BIG IDEAS MATH®
Modeling Real Life

Grade 6
Common Core Edition

Ron Larson
Laurie Boswell

Big Ideas Learning™

Big Ideas Learning™

Written by renowned authors, Dr. Ron Larson and Dr. Laurie Boswell, *Big Ideas Math* offers a seamless math pedagogy from elementary through high school. Together, Ron and Laurie provide a consistent voice that encourages students to make connections through cohesive progressions and clear instruction. Since 1992, Ron and Laurie have authored over 50 mathematics programs.

> *Each time Laurie and I start working on a new program, we spend time putting ourselves in the position of the reader. How old is the reader? What is the reader's experience with mathematics? The answers to these questions become our writing guides. Our goal is to make the learning targets understandable and to develop these targets in a clear path that leads to student success.*

Ron Larson

Ron Larson, Ph.D., is well known as lead author of a comprehensive and widely used mathematics program that ranges from elementary school through college. He holds the distinction of Professor Emeritus from Penn State Erie, The Behrend College, where he taught for nearly 40 years. He received his Ph.D. in mathematics from the University of Colorado. Dr. Larson engages in the latest research and advancements in mathematics education and consistently incorporates key pedagogical elements to ensure focus, coherence, rigor, and student self-reflection.

> *My passion and goal in writing is to provide an essential resource for exploring and making sense of mathematics. Our program is guided by research around the learning and teaching of mathematics in the hopes of improving the achievement of all students. May this be a successful year for you!*

Laurie Boswell

Laurie Boswell, Ed.D., is the former Head of School at Riverside School in Lyndonville, Vermont. In addition to authoring textbooks, she provides mathematics consulting and embedded coaching sessions. Dr. Boswell received her Ed.D. from the University of Vermont in 2010. She is a recipient of the Presidential Award for Excellence in Mathematics Teaching and later served as president of CPAM. Laurie has taught math to students at all levels, elementary through college. In addition, Laurie has served on the NCTM Board of Directors and as a Regional Director for NCSM. Along with Ron, Laurie has co-authored numerous math programs and has become a popular national speaker.

Big Ideas Learning would like to express our gratitude to the mathematics education and instruction experts who served as our advisory panel, contributing specialists, and reviewers during the writing of *Big Ideas Math: Modeling Real Life*. Their input was an invaluable asset during the development of this program.

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Research

Ron Larson and Laurie Boswell used the latest in educational research, along with the body of knowledge collected from expert mathematics instructors, to develop the *Modeling Real Life* series. The pedagogical approach used in this program follows the best practices outlined in the most prominent and widely accepted educational research, including:

- *Visible Learning*
  John Hattie © 2009

- *Visible Learning for Teachers*
  John Hattie © 2012

- *Visible Learning for Mathematics*
  John Hattie © 2017

- *Principles to Actions: Ensuring Mathematical Success for All*
  NCTM © 2014

- *Adding It Up: Helping Children Learn Mathematics*
  National Research Council © 2001

- *Mathematical Mindsets: Unleashing Students' Potential through Creative Math, Inspiring Messages and Innovative Teaching*
  Jo Boaler © 2015

- *What Works in Schools: Translating Research into Action*
  Robert Marzano © 2003

- *Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement*
  Marzano, Pickering, and Pollock © 2001

- *Principles and Standards for School Mathematics*
  NCTM © 2000

- *Rigorous PBL by Design: Three Shifts for Developing Confident and Competent Learners*
  Michael McDowell © 2017

- Common Core State Standards for Mathematics National Governors Association Center for Best Practices and Council of Chief State School Officers © 2010

- *Universal Design for Learning Guidelines*
  CAST © 2011

- Rigor/Relevance Framework®
  International Center for Leadership in Education

- *Understanding by Design*
  Grant Wiggins and Jay McTighe © 2005

- Achieve, ACT, and The College Board

- *Elementary and Middle School Mathematics: Teaching Developmentally*
  John A. Van de Walle and Karen S. Karp © 2015

- *Evaluating the Quality of Learning: The SOLO Taxonomy*
  John B. Biggs & Kevin F. Collis © 1982

- *Unlocking Formative Assessment: Practical Strategies for Enhancing Students' Learning in the Primary and Intermediate Classroom*
  Shirley Clarke, Helen Timperley, and John Hattie © 2004

- *Formative Assessment in the Secondary Classroom*
  Shirley Clarke © 2005

- *Improving Student Achievement: A Practical Guide to Assessment for Learning*
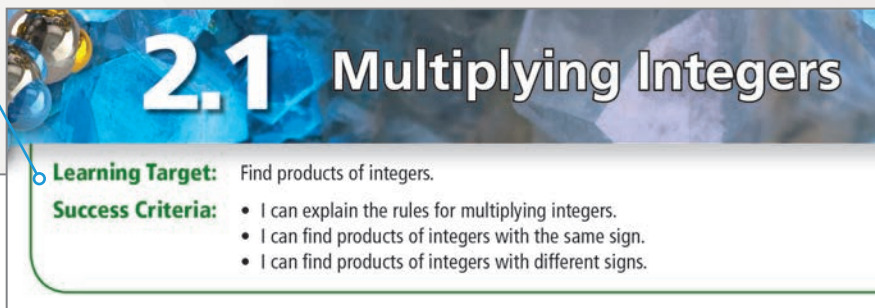 Toni Glasson © 2009

Instructional Design

A single authorship team from Kindergarten through Algebra 2 results in a logical progression of focused topics with meaningful coherence from course to course.

FOCUS

A focused program reflects the balance in grade-level standards while simultaneously supporting and engaging you to develop conceptual understanding of the major work of the grade.

The **Learning Target** and **Success Criteria** for each section focus the learning into manageable chunks, using clear teaching text and Key Ideas.

2.1 Multiplying Integers

Learning Target: Find products of integers.

Success Criteria:
- I can explain the rules for multiplying integers.
- I can find products of integers with the same sign.
- I can find products of integers with different signs.

Key Idea

Ratios

Words A **ratio** is a comparison of two quantities. The **value of the ratio** a to b is the number $\frac{a}{b}$, which describes the multiplicative relationship between the quantities in the ratio.

Examples 2 snails *to* 6 fish

$\frac{1}{2}$ cup of milk *for every* $\frac{1}{4}$ cup of cream

Algebra The ratio of a to b can be written as $a : b$.

Laurie's Notes, located in the Teaching Edition, prepare your teacher for the math concepts in each chapter and section and make connections to the threads of major topics for the course.

Laurie's Notes

Chapter 5 Overview

The study of ratios and proportions in this chapter builds upon and connects to prior work with rates and ratios in the previous course. Students should have an understanding of how ratios are represented and how ratio tables are used to find equivalent ratios. Tape diagrams and double number lines were also used to represent and solve problems involving equivalent ratios.

a Single Authorship Team

COHERENCE

A single authorship team built a coherent program that has intentional progression of content within each grade and between grade levels. You will build new understanding on foundations from prior grades and connect concepts throughout the course.

The authors developed content that progresses from prior chapters and grades to future ones. In addition to charts like this one, Laurie's Notes give your teacher insights about where you have come from and where you are going in your learning progression.

One author team thoughtfully wrote each course, creating a seamless progression of content from Kindergarten to Algebra 2.

Through the Grades		
Grade 7	**Grade 8**	**High School**
• Use samples to draw inferences about populations. • Compare two populations from random samples using measures of center and variability. • Approximate the probability of a chance event and predict the approximate relative frequency given the probability.	• Construct and interpret scatter plots. • Find and assess lines of fit for scatter plots. • Use equations of lines to solve problems and interpret the slope and the *y*-intercept. • Construct and interpret a two-way table summarizing data. Use relative frequencies to describe possible association between the two variables.	• Classify data as quantitative or qualitative, choose and create appropriate data displays, and analyze misleading graphs. • Make and use two-way tables to recognize associations in data by finding marginal, relative, and conditional relative frequencies. • Interpret scatter plots, determine how well lines of fit model data, and distinguish between correlation and causation.

Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
			Operations and Algebraic Thinking		**Expressions and Equations**		
oblems involving and subtraction 0. roperties of ons. th addition and ion equations. s 1–5, 10, 11	Solve problems involving addition and subtraction within 20. Work with equal groups of objects. Chapters 1–6, 15	Solve problems involving multiplication and division within 100. Apply properties of multiplication. Solve problems involving the four operations, and identify and explain patterns in arithmetic. Chapters 1–5, 8, 9, and 14	Use the four operations with whole numbers to solve problems. Understand factors and multiples. Generate and analyze patterns. Chapters 2–6, 12	Write and interpret numerical expressions. Analyze patterns and relationships. Chapters 2, 12	Perform arithmetic with algebraic expressions. Chapter 5 Solve one-variable equations and inequalities. Chapters 6, 8 Analyze relationships between dependent and independent variables. Chapter 6	Write equivalent expressions. Chapter 3 Use numerical and algebraic expressions, equations, and inequalities to solve problems. Chapters 3, 4, 6	Understand the connections between proportional relationships, lines, and linear equations. Chapter 4 Solve linear equations and systems of linear equations. Chapters 1, 5 Work with radicals and integer exponents. Chapters 8, 9
							Functions
							Define, evaluate, and compare functions, and use functions to model relationships between quantities.

You have used number lines to find sums of positive numbers, which involve movement to the right. Now you will find sums with negative numbers, which involve movement to the left.

Using Number Lines to Find Sums

a. Find $4 + (-4)$.

Draw an arrow from 0 to 4 to represent 4. Then draw an arrow 4 units to the left to represent adding -4.

Throughout each course, lessons build on prior learning as new concepts are introduced. Here you are reminded that you have used number lines with positive numbers.

Rigor in Math: A Balanced Approach

Instructional Design

The authors wrote every chapter and every section to give you a meaningful balance of rigorous instruction.

RIGOR

A rigorous program provides a balance of three important building blocks.

- **Conceptual Understanding**
  Discovering why
- **Procedural Fluency**
  Learning how
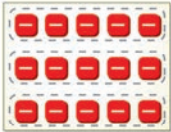- **Application**
  Knowing when to apply

Conceptual Understanding
You have the opportunity to develop foundational concepts central to the *Learning Target* in each *Exploration* by experimenting with new concepts, talking with peers, and asking questions.

EXPLORATION 1 **Understanding Quotients Involving N**

Work with a partner.

a. Discuss the relationship between multiplication your partner.

b. **INDUCTIVE REASONING** Complete the table. The for dividing (i) two integers with the same sign a different signs.

Expression	Type of Quotient	Quoti
$-15 \div 3$	Integers	
$12 \div (-6)$		
$10 \div (-2)$		

Conceptual Thinking
Conceptual questions ask you to think deeply.

29. **MP** **NUMBER SENSE** Without solving, determine whether $\dfrac{x}{4} = \dfrac{15}{3}$ and $\dfrac{x}{15} = \dfrac{4}{3}$ have the same solution. Explain your reasoning.
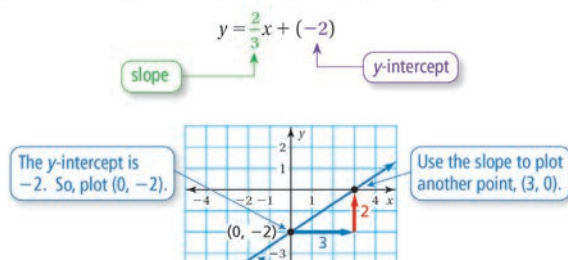
EXAMPLE 1 **Graphing a Linear Equation in Standard Form**

Graph $-2x + 3y = -6$.

Step 1: Write the equation in slope-intercept form.

$$-2x + 3y = -6 \qquad \text{Write the equation.}$$
$$3y = 2x - 6 \qquad \text{Add } 2x \text{ to each side.}$$
$$y = \frac{2}{3}x - 2 \qquad \text{Divide each side by 3.}$$

Step 2: Use the slope and the y-intercept to graph the equation.

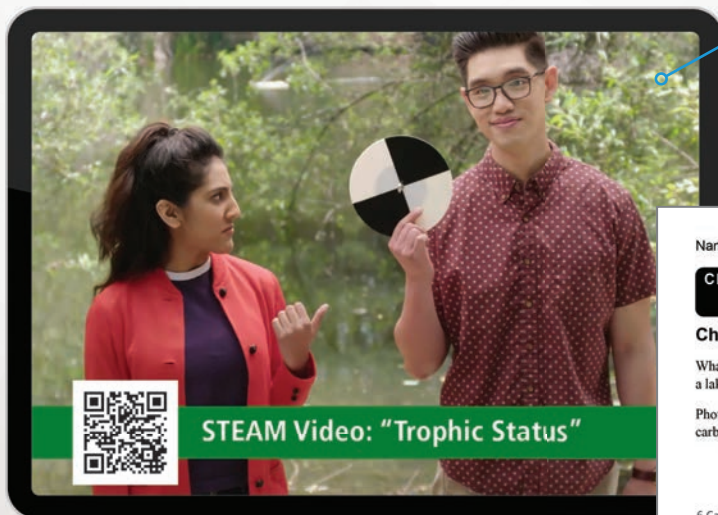$$y = \frac{2}{3}x + (-2)$$

slope

y-intercept

Procedural Fluency
Solidify learning with clear, stepped-out teaching and examples.

Then shift conceptual understanding into procedural fluency with *Try Its*, *Self-Assessments*, *Practice*, and *Review & Refresh*.

The y-intercept is -2. So, plot $(0, -2)$.

Use the slope to plot another point, $(3, 0)$.

$(0, -2)$

STEAM Video: "Trophic Status"

Name_____ Date_____

Chapter 3 Performance Task

Chlorophyll in Plants

What is needed for photosynthesis? How can you use the amount of chlorophyll in a lake to determine the level of biological productivity?

Photosynthesis is the process by which plants acquire energy from the sun. Sunlight, carbon dioxide, and water are used by a plant to produce glucose and dioxygen.

Before: 6 Carbon Dioxide + 6 Water → After: Glucose + 6 Dioxygen

1. You want to make models of the molecules involved in photosynthesis for a science fair project. The table shows the number of each element used for each molecule. Let x, y, and z represent the costs of a model carbon atom, model hydrogen atom, and

Molecule	Number of Atoms		
	Carbon	Hydrogen	Oxygen
Carbon Dioxide	1	0	2
Water	0	2	1

36. **DIG DEEPER!** The *girth* of a package is the distance around the perimeter of a face that does not include the length as a side. A postal service says that a rectangular package can have a maximum combined length and girth of 108 inches.

    a. Write an inequality that represents the allowable dimensions for the package.

    b. Find three different sets of allowable dimensions that are reasonable for the package. Find the volume of each package.
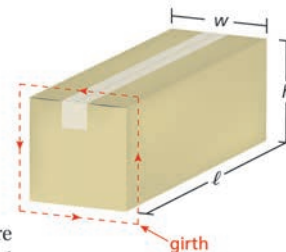
THE PROBLEM-SOLVING PLAN

1. **Understand the Problem**
   Think about what the problem is asking, what information you know, and how you might begin to solve.

2. **Make a Plan**
   Plan your solution pathway before jumping in to solve. Identify any relationships and decide on a problem-solving strategy.

3. **Solve and Check**
   As you solve the problem, be sure to evaluate your progress and check your answers. Throughout the problem-solving process, you must continually ask, "Does this make sense?" and be willing to change course if necessary.

Embedded Mathematical Practices

Encouraging Mathematical Mindsets

Developing proficiency in the **Mathematical Practices** is about becoming a mathematical thinker. Learn to ask why, and to reason and communicate with others as you learn. Use this guide to develop proficiency with the mathematical practices.

1

One way to **Make Sense of Problems and Persevere in Solving Them** is to use the Problem-Solving Plan. Take time to analyze the given information and what the problem is asking to help you plan a solution pathway.

Look for labels such as:
- Explain the Meaning
- Find Entry Points
- Analyze Givens
- Make a Plan
- Interpret a Solution
- Consider Similar Problems
- Consider Simpler Forms
- Check Progress
- Problem Solving

EXAMPLE 3 **Modeling Real Life**

Skateboard kits cost d dollars and you have a coupon for $2 off each one you buy. After assembly, you sell each skateboard for $(2d - 4)$ dollars. Find and interpret your profit on each skateboard sold.

Understand the problem. You are given information about purchasing skateboard kits and selling the assembled skateboards. You are asked to find and interpret the profit made on each skateboard sold.

Make a plan. Find the difference of the expressions representing the selling price and the purchase price. Then simplify and interpret the expression.

Solve and check. You receive $2 off of d dollars, so you pay $(d - 2)$ dollars for each kit.

$$\underset{\text{(dollars)}}{\text{Profit}} = \underset{\text{(dollars)}}{\text{Selling price}} - \underset{\text{(dollars)}}{\text{Purchase price}}$$

|	
$= (2d - 4) - (d - 2)$	Write the difference.
$= (2d - 4) + (-d + 2)$	Add the opposite.
$= 2d - d - 4 + 2$	Group like terms.
$= d - 2$	Combine like terms.

▶ Your profit on each skateboard sold is $(d - 2)$ dollars. You pay $(d - 2)$ dollars for each kit, so you are doubling your money.

2

Reason Abstractly when you explore a concrete example and represent it symbolically. Other times, **Reason Quantitatively** when you see relationships in numbers or symbols and draw conclusions about a concrete example.

a. Represent each table in the same coordinate plane. Which graph represents a proportional relationship? How do you know?

Drops of red

Drops of blue
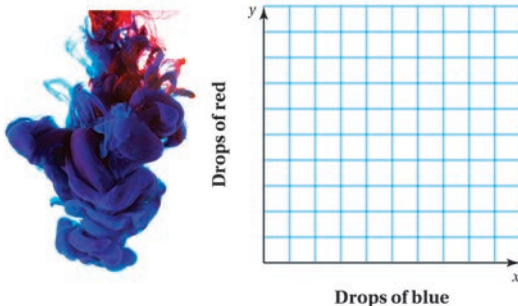
Look for labels such as:
- Make Sense of Quantities
- Use Equations
- Use Expressions
- Understand Quantities
- Use Operations
- Number Sense
- Reasoning

Math Practice

Reasoning
How is the graph of the proportional relationship different from the other graph?

x

b. Which property can you use to solve each of the equations modeled by the algebra tiles? Solve each equation and explain your method.

46. MP LOGIC When you multiply or divide each side of an inequality by the same negative number, you must reverse the direction of the inequality symbol. Explain why.

$$+\ \boxed{\begin{matrix}+&+&+&+\\+&+&+&+\end{matrix}} = \boxed{\begin{matrix}-\\-\end{matrix}}$$

Math Practice

Make Conjectures
Can you use algebra tiles to solve any equation? Explain your reasoning.

3

When you **Construct Viable Arguments and Critique the Reasoning of Others**, you make and justify conclusions and decide whether others' arguments are correct or flawed.

Look for labels such as:
- Use Assumptions
- Use Definitions
- Use Prior Results
- Make Conjectures
- Build Arguments
- Analyze Conjectures
- Use Counterexamples

- Justify Conclusions
- Compare Arguments
- Construct Arguments
- Listen and Ask Questions
- You Be the Teacher
- Logic

36. MP APPLY MATHEMATICS You decide to make and sell bracelets. The cost of your materials is $84.00. You charge $3.50 for each bracelet.

a. Write a function that represents the profit P for selling b bracelets.

b. Which variable is independent? dependent? Explain.

c. You will *break even* when the cost of your materials equals your income. How many bracelets must you sell to break even?

Look for labels such as:
- Apply Mathematics
- Simplify a Solution
- Use a Diagram
- Use a Table
- Use a Graph

- Use a Formula
- Analyze Relationships
- Interpret Results
- Modeling Real Life

4

To **Model with Mathematics**, apply the math you have learned to a real-life problem, and interpret mathematical results in the context of the situation.

BUILDING TO FULL UNDERSTANDING

Throughout each course, you have opportunities to demonstrate specific aspects of the mathematical practices. Labels throughout the book indicate gateways to those aspects. Collectively, these opportunities will lead to a full understanding of each mathematical practice. Developing these mindsets and habits will give meaning to the mathematics you learn.

5

To **Use Appropriate Tools Strategically**, you need to know what tools are available and think about how each tool might help you solve a mathematical problem. When you choose a tool to use, remember that it may have limitations.

Look for labels such as:
- Choose Tools
- Recognize Usefulness of Tools
- Use Other Resources
- Use Technology to Explore
- Using Tools

d. Enter the function $y = \left(\frac{1}{10}\right)^x$ into your graphing calculator. Use the *table* feature to evaluate the function for positive integer values of x until the calculator displays a y-value that is not in standard form. Do the results support your answer in part (c)? Explain.

```
Plot1 Plot2 Plot3
\Y1▤(1/10)^X
\Y2=
\Y3=
\Y4=
 =
 =
```

```
X    Y1
1    .1
2    .01
3    .001
4    1E-4
5    1E-5
6    1E-6
7    1E-7
X=6
```

Math Practice

Use Technology to Explore

How can writing $\frac{1}{10}$ as a power of 10 help you understand the calculator display?

6

When you **Attend to Precision**, you are developing a habit of being careful in how you talk about concepts, label work, and write answers.

Look for labels such as:
- Communicate Precisely
- Use Clear Definitions
- State the Meaning of Symbols
- Specify Units
- Label Axes
- Calculate Accurately
- Precision

Add $1.459 + 23.7$.

$$
\begin{array}{r}
1 \\
1.459 \\
+ 23.700 \\
\hline
25.159
\end{array}
$$

Insert zeros so that both numbers have the same number of decimal places.

Math Practice

Calculate Accurately

Why is it important to line up the decimal points when adding or subtracting decimals?

49. **MP PRECISION** Consider the equation $c = ax - bx$, where a, b, and c are whole numbers. Which of the following result in values of a, b, and c so that the original equation has exactly one solution? Justify your answer.

$a - b = 1, c = 0$ | $a = b, c \neq 0$ | $a = b, c = 0$ | $a \neq b, c = 0$

MP STRUCTURE Tell whether the triangles are similar. Explain.

14.

15.
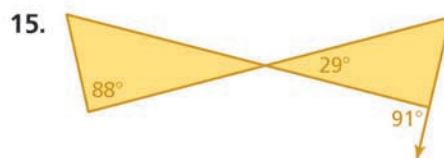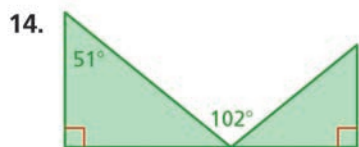
Look For and Make Use of Structure by looking closely to see structure within a mathematical statement, or stepping back for an overview to see how individual parts make one single object.

7

Find the sum of the areas of the faces.

$$\begin{array}{ccccccccc} \text{Surface} \\ \text{Area} \end{array} = \boxed{\begin{array}{c}\text{Area of}\\\text{bottom}\end{array}} + \boxed{\begin{array}{c}\text{Area of}\\\text{a side}\end{array}} + \boxed{\begin{array}{c}\text{Area of}\\\text{a side}\end{array}} + \boxed{\begin{array}{c}\text{Area of}\\\text{a side}\end{array}} + \boxed{\begin{array}{c}\text{Area of}\\\text{a side}\end{array}}$$

$$S = 49 + 35 + 35 + 35 + 35 = 189$$

Look for labels such as:
- Look for Structure
- Look for Patterns
- View as Components
- Structure
- Patterns

Math Practice

Look for Patterns
How can you find the surface area of a square pyramid by calculating the area of only two of the faces?

35. **MP REPEATED REASONING** You have been assigned a nine-digit identification number.

a. Should you use the Fundamental Counting Principle or a tree diagram to find the total number of possible identification numbers? Explain.

b. How many identification numbers are possible?

8

When you **Look For and Express Regularity in Repeated Reasoning**, you can notice patterns and make generalizations. Remember to keep in mind the goal of a problem, which will help you evaluate reasonableness of answers along the way.

Look for labels such as:
- Repeat Calculations
- Find General Methods
- Maintain Oversight
- Evaluate Results
- Repeated Reasoning

Making Learning Visible

Knowing the learning intention of a chapter or section helps you focus on the purpose of an activity, rather than simply completing it in isolation. This program supports visible learning through the consistent use of learning targets and success criteria to ensure positive outcomes for all students.

Every chapter and section shows a **Learning Target** and related **Success Criteria**. These are purposefully integrated into each carefully written lesson.

4.4 Writing and Graphing Inequalities

Learning Target: Write inequalities and represent solutions of inequalities on number lines.

Success Criteria:
- I can write word sentences as inequalities.
- I can determine whether a value is a solution of an inequality.
- I can graph the solutions of inequalities.

Chapter Learning Target:
Understand equations and inequalities.

Chapter Success Criteria:
- ☐ I can identify key words and phrases to write equations and inequalities.
- ☐ I can write word sentences as equations and inequalities.
- ■ I can solve equations and inequalities using properties.
- ■ I can use equations and inequalities to model and solve real-life problems.

The **Chapter Review** reminds you to rate your understanding of the learning targets.

▶ Chapter Self-Assessment

As you complete the exercises, use the scale below to rate your understanding of the success criteria in your journal.

1	2	3	4
I do not understand.	I can do it with help.	I can do it on my own.	I can teach someone else.

6.1 Writing Equations in One Variable *(pp. 245–250)*

Learning Target: Write equations in one variable and write equations that represent real-life problems.

Write the word sentence as an equation.

1. The product of a number m and 2 is 8.

Review each section with a reminder of that section's learning target.

QUESTIONS FOR LEARNING

As you progress through a section, you should be able to answer the following questions.
- What am I learning?
- Why am I learning this?
- Where am I in my learning?
- How will I know when I have learned it?
- Where am I going next?

Success Criteria, and Self-Assessment

Self-Assessment for Problem Solving

Solve each exercise. Then rate your understanding of the success criteria in your journal.

24 in.

18. An emperor penguin is 45 inches tall. It is 24 inches taller than a rockhopper penguin. Write and solve an equation to find the height (in inches) of a rockhopper penguin. Is your answer reasonable? Explain.

19. **DIG DEEPER!** You get in an elevator and go up 2 floors and down 8 floors before exiting. Then you get back in the elevator and go up 4 floors before exiting on the 12th floor. On what floors did you enter the elevator?

Self-Assessments are included throughout every section, and in the **Chapter Review**, to help you take ownership of your learning and think about where to go next.

| 1 | I do not understand. | 2 | I can do it with help. | 3 | I can do it on my own. | 4 | I can teach someone else. |

Chapter 4 Equations and Inequalities

4.1 Solving Equations Using Addition or Subtraction

Learning Target	1	2	3	4
Use partial quotients to divide.	○	○	◉	○

Success Criteria	1	2	3	4
I can explain how to use an area model to divide.	○	○	○	◉
I can write partial quotients for a division problem.	○	◉	○	○
I can add the partial quotients to find a quotient.	○	○	◉	○

4.2 Solving Equations Using Multiplication or Division

...ing Two-Step Equations

...ing and Graphing Inequalities

...ing Inequalities Using Addition or Subtraction

4.6 Solving Inequalities Using Multiplication or Division

Use a 4-point scale to rate your understanding of each success criterion. Keep track of your learning on paper or online.

1	2	3	4
I do not understand.	I can do it with help.	I can do it on my own.	I can teach someone else.
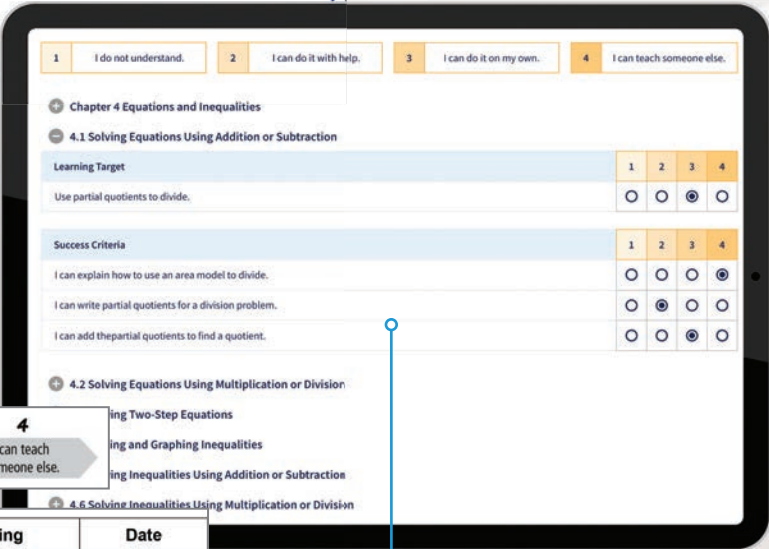
	Rating	Date
1.1 Rational Numbers		
Learning Target: Understand absolute values and ordering of rational numbers.	1 2 3 4	
I can graph rational numbers on a number line.	1 2 3 4	
I can find the absolute value of a rational number.	1 2 3 4	
I can use a number line to compare rational numbers.	1 2 3 4	

Use the online **Self-Assessment** tool to keep track of your learning.

Ensuring Positive Outcomes

John Hattie's *Visible Learning* research consistently shows that using learning targets and success criteria can result in two years' growth in one year, ensuring positive outcomes for your learning and achievement.

Sophie Murphy, M.Ed., wrote the chapter-level learning targets and success criteria for this program. Sophie is currently completing her Ph.D. at the University of Melbourne in Australia with Professor John Hattie as her leading supervisor. Sophie completed her Master's thesis with Professor John Hattie in 2015. Sophie has over 20 years of experience as a teacher and school leader in private and public school settings in Australia.

Strategic Support for Online Learning

Get the Support You Need, When You Need It

There will be times throughout this course when you may need help. Whether you missed a section, did not understand the content, or just want to review, take advantage of the resources provided in the *Dynamic Student Edition*.

Use the **Self-Assessment** tool to keep track of your understanding of the section's success criteria.

Take notes throughout the lesson using the **My Notes** function. These notes will be organized by chapter and section.

Check your answers to selected exercises as you work through the lesson. Use the **Help** option to view the Digital Example and Tutorial Extra Example videos.

Use the available **tools** to help clearly show your work and emphasize your math knowledge. Tools are easy to use and were created with accessibility and functionality in mind.

USE THESE QR CODES TO EXPLORE ADDITIONAL RESOURCES

Multi-Language Glossary
View definitions and examples of vocabulary words

Skills Trainer
Practice previously learned skills

Interactive Tools
Visualize mathematical concepts

Skills Review Handbook
A collection of review topics
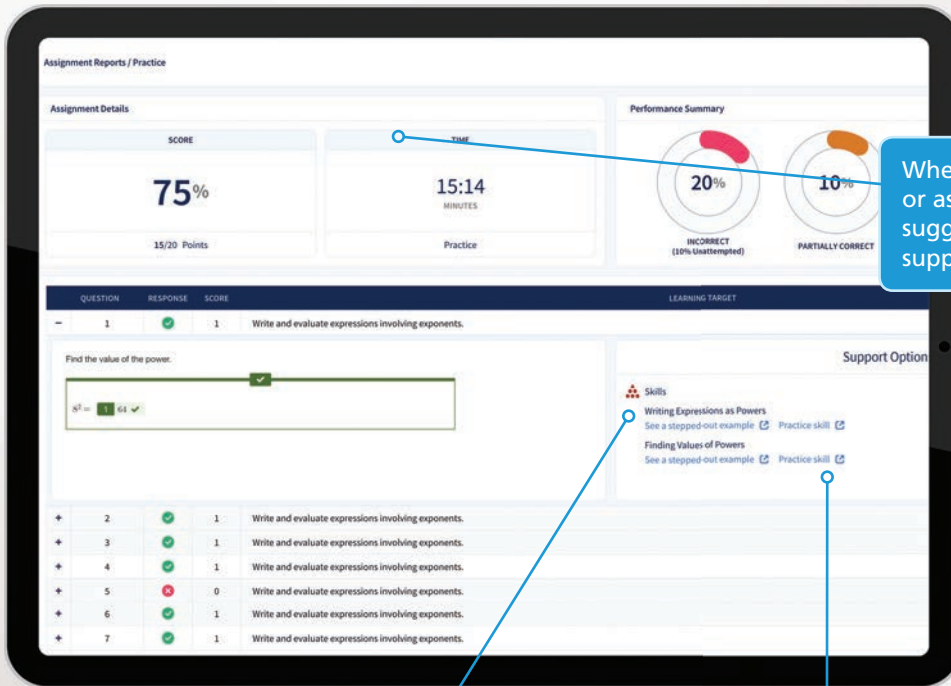
When you submit an assignment or assessment digitally, use the suggested links to get additional support where you need it.

Choose a skill to review and watch a video to see a stepped-out example of that skill. Whether you get a question incorrect, or want a second explanation, these videos can provide additional help with homework.

Choose a skill and launch the **Skills Trainer** for additional practice on that skill. Practicing repeated problems with instant feedback can help build confidence when solving problems.

Assignment Reports / Practice

Assignment Details

SCORE
75%
15/20 Points

TIME
15:14
MINUTES
Practice

Performance Summary
20%
INCORRECT
(10% Unattempted)

10%
PARTIALLY CORRECT

	QUESTION	RESPONSE	SCORE	LEARNING TARGET
−	1	✓	1	Write and evaluate expressions involving exponents.

Find the value of the power.

$8^2 = \boxed{1}\ 64$ ✓

Support Options

Skills
Writing Expressions as Powers
See a stepped-out example ⬀   Practice skill ⬀
Finding Values of Powers
See a stepped-out example ⬀   Practice skill ⬀

	QUESTION	RESPONSE	SCORE	LEARNING TARGET
+	2	✓	1	Write and evaluate expressions involving exponents.
+	3	✓	1	Write and evaluate expressions involving exponents.
+	4	✓	1	Write and evaluate expressions involving exponents.
+	5	✗	0	Write and evaluate expressions involving exponents.
+	6	✓	1	Write and evaluate expressions involving exponents.
+	7	✓	1	Write and evaluate expressions involving exponents.

BIG IDEAS MATH

Skills Trainer > Grade 6 > Using Order of Operations with Exponents

stop

Evaluate the expression.

$16 - 2(14 + 2) \div 2^2 = \boxed{1}\ 1$ ✗

Correct answers:
$\boxed{1}\ 8$

Next

1 Numerical Expressions and Factors

■ Major Topic
■ Supporting Topic
■ Additional Topic

Fractions and Decimals

2

3 Ratios and Rates

■ Major Topic
■ Supporting Topic
■ Additional Topic

Percents

4

5 Algebraic Expressions and Properties

■ Major Topic

■ Supporting Topic

■ Additional Topic

Equations

6

7 Area, Surface Area, and Volume

■ Major Topic
■ Supporting Topic
■ Additional Topic

Integers, Number Lines, and the Coordinate Plane

8

9 Statistical Measures

■ Major Topic
■ Supporting Topic
■ Additional Topic

Data Displays

10