Cards for each group. If desired, print them on card stock and laminate them for future use. Cut out and place each set of cards in a resealable bag.
- Prepare a set of algebra tiles for each group.
- Go Digital! Have students explore or present their solutions using virtual manipulatives! The manipulatives used in this lesson can be found in the Explore drop-down menu and can be digitally assigned to students (Algebra Tiles).

Procedure and Facilitation Points

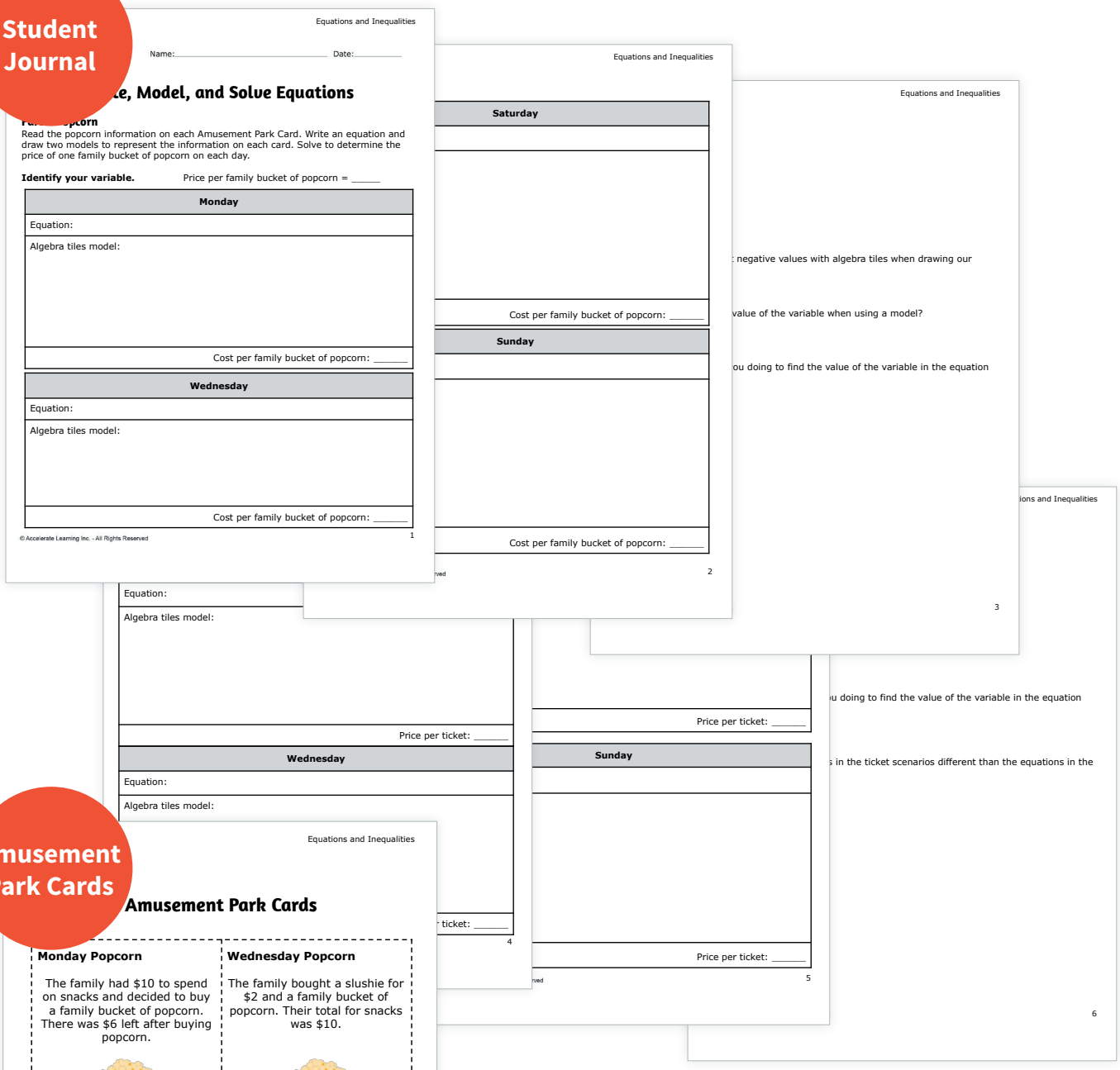
Part I: Popcorn

1. Read the following scenario to the class: *Four families are looking at the different family popcorn specials that are offered for the day they are at the amusement park. Help them determine how much the family bucket of popcorn costs on different days.*
2. **DOK-2** Ask students to share their experiences with solving equations that have unknown numbers.
3. Project the Monday Popcorn Amusement Park Card for the class. Discuss the following questions:
   a. **DOK-1** What is a variable? *A variable is a letter that represents an unknown number.*
   b. **DOK-1** What should our variable be for the popcorn scenario? *Answers will vary. We could use b to represent the family bucket of popcorn.*
   c. **DOK-2** What will the equation be for the Monday popcorn scenario? *The equation for the Monday Popcorn scenario will be 10 – b = 6.*
   d. **DOK-1** What is the coefficient of b? *There was only one family popcorn bucket purchased, so the coefficient is 1.*
4. Give a Balance Scale and a set of algebra tiles to each group. Instruct students to take out a few algebra tiles to view. Discuss with the class how to use algebra tiles and the Balance Scale for the Monday Popcorn scenario.
   a. These are called algebra tiles. We can use algebra tiles to help us model and solve equations. The ones that look like small squares each have a value of one. We use the yellow side to model positive numbers and the red side to model negative numbers. Note: As you are working through these steps with the class, model how to use algebra tiles with the balance scale.
   b. Find an algebra tile that looks like a rectangle. These tiles model the variable. We use the green side to model positive variables and the red side to model negative variables.
   c. **DOK-1** How many x variables do we need to use to model the popcorn buckets with our algebra tiles? *We only need one x to model.*

d. **DOK-1** What color will the algebra tile x be? *The algebra tile x will be red because the variable is negative.*
e. Explain to students that they will shade negative numbers and variables in red on their Student Journals to model negative values.
f. **DOK-1** How many ones do we need for the total the family spent on Monday? *The total to spend is $10, so we will need 10 ones to represent the total.*
g. Explain to students that they will leave positive values unshaded when they draw them on their Student Journals.
h. **DOK-2** Would these ones be on the same side of the balance scale as the variable or the other side? *They would be on the same side as the variable because they are subtracted to give the remaining money left over.*
i. **DOK-1** What was the amount of money remaining? *The amount remaining was $6.*
j. **DOK-1** How many ones should we use? *We should use 6 ones.*
k. **DOK-1** Will these go on the same side of the balance scale as the x and 10 ones or on the other side of the balance scale? *These 6 ones will go on the other side of the balance scale because they are the remaining money after purchasing the bucket of popcorn.*
l. Explain to students that now we need to determine what the value of our variable is.
m. **DOK-3** How could we determine the value of the variable? *Answers will vary. We could add zero pairs to the left side to get the variable by itself. Then we could add the same number to the right side to find the value of the variable. Model with students adding 10 negative ones on the left side to make zero pairs. Then add 10 negative ones to the right side to balance the equation.*
n. **DOK-1** What is the value of one x? *The value of one x is 4.*
o. **DOK-2** What does this mean in our scenario? *This means the value of one family bucket of popcorn on Monday is $4.*
p. **DOK-2** What questions do you have about writing and modeling equations? *Answers will vary.*

5. Have students draw the algebra tiles model on their Student Journals for Monday's popcorn cost.
6. Students continue to work with their groups to determine the cost of the family bucket of popcorn for each day.
7. Monitor students, and check for understanding as needed using the following guiding questions:
   a. **DOK-1** What information is provided in the problem? *Answers will vary. Based on the information in Wednesday's card, we know that the family bought 1 slushie that cost $2 and one family bucket of popcorn, but we don't know how much the popcorn cost. We do know that the family spent $10 for both the slushie and the popcorn.*
   b. **DOK-2** Based on this information, what is the unknown value that should be represented by the variable b? *Answers will vary. The unknown value is how much they spent on the bucket of popcorn.*
   c. **DOK-3** Describe the process you used to build your model using the algebra tiles. *Answers will vary. For Wednesday's card, I needed to model the equation 2 + b = 10. I used 1 rectangle to represent b, the bucket of popcorn, and 2 unit squares to represent the $2 spent on the slushie on the left side of the balance. On the right side of the balance, I used 10 unit squares to represent the total cost.*
   d. **DOK-3** Describe the process you used to solve the equation using the algebra tiles. *Answers will vary. I needed to separate the variable from the units, and I decided the variable would stay on the left side of the balance. To move all of the units to the right side, I needed to create zero pairs by bringing 2 negative units, or squares, to both sides. This created two zero pairs on the left, which canceled out the 2 and left the variable by itself. When I added the 2 negative unit squares to the right, it also created two zero pairs, but there were 8 squares or units remaining. That told me that b = 8.*
   e. **DOK-2** What questions do you have about solving equations with algebra tiles? *Answers will vary.*
8. Give students enough time to complete their work and record their observations and answer the reflection questions on their Student Journals.

Student Journal



Equations and Inequalities

Name:_____ Date:_____

...e, Model, and Solve Equations

...pcorn

Read the popcorn information on each Amusement Park Card. Write an equation and draw two models to represent the information on each card. Solve to determine the price of one family bucket of popcorn on each day.

Identify your variable. Price per family bucket of popcorn = _____

Monday
Equation:
Algebra tiles model:
Cost per family bucket of popcorn: _____

Wednesday
Equation:
Algebra tiles model:
Cost per family bucket of popcorn: _____

1

Equations and Inequalities

Saturday
Cost per family bucket of popcorn: _____

Sunday
Cost per family bucket of popcorn: _____

2

Equations and Inequalities

...negative values with algebra tiles when drawing our

...value of the variable when using a model?

...ou doing to find the value of the variable in the equation

3

...ions and Inequalities

Equation:

Algebra tiles model:

Price per ticket: _____

Wednesday
Equation:
Algebra tiles model:
...ticket: _____

4

...u doing to find the value of the variable in the equation

Price per ticket: _____

Sunday
Price per ticket: _____

...s in the ticket scenarios different than the equations in the

5

6

Amusement Park Cards

Equations and Inequalities

...Amusement Park Cards

Monday Popcorn

The family had $10 to spend on snacks and decided to buy a family bucket of popcorn. There was $6 left after buying popcorn.

Wednesday Popcorn

The family bought a slushie for $2 and a family bucket of popcorn. Their total for snacks was $10.

Saturday Popcorn

The family bought a slushie for $4 and a family bucket of popcorn. Their total for snacks was $6.

Sunday Popcorn

The family bought sodas for $8 and a family bucket of popcorn. They still owed $3 for popcorn.

Student Journal

Equations and Inequalities

Name: Date:

epresentar y resolver ecuaciones

de maíz

sobre las palomitas de maíz en cada tarjeta del parque de escribe una ecuación y dibuja dos modelos para representar los datos de cada tarjeta. Resuelve para determinar el precio de un balde familiar de palomitas de maíz de cada día.

Identifica la variable. Precio por balde familiar de palomitas de maíz =

Lunes
Ecuación:
Modelo con fichas cuadradas de álgebra:
Costo por balde familiar de palomitas de maíz:

Miércoles
Ecuación:
Modelo con fichas cuadradas de álgebra:
Costo por balde familiar de palomitas de maíz:

1

Equations and Inequalities

Sábado
adas de álgebra:
por balde familiar de palomitas de maíz:

Domingo
adas de álgebra:
por balde familiar de palomitas de maíz:

2

Equations and Inequalities

esentar los valores negativos con fichas cuadradas de stro modelo?

ntrar el valor de la variable al usar un modelo?

es para encontrar el valor de la variable en la ecuación de

3

Equations and Inequalities

Ecuación:

Modelo con fichas cuadradas de álgebra

Precio por boleto:

Miércoles
Ecuación:
Modelocon fichas cuadradas de álgebra:
por boleto:

4

Precio por boleto:

Domingo
adas de álgebra:
Precio por boleto:

5

ions and Inequalities

es para encontrar el valor de la variable en la ecuación de

las ecuaciones en los escenarios de los boletos de las enarios de las palomitas de maíz?

6

Amusement Park Cards

Equations and Inequalities

s del parque de atracciones

maíz del

La familia tenía $10 para gastar en meriendas y decidió comprar un cubo familiar de palomitas de maíz. Quedaron $6 después de comprar las palomitas.

Palomitas de maíz del miércoles

La familia compró un granizado por $2 y un cubo familiar de palomitas de maíz. El total de las meriendas fue $10.

Palomitas de maíz del sábado

La familia compró un granizado por $4 y un cubo familiar de palomitas de maíz. El total de las meriendas fue $6.

Palomitas de maíz del domingo

La familia compró sodas por $8 y un cubo familiar de palomitas de maíz. Todavía debían $3 por palomitas de maíz.

Math Chat

After the Explore Part I, invite the class to a Math Chat to share their observations and learning.

Questions	Sample Student Responses
DOK-1 How can you find the value of the variable when using models?	The value of the variable can be found by making zero pairs and adding them to both sides of the equation.
DOK-1 What operation are you doing to find the value of the variable in the equation for popcorn?	You are adding or subtracting the constant from both sides to find the value of the variable.
DOK-1 Examine the equations in Part I. What is similar about all of them?	All the equations in Part I are addition or subtraction equations.
DOK-2 For any addition equation, how can you find the value of *x*?	For any addition equation, you subtract the constant from the sum to determine x. If the equation were x + 4 = 24, we would subtract 4 from 24 and get x = 20.
DOK-2 For any subtraction equation, how can you find the value of *x*?	For any subtraction equation, you add the constant from the difference to determine x. If the equation were x – 4 = 24, we would add 4 to 24 and get x = 28.
Choose a Structured Conversation routine to facilitate the following question: **DOK-3** Josie says that the equation *x* + 9 = 12 is equal to the equation 9 + *x* = 12. Is this true? Explain your reasoning.	Both equations are equal. I can subtract 9 from 12 and get 3 in either equation. The commutative property was used to move where the x and the 9 were located in the equation.
Explain the following to the class: *Mathematicians write the variable first in equations.*	

Part II: Tickets

1. Read the following scenario to the class: *Four families want to get the most out of their money. The amusement park offers different admission specials on Mondays, Wednesdays, Saturdays, and Sundays. Help the families determine the cost of tickets for each day with specials.*
2. Project the Monday Tickets Amusement Park Card for the class. Help students access the task by asking the following guiding questions:
   a. **DOK-1** What variable should we use to represent the price per ticket? *Answers will vary. We can use p to represent the price per ticket.*
   b. **DOK-1** What is a coefficient? *A coefficient is a number directly in front of a variable.*
   c. **DOK-2** How can I find the coefficient for our variable for the Monday Tickets scenario? *Answers will vary. In this scenario, the coefficient is the number of family members who are buying tickets.*
   d. **DOK-1** Where is the total in an equation? *Answers will vary. The total in an equation is on one side of the equal sign by itself.*
   e. **DOK-2** What will the equation be for the Monday Tickets scenario? *The equation for the Monday Tickets scenario will be 4p = 24.*

3. Give a Balance Scale and a set of algebra tiles to each group. Instruct students to take out a few algebra tiles to view. Discuss with the class how to use algebra tiles and their Balance Scales for the Monday Tickets scenario.
   a. **DOK-1** What is the coefficient of p? *The coefficient is 4.*
   b. Because our coefficient is 4, we need to place four green x tiles (rectangles) on one side of our Balance Scale.
   c. **DOK-1** What was the total cost of the tickets? *The total cost of the tickets was $24.*
   d. **DOK-1** How many ones should we use? *We should use 24 ones because this is our total.*
   e. **DOK-1** Will this go on the same side of the Balance Scale as the x variables or on the other side? *These 24 ones will go on the other side of the Balance Scale because they represent the total that the family spent on tickets.*
   f. Now we need to determine the value of our variable.
   g. **DOK-3** How could we determine the value of the variable? *Answers will vary. We could distribute the ones evenly to each x to find out what each x is worth. Model with students distributing the ones to the variables.*
   h. **DOK-2** What is the value of one x? *The value of one x is 6.*
   i. **DOK-3** What does this mean in our scenario? *This means that the value of one ticket on Monday is $6.*
4. Give a Student Journal to each student. Instruct students to work with their groups on the Amusement Park Cards ticket scenarios.
5. Allow time for students to show their work for the algebra tiles model for Monday's ticket cost on their Student Journals.
6. Students continue to work with their groups to determine the cost per ticket for each day.
7. Monitor students, and check for understanding as needed using the following guiding questions:
   a. **DOK-1** What information is provided in the problem? *Answers will vary. Based on the information on Wednesday's card, we know that 3 people each got a discount on their tickets, but we don't know what the discount is. We do know that the total discount is $15, which can be represented by −15.*
   b. **DOK-2** Based on this information, what is the unknown value that should be represented by the variable, p? *Answers will vary. The unknown value is how much the discount was.*
   c. **DOK-3** Describe the process you used to build your model using the algebra tiles. *Answers will vary. I used the rectangle to represent p, so I needed 3 of those on the left side of the balance. On the right side, I used 15 red unit squares to represent the total discount, or −15.*
   d. **DOK-3** Describe the process you used to solve the equation using the algebra tiles. *Answers will vary. In Wednesday's scenario, the left side of the equation could be written as 3p. I needed to isolate the variable, or get it by itself. I can't make zero pairs here, but I can use the inverse operation. 3p represents multiplication, so I can divide that by 3 to get just 1p value. Because I divided the left side by 3, I also need to divide the right side by 3. −15 divided by 3 equals −5. That means the value of p = −5.*
   e. **DOK-2** What questions do you have about solving equations with algebra tiles? *Answers will vary.*
8. Give students time to complete their work and record their observations and answer the reflection questions on their Student Journals.
9. Encourage students to notice the similarities and differences among the strategies they used to solve equations.

Math Chat

After the Explore Part II, invite the class to a Math Chat to share their observations and learning.

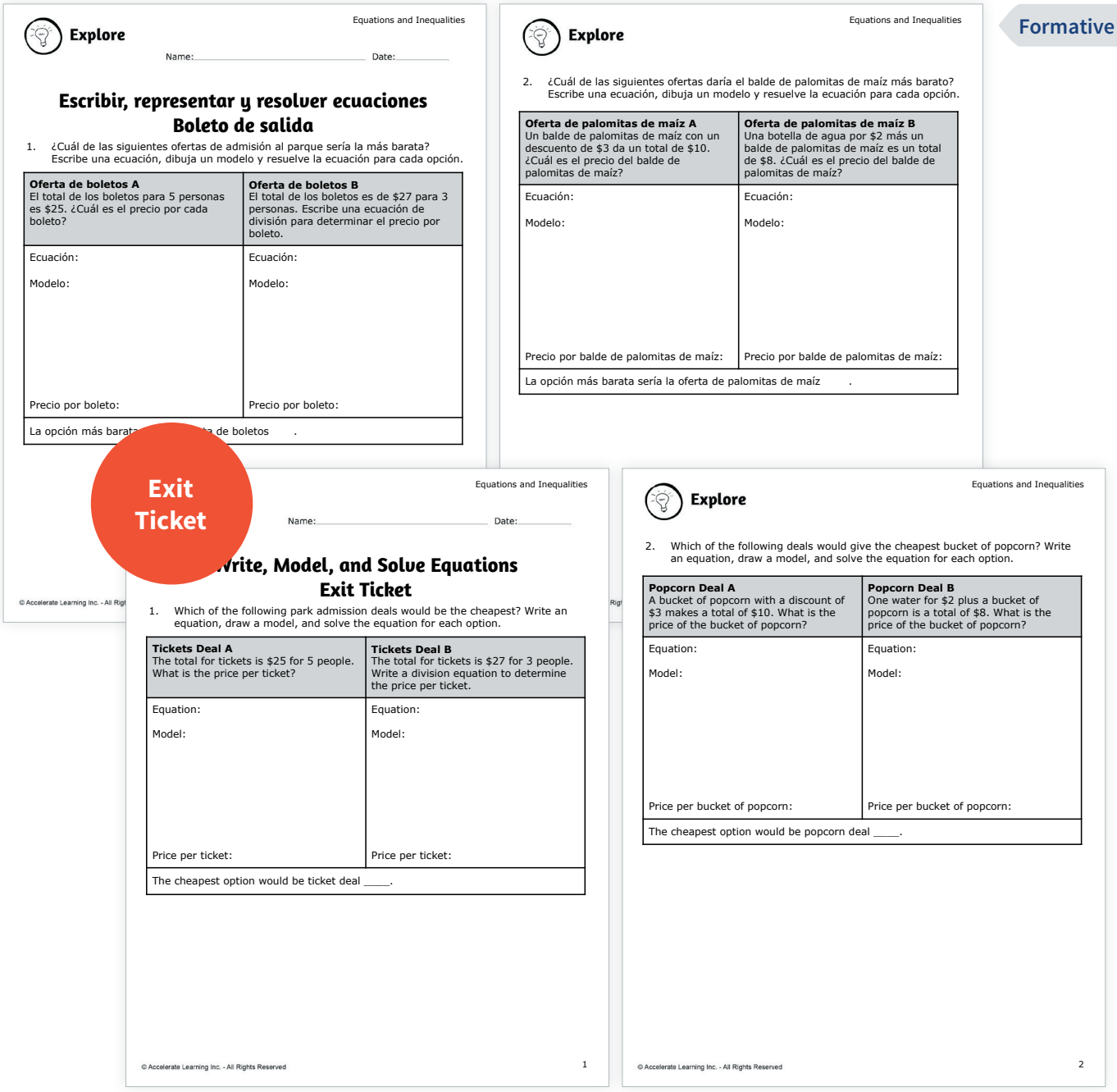
Questions	Sample Student Responses
DOK-1 What is a coefficient?	A coefficient is a number that is multiplied by a variable.
DOK-1 How can you find the value of the variable when using models?	When the equation is multiplication, the value of the variable can be found by distributing all of the ones (squares) to the x rectangles equally until all of the ones have been used. When the equation has division you can multiply the number by the reciprocal to get the variable's value to be one. Then, multiply the other side of the equation by the same number.
DOK-1 Examine the equations in Part II. What is similar about all of them?	All of the equations in Part II are multiplication or division equations.
DOK-1 What operation are you doing to find the value of the variable in the equation for tickets?	When the equation is multiplication, you are dividing to find the value of the variable. When the equation is division, you are multiplying to find the variable.
DOK-2 How are the equations in the ticket scenarios different from the equations in the popcorn scenarios?	The equations in the ticket scenarios are all multiplying a number times the variable. The equations in the popcorn scenarios are all adding a number plus the variable.
DOK-2 For any multiplication equation, $px = q$, how can you find the value of x?	For any multiplication equation, you divide the product by the coefficient to determine x. If the equation were $4x = 24$, we would divide 24 by 4 and get $x = 6$.
DOK-2 For any division equation, $\frac{x}{p} = q$, how can you find the value of x?	For any division equation, you multiply the product by the value of p to determine x. If the equation were $\frac{x}{4} = 4$, we would multiply 4 by 4 and get $x = 16$.
Choose a Structured Conversation routine to facilitate the following question: **DOK-2** Are the expressions $4x$ and $x \cdot 4$ equivalent? Explain your reasoning.	Yes, I can put a 2 in for x in each expression: $4(2)$ equals 8, and $2 \cdot 4$ equals 8. When a coefficient is written directly next to a variable, it implies multiplication; therefore, $4x$ is equivalent to $x \cdot 4$, which can also be written as $4 \cdot x$.

Post-Explore

1. Have students complete the Exit Ticket to formatively assess their understanding of the concept.
2. Complete the Anchor Chart as a class.
3. Have each student complete their Interactive Notebook.

Formative

Exit Ticket



Explore

Equations and Inequalities

Name: Date:

Escribir, representar y resolver ecuaciones
Boleto de salida

1. ¿Cuál de las siguientes ofertas de admisión al parque sería la más barata? Escribe una ecuación, dibuja un modelo y resuelve la ecuación para cada opción.

Oferta de boletos A El total de los boletos para 5 personas es $25. ¿Cuál es el precio por cada boleto?	**Oferta de boletos B** El total de los boletos es de $27 para 3 personas. Escribe una ecuación de división para determinar el precio por boleto.
Ecuación: Modelo: Precio por boleto:	Ecuación: Modelo: Precio por boleto:
La opción más barata [illegible] de boletos .	

Explore

Equations and Inequalities

2. ¿Cuál de las siguientes ofertas daría el balde de palomitas de maíz más barato? Escribe una ecuación, dibuja un modelo y resuelve la ecuación para cada opción.

Oferta de palomitas de maíz A Un balde de palomitas de maíz con un descuento de $3 da un total de $10. ¿Cuál es el precio del balde de palomitas de maíz?	**Oferta de palomitas de maíz B** Una botella de agua por $2 más un balde de palomitas de maíz es un total de $8. ¿Cuál es el precio del balde de palomitas de maíz?
Ecuación: Modelo: Precio por balde de palomitas de maíz:	Ecuación: Modelo: Precio por balde de palomitas de maíz:
La opción más barata sería la oferta de palomitas de maíz .	

Equations and Inequalities

Name: Date:

Write, Model, and Solve Equations
Exit Ticket

1. Which of the following park admission deals would be the cheapest? Write an equation, draw a model, and solve the equation for each option.

Tickets Deal A The total for tickets is $25 for 5 people. What is the price per ticket?	**Tickets Deal B** The total for tickets is $27 for 3 people. Write a division equation to determine the price per ticket.
Equation: Model: Price per ticket:	Equation: Model: Price per ticket:
The cheapest option would be ticket deal ____.	

1

Explore

Equations and Inequalities

2. Which of the following deals would give the cheapest bucket of popcorn? Write an equation, draw a model, and solve the equation for each option.

Popcorn Deal A A bucket of popcorn with a discount of $3 makes a total of $10. What is the price of the bucket of popcorn?	**Popcorn Deal B** One water for $2 plus a bucket of popcorn is a total of $8. What is the price of the bucket of popcorn?
Equation: Model: Price per bucket of popcorn:	Equation: Model: Price per bucket of popcorn:
The cheapest option would be popcorn deal ____.	

2

Instructional Supports

1. Review with students key vocabulary from the Explore, such as *constant*, *coefficient*, and *variable*. Consider having them create a visual for each term to use as a reference.
2. As students become acquainted with variables, especially in the context of word problems, encourage them to use specific language. For example, if a student says or writes "*b* equals family bucket of popcorn," have them instead specify that *b* equals the price per family for a bucket of popcorn. Such specificity in language will be beneficial as their knowledge and practice of algebra grows.
3. Students may need additional assistance to interpret the meaning of the equal sign. To support their understanding, emphasize the phrase 4 + *b* is equal to 8 versus 4 + *b* is 8. Such a distinction will help when students are introduced to variables on either side of the equal sign.
4. If students need additional support with drawing a model using a tape diagram, ask guiding questions such as the following: What information do we know? What is the problem asking? What operations will you use to solve? What parts make up the total? What is the total?
5. To provide flexibility, allow students to use algebra tiles and other manipulatives to solve the problems. If they need additional support, model how to use the algebra tiles on the Balance Scale.
6. As an extension, provide students with a menu (paper or online) listing the prices of snacks at a local movie theater. They may also research and find their own menus. Ask them to list 2 snacks they want to buy and write an equation using a variable. Encourage them to write 2 more equations with the variable in different positions. Students can trade problems with partners and solve.

Language Supports

When reading vocabulary terms and their meanings (*variable*, *coefficient*, *constant*, etc.), use hand gestures to clarify meaning.

Provide word walls and anchor charts depicting the new vocabulary for this Explore. Students may use them to self-monitor as they are responding to questions or talking with partners.

Use a think-aloud strategy to model mathematically precise language as you verbalize a student's strategy. For example, "I see you used the variable b to represent the price per popcorn bucket. Then I see that you added 4 to represent adding the cost of the slushie to the popcorn bucket." For each explanation that is shared, ask students to turn to a partner and restate what they heard using mathematical language.

Before they work together to solve, instruct students to take turns reading the Amusement Park Cards within their groups.

As students answer the reflection questions, have them take turns first saying their answers aloud to a partner, receiving feedback from their partner, and then writing their responses on their Student Journals. Students can revise as needed.

Read the Exit Ticket aloud to students, and then ask them to rephrase it in their own words.

The following English Language Proficiency Standards are supported:
1.ABCEFG, 2.CDEGI, 3.BDEFHIJ, 4.DFGIJK, 5.BCDEFG

Embedded supports in every lesson!

Home | Engage | Explore | **Explain** | Elaborate | Evaluate | Intervention | Acceleration

Explain

NAVIGATION STEPS

Click Explain

Click on Explain in the White Menu Bar

Review Content

Use the Dropdown to Review Explain Content

In the **Explain** section, students form authentic connections and apply their learning to various contexts. They deepen their understanding and build confidence as they master the lesson standards.

More practice and formative assessment opportunities!

SHOW WHAT YOU KNOW - PART 1: WRITE, MODEL, AND SOLVE EQUATIONS

Formative

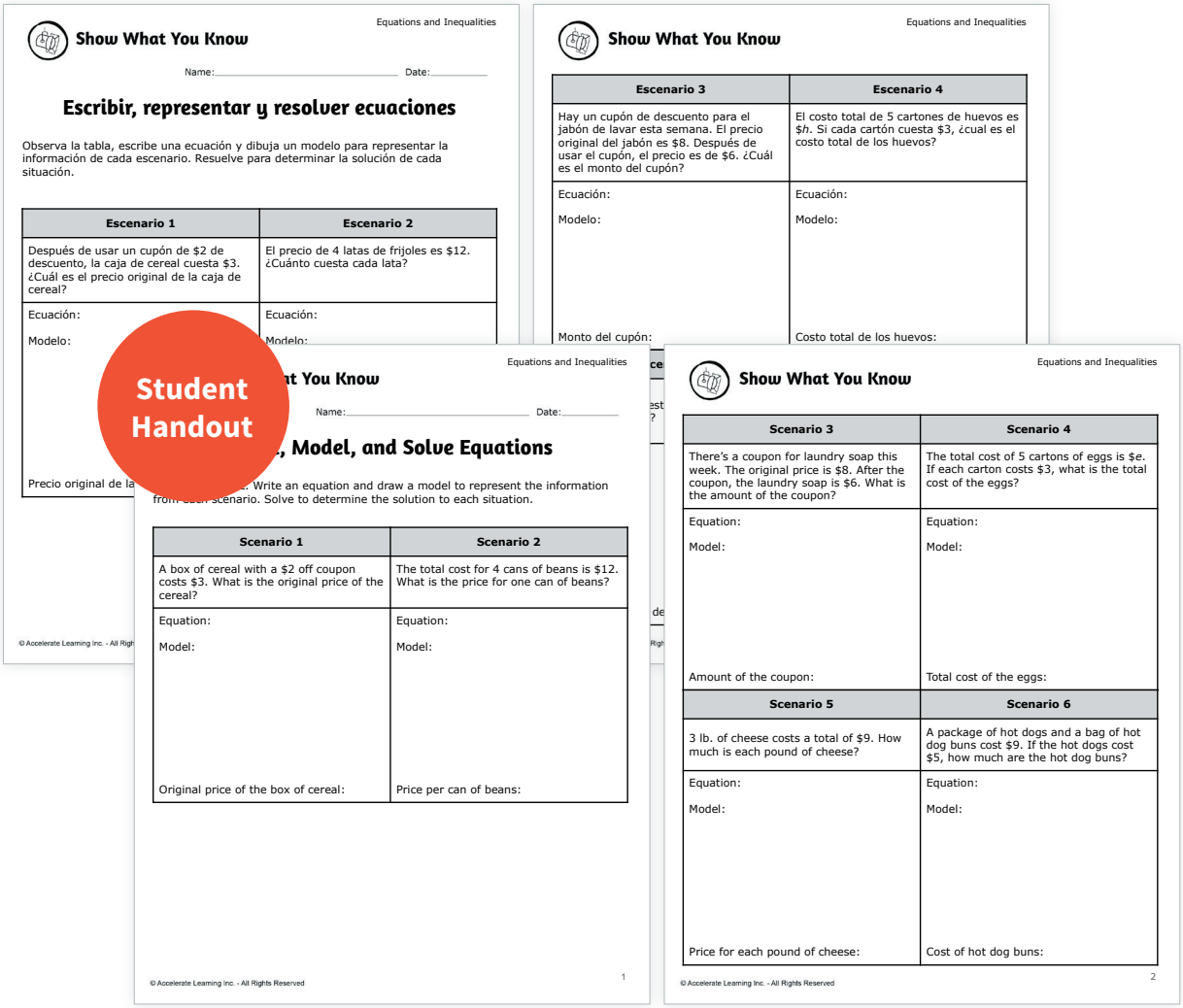
Students will practice using the knowledge and skills they have learned from the Explore activities.

Preparation

- Print a Student Handout for each student.
- The Show What You Know correlates with the Explore of the same title.

Procedure and Facilitation Points

1. Students should individually complete the Show What You Know activity that correlates with the Explore activity already completed.
2. Provide manipulatives as needed, especially those manipulatives used in the Explore.
3. This element can be used to assess whether intervention is needed for each student.



INTERACTIVE NOTEBOOK

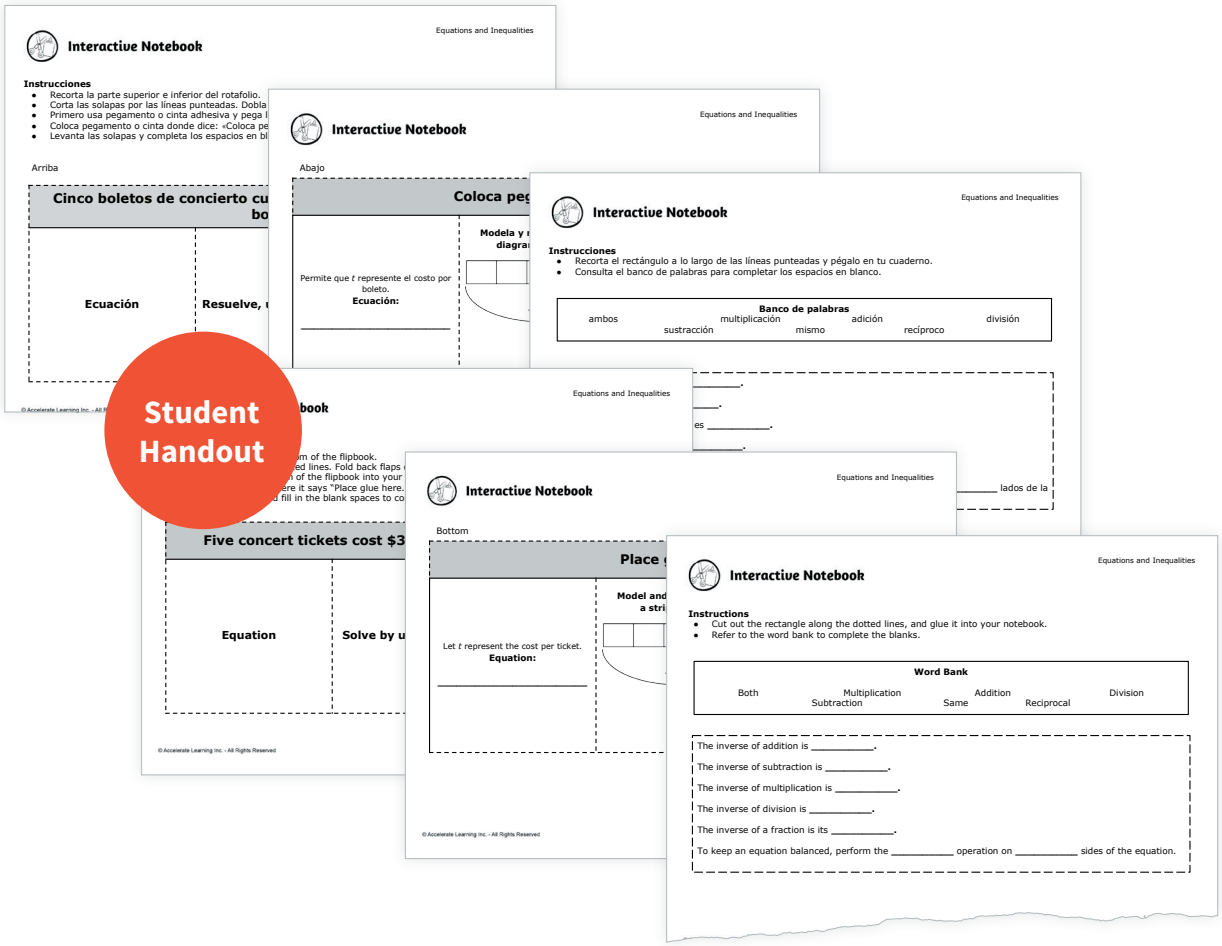
Students take notes, express ideas, and process the information presented in class using the activity and notebook.

Preparation

- Print a Student Handout for each student.

Procedure and Facilitation Points

1. Prepare an interactive notebook using a spiral or composition notebook for each student. Students can use the first few pages to create a table of contents with page numbers to keep track of activities.
2. Student instructions are given for each activity on the Student Handout.
3. Allow time for students to complete the activity and glue the pieces into their interactive notebooks.
4. Interactive notebooks can be used as a student reference during independent work and can be sent home at the end of the year as a record of their learning.



LANGUAGE CONNECTIONS

Students have the opportunity to use their linguistic and cultural background knowledge to support connections to new skills, vocabulary, and concepts at their proficiency levels.

Preparation

- Prepare for students to work with partners when necessary.
- Determine each student's English proficiency level.
- Print a Student Handout for each student at their English proficiency level.
- Allow students to have access to the Picture Vocabulary for this scope.
- Allow students to have access to various mathematical tools, digital and physical graphing tools, pencils or rulers for vertical line tests, and scratch paper.

Procedure and Facilitation Points

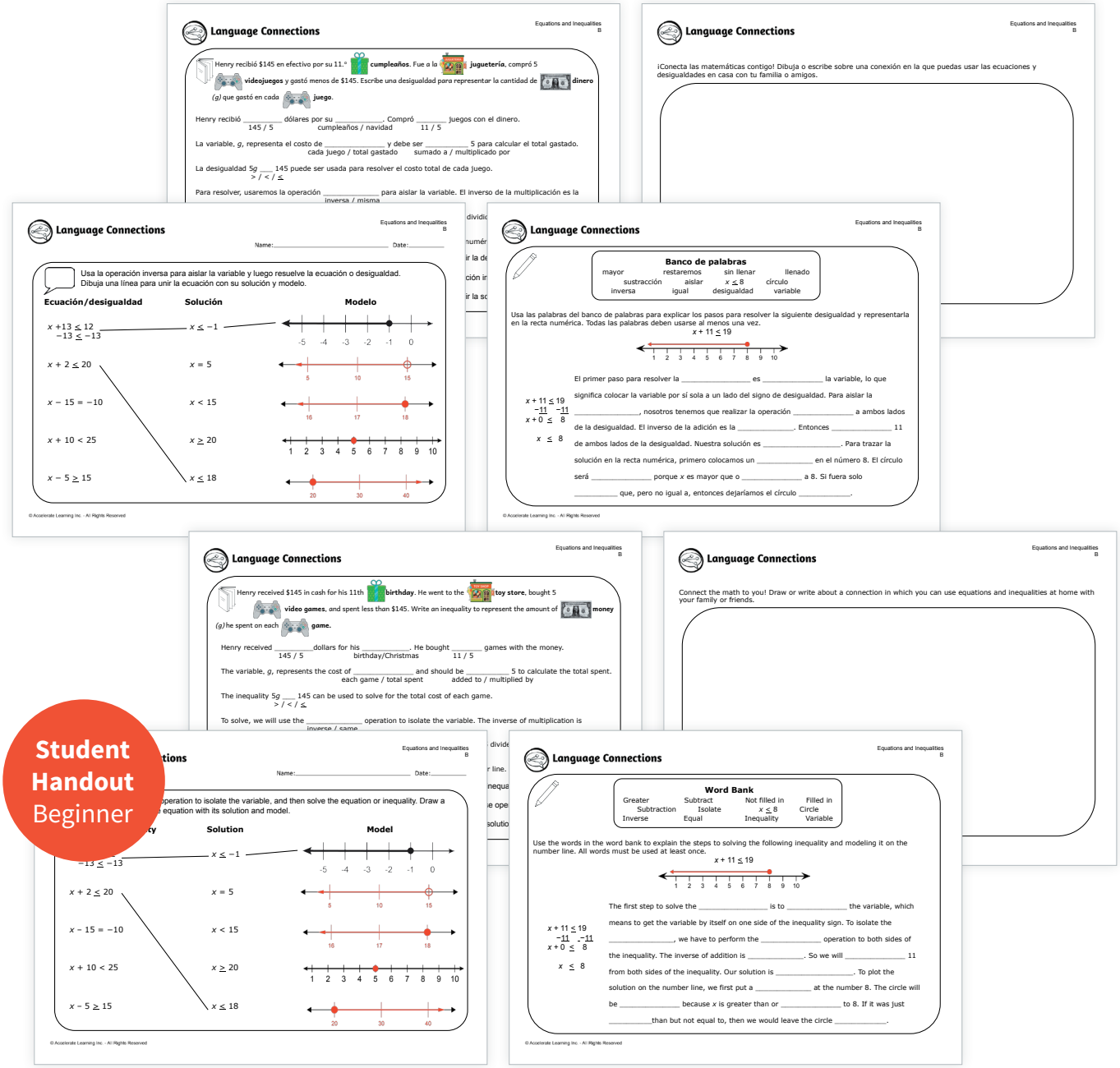
1. Distribute a Student Handout at the appropriate proficiency level to each student.
2. Use the prompts for the listening, speaking, reading, and writing portions. Use gestures, pointing at objects, and visuals as appropriate. See prompts for suggestions.
3. Allow time for students to think with their neighbors before responding.
4. Encourage students to persevere through their thinking and to use mathematical tools and models.
5. Invite students to respond appropriately to each linguistic domain.
6. Have students use the final page of the Student Handout to form connections between math concepts and the real world.

Multilingual Learner Support!

Beginner

Have algebra tiles and algebra inequality mats readily available for students to use. Read the following prompts one at a time:

- *We're going to look at each of these equations/inequalities in the left column and pair them up with their solutions or solution sets in the middle column. After that, we will figure out which models show the correct solution sets.*
- *Look at the example. Do you notice how we subtracted 13 from each side? Why do you think we did that?* (Give students an opportunity to answer before explaining.)
- *Subtraction is the inverse of addition. Think of the inverse as the opposite. By performing the inverse, we zero out the 13.*
- *Next, we solve 12 – 13 to get our solution set of $x < -1$.*
- *Point to the model. Do you notice how the circle at −1 is filled in? That's because our answer, x, is less than or equal to −1. Because it can be equal to −1, we fill in the circle.*
- *Point to the next inequality. Model this inequality on the work mat using your algebra tiles. What will we need to do to create zero pairs that will leave our variable isolated?*
- *The inverse of +2 is −2, so we will subtract on both sides. 20 – 2 is 18, so our solution is $x < 18$.*
- *We can interpret our solution as x is less than or equal to 18. Can you find the model that goes with this solution set?*
- *The next one is an equation. Model this using your algebra tiles. What is the inverse operation we will do on each side to zero out the −15?*
- *The inverse of −15 is +15, so we will add 15 positives to our −10. After crossing out our zero pairs, we are left with 5 positives.*
- *We can interpret our solution as x is equal to 5.*
- *Match the solution set with the correct model. Do you notice how this one doesn't have an arrow going either way? That's because this is an equation, so our answer can only be equal to 5.*
- *The next inequality is $x + 10 < 25$. Model this on your work mat with algebra tiles. We need to get rid of the 10 positives to leave the variable isolated. How can we do this?*
- *After we subtract 10 from both sides, we are left with $x < 15$. We can interpret this inequality as x is less than 15.*
- *Point to the model that represents this solution.*
- *Try doing the last example on your own.*



Student Handout
Beginner

Intermediate

Have algebra tiles and algebra inequality mats readily available for students to use. Read the following prompts one at a time:

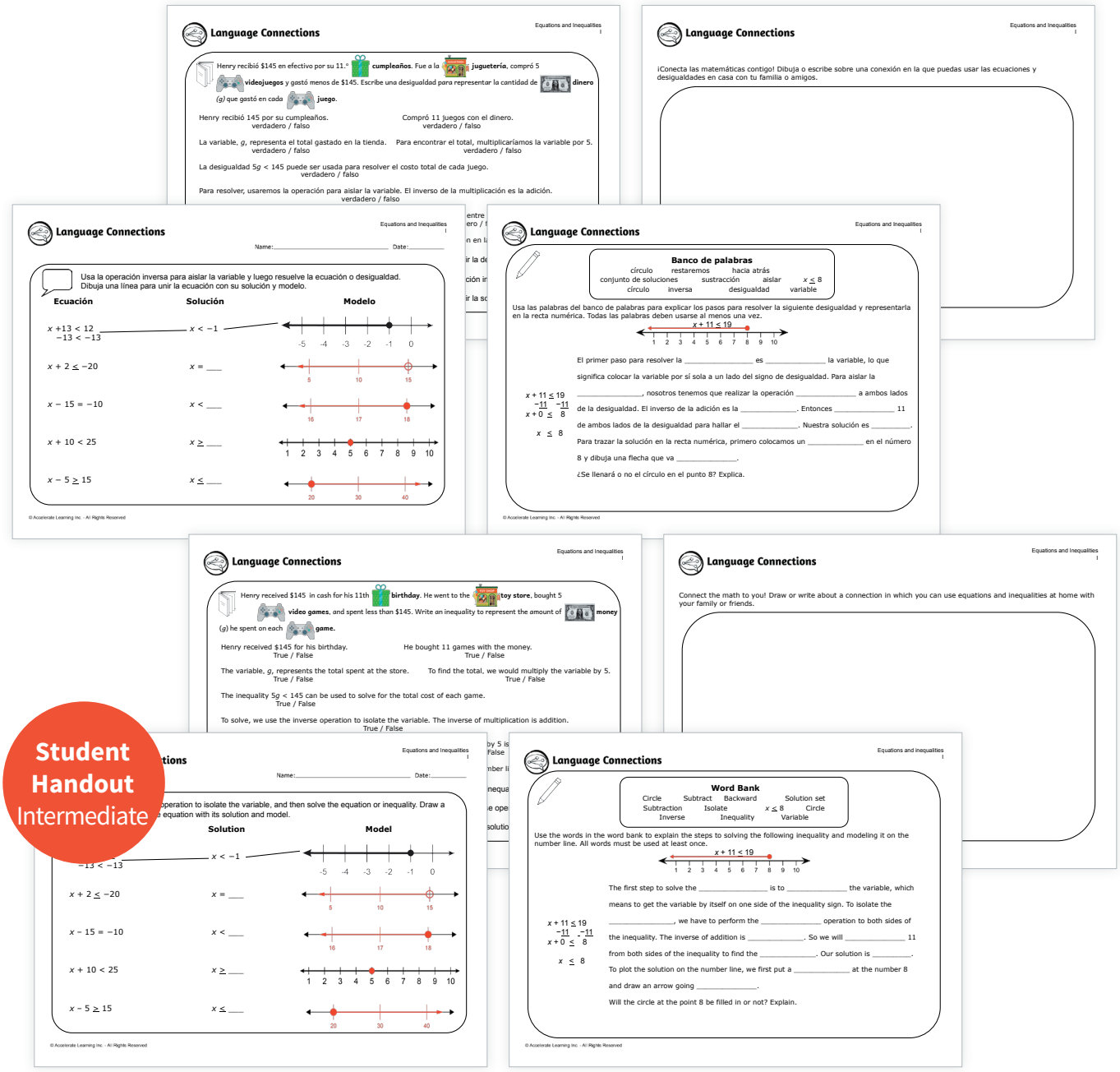
- *We're going to look at each of these equations/inequalities in the left column and pair them up with their solutions or solution sets in the middle column. After that, we will figure out which models show the correct solution sets.*
- *Look at the example. Do you notice how we subtracted 13 from each side? Why do you think we did that?* (Give students an opportunity to answer before explaining.)
- *Subtraction is the inverse of addition. Think of the inverse as the opposite. By performing the inverse, we zero out the 13.*
- *Next, we solve 12 – 13 to get our solution set of $x < -1$.*
- *Point to the model. Do you notice how the circle at −1 is filled in? That's because our answer is x is less than or equal to −1. Because it can be equal to −1, we fill in the circle.*
- *Point to the next inequality. Model this inequality on the work mat using your algebra tiles. What will we need to do to create zero pairs that will leave our variable isolated?*
- *The inverse of +2 is −2, so we will subtract on both sides. Write your solution in the middle column in the correct spot.*
- *We can interpret our solution as x is less than or equal to 18. Can you find the model that goes with this solution set?*
- *Continue modeling the next three problems with your algebra tiles and finding the solutions and models that go with them.*

After the students find the solution to the problem $x + 10 < 25$, cover the models.

- *Remember that an open circle means the number itself is not a part of the solution set. For this example, is 15 a part of our solution set? Should my circle be filled in or open?*

After the students find the solution to the problem $x - 5 > 15$, cover the models.

- *Is 20 a part of my solution set? Should the circle be filled in or open?*



Language Connections

Equations and Inequalities I

Henry recibió $145 en efectivo por su 11.° **cumpleaños**. Fue a la **juguetería**, compró 5 **videojuegos** y gastó menos de $145. Escribe una desigualdad para representar la cantidad de **dinero** (*g*) que gastó en cada **juego**.

Henry recibió 145 por su cumpleaños. verdadero / falso

Compró 11 juegos con el dinero. verdadero / falso

La variable, *g*, representa el total gastado en la tienda. verdadero / falso

Para encontrar el total, multiplicaríamos la variable por 5. verdadero / falso

La desigualdad $5g < 145$ puede ser usada para resolver el costo total de cada juego. verdadero / falso

Para resolver, usaremos la operación para aislar la variable. El inverso de la multiplicación es la adición. verdadero / falso

Language Connections

Equations and Inequalities I

¡Conecta las matemáticas contigo! Dibuja o escribe sobre una conexión en la que puedas usar las ecuaciones y desigualdades en casa con tu familia o amigos.

Language Connections

Equations and Inequalities I

Name:_____ Date:_____

Usa la operación inversa para aislar la variable y luego resuelve la ecuación o desigualdad. Dibuja una línea para unir la ecuación con su solución y modelo.

Ecuación	Solución	Modelo
$x + 13 < 12$ $-13 < -13$	$x < -1$	-5 -4 -3 -2 -1 0
$x + 2 \leq -20$	$x =$ ___	5 10 15
$x - 15 = -10$	$x <$ ___	16 17 18
$x + 10 < 25$	$x \geq$ ___	1 2 3 4 5 6 7 8 9 10
$x - 5 \geq 15$	$x \leq$ ___	20 30 40

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Language Connections

Equations and Inequalities I

Banco de palabras

círculo restaremos hacia atrás
conjunto de soluciones sustracción aislar $x \leq 8$
círculo inversa desigualdad variable

Usa las palabras del banco de palabras para explicar los pasos para resolver la siguiente desigualdad y representarla en la recta numérica. Todas las palabras deben usarse al menos una vez.

$x + 11 \leq 19$

1 2 3 4 5 6 7 8 9 10

El primer paso para resolver la _____ es _____ la variable, lo que significa colocar la variable por sí sola a un lado del signo de desigualdad. Para aislar la _____, nosotros tenemos que realizar la operación _____ a ambos lados de la desigualdad. El inverso de la adición es la _____. Entonces _____ 11 de ambos lados de la desigualdad para hallar el _____. Nuestra solución es _____. Para trazar la solución en la recta numérica, primero colocamos un _____ en el número 8 y dibuja una flecha que va _____.

$x + 11 \leq 19$
$-11 \quad -11$
$x + 0 \leq 8$
$x \leq 8$

¿Se llenará o no el círculo en el punto 8? Explica.

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Language Connections

Equations and Inequalities I

Henry received $145 in cash for his 11th **birthday**. He went to the **toy store**, bought 5 **video games**, and spent less than $145. Write an inequality to represent the amount of **money** (*g*) he spent on each **game**.

Henry received $145 for his birthday. True / False

He bought 11 games with the money. True / False

The variable, *g*, represents the total spent at the store. True / False

To find the total, we would multiply the variable by 5. True / False

The inequality $5g < 145$ can be used to solve for the total cost of each game. True / False

To solve, we use the inverse operation to isolate the variable. The inverse of multiplication is addition. True / False

Language Connections

Equations and Inequalities I

Connect the math to you! Draw or write about a connection in which you can use equations and inequalities at home with your family or friends.

Student Handout
Intermediate

tions

Equations and Inequalities I

Name:_____ Date:_____

operation to isolate the variable, and then solve the equation or inequality. Draw a equation with its solution and model.

	Solution	Model
$-13 < -13$	$x < -1$	-5 -4 -3 -2 -1 0
$x + 2 \leq -20$	$x =$ ___	5 10 15
$x - 15 = -10$	$x <$ ___	16 17 18
$x + 10 < 25$	$x \geq$ ___	1 2 3 4 5 6 7 8 9 10
$x - 5 \geq 15$	$x \leq$ ___	20 30 40

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Language Connections

Equations and Inequalities I

Word Bank

Circle Subtract Backward Solution set
Subtraction Isolate $x \leq 8$ Circle
Inverse Inequality Variable

Use the words in the word bank to explain the steps to solving the following inequality and modeling it on the number line. All words must be used at least once.

$x + 11 \leq 19$

1 2 3 4 5 6 7 8 9 10

The first step to solve the _____ is to _____ the variable, which means to get the variable by itself on one side of the inequality sign. To isolate the _____, we have to perform the _____ operation to both sides of the inequality. The inverse of addition is _____. So we will _____ 11 from both sides of the inequality to find the _____. Our solution is _____. To plot the solution on the number line, we first put a _____ at the number 8 and draw an arrow going _____.

Will the circle at the point 8 be filled in or not? Explain.

$x + 11 \leq 19$
$-11 \quad -11$
$x + 0 \leq 8$
$x \leq 8$

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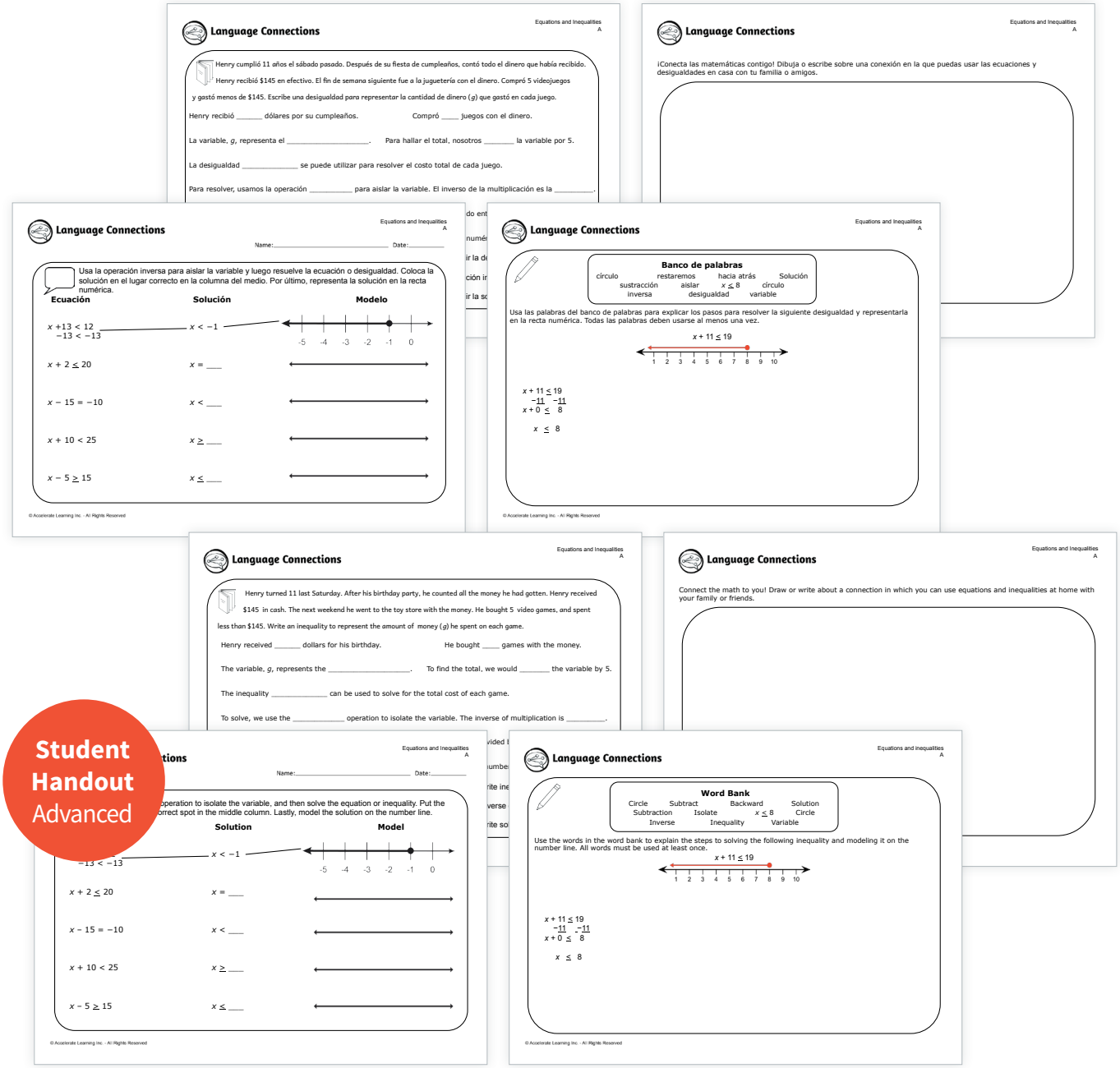
Advanced

Have algebra tiles and algebra inequality mats readily available for students to use. Read the following prompts one at a time:

- *We're going to look at each of these equations/inequalities in the left column and pair them up with their solution or solution set in the middle column. After that, we will model each solution or solution set on the number line.*
- *Look at the example. Do you notice how we subtracted 13 from each side? Why do you think we did that?* (Give students an opportunity to answer before explaining.)
- *Subtraction is the inverse of addition. Think of the inverse as the opposite. By performing the inverse, we zero out the 13.*
- *Next, we solve 12 – 13 to get our solution set of $x < -1$.*
- *Create a model to show the solution set.*
- *Remember that an open circle means the number itself is not included in the solution. How can we interpret this solution? If x is less than −1, does that mean −1 is included in our solution set?*
- *Will our circle be open or closed?*
- *Point to the next inequality. Model this inequality on the work mat using your algebra tiles. What will we need to do to create zero pairs that will leave our variable isolated?*
- *The inverse of +2 is −2, so we will subtract on both sides. Write your solution in the middle column in the correct spot.*
- *We can interpret our solution as x is less than or equal to 18.*
- *Is 18 included in our solution set? Should my circle be filled in or not? If x is less, then which direction will my arrow go?*
- *Continue modeling the next 3 problems with your algebra tiles and finding the solutions. After you have found the solutions, draw the models on the number lines to the right.*



Language Connections

Equations and Inequalities
A

Henry cumplió 11 años el sábado pasado. Después de su fiesta de cumpleaños, contó todo el dinero que había recibido. Henry recibió $145 en efectivo. El fin de semana siguiente fue a la juguetería con el dinero. Compró 5 videojuegos y gastó menos de $145. Escribe una desigualdad para representar la cantidad de dinero (*g*) que gastó en cada juego.

Henry recibió _____ dólares por su cumpleaños. Compró ____ juegos con el dinero.

La variable, *g*, representa el _____. Para hallar el total, nosotros _____ la variable por 5.

La desigualdad _____ se puede utilizar para resolver el costo total de cada juego.

Para resolver, usamos la operación _____ para aislar la variable. El inverso de la multiplicación es la _____.

Language Connections

Equations and Inequalities
A

¡Conecta las matemáticas contigo! Dibuja o escribe sobre una conexión en la que puedas usar las ecuaciones y desigualdades en casa con tu familia o amigos.

Language Connections

Equations and Inequalities
A

Name:_____ Date:_____

Usa la operación inversa para aislar la variable y luego resuelve la ecuación o desigualdad. Coloca la solución en el lugar correcto en la columna del medio. Por último, representa la solución en la recta numérica.

Ecuación	Solución	Modelo
$x + 13 < 12$ $-13 < -13$	$x < -1$	-5 -4 -3 -2 -1 0
$x + 2 \leq 20$	$x =$ ___	
$x - 15 = -10$	$x <$ ___	
$x + 10 < 25$	$x \geq$ ___	
$x - 5 \geq 15$	$x \leq$ ___	

Language Connections

Equations and Inequalities
A

Banco de palabras

círculo restaremos hacia atrás Solución
sustracción aislar $x \leq 8$ círculo
inversa desigualdad variable

Usa las palabras del banco de palabras para explicar los pasos para resolver la siguiente desigualdad y representarla en la recta numérica. Todas las palabras deben usarse al menos una vez.

$x + 11 \leq 19$

1 2 3 4 5 6 7 8 9 10

$x + 11 \leq 19$
$-11 \quad -11$
$x + 0 \leq 8$

$x \leq 8$

Language Connections

Equations and Inequalities
A

Henry turned 11 last Saturday. After his birthday party, he counted all the money he had gotten. Henry received $145 in cash. The next weekend he went to the toy store with the money. He bought 5 video games, and spent less than $145. Write an inequality to represent the amount of money (*g*) he spent on each game.

Henry received _____ dollars for his birthday. He bought ____ games with the money.

The variable, *g*, represents the _____. To find the total, we would _____ the variable by 5.

The inequality _____ can be used to solve for the total cost of each game.

To solve, we use the _____ operation to isolate the variable. The inverse of multiplication is _____.

Language Connections

Equations and Inequalities
A

Connect the math to you! Draw or write about a connection in which you can use equations and inequalities at home with your family or friends.

Student Handout
Advanced

Equations and Inequalities
A

Name:_____ Date:_____

operation to isolate the variable, and then solve the equation or inequality. Put the correct spot in the middle column. Lastly, model the solution on the number line.

	Solution	Model
$-13 < -13$	$x < -1$	-5 -4 -3 -2 -1 0
$x + 2 \leq 20$	$x =$ ___	
$x - 15 = -10$	$x <$ ___	
$x + 10 < 25$	$x \geq$ ___	
$x - 5 \geq 15$	$x \leq$ ___	

Language Connections

Equations and Inequalities
A

Word Bank

Circle Subtract Backward Solution
Subtraction Isolate $x \leq 8$ Circle
Inverse Inequality Variable

Use the words in the word bank to explain the steps to solving the following inequality and modeling it on the number line. All words must be used at least once.

$x + 11 \leq 19$

1 2 3 4 5 6 7 8 9 10

$x + 11 \leq 19$
$-11 \quad -11$
$x + 0 \leq 8$

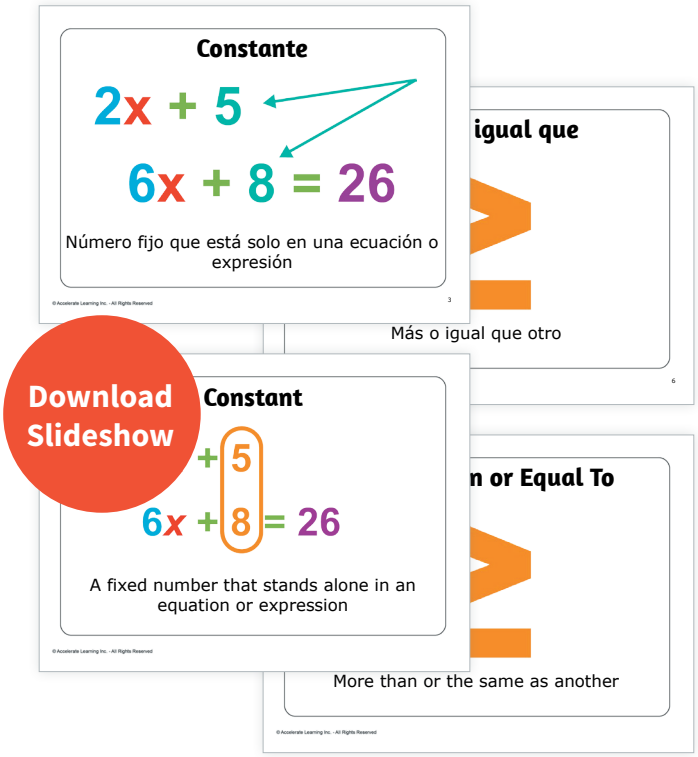
$x \leq 8$

PICTURE VOCABULARY

Students build academic vocabulary and connect vocabulary to their experiences. This element is meant to be used in tandem with Explores.

Preparation

- Prepare to project the Slideshow for the class.
- Print the Student Handout with multiple slides on one page for students to cut and add the Picture Vocabulary to their Interactive Notebooks.



Procedure and Facilitation Points

1. Project the Slideshow for the class.
2. Read words and/or definitions with students. Discuss words or definitions that are unfamiliar to students.
3. Discuss the following questions:
   a. How can you connect this word to your work in the Explore?
   b. How would you rephrase the definition in your own words?
   c. What do you picture in your mind when you hear this word?
4. To practice vocabulary with an engaging game, see Vocabulary Strategies in the Explain section of each Launch scope.
5. Refer to the Slideshow to review Picture Vocabulary as students complete each Explore.

Tips and Tricks

- Print the Student Handout with four slides on a page. Cut out each slide, and create a math word wall in the classroom.
- Download the Picture Vocabulary slides in the Teacher Toolbox under Essentials. Use this to create a slideshow without pictures, and print with multiple slides on one page. To foster student ownership of their own learning, allow students to add their own pictures.
- For secondary grade levels, use the Picture Vocabulary Slideshow to complete Interactive Vocabulary to solidify students' understanding.

INTERACTIVE VOCABULARY

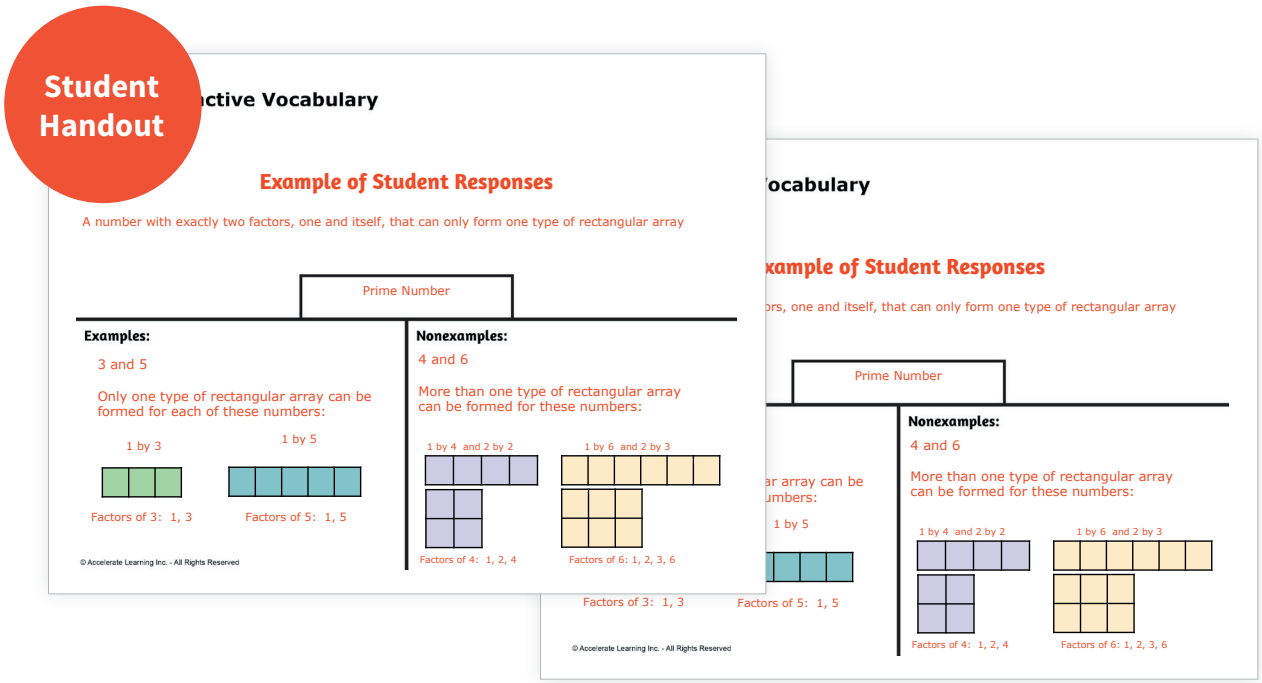
Students form definitions of mathematical vocabulary words used throughout the scope.

Preparation

- Print a copy of the Student Handout for each student.

Procedure and Facilitation Points

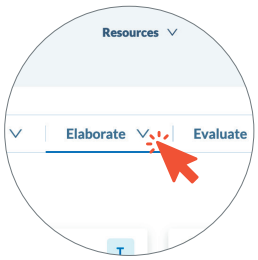
1. Provide each student with a Student Handout, and ask them to individually think of ideas and to draft their thoughts.
2. Have students confer with partners, share ideas, and formulate more detailed notes together.
3. Meet as a whole class to share student thinking and to clarify any misconceptions. Use student ideas to formulate a class definition with examples. The class definition may be posted as part of a word wall or anchor chart.
4. Tips for use include the following:
   a. Students can reference Interactive Vocabulary when reviewing content, to assist with precision when verbally communicating their mathematical thinking during group work and Math Chats, and when writing about their mathematical thinking.
   b. Students can add Interactive Vocabulary to their Interactive Notebooks.
   c. Teachers can assign Interactive Vocabulary as an independent assignment for students to complete at home.
   d. Students may take their Interactive Vocabulary home at the end of the year as a record of their learning.



Home | Engage | Explore | Explain | **Elaborate** | Evaluate | Intervention | Acceleration

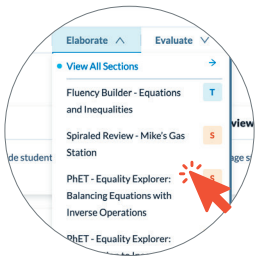
Elaborate

NAVIGATION STEPS



Click Elaborate

Click on Elaborate in the White Menu Bar



Review Content

Use the Dropdown to Review Elaborate Content

Learning math requires a personalized approach. Each lesson's **Elaborate** section offers various resources and activities to differentiate instruction and deepen understanding of diverse learners. This section is ideal for small group instruction, center and station activities, and independent practice.

FLUENCY BUILDER - EQUATIONS AND INEQUALITIES

In this activity, students will play a game of Go Fish! to solve math problems.

Preparation

- Make double-sided copies of the Go Fish! Cards.
- Laminate the cards for durability.
- Cut out individual cards, and place them in an envelope or bag for easy distribution and cleanup.
- Put students in pairs.

Procedure and Facilitation Points

1. Show students how to shuffle the cards.
2. Model how to play the game with a student.
    a. Pass out five cards to each player.
    b. Place the rest of the deck in a pile on the table.
    c. Players take turns asking each other for either the answer to match one of the problem cards or the problem card to match one of the answer cards. If the opponent has the matching card, the opponent must give it to the player. If the opponent does not have the matching card, the other player must pick a card from the deck.
    d. The winner is the player with the most matches when all of the cards are gone.
3. Monitor students to make sure they find accurate matches.

Instruction Sheet

ncy Builder

Go Fish! Instruction Sheet

Play this game with a partner.

You Will Need
1 Set of Go Fish! Cards (per pair)

How to Play

1. Shuffle the Go Fish! Cards.
2. Pass out five cards to each player.
3. Place the rest of the deck in a pile on the table.
4. Players take turns asking each other for either the answer to match one of the problem cards or the problem card to match one of the answer cards. If the opponent has the matching card, the opponent must give it to the player. If the opponent does not have the matching card, the other player must pick a card from the deck.
5. The winner is the player with the most matches when all of the cards are gone.

r

rucciones de *¡A pescar!*

pareja.

uego

el juego *¡A pescar!*
a cada jugador.
araja en una pila sobre la mesa.
an para pedir la tarjeta con la respuesta
tarjetas de problema o la tarjeta de
con una de las tarjetas de respuesta. Si
rjeta correspondiente, el oponente debe
el oponente no tiene la tarjeta
ro jugador debe elegir una tarjeta de la

lor con más pares de tarjetas apareadas
as las tarjetas.

Fluency Builder

Tarjetas del juego *¡A pescar!*
(frente de la página 1)

¿Cuál es el valor d… ecuación x…	2
¿Cuál es … e… x − 1…	
Escribe una ec… representar e… =	
Escribe una ec… representar e… =	

Fluency Builder

Tarjetas del juego *¡A pescar!*
(reverso de la página 1)

Go Fish! Cards

ilder

Go Fish! Cards
(Front of Page 1)

What is the value of x in the equation $x + 3 = 5$?	2
What is the value of x in the equation $x - 1.4 = 8.2$?	9.6
Write an equation to represent this model. =	$2x = 6$
Write an equation to represent this model. =	$4x = 24$

Fluency Builder

Go Fish! Cards
(Back of Page 1)

SPIRALED REVIEW - MIKE'S GAS STATION

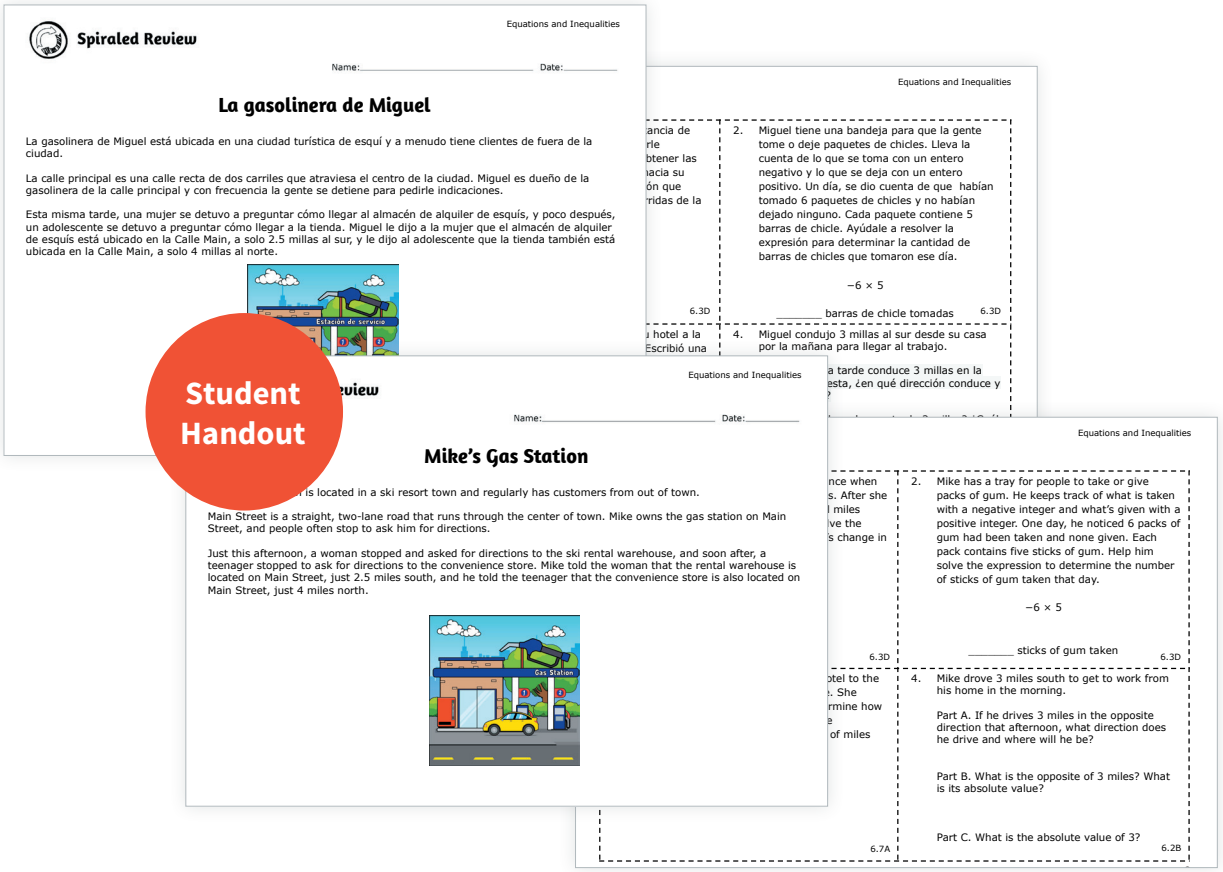
Students will review concepts and material from previous math classes and scopes to help support their work in the current scope and strengthen the skills that will be needed for later scopes.

Preparation

- Print a Student Handout for each student.

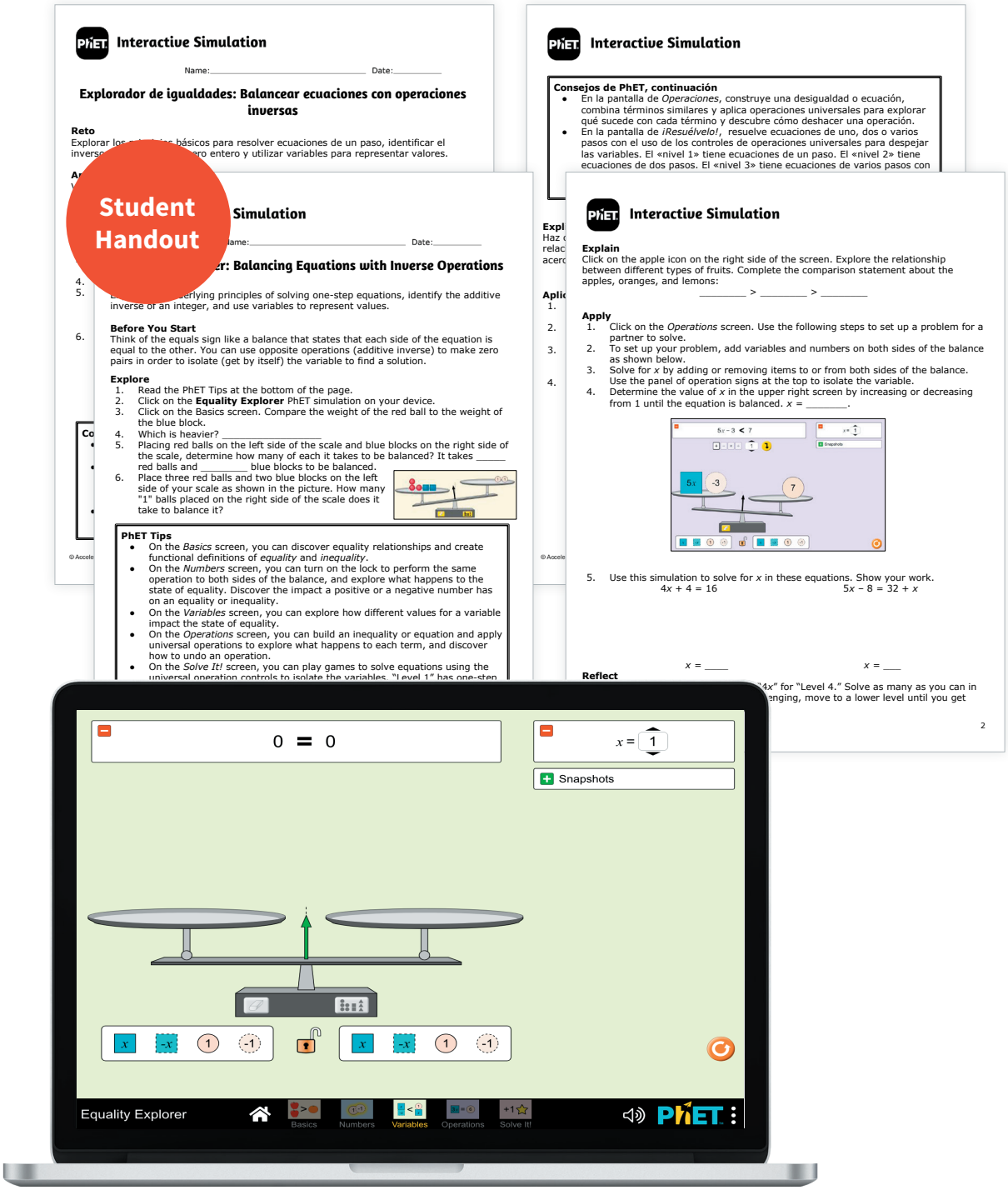
Procedure and Facilitation Points

1. Encourage students to try the questions independently without using outside resources to see what they know. Invite them to write down ideas or any fragments they remember about the topics that they were previously taught. Acknowledge that on this Student Handout, and in math class, mistakes are welcomed.
2. Use this Spiraled Review as a warm-up in class, or send it home for homework, but be sure to provide feedback and opportunities for students to correct their work and further solidify their prior knowledge.
3. Refer to the Spiraled Review Focus by Question section to assess students' content knowledge or need for further intervention. Use the Fluency Builders in the appropriate scopes if more review is necessary.
4. The Capstone includes one part from the current scope so that students see the connection and relevance of their prior learning within the current scope.



PHET - EQUALITY EXPLORER: BALANCING EQUATIONS WITH INVERSE OPERATIONS

Challenge: Explore the underlying principles of solving one-step equations, identify the additive inverse of an integer, and use variables to represent values.



More PhET Interactive Simulations for this lesson online!

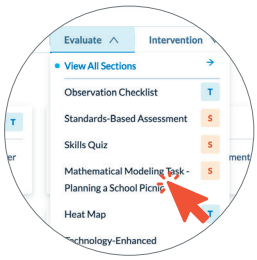
Home | Engage | Explore | Explain | Elaborate | **Evaluate** | Intervention | Acceleration

Evaluate

NAVIGATION STEPS

Click Evaluate

Click on Evaluate in the White Menu Bar



Review Content

Use the Dropdown to Review Evaluate Content

Assessments are intentionally integrated so that you can **evaluate** student progress and mastery. Collect data through TEKS-aligned assessments, along with student self-reflections and performance tasks.

OBSERVATION CHECKLIST

Diagnostic | Formative

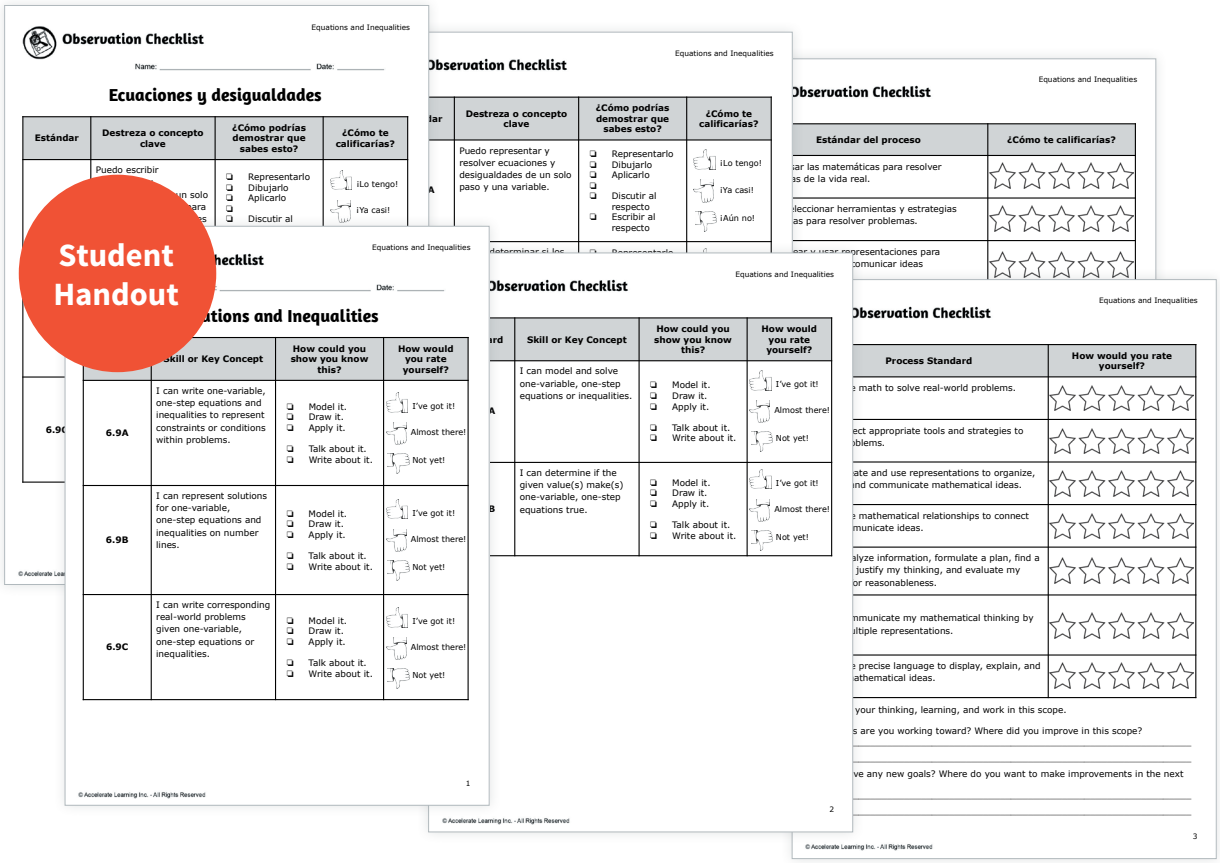
This element provides a breakdown of the key concepts and skills in the scope. It can be used as a formative assessment for teachers and as a self-assessment for students.

Preparation

- Print a Teacher Handout and Student Handout for each student.

Procedure and Facilitation Points

1. Distribute a Student Handout to each student.
2. As students are working through the Explore and Explain activities in the scope, formatively assess their progress by taking anecdotal notes on how key concepts and skills were observed. Reflection questions can be considered to measure the impact of whole-group and small-group activities.
3. Have students reflect on ways they can demonstrate their understanding and self-assess their progress on each key concept or skill as they work through both whole-group and small-group activities.
4. Students can reflect on their thinking, learning, and work in the scope; identify ways they have improved; and establish new learning goals.
5. Colleagues who provide instructional support to students can be equipped with the accommodations and modifications noted on the Teacher Handout.
6. Anecdotal notes provided on the Teacher Handout can be used as documentation for standards-based report cards.



STANDARDS-BASED ASSESSMENT

Summative

Students demonstrate mastery of the key concepts and skills in the scope through a standards-based summative assessment.

Preparation

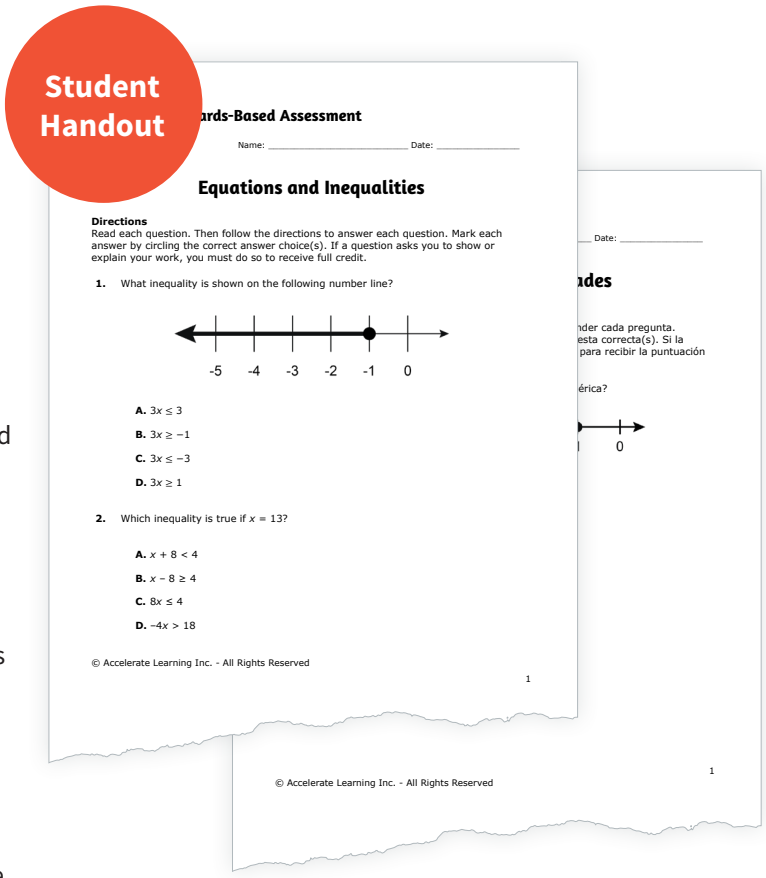
- Print a Student Handout for each student. The Student Handout can also be assigned digitally.
- Allow students to use manipulatives by request.
- Prepare Supplemental Aids for students who meet eligibility criteria.

Procedure and Facilitation Points

1. Distribute the Student Handout to each student.
2. Prompt students to show what they know in completing the assessment.
3. Allow students to reflect on their performances using the Heat Map.
4. Once student data has been collected after the assessment, refer to the Scaffolded Instruction Guide in the Home section of this scope to differentiate instruction for each student.

Tips and Tricks

- This element can be used as an assessment of learning and is intended to be assigned to students independently at their seats.
- Allow students to work with partners to review and rework problems they may have missed. Provide assistance as needed.
- The questions from this assessment can be found in the Assessment Bank and can be used to build a customized assessment.
- For test prep, print the Standards-Based Assessment, and cut out individual problems. Hang the problems along with chart paper around the classroom. Allow students to rotate through and solve each problem with partners. Challenge students to review the strategies already on the chart paper and use a different representation.
- The data from this assessment can be used to provide specific support and intervention.



SKILLS QUIZ

Formative Summative

Skills Quiz is a short, standards-based formative assessment to determine student mathematical fluency with the key concepts and skills in the scope.

Preparation

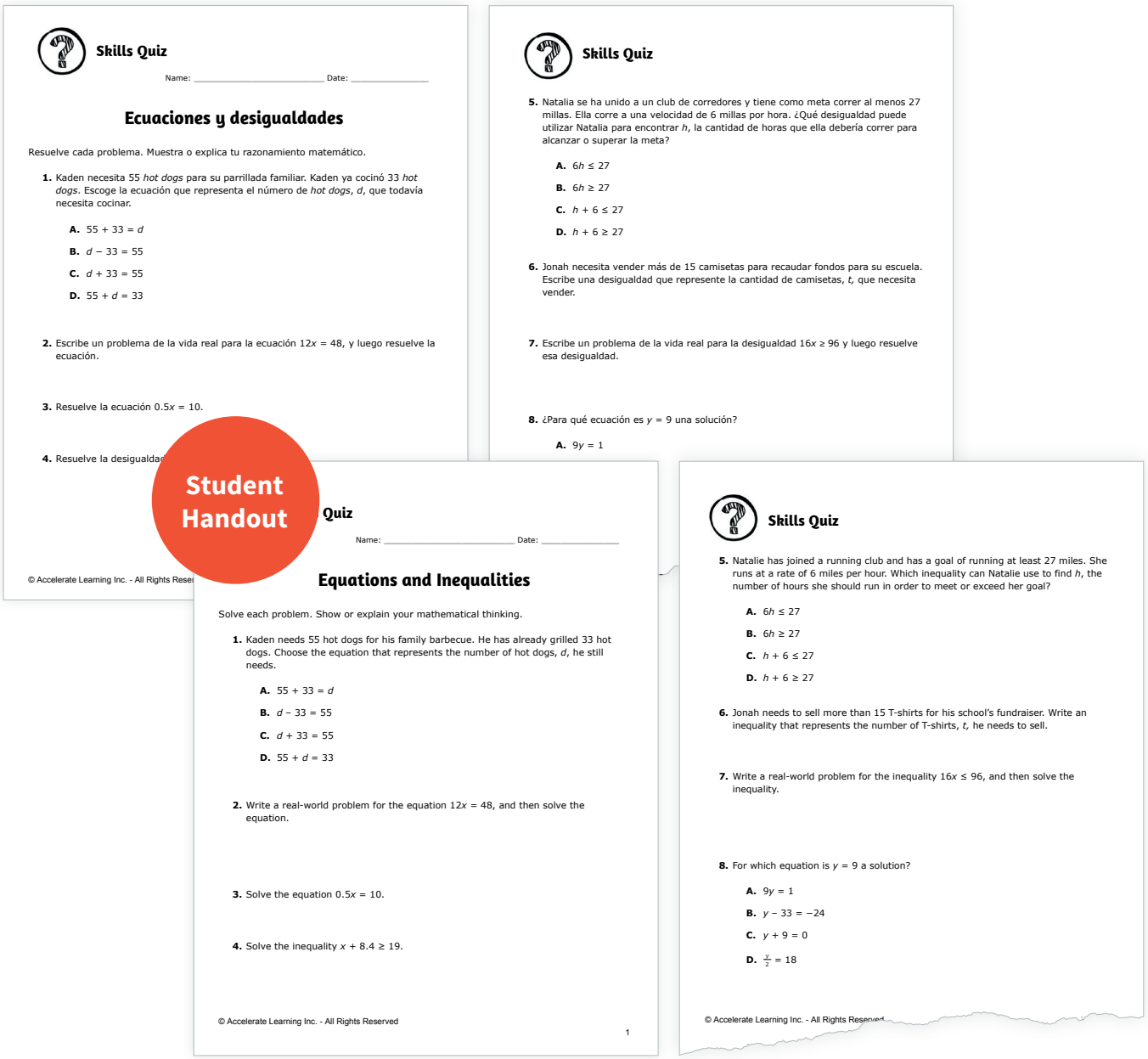
- Print a Student Handout for each student. The Student Handout can also be assigned digitally.
- Allow students to use manipulatives by request.
- Prepare Supplemental Aids for students who meet eligibility criteria.

Procedure and Facilitation Points

1. Distribute the Student Handout to each student.
2. Prompt students to show what they know in completing the assessment.
3. Allow students to reflect on their performances using the Heat Map.
4. Once student data has been collected after the assessment, refer to the Scaffolded Instruction Guide in the Home section of this scope to differentiate instruction for each student.

Tips and Tricks

- This element can be used as an assessment for learning and can be assigned to students to complete independently at their seats or as part of a workstation.
- For kindergarten and first grade, this element can be used as a one-on-one assessment or a guided small-group task to check for mastery of the standards.
- This element is a perfect opportunity to have a one-on-one conference with each student to discuss their performance, and it can be used as a foundation for setting individualized goals.
- The data from this assessment can be used to provide specific support and intervention.
- A Skills Quiz from a previous unit can also be used as a spiral review.



Skills Quiz

Name: _____ Date: _____

Ecuaciones y desigualdades

Resuelve cada problema. Muestra o explica tu razonamiento matemático.

1. Kaden necesita 55 *hot dogs* para su parrillada familiar. Kaden ya cocinó 33 *hot dogs*. Escoge la ecuación que representa el número de *hot dogs*, d, que todavía necesita cocinar.

A. $55 + 33 = d$

B. $d - 33 = 55$

C. $d + 33 = 55$

D. $55 + d = 33$

2. Escribe un problema de la vida real para la ecuación $12x = 48$, y luego resuelve la ecuación.

3. Resuelve la ecuación $0.5x = 10$.

4. Resuelve la desigualdad

Skills Quiz

5. Natalia se ha unido a un club de corredores y tiene como meta correr al menos 27 millas. Ella corre a una velocidad de 6 millas por hora. ¿Qué desigualdad puede utilizar Natalia para encontrar h, la cantidad de horas que ella debería correr para alcanzar o superar la meta?

A. $6h \leq 27$

B. $6h \geq 27$

C. $h + 6 \leq 27$

D. $h + 6 \geq 27$

6. Jonah necesita vender más de 15 camisetas para recaudar fondos para su escuela. Escribe una desigualdad que represente la cantidad de camisetas, t, que necesita vender.

7. Escribe un problema de la vida real para la desigualdad $16x \geq 96$ y luego resuelve esa desigualdad.

8. ¿Para qué ecuación es $y = 9$ una solución?

A. $9y = 1$

Student Handout

Quiz

Name: _____ Date: _____

Equations and Inequalities

Solve each problem. Show or explain your mathematical thinking.

1. Kaden needs 55 hot dogs for his family barbecue. He has already grilled 33 hot dogs. Choose the equation that represents the number of hot dogs, d, he still needs.

A. $55 + 33 = d$

B. $d - 33 = 55$

C. $d + 33 = 55$

D. $55 + d = 33$

2. Write a real-world problem for the equation $12x = 48$, and then solve the equation.

3. Solve the equation $0.5x = 10$.

4. Solve the inequality $x + 8.4 \geq 19$.

Skills Quiz

5. Natalie has joined a running club and has a goal of running at least 27 miles. She runs at a rate of 6 miles per hour. Which inequality can Natalie use to find h, the number of hours she should run in order to meet or exceed her goal?

A. $6h \leq 27$

B. $6h \geq 27$

C. $h + 6 \leq 27$

D. $h + 6 \geq 27$

6. Jonah needs to sell more than 15 T-shirts for his school's fundraiser. Write an inequality that represents the number of T-shirts, t, he needs to sell.

7. Write a real-world problem for the inequality $16x \leq 96$, and then solve the inequality.

8. For which equation is $y = 9$ a solution?

A. $9y = 1$

B. $y - 33 = -24$

C. $y + 9 = 0$

D. $\frac{y}{2} = 18$

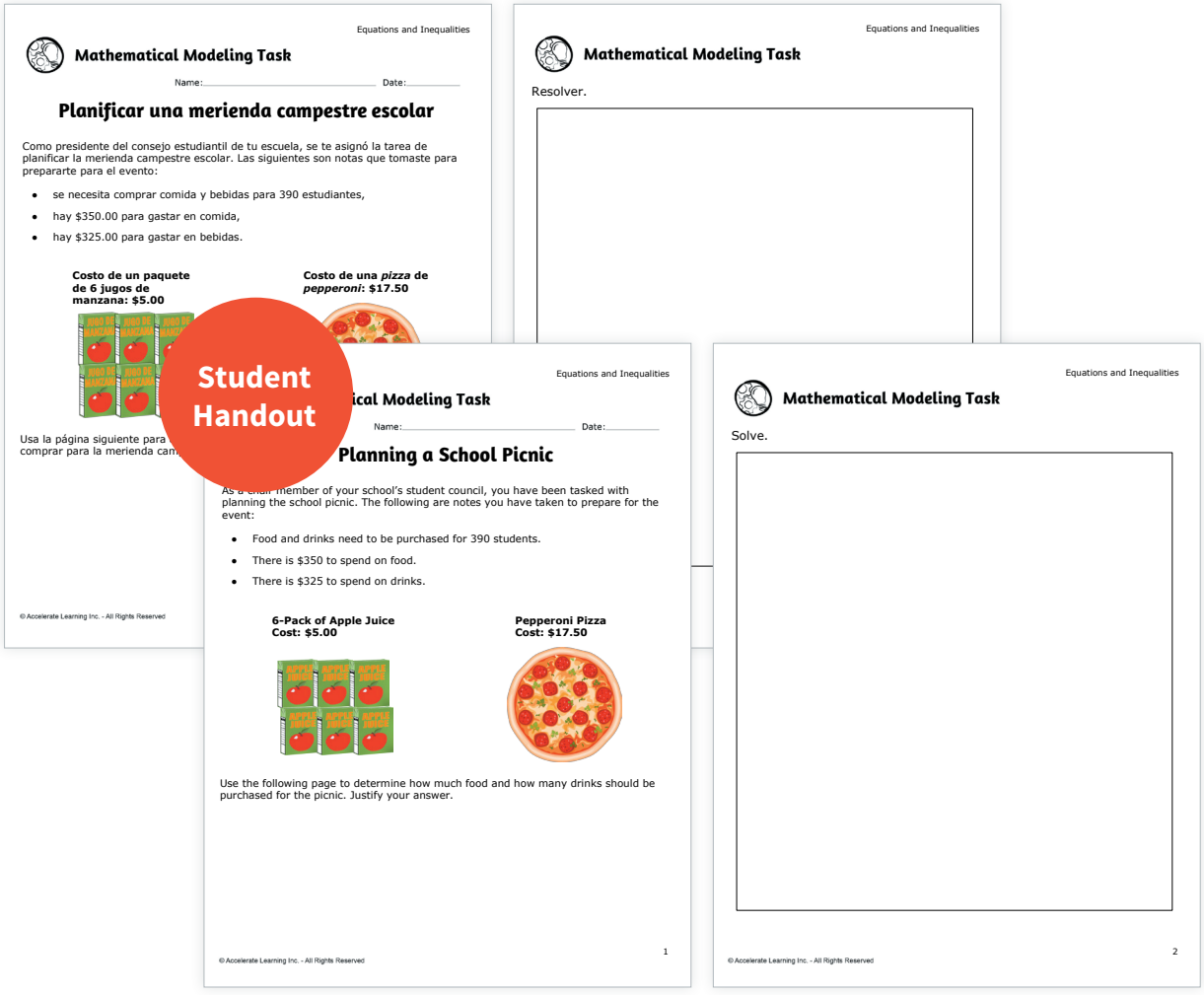
MATHEMATICAL MODELING TASK - PLANNING A SCHOOL PICNIC

Formative Summative

Students work collaboratively and use mathematical tools and methods to answer questions about real-world situations.

Procedure and Facilitation Points

1. Allow students to work in groups.
2. Encourage students to look back at their Student Journals from the Explore activities if they need to review the skills they have learned.
3. If students are stuck, use guiding questions to help them think through it without telling them what steps to take next. If time permits, allow each group to share its solution with the class.
4. Discuss how different groups tackled the challenge in different ways.



HEAT MAP

Student Self-Reflection

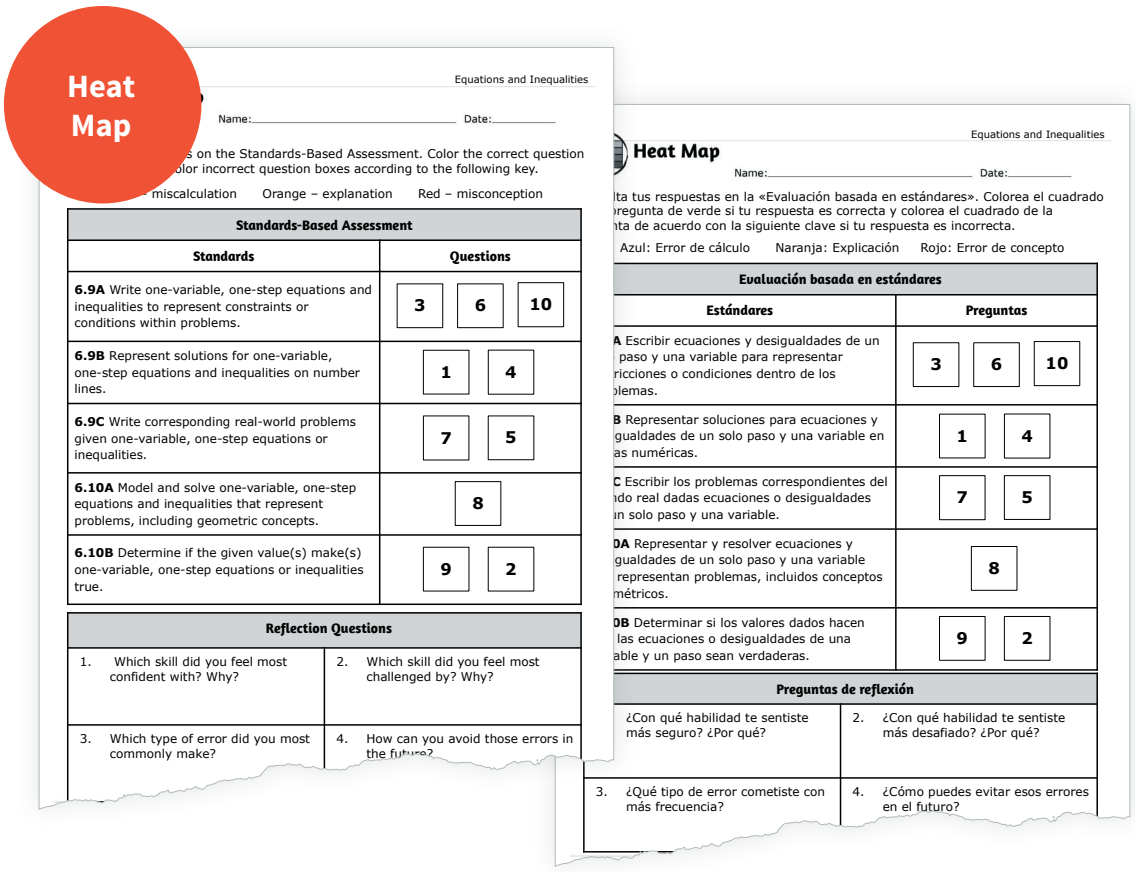
Students analyze their assessment results and determine what they did well and where they can improve.

Preparation

- Determine if students will analyze their Skills Quiz, Standards-Based Assessment, or both.
- Print a Heat Map for each student.
- Gather a red crayon and a green crayon for each student.

Procedure and Facilitation Points

1. Distribute a Heat Map to each student along with red and green crayons. Students should have their graded assessment(s) available.
2. Students use their graded assessment(s) to color-code the Heat Map. For each question answered correctly, students color the corresponding box green. For each question answered incorrectly, students color the corresponding box red.
3. Encourage students to look for patterns in their data, such as a certain standard that was missed more frequently or a standard they have clearly mastered, and use this information to reflect and set goals in the provided table.
4. Refer to the Scaffolded Instruction Guide found in the Home section to provide extension or additional support.



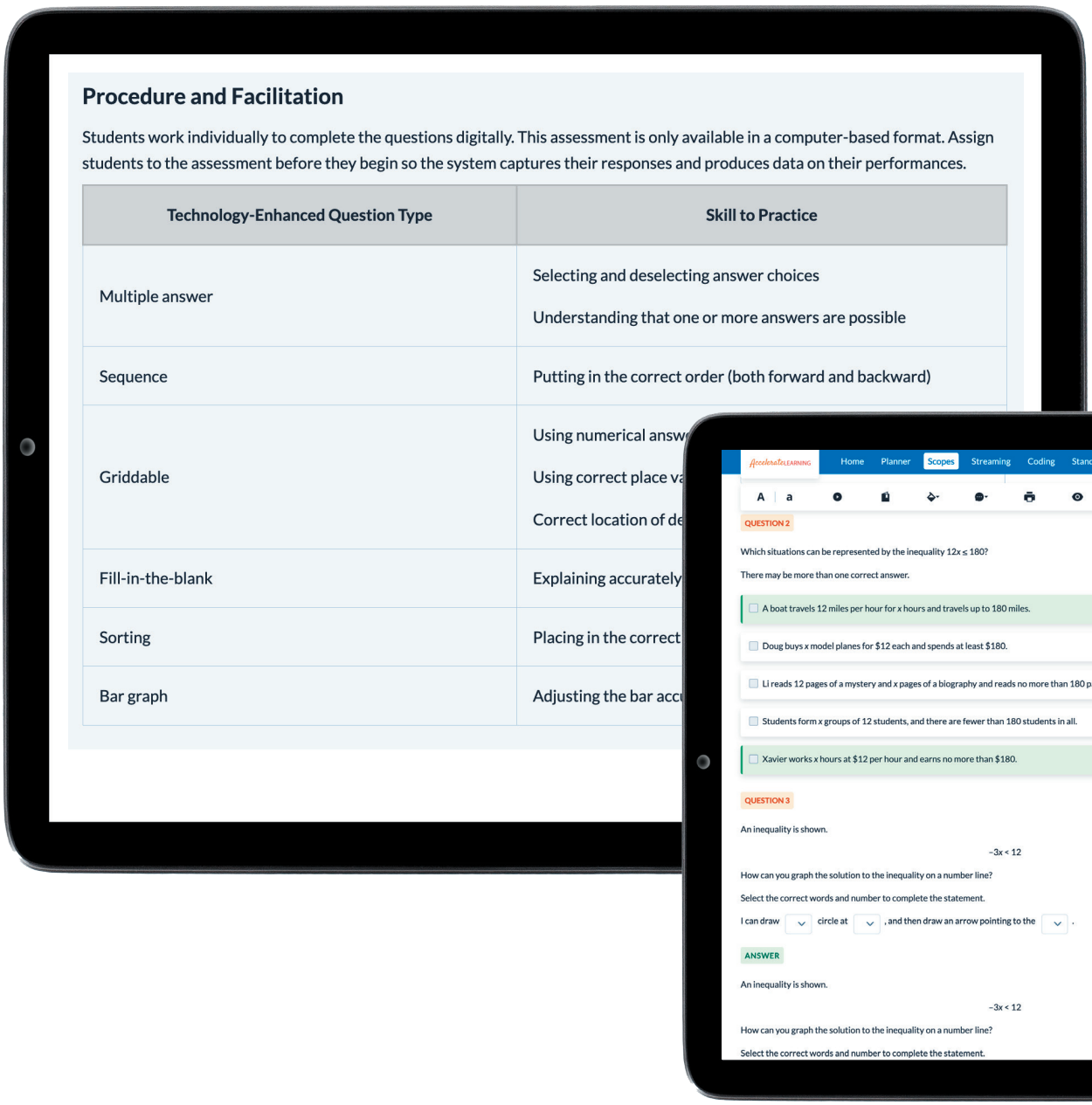
TECHNOLOGY-ENHANCED QUESTIONS

Summative

Technology-Enhanced Questions are designed to allow students to answer question types that are not possible in a paper/pencil format. These computer-based questions use formats that allow for non-conventional question types, including multiple answer, sequence, griddable, fill-in-the-blank, sorting, and bar graph.

Procedure and Facilitation Points

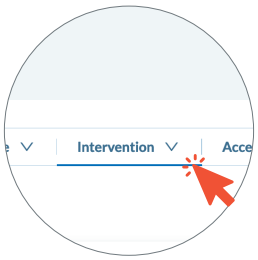
1. Students work individually to complete the questions digitally. This assessment is only available in a computer-based format. Assign students to the assessment before they begin so the system captures their responses and produces data on their performances.



Home | Engage | Explore | Explain | Elaborate | Evaluate | **Intervention** | Acceleration

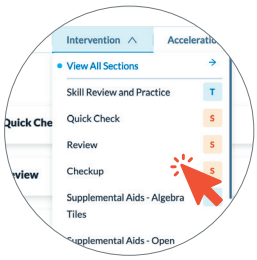
Intervention

NAVIGATION STEPS



Click Intervention

Click on Intervention in the White Menu Bar



Review Content

Use the Dropdown to Review Intervention Content

Unleash the power of hands-on learning to provide targeted instruction and tackle conceptual misunderstandings head-on! Perfect for **intervention**, re-teaching, or test preparation, these dynamic resources are your go-to tools for transforming math challenges into triumphs in the classroom.

SKILL REVIEW AND PRACTICE

Formative

This activity is designed to review the key concepts of the scope. Use it as a review or for intervention.

Preparation

- Print a copy of Quick Check, Review, and Checkup for each student.
- Optionally, place students in groups of 3 or 4 to complete the Review.
- Optionally, print an example Anchor Chart from the Explain section, or have students use Interactive Notebook as a resource.
- Optionally, print any of the supplemental aid materials for students to use as they work.

Procedure and Facilitation Points

1. Distribute a copy of Quick Check to each student.
2. Each student should complete the Quick Check independently.
3. Use the skill rubric at the end of the Quick Check to identify which students require additional help on the skills.
4. Distribute a copy of Review to each student.
5. Each student should complete the Review either as an intervention activity or an independent activity.
    a. Optionally, pull students into a small group to work on review skills. Use the Review to assist in reteaching.
6. Distribute a copy of Checkup to each student.
7. Each student should complete the Checkup independently.
8. Analyze the Checkup results using the Teacher Checklist to identify which students require additional review and which students have reached mastery of the concepts.

Formative

Quick Check

Equations and Inequalities

Skill Review and Practice

Name: _____ Date: _____

Revisión rápida

1. Un grupo de 3 amigos gastó un total de $15 en boletos ($t$) para un paseo en un parque de diversiones. Escribe una ecuación para encontrar el costo por boleto. Explique su razonamiento.

2. Resuelve la ecuación usando modelos.

$3t = 15$

3. Resuelve la ecuación $\frac{w}{2} = 42$.

Equations and Inequalities

Review and Practice

roblema del mundo real usando la desigualdad $87 + d > 150$.

Habilidad	Entiendo	Necesita revisión
scribir y resolver ecuaciones.	☐	☐
Modelar y resolver ecuaciones.	☐	☐
iones.	☐	☐
ver desigualdades.	☐	☐
ver un problema del	☐	☐

Equations and Inequalities

Skill Review and Practice

Name: _____ Date: _____

Quick Check

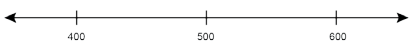
1. A group of 3 friends spent a total of $15 on tickets ($t$) for a ride at an amusement park. Write an equation to find the cost per ticket. Explain your reasoning.

2. Solve the equation using models.

$3t = 15$

3. Solve the equation $\frac{w}{2} = 42$.

4. The weight limit on a bridge is 1,000 tons. If 2 equal-sized trucks are going over the bridge, write an inequality to represent safe weights for each truck. Graph the solution of the inequality on the number line.



Equations and Inequalities

Review and Practice

world problem using the inequality $87 + d > 150$.

Skill	Got It	Needs Review
Write and solve equations.	☐	☐
Model and solve equations.	☐	☐
Solve equations.	☐	☐
Write and solve inequalities	☐	☐
Write and solve a real-world problem.	☐	☐

Formative

Review

Equations and Inequalities

Skill Review and Practice

Name:_____ Date:_____

Repasar

Ecuaciones

Una ecuación es una oración matemática que usa un signo igual para mostrar que dos expresiones algebraicas son iguales. Recuerda que la letra representa la variable desconocida. El número delante de una variable se llama coeficiente.

Expresión algebraica	1	3
Expresión algebraica	2	6w
Ecuación		3 = 6w

Modelos de ecuaciones

Puedes modelar ecuaciones con fichas de álgebra y diagramas de cinta. Cuando utilizas fichas de álgebra, recuerda los siguientes valores:

El reverso de las fichas es rojo , lo que significa que el valor es negativo .

El lado [illegible]alanza (modelo 3D o dibujo) contiene las fichas equiv[illegible]do de la ecuación. El lado derecho de la balanza contiene ficha[illegible]erecho de la ecuación. Por ejemplo, 3 x + 2 = 14 se verá com[illegible]

Inténta
¿Qué ec[illegible]

Equations and Inequalities

kill Review and Practice

riable con sumas o restas

ar el valor de una variable, deberás aislar la variable. Esto significa usar inversas para terminar con la letra variable sola en un lado de la ecuación más en el otro lado del signo igual. Cuando sumas o restas el mismo mbos lados de una ecuación, los dos lados permanecen iguales.

uaciones con suma

$x - 4 = 5$ Ecuación de resta
$+4 \quad +4$ Suma 4 a ambos lados para aislar el variable, x.
$x = 9$

$9 - 4 = 5$ Para comprobar, sustituye la solución en la ecuación.
$5 = 5$ Si ambos lados son iguales, la solución es verdadera.

uaciones con resta

$x + 3 = 11$ Ecuación de suma
$-3 \quad -3$ Resta 3 de ambos lados para aislar la variable, x.
$x = 8$

11 Para verificar, sustituye la solución en la ecuación.
11 Si ambos lados son iguales, la solución es verdadera.

ación. Comprueba tu respuesta sustituyendo tu solución

Equations and Inequalities

Review and Practice

Name:_____ Date:_____

Review

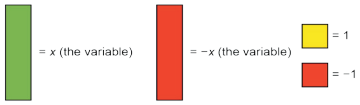
Equations

An equation is a math sentence that uses an equal sign to show that two algebraic expressions are equal. Remember that the letter represents the unknown variable. The number in front of a variable is called a coefficient.

Algebraic expression 1	3
Algebraic expression 2	6w
Equation	3 = 6w

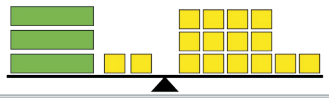
Model Equations

You can model equations with algebra tiles and tape diagrams. When using algebra tiles, remember the values below:



The reverse side of the tiles is red, which means that the value is negative.

The left side of a balance scale (3-D model or drawn) holds the tiles equivalent to the left side of the equation. The right side of the scale holds tiles equivalent to the right side of the equation. For example, 3x + 2 = 14 will look like the model below:



Try It
What equation is represented by the following algebra tile model?

Equations and Inequalities

eview and Practice

le with Addition or Subtraction

a variable, you will need to isolate the variable. This means using o end up with the letter variable by itself on one side of the hing else on the other side of the equal sign. When you add or umber on both sides of an equation, the two sides remain equal.

ith Addition

4 = 5 Subtraction equation
4 +4 Add 4 to both sides to isolate the variable, x.
x = 9

− 4 = 5 To check, substitute the solution into the equation.
5 = 5 If both sides are equal, the solution is true.

ith Subtraction

+ 3 = 11 Addition equation
− 3 − 3 Subtract 3 from both sides to isolate the variable, x.
x = 8

+ 3 = 11 To check, substitute the solution into the equation.
11 = 11 If both sides are equal, the solution is true.

g equation. Check your answer by substituting your solution into

$g + 2.30 = 15.34$

Formative

Equations and Inequalities

Skill Review and Practice

Name: _____ Date: _____

Revisión

1. Marco necesita 35 cajas para su colección de rocas. Encontró 26. Escribe una ecuación para representar cuántas cajas más (c) necesita todavía.

2. Dibuja un modelo de fichas de álgebra en la balanza para representar la siguiente ecuación.

$4x = 12$

3. Resuelve la ecuación. Muestra tu trabajo.

$3x - 1.5 = 4.8$

4. ...culo las desigualdades que son verdaderas cuando $x = 4$.

Equations and Inequalities

...Review and Practice

...ba un estante para sus trofeos. El estante se romperá si el peso ...8 libras. Sus trofeos pesan 4 libras cada uno. Escribe una ...que represente la mayor cantidad de trofeos que podrían caber en ...

...menos que o igual a 13 monedas de veinticinco centavos (q). Si ...edas de veinticinco centavos en el bolsillo, ¿cuántas había en su ...cribe y resuelve una desigualdad. Grafica esa desigualdad en una ...ca.

...ecuaciones que tienen solución de $y = 7.5$.

Checkup

Equations and Inequalities

...ill Review and Practice

Name: _____ Date: _____

Checkup

1. Marco needs 35 boxes for his rock collection. He found 26. Write an equation to represent how many more boxes (b) he still needs.

2. Draw a model of algebra tiles on the balance scale to represent the equation below.

$4x = 12$

3. Solve the equation. Show your work.

$3x - 1.5 = 4.8$

4. Circle the inequalities that are true when $x = 4$.

$-16x > 64$ $-16x \geq 64$ $16x < 64$ $16x \leq 64$

5. $\frac{a}{2} = 42$

Equations and Inequalities

...Review and Practice

...utting together a shelf for her trophies. The shelf will break if the ...es 28 pounds. Her trophies weigh 4 pounds each. Write an ...at represents the most trophies that could fit on her shelf.

...ss than or equal to 13 quarters (q). If he had 3 quarters in his ...many were in his piggy bank? Write and solve an inequality. Graph ...ty on a number line.

...uations that have a solution of $y = 7.5$.

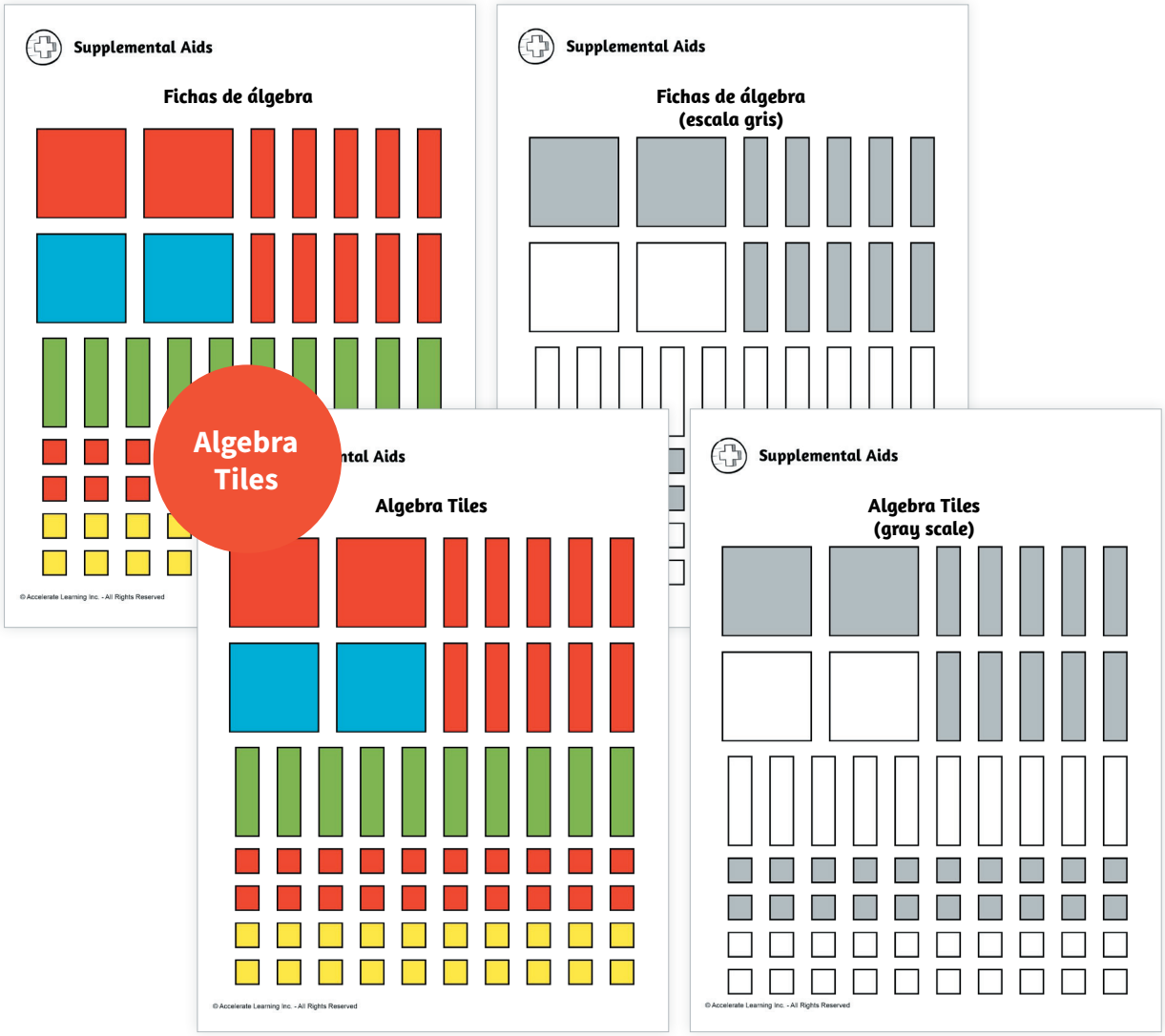
15 $28 - y = 20.5$ $-3 + y = 15$ $7y = 52.5$

SUPPLEMENTAL AIDS - ALGEBRA TILES

Students use algebra tiles to practice equations and inequalities concepts

Procedure and Facilitation Points

- This Student Handout: Algebra Tiles contains a template for algebra tiles in color and in gray scale. Actual algebra tiles may also be used in its place. Algebra tiles can be used to reinforce the following geometry concepts:
  - Creating equivalent expressions and equations
  - Combining like terms in expressions, equations, and inequalities
  - Solving equations and inequalities
- Have students cut out the individual pieces.
- If possible, laminate the Algebra Tiles so they last longer.

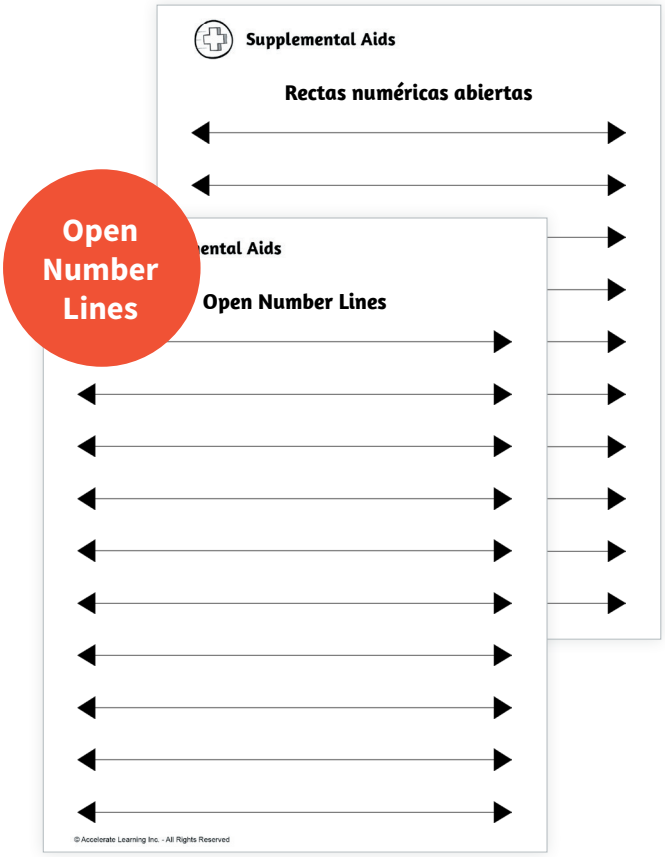


SUPPLEMENTAL AIDS - OPEN NUMBER LINES

Students use an open number line to illustrate a variety of number and operation concepts.

Procedure and Facilitation Points

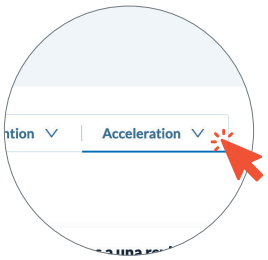
- Number lines are tools that can be used for a variety of mathematical concepts, including the following:
  - Addition and subtraction
  - Fractions
  - Comparing numbers
  - Ordering numbers
  - Estimation
  - Rational numbers
  - Representing and solving equations and inequalities
  - Graphing data with dot plots and box plots
  - Approximating irrational numbers
- A blank number line can be used as a supplemental aid for students who need assistance visualizing numerical concepts.
- Display the number line provided on the Student Handout that is applicable to the concepts being taught. Model adding hash marks and numbers to the number line as needed. You may also cut the Student Handout: Open Number Lines into strips so that students may write on their own number line.



- If possible, provide a laminated copy of a number line for each student. The students may then use dry-erase markers to use the number line in a variety of problems.
- During assessments, encourage students to draw a number line at the top of their paper or notebook as a strategy to solve problems.

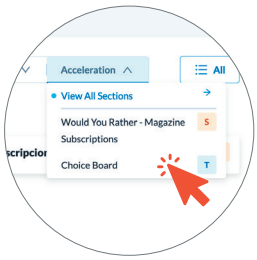
Acceleration

NAVIGATION STEPS



Click Acceleration

Click on Acceleration in the White Menu Bar



Review Content

Use the Dropdown to Review Acceleration Content

Acceleration activities allow students to dive deeper into the content and its applications, enhancing their understanding and engagement. These enrichment activities are designed for all students, providing opportunities to explore advanced concepts and develop critical thinking skills.

CHOICE BOARD

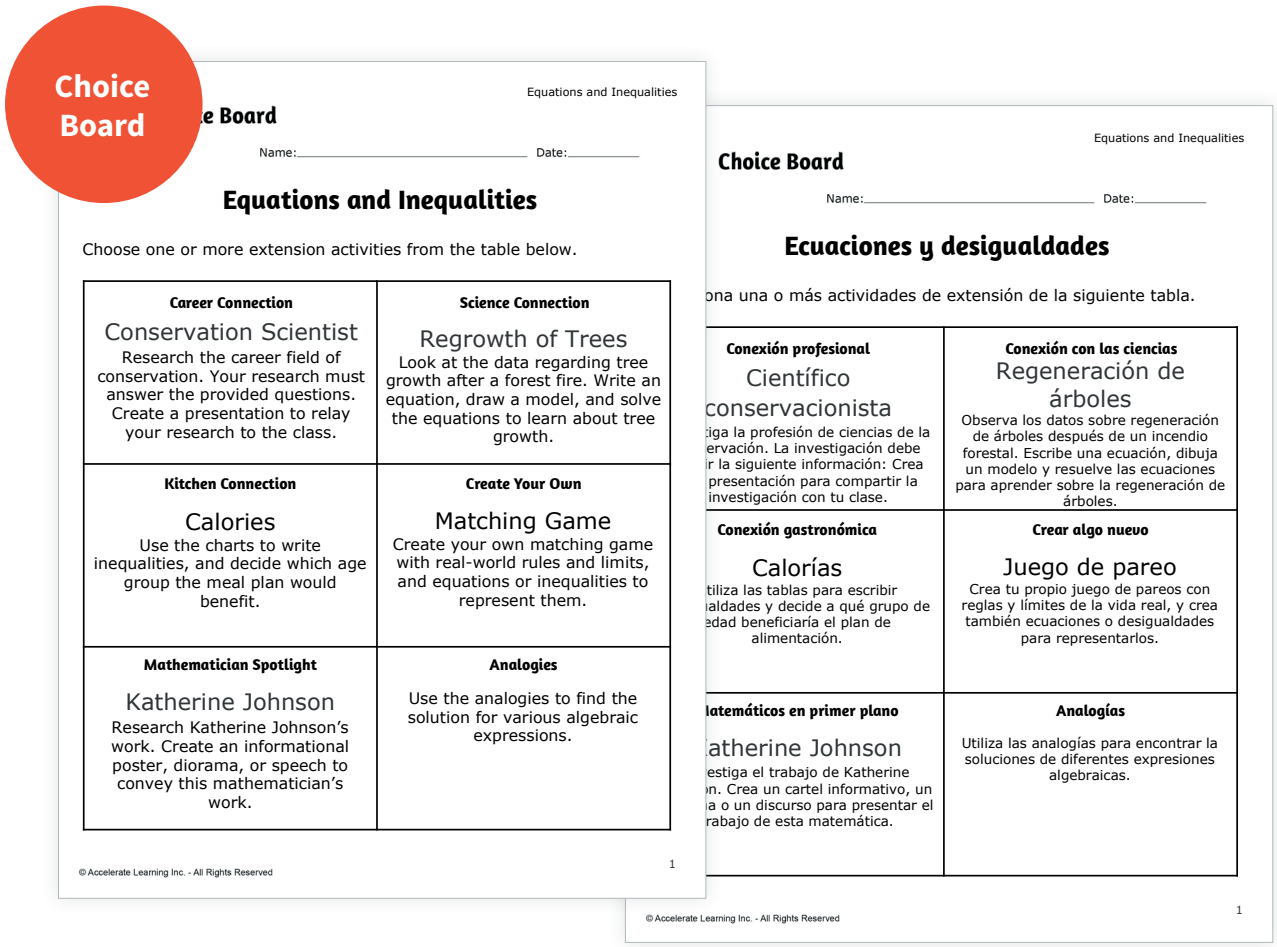
Students explore real-world connections and applications of math content through interactions with engaging activities.

Preparation

- Print a Choice Board and a set of Activity Handouts for each student.
- Print a Choice Board Self-Assessment for each student.
- Plan ahead for technology use. Research may be required for some activities on the Choice Board.

Procedure and Facilitation Points

1. Distribute a Choice Board to each student.
2. Allow students time to examine the Choice Board and select the activities they would like to explore.
3. Encourage students to attempt at least three activities.
4. Distribute the appropriate Activity Handouts according to students' choices.
5. Upon completion of each Choice Board activity, have students complete a Choice Board Self-Assessment to evaluate their own mathematical thinking and efforts on their project.



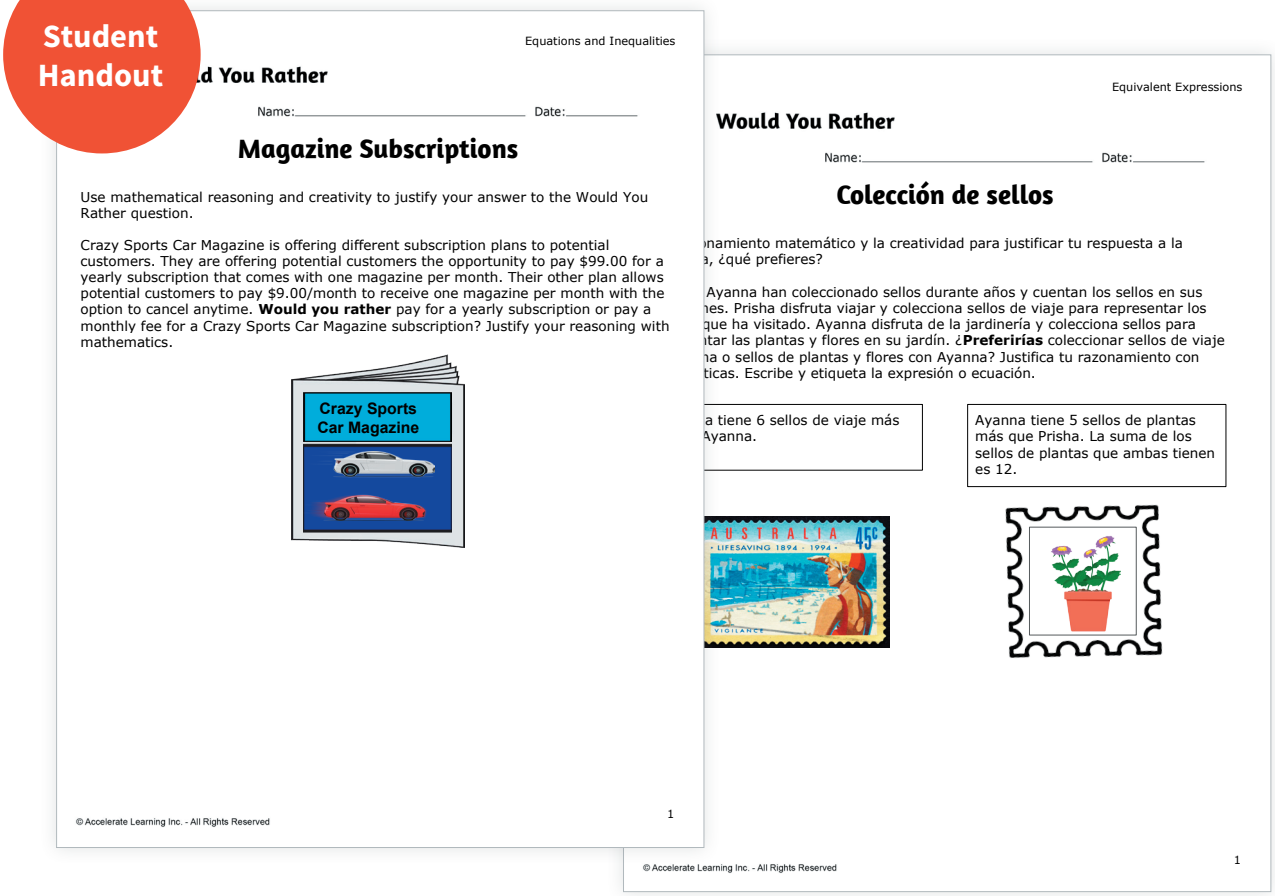
WOULD YOU RATHER - MAGAZINE SUBSCRIPTIONS

Would You Rather is an enriching activity in which students use mathematical reasoning and creativity to justify their answers.

Procedure and Facilitation Points

1. Distribute a Student Handout to each student.
2. Encourage students to look back at the Student Journals from the Explore activities if they need to review the skills they have learned.
3. Invite students to share their answers and justification with partners.

Student Handout



Equations and Inequalities

d You Rather

Name:_____ Date:_____

Magazine Subscriptions

Use mathematical reasoning and creativity to justify your answer to the Would You Rather question.

Crazy Sports Car Magazine is offering different subscription plans to potential customers. They are offering potential customers the opportunity to pay $99.00 for a yearly subscription that comes with one magazine per month. Their other plan allows potential customers to pay $9.00/month to receive one magazine per month with the option to cancel anytime. **Would you rather** pay for a yearly subscription or pay a monthly fee for a Crazy Sports Car Magazine subscription? Justify your reasoning with mathematics.

1

Equivalent Expressions

Would You Rather

Name:_____ Date:_____

Colección de sellos

namiento matemático y la creatividad para justificar tu respuesta a la a, ¿qué prefieres?

Ayanna han coleccionado sellos durante años y cuentan los sellos en sus es. Prisha disfruta viajar y colecciona sellos de viaje para representar los ue ha visitado. Ayanna disfruta de la jardinería y colecciona sellos para tar las plantas y flores en su jardín. ¿**Preferirías** coleccionar sellos de viaje o sellos de plantas y flores con Ayanna? Justifica tu razonamiento con ticas. Escribe y etiqueta la expresión o ecuación.

a tiene 6 sellos de viaje más Ayanna.

Ayanna tiene 5 sellos de plantas más que Prisha. La suma de los sellos de plantas que ambas tienen es 12.

1

STEMscopes TEXAS MATH

POWERED BY ACCELERATE LEARNING

- 100% TEKS AND ELPS ALIGNED
- ALL STUDENT MATERIALS ARE AVAILABLE IN ENGLISH AND SPANISH
- ONE-STOP-SHOP FOR ALL TEACHER SUPPORT AND RESOURCES