Mc Graw Hill

Reviewer Guide

Grades K–5

Oklahoma Reveal MATH®

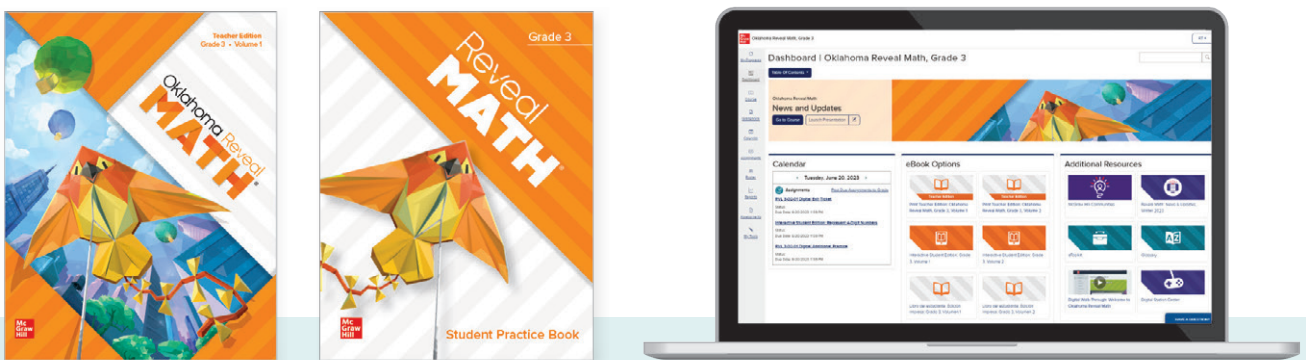
Reveal the Mathematician in Every Student.

Oklahoma Reveal Math is designed for new Oklahoma Academic Standards for Mathematics. It was also built to transform the way your students think about and interact with mathematics by emphasizing the development and application of critical and foundational problem-solving skills.

Motivate students with purpose and confidence that mathematics goes beyond the “right” answer.

Elevate learning and encourage students to ask “why” or “how” using facilitation over direction.

Champion achievement of all students as you plan and teach with confidence using essential assessment insights and actionable data to inform instruction and reveal the potential in every student.



Oklahoma Reveal Math Authorship

Annie Fetter

- Author of the Be Curious sense-making routines.
- Math Education Specialist at the 21st Century Partnership for STEM Education, present
- Founding Member, The Math Forum, 1992–2017
- Workshop Leader and Developer for Key Curriculum Press, 1995–2013
- Administrative Assistant for the Visual Geometry Project, the NSF-funded project that developed the first version of the Geometer's Sketchpad software, 1988–1992

Advocate for sense-making and eliciting student ideas to foster strong problem solvers.

Linda Gojak, M.Ed.

- Director, Center for Mathematics and Science Education, Teaching, and Technology at John Carroll University (OH), 1999–2016
- President, National Council of Teachers of Mathematics (NCTM), 2012–2014
- President, National Council of Supervisors of Mathematics (NCSM), 2005–2007
- NCTM Board of Directors, 1996–1999
- Elementary Mathematics Specialist, Hawken School, Cleveland, Ohio, 1978–1999

Expert in both theory and practice of strong mathematics instruction.

Susie Katt, Ed.D.

- K–2 Mathematics Coordinator, Lincoln Public Schools, Lincoln, Nebraska
- Special appointment lecturer, University of Nebraska–Lincoln
- Robert Noyce National Science Foundation Master Teaching Fellowship, University of Nebraska–Lincoln, 2012–2016
- R. L. Fredstrom Leadership Award, Lincoln Public Schools, 2008

Advocate for the unique needs of our youngest mathematicians.

Georgina Rivera, M.Ed.

- Elementary STEM Supervisor, District Math Coach and Administrator, Bristols Public School 2014-Present
- NCSM, Professional Learning Director, 1999-Present
- Ed Reports Math Advisory Board, 2021
- NCSM 2nd Vice President 2021-2023

Expert in building student agency and identity within the classroom.

John SanGiovanni, M.Ed.

- Author of Number Routines.
- Coordinator of Elementary Mathematics, Howard County, Maryland
- President, Maryland Council of Supervisor of Mathematics
- Graduate Program Coordinator, Elementary Mathematics Instructional Leader program, McDaniel College (MD)
- NCTM Board of Directors, 2015–2018
- NCSM Board of Directors, 2020-2023

Leader in understanding the mathematics needs of students and teachers.

Nicki Newton, Ed.D.

- Author of the Game Station.
- Educational consultant and speaker in districts across the U.S. and Canada
- Former bilingual elementary and middle school teacher
- Graduate instructor, Columbia, CUNY, MCNY, Mercy College, Cambridge College
- Founder and Developer of Math Online PD Academy

Expert in bringing student-focused strategies and workshops into the classroom.

Sharon Griffin, Ph.D.

- Professor Emerita of Education and Psychology at Clark University, Worcester, MA.
- Author of *Number Worlds*: A PreK–8 prevention-intervention mathematics curriculum
- Member of the Education Directorate of the Organization of Economic Collaboration and Development (2002–2007) and Advisory Board for Mind, Brain and Education Journal, Basil Blackwell (2006–2012)

Champion for number sense and the achievement of all students.

Raj Shah, Ph.D.

- **Author of the Ignite! activities.**
- Founder, Math Plus Academy, an after-school STEM enrichment program for students ages 5–14
- Founding member, The Global Math Project
- Affiliate, Math Teacher Circles, the Julia Robinson Math Festival
- R&D Engineering and Management, Intel Corporation, 1999–2008

Champion of perseverant problem solvers and student curiosity in mathematics.

Cheryl Tobey, M.Ed.

- **Author of the Math Probes.**
- Mathematics Program Director, Mathematics and Science Alliance, Augusta, Maine 2001–2008, 2019–present
- State Elementary Mathematics Specialist, Department of Education, Augusta, Maine 2016–2019
- Professional Development Specialist, Education Development Center, Waltham, MA, 2008–2016
- Classroom educator, 10 years, 1991–2001

Facilitator of strategies that drive informed instructional decisions.

Ralph Connelly, Ph.D.

- Professor and Professor Emeritus-Faculty of Education–Brock University, 1977–present
- NCTM Mathematics Education Trust Board, 2016–present
- NCSM Board of Directors, 1994–1996, and 2006–2008
- President, Ontario Association for Mathematics Education (OAME), 1987–1988, 1998–1999

Authority on the development of early mathematical understanding.

Ruth Harbin Miles, Ed.S.

- Mary Baldwin University Adjunct Instructor, Staunton, Virginia, 2006–2018
- K–12 Mathematics Coordinator, Olathe District Schools, Olathe, Kansas, 1980–2006
- NCTM Board of Directors, 2013–2016
- NCSM Board of Directors, 2005–2008, Conference Chair, 2018–2020

Leader in developing teachers' math content and strategy knowledge.

Jeff Shih, Ph.D.

- Instructor and Professor, University of Nevada, Las Vegas Mathematics Education, 1999–present
- Co-Director, Center for Mathematics, Science and Engineering Education, 2013–present
- NCTM Board of Directors, 2018–present
- Recipient, University of Nevada, Distinguished Teaching, Service, Math Education Awards

Advocate for student understanding of mathematical ideas and processes.

Dinah Zike, M.Ed.

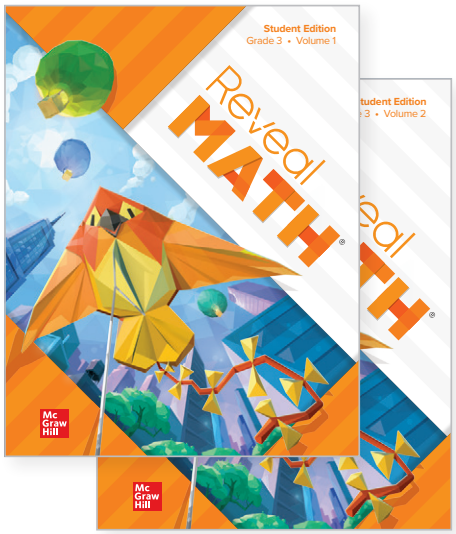
- Founder of Dinah Zike Academy, an accredited professional development center for K–12 teachers
- Inventor of Foldables® and other multi-sensory graphic organizers
- Educational Publisher, Dinah.com and Dinah-Might Activities, L.P.

Creator of learning tools that make connections through visual-kinesthetic techniques.

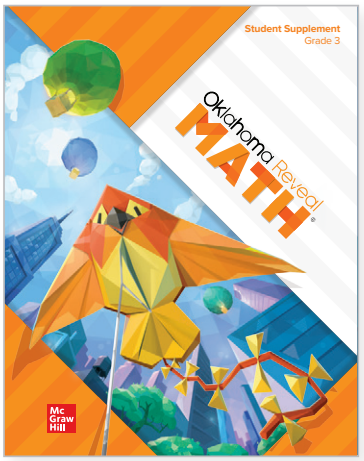
Student Resources

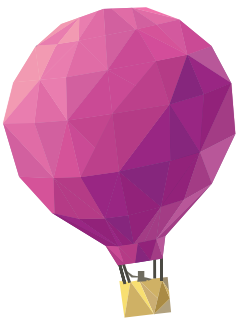
Print Resources

Student Edition, 2 Volumes

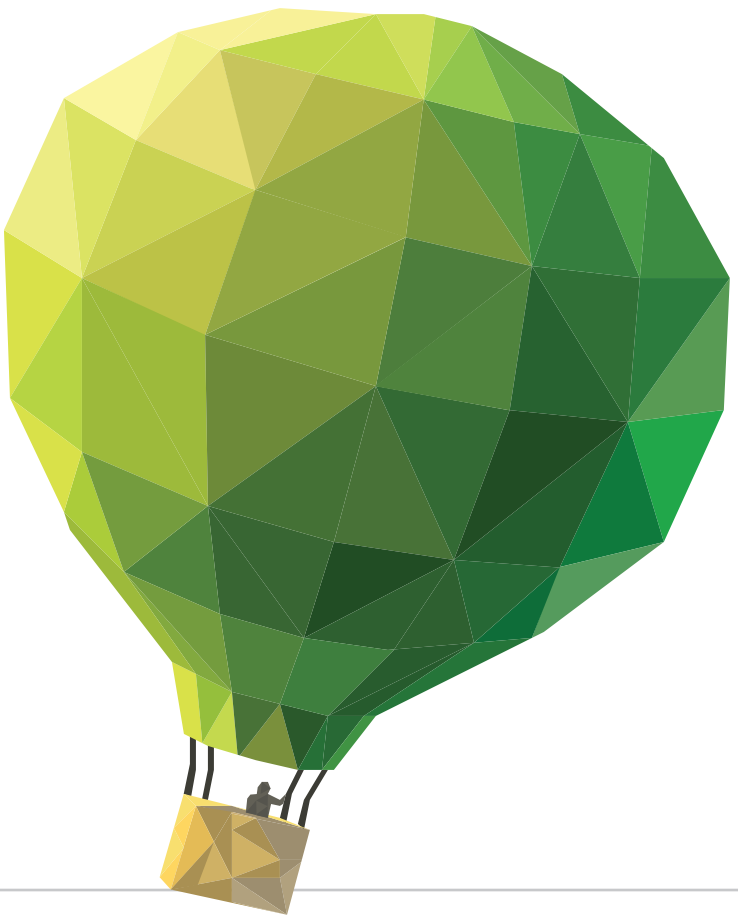


Oklahoma Student Supplement





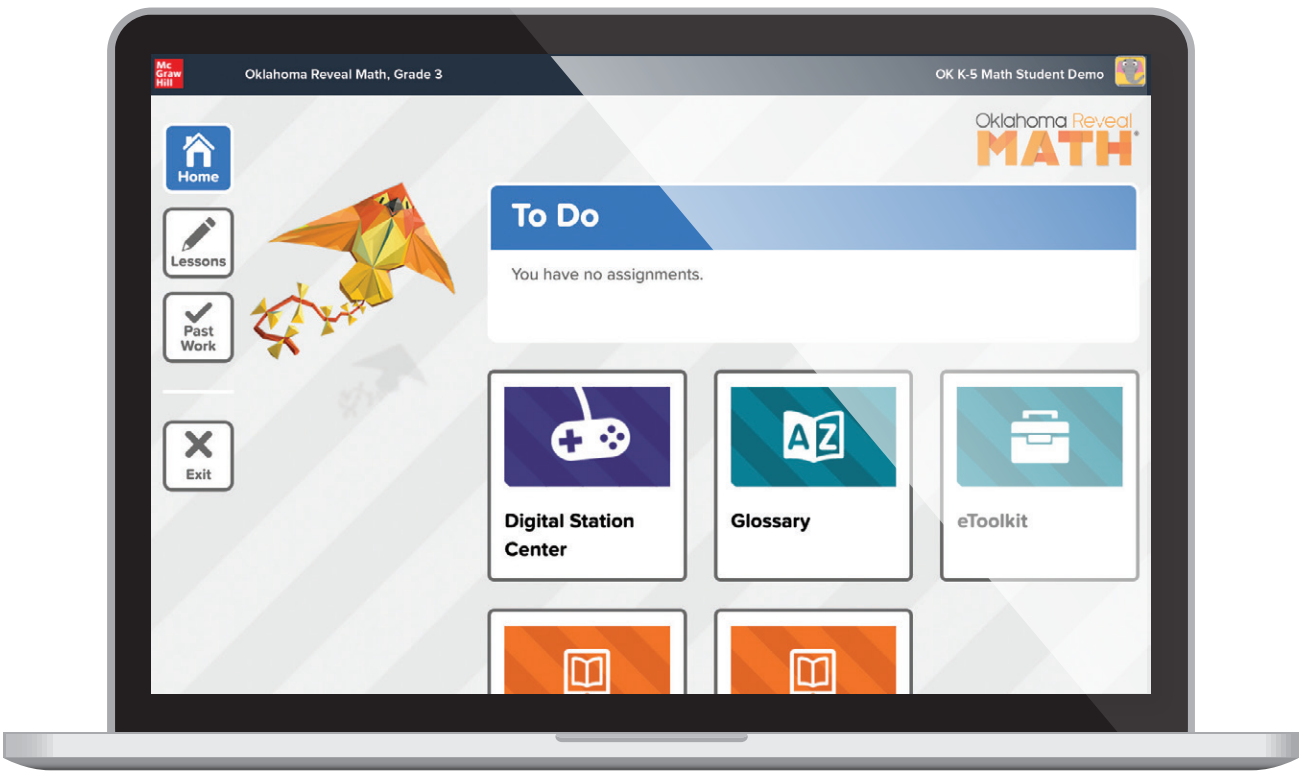
Student Practice Book



Digital Student Center

Designed with the needs of elementary students in mind, the Digital Student Center offers access to a robust set of engaging digital tools and interactive learning aids, including:

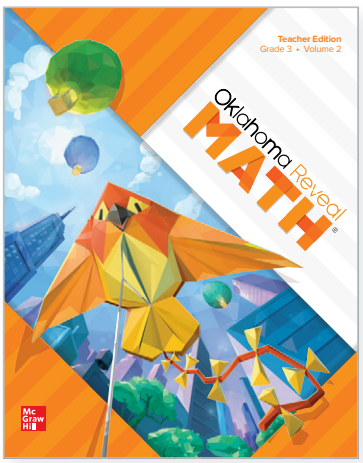
- Interactive Student Editions.
- Daily, interactive practice with embedded learning aids.
- Online assessments with interactive question types.
- Adaptive instruction and practice through *Redbird Mathematics.*
- Animations, glossary, videos, and eTools.
- Digital games designed for purposeful practice.
- Instructional mini-lessons to reinforce understanding.
- Rich exploratory STEM Adventures.
- Visual and dynamic Web Sketchpad® activities.



Teacher Resources

Print Resources

Teacher Edition, 2 Volumes



Classroom Workstation Kit

Workstation Teacher Guide

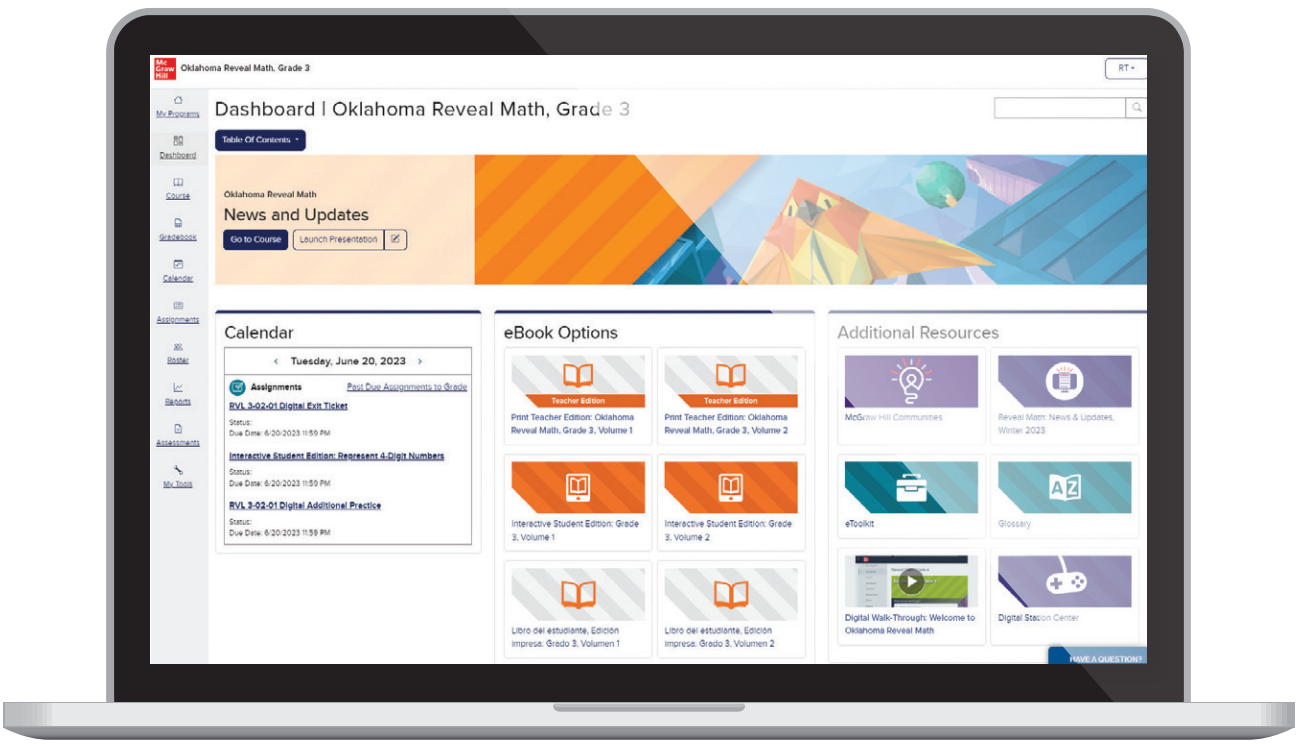
Game Station Resource Book

Application Station Cards

Digital Teacher Center

Teachers have access to an intuitive and easy-to-use platform where they can plan and implement engaging instruction. The teacher experience includes:

- Daily, interactive lesson presentations.
- Differentiation Resources.
- Assessment Resources.
- Auto-scored practice and assessment.
- Customizable assessment and item banks.
- Teacher and Administrator data and reporting.
- Professional Development, Ready-to-Teach Workshops, and teacher support videos.
- Ability to add resources, including presentations, website links, and more.
- Classroom management and grouping tools.



Manipulative Kits

Classroom Manipulative Kits include hands-on materials to support lesson instruction and are organized in plastic tubs for easy storage.

Description	Grade K	Grades 1–2	Grades 3–5
2-Color Counters (1,000)			✓
2-Color Counters (500)	✓	✓	
2-Sided Graphing Mat	✓		
Attribute Blocks (60)	✓	✓	
Base-10 Flats (50)		✓	✓
Base-10 Cube (1)		✓	✓
Base-10 Rods (200)		✓	✓
Base-10 Units (500)		✓	✓
Blank Cubes with Labels	✓	✓	✓
Blue Number Cubes, 5-10 (12)	✓	✓	
Classroom Dial	✓	✓	✓
Color Tiles (800)	✓	✓	✓
Connecting Cubes, Green (200)	✓	✓	✓
Connecting Cubes, Orange (200)	✓	✓	✓
Connecting Cubes, Purple (200)	✓	✓	✓
Connecting Cubes, Red (200)	✓	✓	✓
Connecting Cubes, Yellow (200)	✓	✓	✓
Demonstration Clock		✓	✓
Fraction Circles (51)		✓	✓
Fraction Tiles (51)		✓	✓
Geoboards		✓	✓
Money Coins, Dimes (250)		✓	✓
Money Coins, Nickels (500)		✓	✓
Money Coins, Pennies (500)		✓	✓
Money Coins, Quarters (100)		✓	✓

Description	Grade K	Grades 1–2	Grades 3–5
Money, Bills (250)		✓	
Money, Bills (750)			✓
Pattern Blocks (1,200)	✓	✓	✓
Place Value Disks (140)			✓
Red Number Cubes, 0-5 (12)	✓	✓	
Rocker Balance Scale	✓	✓	✓
Standard Metric Masses			✓
Student Clocks (15)	✓	✓	✓
Transparent Spinner			✓
Wooden Geometric Solids (7)	✓	✓	

Notes

Program Design

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Designed to Oklahoma Mathematics Standards

Oklahoma Reveal Math is designed to ensure all teachers and students can access rigorous content through high-quality instruction and become doers of mathematics.

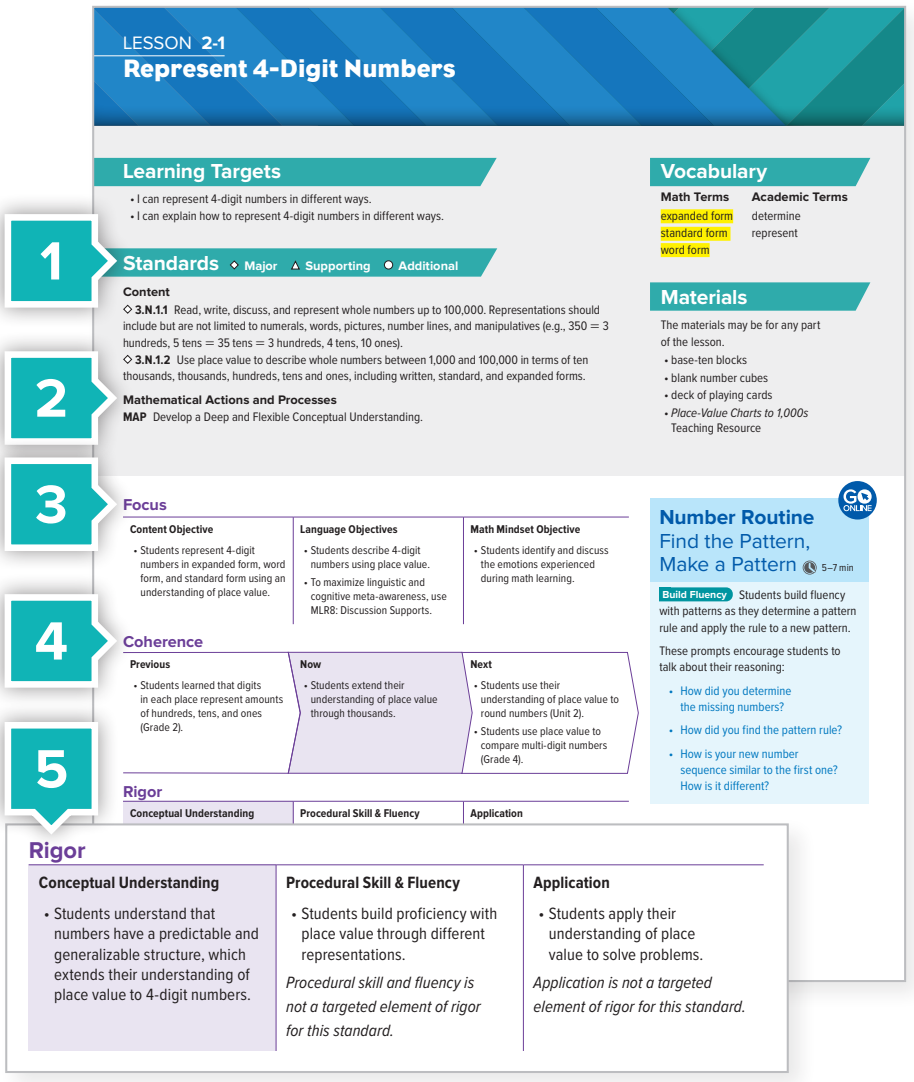
1. **Oklahoma Academic Standards for Mathematics**
   Each lesson of the Teacher Edition highlights the content standard covered.

2. **Mathematical Actions and Processes**
   The Mathematical Actions and Processes are integrated into every lesson.

3. **Lesson Focus**
   Each lesson has clear and concise objectives and focus.

4. **Coherence**
   Horizontal and vertical progressions demonstrate the connection of mathematical topics.

5. **Rigor**
   A clear balance of Conceptual Understanding, Fluency, and Application is outlined for each lesson.



Aligned Learning Progressions

Oklahoma Reveal Math ensures the learning progression of mathematical content across all grades and within each grade from kindergarten to Algebra 2. Vertical and horizontal progressions help strengthen each student's learning journey.

Coherence

What Students Have Learned

- **Place-Value Structure** Students learned that digits in each place represent amounts of hundreds, tens, and ones. (Grade 2)
- **Addition** Students added within 100 using properties of addition and addition strategies. (Grade 2)
- **Subtraction** Students used strategies to subtract within 100. (Grade 2)

What Students Are Learning

- **Place-Value Structure** Students extend their understanding of place value through thousands.
- **Addition** Students add within 1,000 using properties of addition and addition strategies.
- **Subtraction** Students use strategies to subtract within 1,000.

What Students Have Learned

- **Place-Value Structure** Students will use place value to compare multi-digit numbers. (Grade 4)
- **Addition** Students will use the standard algorithm to add multi-digit numbers. (Grade 4)
- **Subtraction** Students will use the standard algorithm to subtract multi-digit numbers. (Grade 4)

Unit-level Learning Progressions help teachers understand what prior knowledge students need for the unit content to be accessible to them and what mathematical foundations are being built in the current unit.

Coherence

Previous

- Students learned that digits in each place represent amounts of hundreds, tens, and ones. (Grade 2)

Now

- Students extend their understanding of place value through thousands.

Next

- Students will use their understanding of place value to round numbers. (Unit 2)
- Students will use place value to compare multi-digit numbers. (Grade 4)

Lesson-level Learning Progressions provide a more granular analysis of the learning progression within a unit.

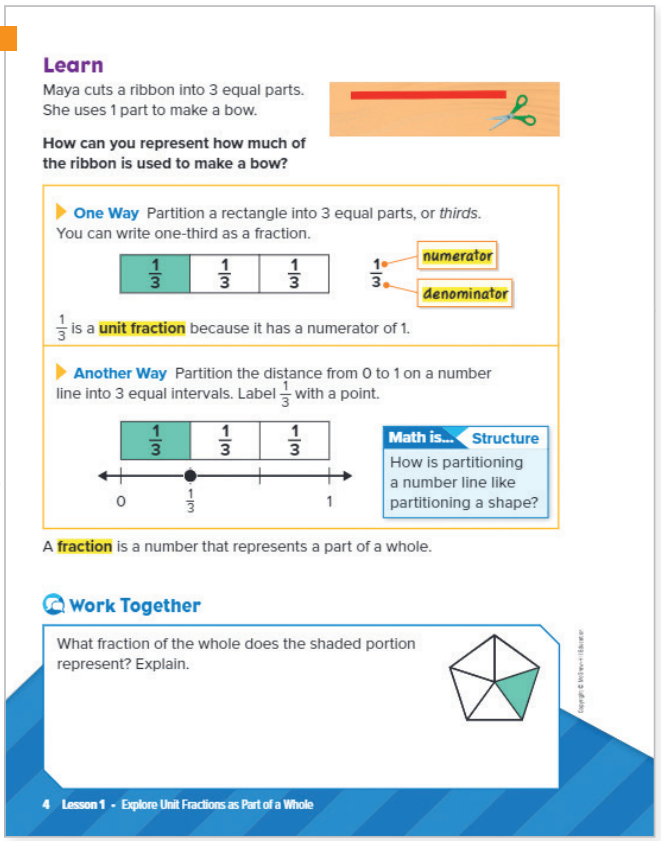
Procedural Fluency

Oklahoma Reveal Math was designed to help students build an understanding of concepts and build procedural fluency from conceptual understanding within grade-level skills.

Understanding

Oklahoma Reveal Math's instructional model emphasizes sense-making as foundational to understanding.

The **Be Curious** activity during the Launch phase of each lesson focuses on sense-making with different routines, notably Notice and Wonder™.



Learn

Maya cuts a ribbon into 3 equal parts. She uses 1 part to make a bow.

How can you represent how much of the ribbon is used to make a bow?

One Way Partition a rectangle into 3 equal parts, or *thirds*. You can write one-third as a fraction.

$\frac{1}{3}$ is a **unit fraction** because it has a numerator of 1.

Another Way Partition the distance from 0 to 1 on a number line into 3 equal intervals. Label $\frac{1}{3}$ with a point.

Math is... Structure
How is partitioning a number line like partitioning a shape?

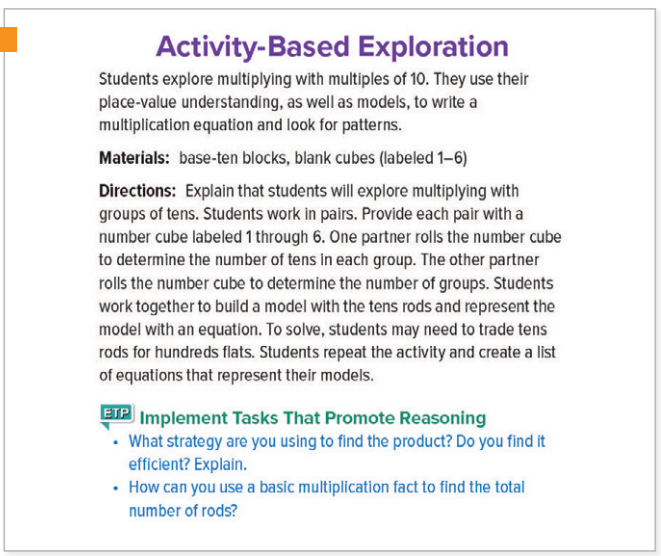
A **fraction** is a number that represents a part of a whole.

Work Together

What fraction of the whole does the shaded portion represent? Explain.

4 Lesson 1 - Explore Unit Fractions as Part of a Whole

During the **Explore & Develop**, instruction links the sense-making activity to lesson concepts, making sure students understand the "why" behind operations and other important skills. Manipulatives and visual models help students see the math.



Activity-Based Exploration

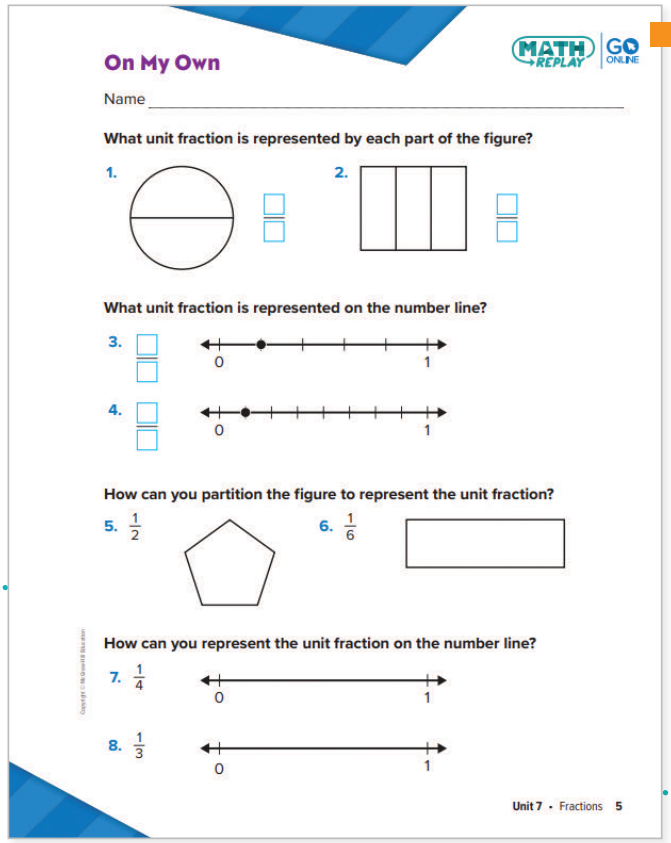
Students explore multiplying with multiples of 10. They use their place-value understanding, as well as models, to write a multiplication equation and look for patterns.

Materials: base-ten blocks, blank cubes (labeled 1–6)

Directions: Explain that students will explore multiplying with groups of tens. Students work in pairs. Provide each pair with a number cube labeled 1 through 6. One partner rolls the number cube to determine the number of tens in each group. The other partner rolls the number cube to determine the number of groups. Students work together to build a model with the tens rods and represent the model with an equation. To solve, students may need to trade tens rods for hundreds flats. Students repeat the activity and create a list of equations that represent their models.

ETP Implement Tasks That Promote Reasoning

- What strategy are you using to find the product? Do you find it efficient? Explain.
- How can you use a basic multiplication fact to find the total number of rods?



On My Own

MATH REPLAY | GO ONLINE

Name _____

What unit fraction is represented by each part of the figure?

1. ☐/☐

2. ☐/☐

What unit fraction is represented on the number line?

3. ☐/☐ 0 1

4. ☐/☐ 0 1

How can you partition the figure to represent the unit fraction?

5. $\frac{1}{2}$

6. $\frac{1}{6}$

How can you represent the unit fraction on the number line?

7. $\frac{1}{4}$ 0 1

8. $\frac{1}{3}$ 0 1

Unit 7 • Fractions 5

Procedural Skill and Fluency

Procedural fluency is built from exploration and understanding. Lessons that focus on procedural fluency follow those that target exploration.

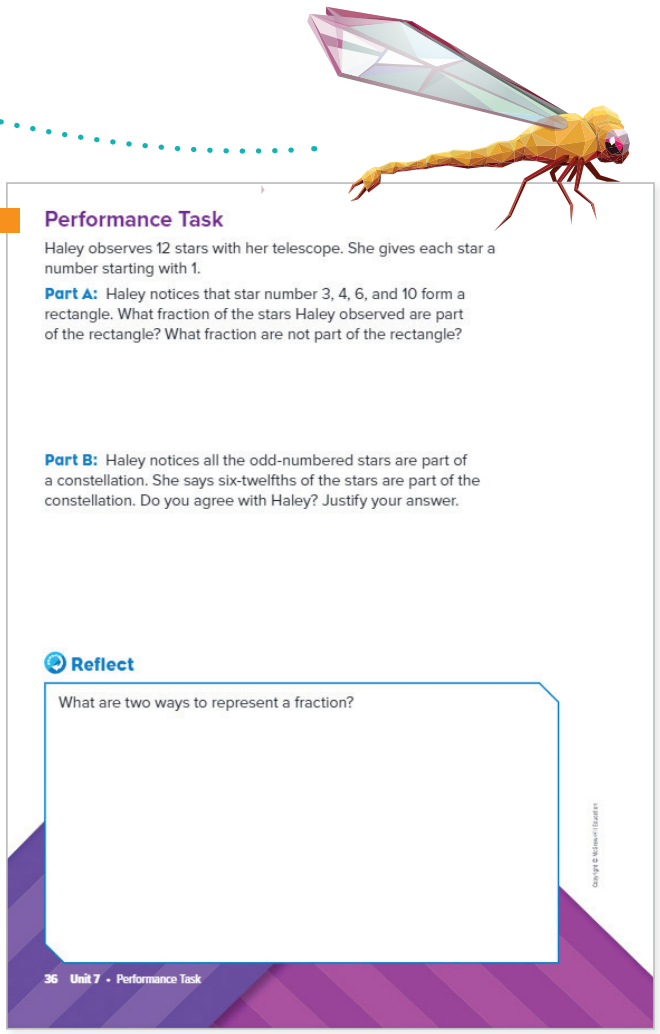
- **On My Own** exercises help students build procedural reliability and fluency.
- **Fluency Practice** is designed to solidify procedural fluency.

Rigorous Application

Students encounter real-world problems throughout each lesson. The On My Own exercises include rich, application-based question types, such as **"Find the Error"** and **"Extend Thinking."**

Daily differentiation provides opportunities for application at higher depths of knowledge through the **Application Station Cards**, **STEM Adventures**, and **WebSketchpad** explorations.

Unit **Performance Tasks** found in the Student Edition offer another opportunity for students to solve non-routine application problems.



Performance Task

Haley observes 12 stars with her telescope. She gives each star a number starting with 1.

Part A: Haley notices that star number 3, 4, 6, and 10 form a rectangle. What fraction of the stars Haley observed are part of the rectangle? What fraction are not part of the rectangle?

Part B: Haley notices all the odd-numbered stars are part of a constellation. She says six-twelfths of the stars are part of the constellation. Do you agree with Haley? Justify your answer.

Reflect

What are two ways to represent a fraction?

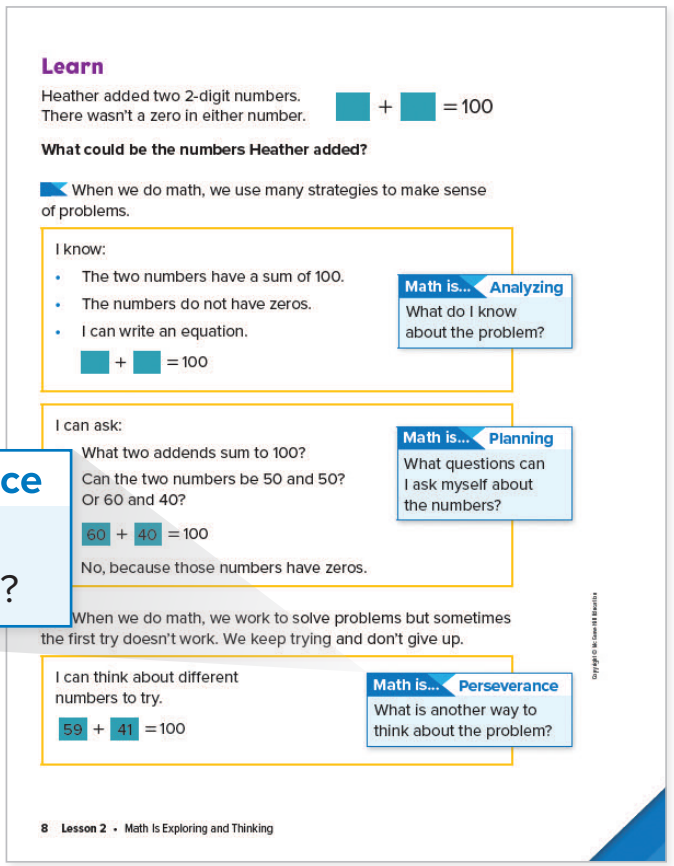
36 Unit 7 • Performance Task

Mathematical Actions and Processes

Oklahoma Reveal Math helps students build proficiency with these important thinking actions and problem-solving skills through the **Math is... prompts**. These prompts model the kinds of questions students can ask themselves to become proficient problem solvers and doers of math.

Support the Development of Mathematical Actions and Processes

In the **Math is... Unit**, students are first introduced to the Math is... prompts. Teachers can model applying Mathematical Actions and Processes skills within the problem-solving process. With *Oklahoma Reveal Math,* developing these actions of mind becomes a daily expectation within the math classroom.



Learn

Heather added two 2-digit numbers. There wasn't a zero in either number. ☐ + ☐ = 100

What could be the numbers Heather added?

When we do math, we use many strategies to make sense of problems.

I know:
- The two numbers have a sum of 100.
- The numbers do not have zeros.
- I can write an equation.

☐ + ☐ = 100

Math is... Analyzing
What do I know about the problem?

I can ask:
What two addends sum to 100?
Can the two numbers be 50 and 50? Or 60 and 40?

60 + 40 = 100

No, because those numbers have zeros.

Math is... Planning
What questions can I ask myself about the numbers?

When we do math, we work to solve problems but sometimes the first try doesn't work. We keep trying and don't give up.

I can think about different numbers to try.

59 + 41 = 100

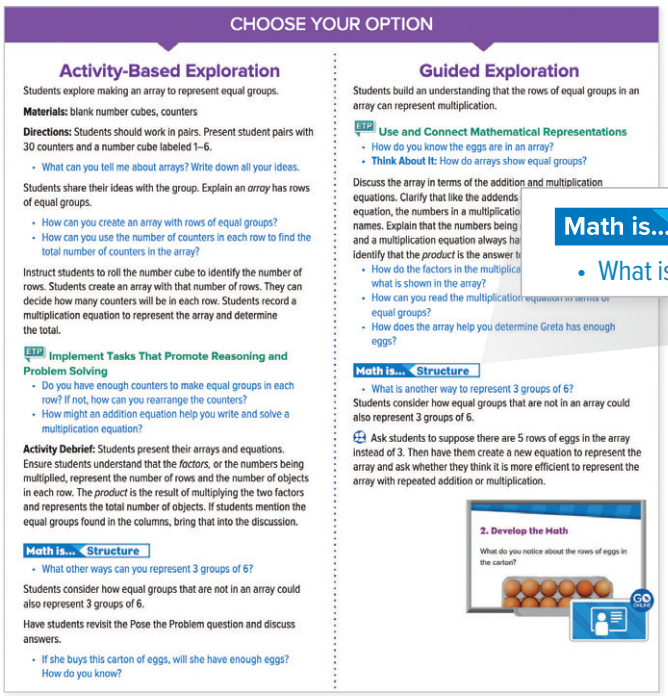
Math is... Perseverance
What is another way to think about the problem?

8 Lesson 2 • Math Is Exploring and Thinking

Math is... Perseverance
What is another way to think about the problem?

Self-Monitoring Throughout the Year

Math is... prompts are integrated into the **Learn** part of every lesson in student-friendly language to remind students to employ mathematical thinking and reasoning skills throughout the year.



CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore making an array to represent equal groups.

Materials: blank number cubes, counters

Directions: Students should work in pairs. Present student pairs with 30 counters and a number cube labeled 1–6.

- What can you tell me about arrays? Write down all your ideas.

Students share their ideas with the group. Explain an *array* has rows of equal groups.

- How can you create an array with rows of equal groups?
- How can you use the number of counters in each row to find the total number of counters in the array?

Instruct students to roll the number cube to identify the number of rows. Students create an array with that number of rows. They can decide how many counters will be in each row. Students record a multiplication equation to represent the array and determine the total.

ETP **Implement Tasks That Promote Reasoning and Problem Solving**

- Do you have enough counters to make equal groups in each row? If not, how can you rearrange the counters?
- How might an addition equation help you write and solve a multiplication equation?

Activity Debrief: Students present their arrays and equations. Ensure students understand that the *factors*, or the numbers being multiplied, represent the number of rows and the number of objects in each row. The *product* is the result of multiplying the two factors and represents the total number of objects. If students mention the equal groups found in the columns, bring that into the discussion.

Math is... Structure

- What other ways can you represent 3 groups of 6?

Students consider how equal groups that are not in an array could also represent 3 groups of 6.

Have students revisit the Pose the Problem question and discuss answers.

- If she buys this carton of eggs, will she have enough eggs? How do you know?

Guided Exploration

Students build an understanding that the rows of equal groups in an array can represent multiplication.

ETP **Use and Connect Mathematical Representations**

- How do you know the eggs are in an array?
- **Think About It:** How do arrays show equal groups?

Discuss the array in terms of the addition and multiplication equations. Clarify that like the addends
equation, the numbers in a multiplicatio
names. Explain that the numbers being
and a multiplication equation always ha
identify that the *product* is the answer t

- How do the factors in the multiplica
what is shown in the array?
- How can you read the multiplication
equal groups?
- How does the array help you determine Greta has enough eggs?

Math is... Structure

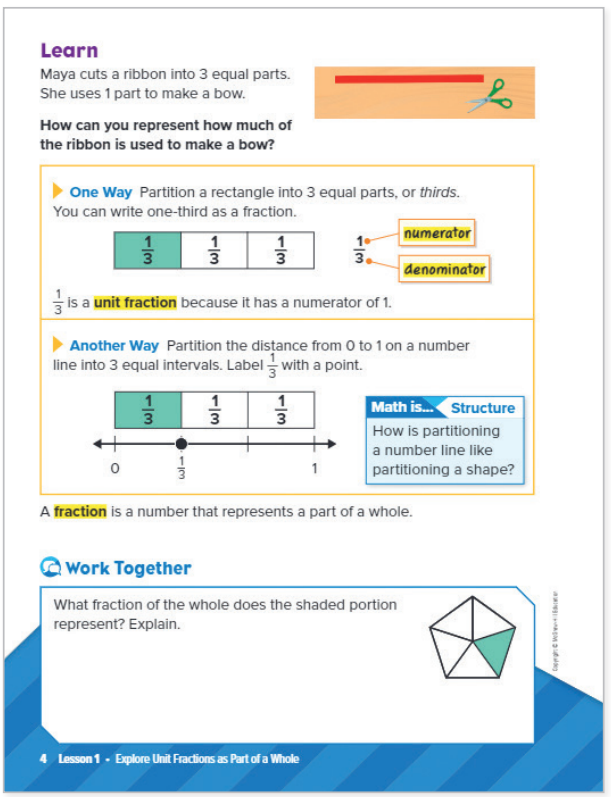
- What is another way to represent 3 groups of 6?

Students consider how equal groups that are not in an array could also represent 3 groups of 6.

Ask students to suppose there are 5 rows of eggs in the array instead of 3. Then have them create a new equation to represent the array and ask whether they think it is more efficient to represent the array with repeated addition or multiplication.

Math is... Structure

- What is another way to represent 3 groups of 6?



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Maya cuts a ribbon into 3 equal parts. She uses 1 part to make a bow.

How can you represent how much of the ribbon is used to make a bow?

One Way Partition a rectangle into 3 equal parts, or *thirds*. You can write one-third as a fraction.

$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

$\frac{1}{3}$ numerator denominator

$\frac{1}{3}$ is a **unit fraction** because it has a numerator of 1.

Another Way Partition the distance from 0 to 1 on a number line into 3 equal intervals. Label $\frac{1}{3}$ with a point.

$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

0 $\frac{1}{3}$ 1

Math is... Structure
How is partitioning a number line like partitioning a shape?

A **fraction** is a number that represents a part of a whole.

Work Together

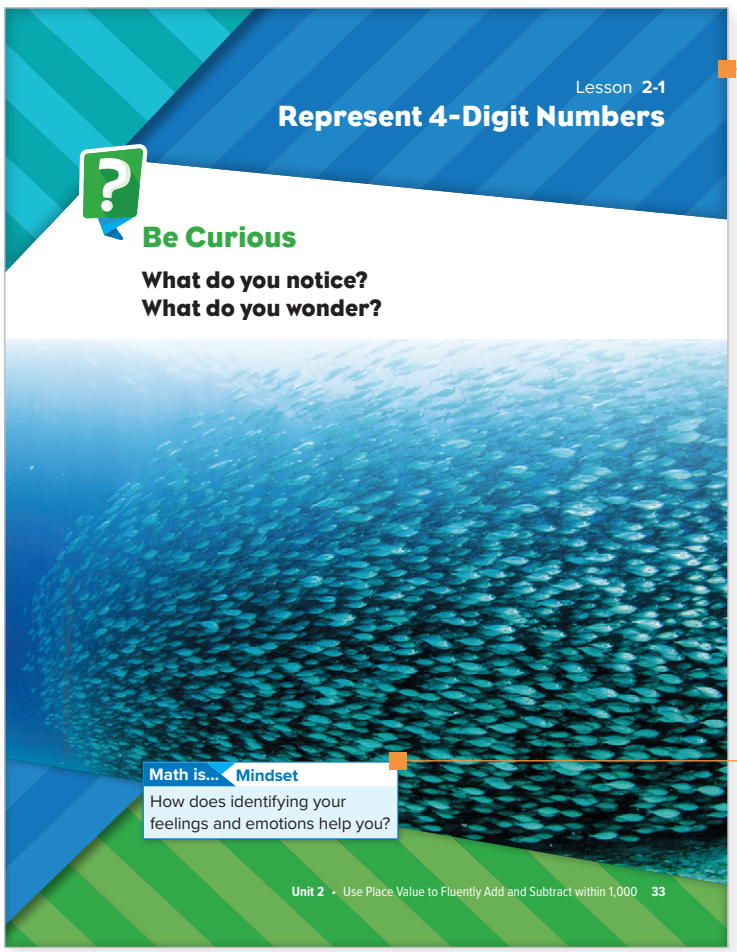
What fraction of the whole does the shaded portion represent? Explain.

4 Lesson 1 • Explore Unit Fractions as Part of a Whole

Instructional Supports

Be Curious

Be Curious launches every lesson and is designed to encourage curiosity and ideas. Students apply previously learned problem-solving strategies or knowledge to make sense of and wonder about a situation, problem, or phenomenon. All ideas are respected and welcomed as students discuss what they notice and wonder.



The focus of **Be Curious** is to:

- Engage the classroom community.
- Allow students to make sense of the problem.
- Encourage mathematical curiosity.

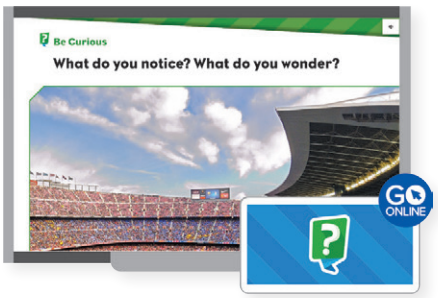
Math is...Mindset

These prompts help build students' self awareness, self management, and confidence as they strengthen their skills in math.

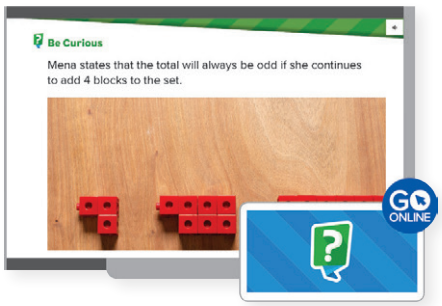
Sense-Making Routines

Every lesson begins with one of four sense-making routines. These routines provide an opportunity for all students to share ideas in a low floor, high ceiling activity.

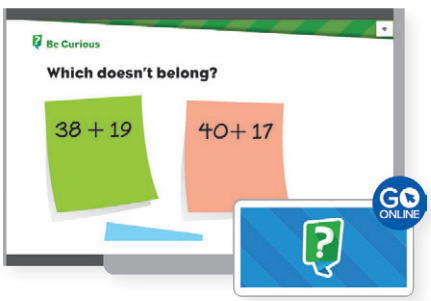
Oklahoma Reveal Math sense-making routines follow one of four formats:



1. **Is It Always True?** presents students with images or situations that require thought about the relationship between objects. Students consider whether the relationship is always true or unique to the image or situation.



2. **Notice and Wonder** helps students understand the story, the quantities, and the real-world relationships of the mathematical concept of the mathematical concept pictured.



3. **Which Doesn't Belong?** presents a series of images, quantities, or numbers. Students use reasoning to help identify which item "doesn't belong." The situation has multiple solutions depending on the reasoning students use.

4. **Numberless Word Problems** allow students the opportunity to develop a better understanding of the underlying structure of the problem itself.

Number Sense

Building a Foundation

Oklahoma Reveal Math supports the three stages of development for arithmetic operations outlined in the Numbers and Operations benchmark expectations: exploration, procedural reliability, and procedural fluency are all embedded to help students recall basic facts from memory.

1. Exploration

Students develop understanding using manipulatives and models.

2. Procedural Reliability

Students build from exploration to develop an accurate, reliable method for recall.

3. Procedural Fluency

Students become fluent with an efficient and accurate algorithm.

1

Students explore multiplying with multiples of 10. They use their place-value understanding, as well as models, to write a multiplication equation and look for patterns.

Materials: base-ten blocks, blank cubes (labeled 1–6)

Directions: Explain that students will explore multiplying with groups of tens. Students work in pairs. Provide each pair with a number cube labeled 1 through 6. One partner rolls the number cube to determine the number of tens in each group. The other partner rolls the number cube to determine the number of groups. Students work together to build a model with the tens rods and represent the model with an equation. To solve, students may need to trade tens rods for hundreds flats. Students repeat the activity and create a list of equations that represent their models.

2

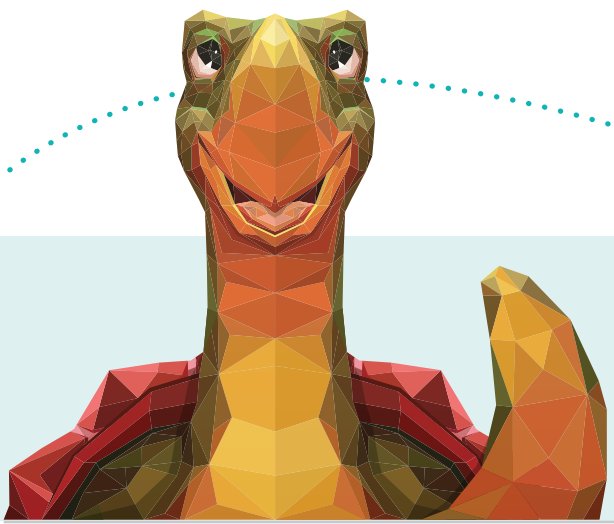
Students explore a multiplication algorithm.

Directions: Present a multiplication equation with a 1-digit and 2-digit factor. Ask students to determine the product with a partner. Discuss the students' methods. Highlight the use of area models and partial products. Then using the same factors, represent the multiplication with an algorithm without explaining the steps. Explain that an algorithm was used to complete the multiplication. Then, have students work in pairs to determine what the steps in the algorithm might be. Have students use their steps with a new equation to verify their accuracy.

3

Students explore using a multiplication algorithm to multiply two 2-digit numbers.

Directions: Present a multiplication equation with two 2-digit factors. Ask students to determine the product with a partner. Discuss students' methods. Highlight the use of area models and partial products. Then using the same factors, represent the multiplication with an algorithm without explaining the steps. Have students work in pairs to determine the steps in the algorithm. Encourage students to use their understanding of using an algorithm to multiply a 2-digit factor by a 1-digit factor to determine steps for multiplying two 2-digit factors. Have students use their steps with new equations to verify their accuracy.



Daily Reinforcement

The **Number Routines** in *Oklahoma Reveal Math*, authored by John SanGiovanni, are designed to provide daily opportunities to build students' proficiency with numbers and number sense, deepening their understanding of number relationships. They promote efficient and flexible methods for solving mathematical problems.

	Grades					
Number Routine	K	1	2	3	4	5
About How Much?			✓	✓	✓	✓
Break Apart	✓	✓				
Can You Make the Number?					✓	✓
Counting Things	✓					
Decompose It			✓		✓	✓
Find a Pattern, Make a Pattern	✓	✓	✓		✓	✓
Find the Missing Values			✓	✓	✓	✓
Greater Than or Less Than		✓	✓	✓	✓	
Let's Count		✓	✓	✓		
Math Pictures	✓	✓	✓		✓	✓
Mystery Number			✓	✓		
Start and Stop	✓					
The Counting Path	✓					
The Match	✓					
The Rounds			✓	✓	✓	
What Did You See?	✓	✓			✓	
What's Another Way to Write It?		✓		✓	✓	✓
Where Does It Go?		✓	✓	✓	✓	✓
Which Benchmark Is It Closest To?		✓	✓		✓	✓
Would You Rather?	✓	✓	✓	✓	✓	✓

Building Mathematical Language

Oklahoma Reveal Math was developed around the belief that mathematics is not just a series of operations but a way of communicating—listening, speaking, reading, writing, and most importantly, thinking.

Math Language Routines

These routines are integrated in every lesson during Explore and Develop to support sense-making and cultivate confidence.

Activity types include:

- Stronger and Clearer Each Time
- Collect and Display
- Critique, Correct, and Clarify
- Information Gap
- Co-Craft Questions and Problems
- Three Reads
- Compare and Contrast

MLR **Critique, Correct, and Clarify**

On the board write, *There are 5 groups with 3 objects in each group*. Pair students to discuss whether this statement about the baskets of peaches is correct. Ask them to identify any mistakes and to make changes. Have students write a new, correct version of the sentence.

Language Objectives

- Students describe multiplication equations using the term *equal groups*.
- To maximize linguistic and cognitive meta-awareness and optimize output, use MLR2: Collect and Display and MLR3: Critique, Correct, and Clarify.

Language Objectives

These identify the lesson's linguistic focus for all learners and the math language routines for the lesson.

English Learner Scaffolds

These are based on WIDA level and provide teachers with scaffolded instruction to help students understand math vocabulary, ideas, and concepts in context.

English Learner Scaffolds

Entering/Emerging Hold a book. Say, *This is an object. An object is a thing.* Pick up item(s) from your desk. Say, *This is an object.* Point to yourself. Ask, *What about me? Am I an object?* (No.) Point to your chair. Ask, *Is my chair an object?* (Yes.)

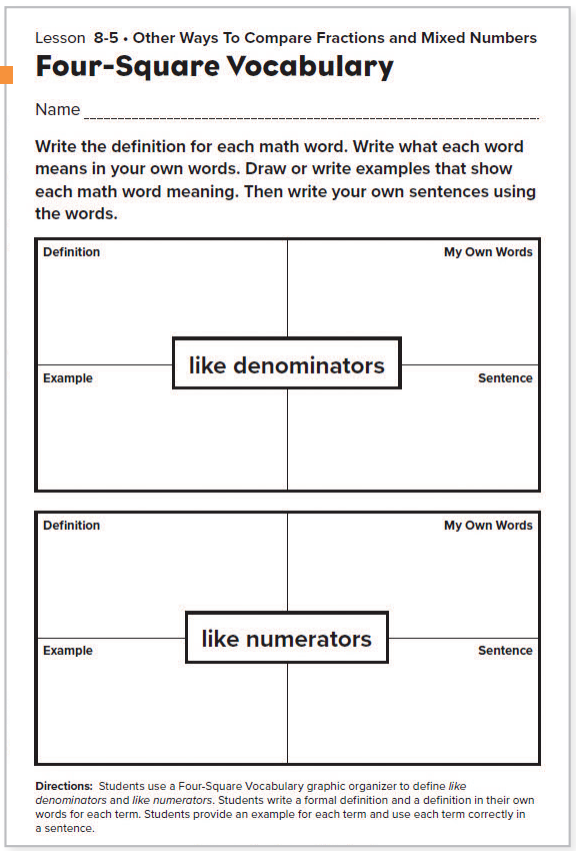
Developing/Expanding Hold a book. Say, *This is an object. An object is a thing.* Pick up item(s) from your desk. Say, *This is an object.* Point to yourself. Ask, *What about me? Am I an object?* (No.) Point to your chair. *What about my chair?* (It's an object.)

Bridging/Reaching Guide students in using *object.* Ask them to compare something that is an object with something that is not. *Your chair is an object, but you are not; My dog's collar is an object, but my dog isn't.*

Math Language Development

Language of Math promotes the development of key vocabulary terms that support how we talk about and think about math in the context of the lesson.

Language Development provides graphic organizers, tools, and tips to build students' academic and math vocabulary and support precision with mathematical language.



Lesson 8-5 • Other Ways To Compare Fractions and Mixed Numbers

Four-Square Vocabulary

Name _____

Write the definition for each math word. Write what each word means in your own words. Draw or write examples that show each math word meaning. Then write your own sentences using the words.

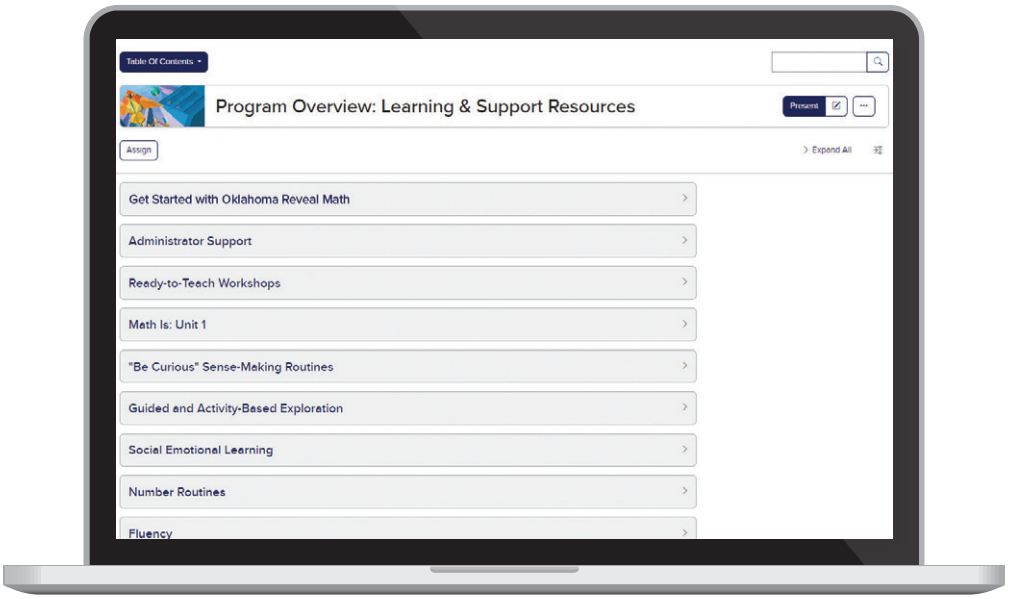
Definition	My Own Words
like denominators	
Example	Sentence

Definition	My Own Words
like numerators	
Example	Sentence

Directions: Students use a Four-Square Vocabulary graphic organizer to define *like denominators* and *like numerators*. Students write a formal definition and a definition in their own words for each term. Students provide an example for each term and use each term correctly in a sentence.

Expert Professional Development

Teachers and administrators have access to a comprehensive set of online professional learning resources to support successful implementation and continued learning throughout the year.



Quick Start

Concise resources designed to quickly get teachers up to speed with *Oklahoma Reveal Math*.

Digital Walkthrough

Short videos guide teachers and students through the digital platform.

Workshop Modules

Video-based learning modules present instructional topics that are key to *Oklahoma Reveal Math*.

Expert Insights Videos

At the start of each unit, authors and experts share an overview of the concepts along with teaching tips and insights about how to implement the lesson.

Instructional Videos

Authors showcase key features and provide implementation recommendations.

- Annie Fetter: Be Curious and Sense-Making Routines
- Raj Shah, Ph.D.: Ignite! Activities
- Cheryl Tobey: Math Probes
- Linda Gojak: Guided and Activity-Based Exploration
- John SanGiovanni: Number Routines and Fluency

Unit Overview

The **Unit Overview** provides professional development to support the unit's instruction at point of use, including:

- Objectives
- Benchmark Clarifications
- Learning Progression
- Effective Teaching Practices
- Math Practices and Processes
- Language Supports
- Routines

Effective Teaching Practices

Support Productive Struggle in Learning Mathematics

Productive struggle is an effective way for students to build understanding of new mathematical ideas and relationships. Students may struggle individually or in a group while learning a new concept on their own or participating in a higher-level thinking problem. Regardless of what they are struggling with, students need to know they will understand the new concept or discover the answer eventually. Therefore, sometimes small victories, such as discovering a new strategy or understanding one step of a large problem, will encourage students to continue learning and show them they are on the right path. If the struggle becomes unproductive, students may need appropriate scaffolding such as hands-on materials and visual representations to aid in their thought processes.

If students become too frustrated with their struggles, they may stop trying to understand. There is a fine line between struggling productively and unproductively.

- Students may struggle while solving addition and subtraction word problems. It is important to have students be fully engaged in making sense of the problem. Have them identify what they know about the problem and what they don't know. Have them think of tools and representations they could use to aid their thinking.
- Students may struggle with how another student estimated an answer. Encourage the student to explain and justify his or her estimation strategy. For example, the student may explain that he or she chose to estimate by rounding the addends to the nearest 10. The explanation may be supported by a number line showing the halfway point and the nearest 10s.

Mathematical Actions and Processes

Develop the Ability to Make Conjectures, Model, and Generalize

At the elementary level, students are introduced to what it means to develop the ability to make Conjectures, Model, and Generalize. Modeling a problem situation enables students to find ways to solve the problem. Have students explain how their model represents the problem. When students model the mathematics, they use different representations to help them solve problems. Encourage students to compare their models to others, and to connect the different models. For example, have them connect their base-ten block representations to addition equations while solving an addition word problem. Remind students that they can always improve or revise their models if their solution doesn't make sense.

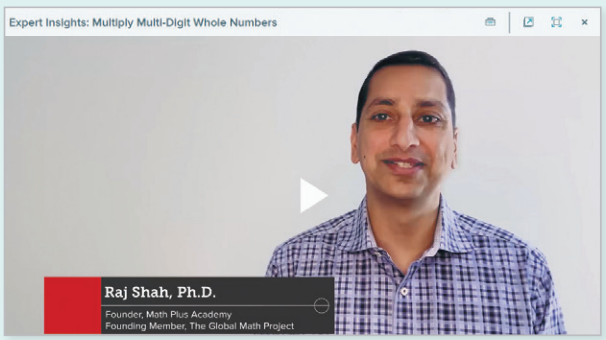
To help students build proficiency with modeling, students need opportunities to interact with different representations. Some suggestions for building proficiency include:

- Have students use representations, such as base-ten blocks or a graphic organizer like a place-value chart, to provide students with a concrete understanding of the value of the digits in a multi-digit number. Ask them to think about how patterns they see in the representation or organizer can help them understand the place value of digits in greater numbers.
- Have students use base-ten blocks to model adding and subtracting 3-digit numbers. This helps them understand the value of the digits in the numbers.

Math Mindset

What Skills Will We Develop?

- **Self-Awareness – Identify Emotions** (Lesson 2-1): Students who can identify and understand their own feelings and emotions can better manage the reactions to those emotions.
- **Relationship Skills – Social Engagement** (Lesson 2-2): Engaging with others allows students to develop relationships and establish a sense of security and belonging in the classroom community.
- **Social Awareness – Empathy** (Lesson 2-3): Students who can empathize with others are more able to build positive relationships.
- **Self-Management – Control Impulses** (Lesson 2-4): Students who can regulate their impulses and reactions are better able to navigate and solve problems.
- **Self-Management – Organizational Skills** (Lesson 2-5): Organizing information and work can help students work through challenging mathematical tasks.
- **Self-Awareness – Recognize Strengths** (Lesson 2-6): When students recognize their own strengths, they can see themselves as resourceful and may be more willing to attempt to problem solve and help others.
- **Responsible Decision-Making – Solve Problems** (Lesson 2-7): Efficient problem solvers can make informed decisions that lead to solutions.
- **Relationship Skills – Teamwork** (Lesson 2-8): When students work effectively as a team, they establish a stronger learning community.
- **Social Awareness – Empathy** (Lesson 2-9): Students who can empathize with others are more able to build positive relationships.
- **Self-Awareness – Accurate Self-Perception** (Lesson 2-10): Having accurate self-perception allows students to determine areas of strength as well as areas in which they need to focus and practice.
- **Self-Management – Goal-Setting** (Lesson 2-11): Setting goals can help motivate students to take initiative and stay focused.
- **Responsible Decision-Making – Evaluate** (Lesson 2-12): When students evaluate their own logic and reasoning, they can develop understanding that helps them make informed decisions.

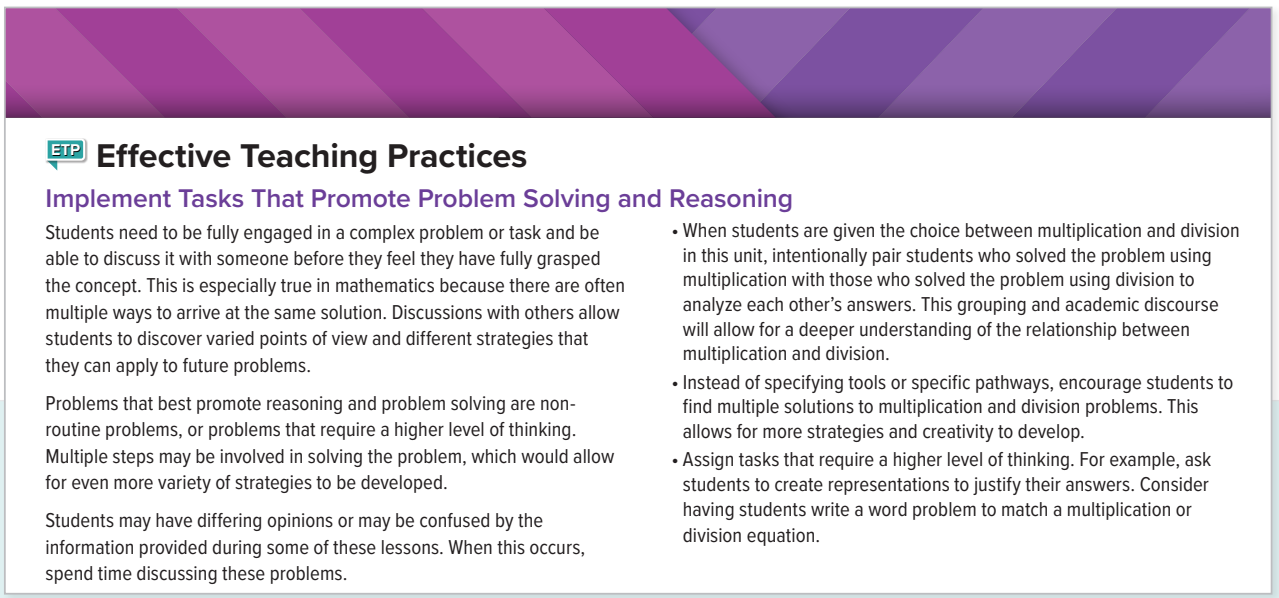


Expert Insights Videos present industry experts who unpack each unit's content and identify what to look for as the unit progresses.

Effective Teaching Practices

The instructional design with *Oklahoma Reveal Math* integrates the **Effective Teaching Practices** from the National Council of Teachers of Mathematics (NCTM). These research-based teaching practices were first presented and described in NCTM's 2014 work "Principles to Action: Ensuring Mathematical Success for All."

In each unit overview, teachers are presented with suggestions on how to successfully implement one of the teaching practices into classroom instruction.



Effective Teaching Practices

Implement Tasks That Promote Problem Solving and Reasoning

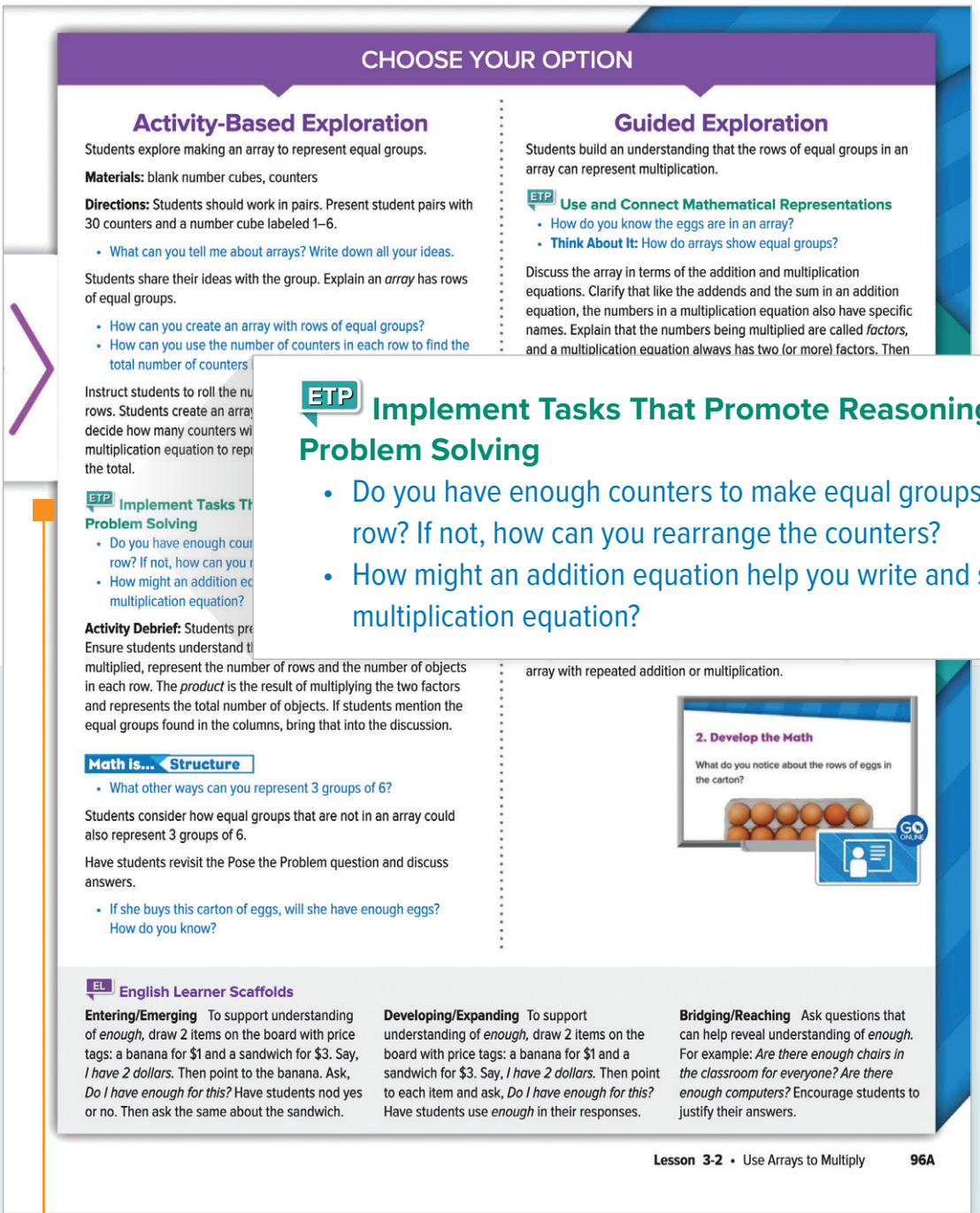
Students need to be fully engaged in a complex problem or task and be able to discuss it with someone before they feel they have fully grasped the concept. This is especially true in mathematics because there are often multiple ways to arrive at the same solution. Discussions with others allow students to discover varied points of view and different strategies that they can apply to future problems.

Problems that best promote reasoning and problem solving are non-routine problems, or problems that require a higher level of thinking. Multiple steps may be involved in solving the problem, which would allow for even more variety of strategies to be developed.

Students may have differing opinions or may be confused by the information provided during some of these lessons. When this occurs, spend time discussing these problems.

- When students are given the choice between multiplication and division in this unit, intentionally pair students who solved the problem using multiplication with those who solved the problem using division to analyze each other's answers. This grouping and academic discourse will allow for a deeper understanding of the relationship between multiplication and division.
- Instead of specifying tools or specific pathways, encourage students to find multiple solutions to multiplication and division problems. This allows for more strategies and creativity to develop.
- Assign tasks that require a higher level of thinking. For example, ask students to create representations to justify their answers. Consider having students write a word problem to match a multiplication or division equation.

- Establish mathematical goals to focus learning.
- Implement tasks that promote reasoning and problem-solving.
- Use and connect mathematical representations.
- Facilitate meaningful mathematical discourse.
- Pose purposeful questions.
- Build procedural fluency from conceptual understanding.
- Support productive struggle in learning mathematics.
- Elicit and use evidence of student thinking.



CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore making an array to represent equal groups.

Materials: blank number cubes, counters

Directions: Students should work in pairs. Present student pairs with 30 counters and a number cube labeled 1–6.

- What can you tell me about arrays? Write down all your ideas.

Students share their ideas with the group. Explain an *array* has rows of equal groups.

- How can you create an array with rows of equal groups?
- How can you use the number of counters in each row to find the total number of counters

Instruct students to roll the nu
rows. Students create an array
decide how many counters wi
multiplication equation to repr
the total.

ETP Implement Tasks Th
Problem Solving

- Do you have enough cour
row? If not, how can you r
- How might an addition eq
multiplication equation?

Activity Debrief: Students pre
Ensure students understand t
multiplied, represent the number of rows and the number of objects in each row. The *product* is the result of multiplying the two factors and represents the total number of objects. If students mention the equal groups found in the columns, bring that into the discussion.

Math is... Structure

- What other ways can you represent 3 groups of 6?

Students consider how equal groups that are not in an array could also represent 3 groups of 6.

Have students revisit the Pose the Problem question and discuss answers.

- If she buys this carton of eggs, will she have enough eggs? How do you know?

Guided Exploration

Students build an understanding that the rows of equal groups in an array can represent multiplication.

ETP **Use and Connect Mathematical Representations**

- How do you know the eggs are in an array?
- **Think About It:** How do arrays show equal groups?

Discuss the array in terms of the addition and multiplication equations. Clarify that like the addends and the sum in an addition equation, the numbers in a multiplication equation also have specific names. Explain that the numbers being multiplied are called *factors*, and a multiplication equation always has two (or more) factors. Then

array with repeated addition or multiplication.

EL **English Learner Scaffolds**

Entering/Emerging To support understanding of *enough,* draw 2 items on the board with price tags: a banana for $1 and a sandwich for $3. Say, *I have 2 dollars.* Then point to the banana. Ask, *Do I have enough for this?* Have students nod yes or no. Then ask the same about the sandwich.

Developing/Expanding To support understanding of *enough,* draw 2 items on the board with price tags: a banana for $1 and a sandwich for $3. Say, *I have 2 dollars.* Then point to each item and ask, *Do I have enough for this?* Have students use *enough* in their responses.

Bridging/Reaching Ask questions that can help reveal understanding of *enough.* For example: *Are there enough chairs in the classroom for everyone? Are there enough computers?* Encourage students to justify their answers.

Lesson 3-2 • Use Arrays to Multiply 96A

ETP Implement Tasks That Promote Reasoning and Problem Solving

- Do you have enough counters to make equal groups in each row? If not, how can you rearrange the counters?
- How might an addition equation help you write and solve a multiplication equation?

Throughout the lessons are elements that embody each of the eight teaching practices. Look for the **ETP Icon.**

Empower All Learners

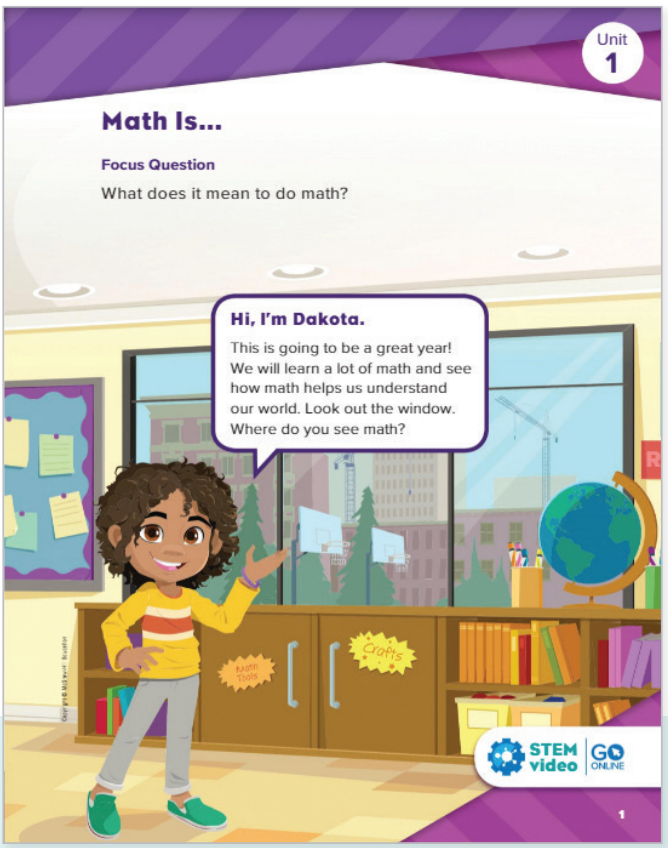
Equity and Access

Oklahoma Reveal Math supports equity and access through:

- Mathematical content that establishes achievable academic goals.
- Instructional design that is focused on exploration, discourse, and sense-making.
- Multiple lesson entry points that allow all students to actively participate in rich discussion.
- Daily instruction that uses multiple representations to promote understanding.
- Comprehensive language supports to help all students access the language of mathematics and communicate effectively.
- Embedded scaffolds and supports to promote common access to content for all students.
- Daily opportunities to collect data to drive purposeful instructional choices.
- Multi-modal differentiation to support each student's learning journey.

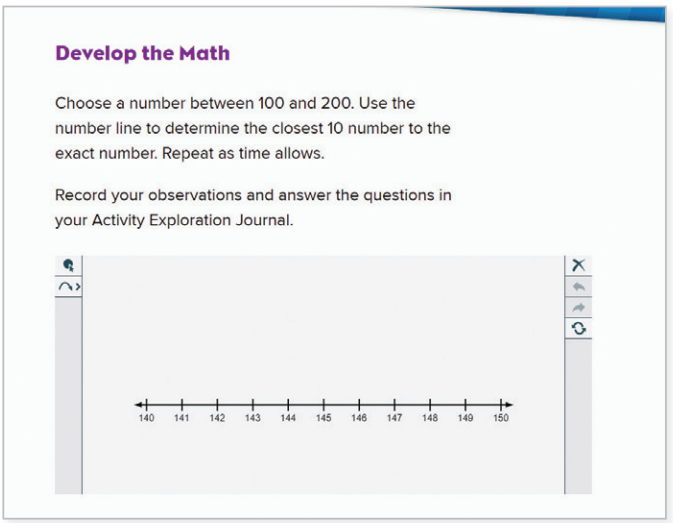
Develop Student Confidence

When students believe that mistakes are learning opportunities, they are willing to try and challenge themselves. The Math is... unit encourages every student to think with a growth mindset.



Encourage Ownership of Learning

The Activity-Based Exploration offers problem-based activities that promote productive struggle and agency as students decide what strategies to use. Daily Reflection opportunities drive accountability for both their understanding and behavior.



Make Career Connections

Curiosity leads to adventure. The STEM Career Kids motivate students to stay engaged, inspired, and curious about mathematics. By introducing a STEM career at the beginning of every unit, STEM Career Kids help all students imagine what they could be and might do when they grow up!

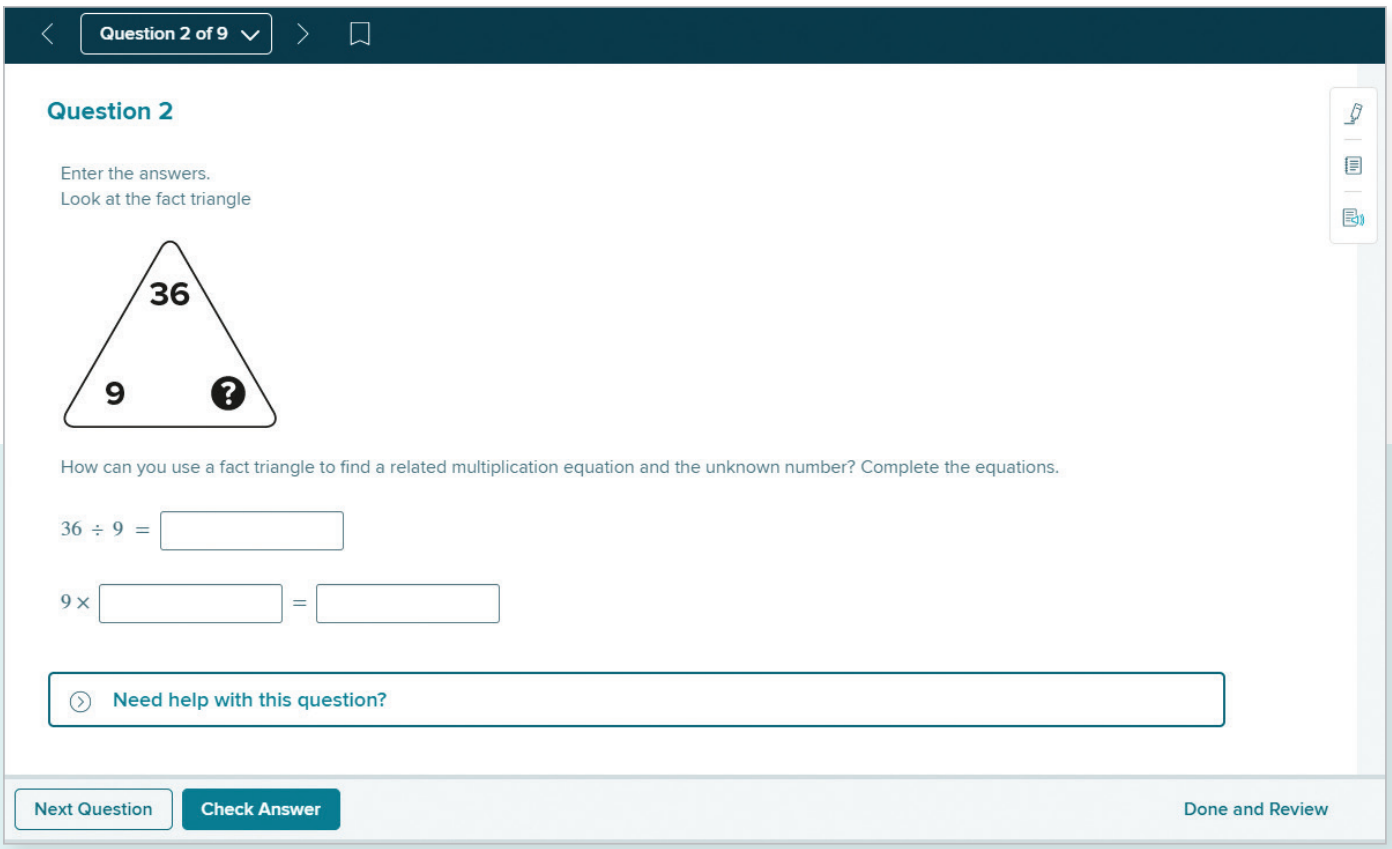
Purposeful Practice

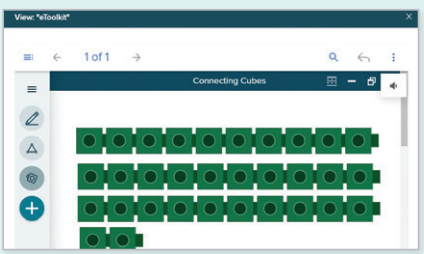
Oklahoma Reveal Math provides purposeful practice opportunities in both print and digital formats to help all students build their confidence and prepare for unit, course, and state assessments.

	Practice Types and Formats		
Type	**Purpose**	**Print**	**Digital**
On My Own	Daily Practice with exercises that address various depths of knowledge and encourage students to reflect on their learning and the lesson objectives.	Student Edition	✓
Additional Practice	Additional practice aligned to daily lesson content with embedded learning supports.	Printable PDF	✓ Autoscored
Spiral Review	Daily practice on major work of each grade level to help students build fluency and be ready for end-of-year assessment.	Printable PDF	✓ Autoscored
Fluency Practice	Practice at the end of each unit addressing the fluency expectations for each grade level.	Student Edition	✓
Unit Review	End of unit practice to prepare for unit assessment including vocabulary and content practice items as well as practice tasks.	Student Edition	✓

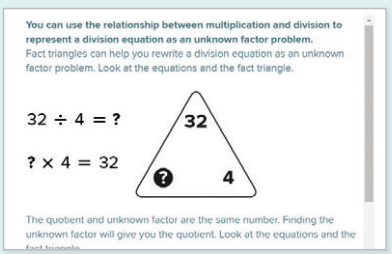
Digital Practice with Embedded Learning Aids

Autoscored practice items have a variety of helpful tools and learning aids to support students while they practice. Students can also attempt an exercise multiple times. Teachers can customize the number of attempts and the learning aids available to students.



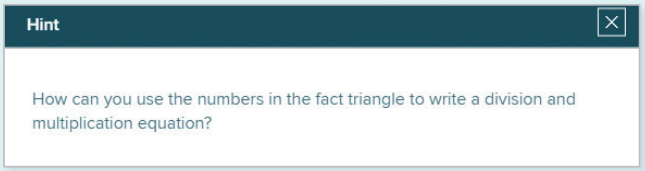


eToolKit



Examples

Glossary



Hints

Workstations

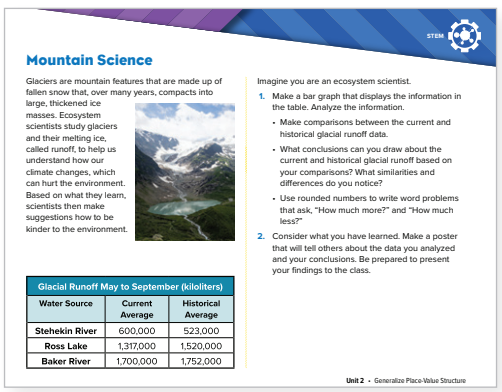
Oklahoma Reveal Math includes a robust offering of differentiation resources for each lesson and unit with a range of implementation models to meet the learning needs of all students.

Small-Group Instruction

Teacher-facilitated, **small-group mini-lessons** use concrete modeling and discussion to reteach and build conceptual understanding.

Game Station

Written by Dr. Nicki Newton, the **Game Station** offers hands-on games that provide engaging opportunities to build proficiency with the lesson material.



STEM

Mountain Science

Glaciers are mountain features that are made up of fallen snow that, over many years, compacts into large, thickened ice masses. Ecosystem scientists study glaciers and their melting ice, called runoff, to help us understand how our climate changes, which can hurt the environment. Based on what they learn, scientists then make suggestions how to be kinder to the environment.

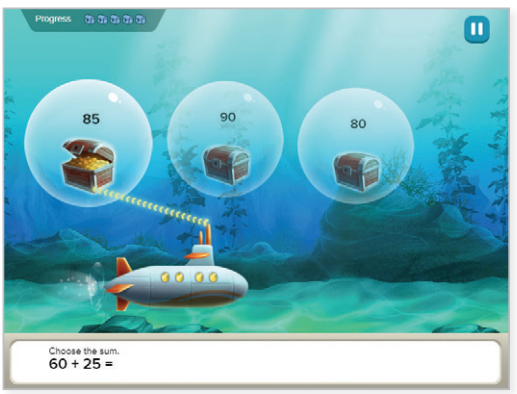
Imagine you are an ecosystem scientist.

1. Make a bar graph that displays the information in the table. Analyze the information.
   - Make comparisons between the current and historical glacial runoff data.
   - What conclusions can you draw about the current and historical glacial runoff based on your comparisons? What similarities and differences do you notice?
   - Use rounded numbers to write word problems that ask, "How much more?" and "How much less?"
2. Consider what you have learned. Make a poster that will tell others about the data you analyzed and your conclusions. Be prepared to present your findings to the class.

Glacial Runoff May to September (kiloliters)

Water Source	Current Average	Historical Average
Stehekin River	600,000	523,000
Ross Lake	1,317,000	1,520,000
Baker River	1,700,000	1,752,000

Unit 2 • Generalize Place-Value Structure

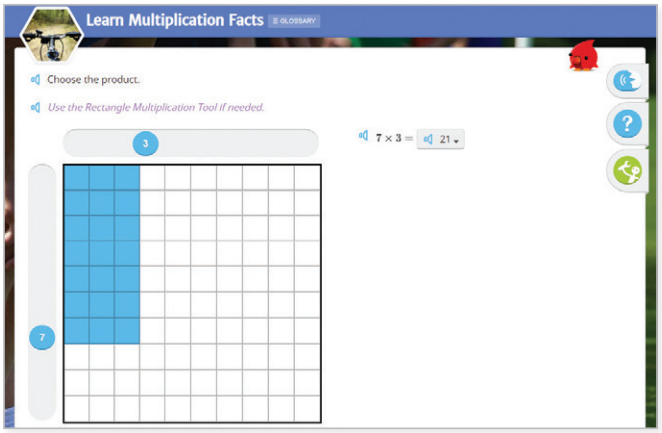


Application Station

- **STEM Project Cards** Science, Technology, and Engineering
- **Cross-Curricular Connection Cards** Literacy, Music, Art, Social Studies, Health, and Physical Education
- **Real World Cards** Financial Literacy, Digital Literacy, and Coding

Digital Station

The **Digital Station** offers digital games that students play to build fluency with important grade-level skills in a fun and engaging environment. Each game has a range of 40–60 unique items students can work through for extra practice.



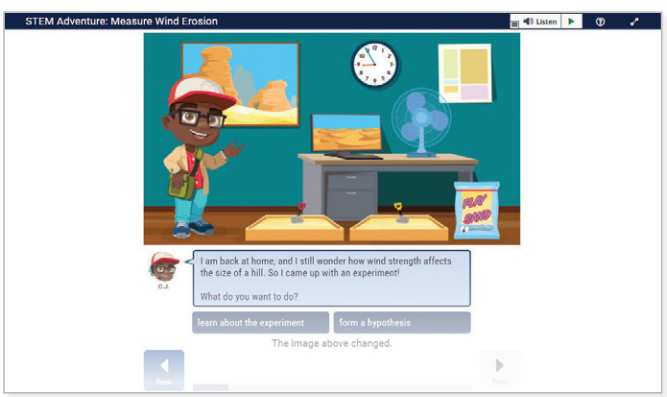
*Redbird Mathematics**

Redbird Mathematics curriculum features adaptive instruction, gamification, and practice. Students can work at their own pace on the path to algebraic readiness.

Included in the **Oklahoma Reveal Math and Redbird bundle*

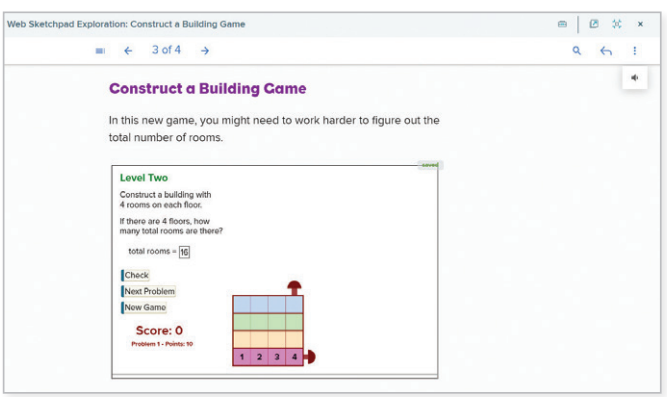
Take Another Look

Take Another Look mini-lessons offer reteaching and remediation opportunities for students. Each lesson consists of a three-part, gradual release activity.



STEM Adventures

STEM Adventures are engaging **application-based learning activities** where students work alongside the STEM Career Kids to explore science and engineering concepts through experiments and application. Students make and test hypotheses throughout the process.



Web Sketchpad® Explorations

Web Sketchpad Explorations are highly visual and engaging activities that demonstrate math concepts in action. Students engage with a concept through an open-ended environment and exploratory modeling.

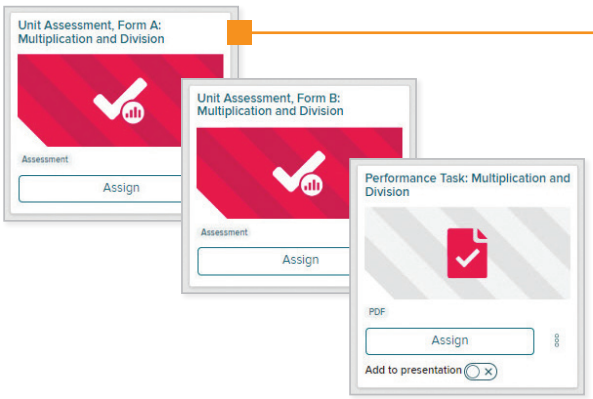
Assessment

Monitor student understanding throughout the year

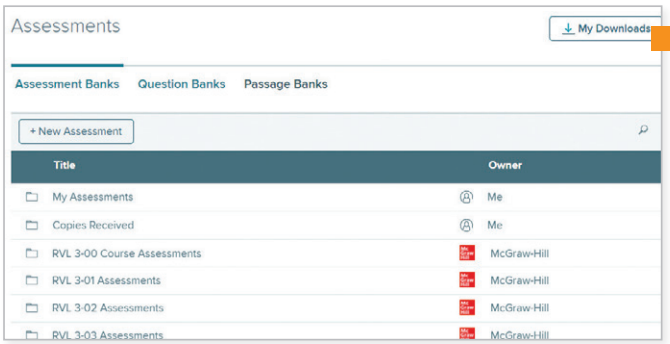
Oklahoma Reveal Math offers a comprehensive set of assessment resources that include diagnostic, formative, and summative tools.

Type	Assessment	How Often	Description
Diagnostic	Course Diagnostic	Beginning of the school year	Diagnoses students' strengths and weaknesses with prerequisite concepts and skills for the upcoming year.
	Unit Diagnostic	Beginning of each unit	Diagnoses students' strengths and weaknesses with prerequisite concepts and skills for the upcoming unit.
Formative	Work Together	During a lesson	Assesses students' understanding of the concepts and skills presented in the Learn stage.
	Exit Ticket	At the end of a lesson	Assesses students' conceptual understanding and procedural fluency with lesson concepts and skills.
	Math Probe	During a unit	Identifies common misconceptions.
Summative	Unit Assessment, Forms A and B	At the end of a unit	Evaluates students' understanding of and fluency with unit concepts and skills.
	Unit Performance Task	At the end of a unit	Evaluates students' ability to apply concepts and skills learned.
	Benchmark Assessments	After multiple units	Evaluates students' understanding of concepts and skills taught in multiple units.
	End of Year Assessment	At the end of the school year	Evaluates students' proficiency with concepts and skills taught over the school year.

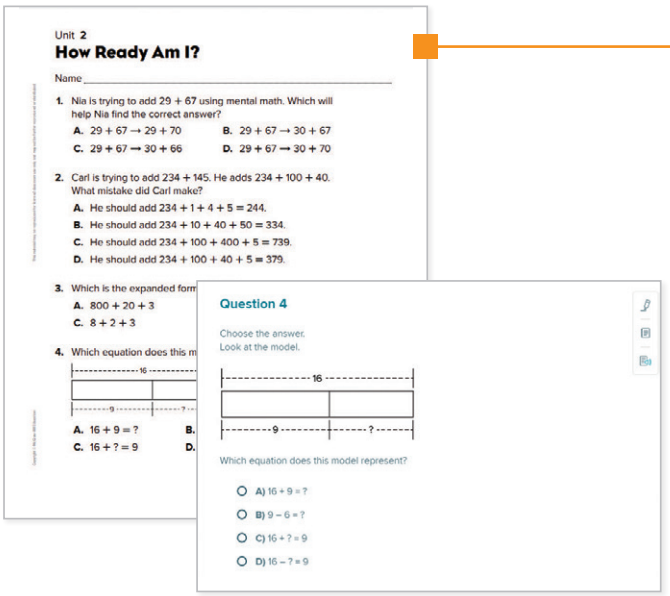
All assessments are available for either print or digital administration.



All print assessments are available in downloadable PDF printables. Item analysis tables found in the Teacher Edition include recommendations for intervention support.



Oklahoma Academic Standards for Mathematics Assessment Banks allow teachers to customize digital assessments and build new assessments as needed. Many of the digital assessment items are auto-scorable. Teachers can access more digital reporting information in the assessment reports within the Digital Teacher Center.



Oklahoma Reveal Math assessments include a range of item types that students are likely to encounter on end-of-year state assessments. These include:

- Single Response Multiple Choice
- Multiple Response Multiple Choice
- Fill-in-the-Blank
- Matching
- Constructed Response
- Digital Assessments include technology-enhanced items:
  - Drag and Drop
  - Drop-Down Menu Select
  - Choice Matrix

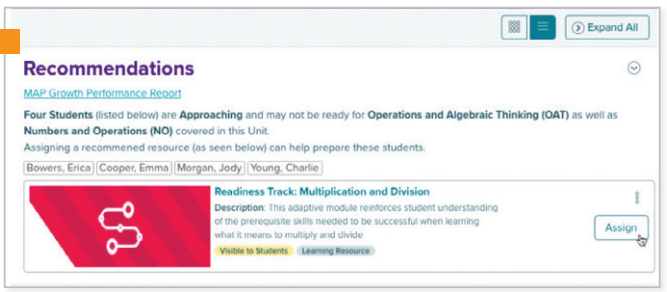
Integrate *MAP Growth* Data*

MAP® Growth™ is the market's most trusted and accurate interim assessment that measures what students know and what they're ready to learn next, regardless of their grade level. Whether you're a teacher or an administrator, *MAP Growth* data can help you improve outcomes for all students.

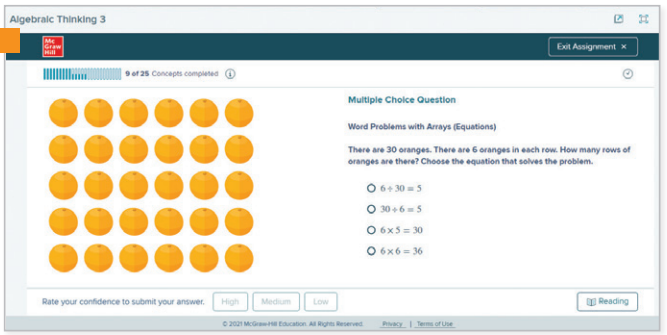
MAP Growth data and ***Oklahoma Reveal Math*** content allow educators to:

Review RIT Scores through two unique reports, demonstrating performance by mathematical domain and growth over time.

Interpret data to identify which students may lack prerequisite knowledge by unit. Grouping Recommendations help organize your instruction.



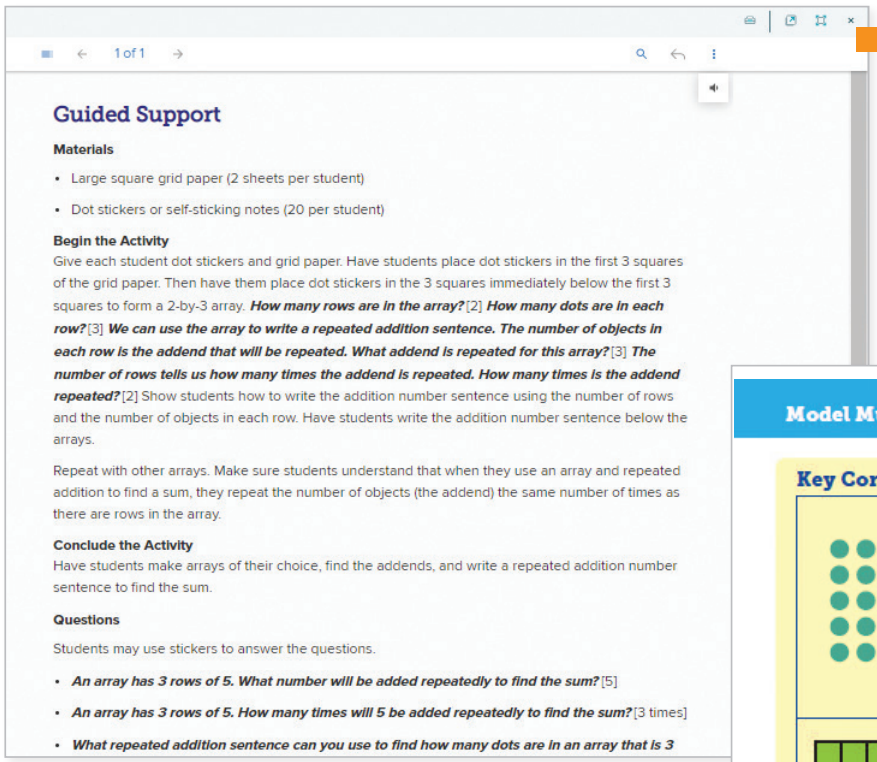
Intervene with adaptive Targeted Pathways that recommend groupings in order to address unfinished learning before starting the unit.



** For districts that use Map Growth Data*

Ensure Student Readiness with Targeted Intervention

Oklahoma Reveal Math offers targeted intervention resources that provide additional instruction for students as needed. These resources are available to assign students based on their performance on the unit readiness diagnostics and unit assessments. The Item Analysis table lists the appropriate resource for the identified concept or skill gaps.



Guided Support

Materials

- Large square grid paper (2 sheets per student)
- Dot stickers or self-sticking notes (20 per student)

Begin the Activity

Give each student dot stickers and grid paper. Have students place dot stickers in the first 3 squares of the grid paper. Then have them place dot stickers in the 3 squares immediately below the first 3 squares to form a 2-by-3 array. ***How many rows are in the array?*** [2] ***How many dots are in each row?*** [3] ***We can use the array to write a repeated addition sentence. The number of objects in each row is the addend that will be repeated. What addend is repeated for this array?*** [3] ***The number of rows tells us how many times the addend is repeated. How many times is the addend repeated?*** [2] Show students how to write the addition number sentence using the number of rows and the number of objects in each row. Have students write the addition number sentence below the arrays.

Repeat with other arrays. Make sure students understand that when they use an array and repeated addition to find a sum, they repeat the number of objects (the addend) the same number of times as there are rows in the array.

Conclude the Activity

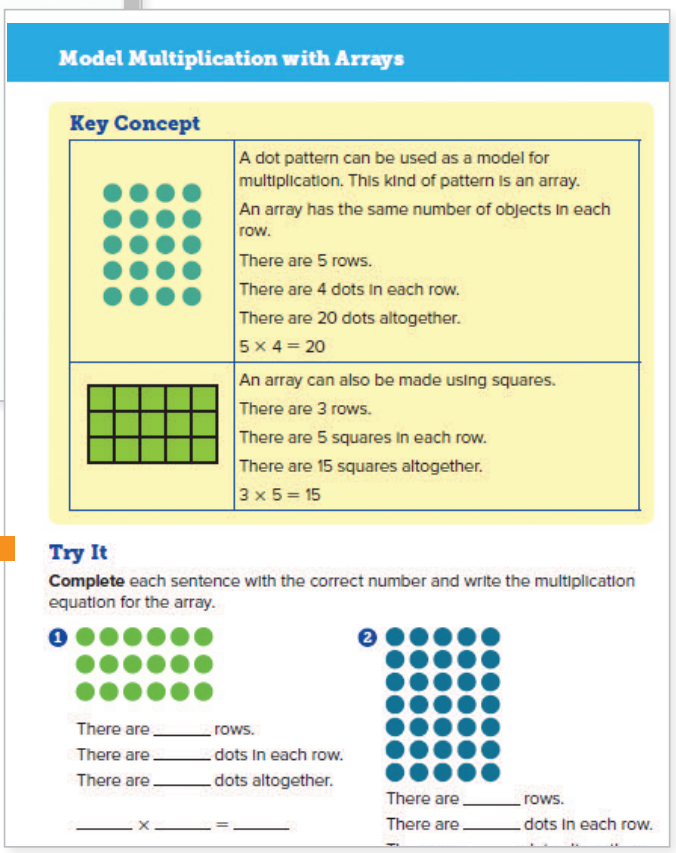
Have students make arrays of their choice, find the addends, and write a repeated addition number sentence to find the sum.

Questions

Students may use stickers to answer the questions.

- ***An array has 3 rows of 5. What number will be added repeatedly to find the sum?*** [5]
- ***An array has 3 rows of 5. How many times will 5 be added repeatedly to find the sum?*** [3 times]
- ***What repeated addition sentence can you use to find how many dots are in an array that is 3***

Guided Support provides a teacher-facilitated small group mini-lesson that uses concrete modeling and discussion to build conceptual understanding.



Model Multiplication with Arrays

Key Concept

A dot pattern can be used as a model for multiplication. This kind of pattern is an array.

An array has the same number of objects in each row.

There are 5 rows.

There are 4 dots in each row.

There are 20 dots altogether.

$5 \times 4 = 20$

An array can also be made using squares.

There are 3 rows.

There are 5 squares in each row.

There are 15 squares altogether.

$3 \times 5 = 15$

Try It

Complete each sentence with the correct number and write the multiplication equation for the array.

1. There are _____ rows.
   There are _____ dots in each row.
   There are _____ dots altogether.
   _____ × _____ = _____

2. There are _____ rows.
   There are _____ dots in each row.

Skills Support Sheets are skill-based practice sheets that offer targeted practice of previously taught items.

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Unit 1: Math Is...

Lesson 1: Math Is Mine
Lesson 2: Math Is Exploring and Thinking
Lesson 3: Math Is In My World
Lesson 4: Math Is Explaining and Sharing
Lesson 5: Math Is Finding Patterns
Lesson 6: Math Is Ours

Unit 2: Numbers to 5

Lesson 1: Count 1, 2, and 3
Lesson 2: Represent 1, 2, and 3
Lesson 3: Count 4 and 5
Lesson 4: Represent 4 and 5
Lesson 5: Represent 0
Lesson 6: Numbers to 5
Lesson 7: Equal Groups to 5
Lesson 8: Greater Than and Less Than
Lesson 9: Compare Numbers to 5
Math Probe: Who Has More Stickers?

Unit 3: Numbers to 10

Lesson 1: Count 6 and 7
Lesson 2: Represent 6 and 7
Lesson 3: Count 8 and 9
Lesson 4: Represent 8 and 9
Lesson 5: Count 10
Lesson 6: Represent 10
Lesson 7: Numbers to 10
Lesson 8: Compare Objects in Groups
Lesson 9: Compare Numbers
Math Probe: Compare Numbers
Lesson 10: Write Numbers to 3
Lesson 11: Write Numbers to 6
Lesson 12: Write Numbers to 10

Unit 4: Sort, Classify, and Count Objects

Lesson 1: Alike and Different
Lesson 2: Sort Objects into Groups
Lesson 3: Count Objects in Groups
Math Probe: Sort by Count
Lesson 4: Describe Groups of Objects

Unit 5: 2-Dimensional Shapes

Lesson 1: Triangles
Math Probe: Triangles
Lesson 2: Squares and Retangles
Lesson 3: Hexagons
Lesson 4: Circles
Lesson 5: Position of 2-Dimensional Shapes

Unit 6: Understand Addition

Lesson 1: Represent and Solve Add To Problems
Lesson 2: Represent and Solve More Add To Problems
Lesson 3: Represent and Solve Put Together Problems
Lesson 4: Represent and Solve More Put Together Problems
Math Probe: Addition Stories
Lesson 5: Represent and Solve More Addition Problems

Unit 7: Understand Subtraction

Lesson 1: Represent Take Apart Problems
Lesson 2: Represent and Solve Take From Problems
Lesson 3: Represent and Solve More Take From Problems
Lesson 4: Represent and Solve Subtraction Problems
Lesson 5: Represent and Solve Addition and Subtraction Problems
Math Probe: Representing Addition and Subtraction

Unit 8: Addition and Subtraction Strategies

Lesson 1: Add within 5
Lesson 2: Subtract within 5
Lesson 3: Ways to Make 6 and 7
Lesson 4: Ways to Decompose 6 and 7
Math Probe: Break Apart 5, 6, and 7
Lesson 5: Ways to Make 8 and 9
Lesson 6: Ways to Decompose 8 and 9
Lesson 7: Ways to Make 10
Lesson 8: Ways to Decompose 10

Unit 9: Numbers 11 to 15

Lesson 1: Represent 11, 12, and 13
Lesson 2: Make 11, 12, and 13
Lesson 3: Decompose 11, 12, and 13
Lesson 4: Represent 14 and 15
Math Probe: Counting Counters
Lesson 5: Make 14 and 15
Lesson 6: Decompose 14 and 15

Unit 10: Numbers 16 to 19

Lesson 1: Represent 16 and 17
Math Probe: How Many Counters?
Lesson 2: Make 16 and 17
Lesson 3: Decompose 16 and 17
Lesson 4: Represent 18 and 19
Lesson 5: Make 18 and 19
Lesson 6: Decompose 18 and 19

Unit 11: 3-Dimensional Shapes

Lesson 1: 2-Dimensional and 3-Dimensional Shapes
Math Probe: Flat Shape or Solid Shape?
Lesson 2: Cubes
Lesson 3: Spheres
Lesson 4: Cylinders
Lesson 5: Cones
Lesson 6: Describe Solids

Unit 12: Count to 100

Lesson 1: Count by 1s to 50
Lesson 2: Count by 1s to 100
Math Probe: What Number Comes After?
Lesson 3: Count by 10s to 100
Lesson 4: Count From Any Number to 100
Lesson 5: Count to Find Out How Many

GRADE K

Unit 13: Analyze, Compare, and Compose Shapes

Lesson 1: Compare and Contrast 2-Dimensional Shapes

Math Probe: Which Shape Does Not Belong?

Lesson 2: Build and Draw 2-Dimensional Shapes

Lesson 3: Compose 2-Dimensional Shapes

Lesson 4: Compare and Contrast 3-Dimensional Shapes

Lesson 5: Build 3-Dimensional Shapes

Lesson 6: Describe 3-Dimensional Shapes in the World

Unit 14: Compare Measurable Attributes

Lesson 1: Describe Attributes of Objects

Lesson 2: Compare Lengths

Lesson 3: Compare Heights

Math Probe: Comparing Obejects

Lesson 4: Compare Weights

Lesson 5: Compare Capacity

Oklahoma Lessons

OK Lesson 1: Ordinal Numbers

OK Lesson 2: Equal Groups of Objects

OK Lesson 3: Capacity

OK Lesson 4: Identify Pennies, Nickels, and Dimes

OK Lesson 5: Morning, Afternoon, and Evening

OK Lesson 6: Today, Yesterday, and Tomorrow

OK Lesson 7: Graphs and Pictographs

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Lesson 5: Math Is Finding Patterns

Lesson 6: Math Is Ours

Unit 2: Number Patterns

Lesson 1: Counting Patterns to 100

Lesson 2: Patterns on a Number Chart to 120

Lesson 3: Patterns on a Number Line

Math Probe: Counting by 1s

Lesson 4: Patterns When Reading and Writing Numbers

Lesson 5: Patterns When Representing Objects in a Group

Unit 3: Place Value

Lesson 1: Numbers 11 to 19

Math Probe: Show the Value of the Digit: Student Interview

Lesson 2: Understand Tens

Lesson 3: Represent Tens and Ones

Lesson 4: Represent 2-Digit Numbers

Lesson 5: Represent 2-Digit umbers in Different Ways

Lesson 6: Compare Numbers

Lesson 7: Compare Numbers on a Number Line

Lesson 8: Use Symbols to Compare Numbers

Unit 4: Addition within 20: Facts and Strategies

Lesson 1: Relate Counting to Addition

Lesson 2: Count on to Add

Lesson 3: Doubles

Lesson 4: Near Doubles

Lesson 5: Make a 10 to Add

Lesson 6: Choose Strategies to Add

Lesson 7: Use Properties to Add

Math Probe: Solving Problems

Lesson 8: Add Three Numbers

Lesson 9: Find an Unknown Number in an Addition Equation

Lesson 10: Understand the Equal Sign

Lesson 11: True Addition Equations

Unit 5: Subtraction within 20: Facts and Strategies

Lesson 1: Relate Counting to Subtraction

Lesson 2: Count Back to Subtract

Lesson 3: Count On to Subtract

Lesson 4: Make a 10 to Subtract

Lesson 5: Use Near Doubles to Subtract

Lesson 6: Use Addition to Subtract

Math Probe: Showing Problems with Equations

Lesson 7: Use Fact Families to Subtract

Lesson 8: Find an Unknown Number in a Subtraction Equation

Lesson 9: True Subraction Equations

Unit 6: Shapes and Solids

Lesson 1: Understand Defining Attributes of Shapes

Lesson 2: Understand Non-Defining Attributes

Math Probe: 2-Dimensional Shape Sort

Lesson 3: Compose Shapes

Lesson 4: Build New Shapes

Lesson 5: Understand Attributes of Solids

Lesson 6: Build New Solids

Unit 7: Meanings of Addition

Lesson 1: Represent and Solve Add To Problems

Lesson 2: Represent and Solve More Add To Problems

Lesson 3: Represent and Solve Put Together Problems

Lesson 4: Represent and Solve More Put Together Problems

Math Probe: Meanings of Addition

Lesson 5: Represent and Solve Addition Problems with Three Addends

Lesson 6: Solve Addition Problems

Unit 8: Meanings of Subtraction

Lesson 1: Represent and Solve Take From Problems

Lesson 2: Represent and Solve More Take From Problems

Lesson 3: Represent and Solve Take Apart Problems

Math Probe: Problems and Equations 2

Lesson 4: Represent and Solve More Take Apart Problems

Lesson 5: Solve Problems Involving Subtraction

Lesson 6: Solve More Problems Involving Subtraction

Lesson 7: Solve Problems Involving Addition and Subtraction

Unit 9: Addition within 100

Lesson 1: Use Mental Math to Find 10 More

Math Probe: Number Chart Parts

Lesson 2: Represent Adding Tens

Lesson 3: Represent Adding Tens and Ones

Lesson 4: Decompose Addends to Add

Lesson 5: Use an Open Number Line to Add within 100

Lesson 6: Decompose to Add on an Open Number Line

Lesson 7: Regroup to Add

Lesson 8: Add 2-Digit Numbers

GRADE 1

Unit 10: Compare Using Addition and Subtraction

Lesson 1: Represent and Solve Compare Problems

Lesson 2: Represent and Solve Compare Problems Using Addition

Math Probe: Showing Addition and Subtraction

Lesson 3: Represent and Solve More Compare Problems

Lesson 4: Solve Compare Problems Using Addition and Subtraction

Unit 11: Subtraction within 100

Lesson 1: Use Mental Math to Find 10 Less

Lesson 2: Represent Subtracting Tens

Lesson 3: Subtract Tens

Lesson 4: Use Addition to Subtract Tens

Math Probe: Showing Problems with Tens

Lesson 5: Explain Subtraction Strategies

Unit 12: Measurement and Data

Lesson 1: Compare and Order Lengths

Lesson 2: More Ways to Compare Lengths

Lesson 3: Strategies to Measure Lengths

Math Probe: How Long is the Rope?

Lesson 4: More Strategies to Measure Lengths

Lesson 5: Tell Time to the Hour

Lesson 6: Tell Time to the Half Hour

Lesson 7: Organize Data

Lesson 8: Represent Data

Lesson 9: Interpret Data

Lesson 10: Solve Problems Involving Data

Unit 13: Equal Shares

Lesson 1: Understand Equal Shares

Lesson 2: Partition Shapes into Halves

Lesson 3: Partition Shapes into Fourths

Math Probe: Partitioning into Fourths

Lesson 4: Describe the Whole

Lesson 5: Describe Halves and Fourths of Shapes

Oklahoma Lessons

OK Lesson 1: Measure Lengths with Inches

OK Lesson 2: Measure and Compare Lengths

OK Lesson 3: Compare Capacity

OK Lesson 4: Identify Values of Coins

OK Lesson 5: Determine the Value of a Set of Coins

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Lesson 5: Math Is Finding Patterns

Lesson 6: Math Is Ours

Unit 2: Place Value to 1,000

Lesson 1: Understand Hundreds

Lesson 2: Understand 3-Digit Numbers

Lesson 3: Read and Write Numbers to 1,000

Lesson 4: Decompose 3-Digit Numbers

Math Probe: Building Numbers

Lesson 5: Compare 3-Digit Numbers

Unit 3: Patterns with Numbers

Lesson 1: Counting Patterns

Lesson 2: Patterns When Skip Counting by 5s

Lesson 3: Patterns When Skip Counting by 10s and 100s

Math Probe: Counting by 1s, 5s, and 10s

Lesson 4: Understand Even and Odd Numbers

Lesson 5: Addition Patterns

Lesson 6: Patterns with Arrays

Lesson 7: Use Arrays to Add

Unit 4: Meanings of Addition and Subtraction

Lesson 1: Represent and Solve Add To Problems

Lesson 2: Represent and Solve Take From Problems

Lesson 3: Solve Two-Step Add To and Take From Problems

Lesson 4: Represent and Solve Put Together Problems

Lesson 5: Represent and Solve Take Apart Problems

Lesson 6: Solve Two-Step Put Together and Take Apart Problems

Lesson 7: Represent and Solve Compare Problems

Lesson 8: Represent and Solve More Compare Problems

Math Probe: Addition and Subtraction Equations

Lesson 9: Solve Two-Step Problems with Comparison

Lesson 10: Solve Two-Step Problems Using Addition and Subtraction

Unit 5: Strategies to Fluently Add within 100

Lesson 1: Strategies to Add Fluently within 20

Lesson 2: More Strategies to Add Fluently within 20

Lesson 3: Represent Addition with 2-Digit Numbers

Lesson 4: Use Properties to Add

Lesson 5: Decompose Two Addends to Add

Lesson 6: Use a Number Line to Add

Lesson 7: Decompose One Addend to Add

Lesson 8: Adjust Addends to Add

Math Probe: Addition Strategies

Lesson 9: Add More Than Two Numbers

Lesson 10: Solve One-and Two-Step Problems Using Addition

Unit 6: Strategies to Fluently Subtract within 100

Lesson 1: Strategies to Subtract Fluently within 20

Lesson 2: More Strategies to Subtract Fluently within 20

Lesson 3: Represent Subtraction with 2-Digit Numbers

Lesson 4: Represent 2-Digit Subtraction with Regrouping

Lesson 5: Use a Number Line to Subtract

Lesson 6: Decompose Numbers to Subtract

Lesson 7: Adjust Numbers to Subtract

Math Probe: Subtraction Strategies

Lesson 8: Relate Addition to Subtraction

Lesson 9: Solve One-Step Problems Using Subtraction

Lesson 10: Solve Two-Step Problems Using Subtraction

Unit 7: Measure and Compare Lengths

Lesson 1: Measure Length with Inches

Lesson 2: Measure Length with Feet and Yards

Lesson 3: Compare Lengths Using Customary Units

Lesson 4: Relate Inches, Feet, and Yards

Lesson 5: Estimate Length Using Customary Units

Lesson 6: Measure Length with Centimeters and Meters

Lesson 7: Compare Lengths Using Metric Units

Lesson 8: Relate Centimeters and Meters

Math Probe: Relating Measurement

Lesson 9: Estimate Length Using Metric Units

Lesson 10: Solve Problems Involving Length

Lesson 11: Solve More Problems Involving Length

GRADE 2

Unit 8: Measurement: Money and Time

Lesson 1: Understand the Values of Coins

Lesson 2: Solve Money Problems Involving Coins

Math Probe: Counting Coins

Lesson 3: Solve Money Problems Involving Dollar Bills and Coins

Lesson 4: Tell Time to the Nearest Five Minutes

Lesson 5: Be Precise When Telling Time

Unit 9: Strategies to Add 3-Digit Numbers

Lesson 1: Use Mental Math to Add 10 or 100

Lesson 2: Represent Addition with 3-Digit Numbers

Lesson 3: Represent Addition with 3-Digit Numbers with Regrouping

Lesson 4: Decompose Addends to Add 3-Digit Numbers

Lesson 5: Decompose One Addend to Add 3-Digit Numbers

Lesson 6: Adjust Addends to Add 3-Digit Numbers

Lesson 7: Explain Addition Strategies

Math Probe: Addition Word Problems

Unit 10: Strategies to Subtract 3-Digit Numbers

Lesson 1: Use Mental Math to Subtract 10 and 100

Lesson 2: Represent Subtraction with 3-Digit Numbers

Lesson 3: Decompose One 3-Digit Number to Count Back

Lesson 4: Count On to Subtract 3-Digit Numbers

Lesson 5: Regroup Tens

Lesson 6: Regroup Tens and Hundreds

Lesson 7: Adjust Numbers to Subtract 3-Digit Numbers

Lesson 8: Explain Subtraction Strategies

Lesson 9: Solve Problems Involving Addition and Subtraction

Math Probe: Addition and Subtraction Problems

Unit 11: Data Analysis

Lesson 1: Understand Picture Graphs

Lesson 2: Understand Bar Graphs

Lesson 3: Solve Problems Using Bar Graphs

Lesson 4: Collect Measurement Data

Lesson 5: Understand Line Plots

Math Probe: Reading Line Plots

Lesson 6: Show Data On a Line Plot

Unit 12: Geometric Shapes and Equal Shares

Lesson 1: Recognize 2-Dimensional Shapes by Their Attributes

Lesson 2: Draw 2-Dimensional Shapes from Their Attributes

Lesson 3: Recognize 3-Dimensional Shapes from Their Attributes

Lesson 4: Understand Equal Shares

Math Probe: Partitioning Shapes

Lesson 5: Relate Equal Shares

Lesson 6: Partition a Rectangle into Rows and Columns

Oklahoma Lessons

OK Lesson 1: Number Lines

OK Lesson 2: Round Multi-Digit Numbers

OK Lesson 3: Estimate Sums and Differences

OK Lesson 4: Compare Capacity

Oklahoma Lesson 5: Classify Angles

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Lesson 6: Math Is Ours

Unit 2: Use Place Value to Fluently Add and Subtract within 1,000

Lesson 1: Represent 4-Digit Numbers

Lesson 2: Round Multi-Digit Numbers

Math Probe: Rounding Numbers

Lesson 3: Estimate Sums and Differences

Lesson 4: Use Addition Properties to Add

Lesson 5: Addition Patterns

Lesson 6: Use Partial Sums to Add

Lesson 7: Decompose to Subtract

Lesson 8: Adjust Numbers to Add or Subtract

Lesson 9: Use Addition to Subtract

Lesson 10: Fluently Add within 1,000

Lesson 11: Fluently Subtract within 1,000

Lesson 12: Solve Two-Step Problems Involving Addition and Subtraction

Unit 3: Multiplication and Division

Lesson 1: Understand Equal Groups

Lesson 2: Use Arrays to Multiply

Math Probe: Ways to Show 3 x 6

Lesson 3: Understand the Commutative Property

Lesson 4: Understand Equal Sharing

Lesson 5: Understand Equal Grouping

Lesson 6: Relate Multiplication and Division

Lesson 7: Find the Unknown

Unit 4: Use Patterns to Multiply by 0, 1, 2, 5, and 10

Lesson 1: Use Patterns to Multiply by 2

Lesson 2: Use Patterns to Multiply by 5

Math Probe: Multiply by 2 and 5

Lesson 3: Use Patterns to Multiply by 10

Lesson 4: Use Patterns to Multiply by 1 and 0

Lesson 5: Multiply Fluently by 0, 1, 2, 5, and 10

Lesson 6: Solve Problems Involving Equal Groups

Unit 5: Use Properties to Multiply by 3, 4, 6, 7, 8, and 9

Lesson 1: Understand the Distributive Property

Lesson 2: Use Properties to Multiply by 3

Lesson 3: Use Properties to Multiply by 4

Lesson 4: Use Properties to Multiply by 6

Lesson 5: Use Properties to Multiply by 8

Lesson 6: Use Properties to Multiply by 7 and 9

Math Probe: Multiply by 7 and 9

Lesson 7: Solve Problems Involving Arrays

Unit 6: Connect Area and Multiplication

Lesson 1: Understand Area

Lesson 2: Count Unit Squares to Determine Area

Lesson 3: Use Multiplication to Determine Area

Lesson 4: Determine the Area of a Composite Figure

Math Probe: Area

Lesson 5: Use the Distributive Property to Determine Area

Lesson 6: Solve Area Problems

Unit 7: Fractions

Lesson 1: Partition Shapes into Equal Parts

Lesson 2: Understand Fractions

Math Probe: Representing Fractions

Lesson 3: Represent Fractions on a Number Line

Lesson 4: Represent One Whole as a Fraction

Lesson 5: Represent Whole Numbers as Fractions

Lesson 6: Represent a Fraction Greater Than One on a Number Line

Unit 8: Fraction Equivalence and Comparison

Lesson 1: Understand Equivalent Fractions

Lesson 2: Represent Equivalent Fractions

Lesson 3: Represent Equivalent Fractions on a Number Line

Lesson 4: Compare Fraction Wholes

Lesson 5: Compare Fractions with the Same Denominator

Lesson 6: Compare Fractions with the Same Numerator

Lesson 7: Compare Fractions

Math Probe: Equivalent Fractions Card Sort

Unit 9: Use Multiplication to Divide

Lesson 1: Use Multiplication to Solve Division Equations

Lesson 2: Divide by 2

Lesson 3: Divide by 5 and 10

Lesson 4: Divide by 1 and 0

Lesson 5: Divide by 3 and 6

Lesson 6: Divide by 4 and 8

Math Probe: Word Problems

Lesson 7: Divide by 9

Lesson 8: Divide by 7

Lesson 9: Multiply and Divide Fluently within 100

GRADE 3

Unit 10: Use Properties and Strategies to Multiply and Divide

Lesson 1: Patterns with Multiples of 10

Lesson 2: More Multiplication Patterns

Lesson 3: Understand the Associative Property

Math Probe: Multiplication Equations

Lesson 4: Two-Step Problems Involving Multiplication and Division

Lesson 5: Solve Two-Step Problems

Lesson 6: Explain the Reasonableness of a Solution

Unit 11: Perimeter

Lesson 1: Understand Perimeter

Lesson 2: Determine Perimeter of Figures

Lesson 3: Determine an Unknown Side Length

Lesson 4: Solve Problems Involving Area and Perimeter

Math Probe: Expressions for Perimeter and Area

Lesson 5: Solve Problems Involving Measurement

Unit 12: Measurement and Data

Lesson 1: Measure Liquid Volume

Lesson 2: Estimate and Solve Problems with Liquid Volume

Lesson 3: Measure Mass

Lesson 4: Estimate and Solve Problems with Mass

Lesson 5: Tell Time to the Nearest Minute

Lesson 6: Solve Problems Involving Time

Lesson 7: Understand Scaled Picture Graphs

Lesson 8: Understand Scaled Bar Graphs

Lesson 9: Solve Problems Involving Scaled Graphs

Lesson 10: Measure to Halves or Fourths of an Inch

Math Probe: Measuring Length

Lesson 11: Show Measurement Data on a Line Plot

Unit 13: Describe and Analyze 2-Dimensional Shapes

Lesson 1: Describe and Classify Polygons

Lesson 2: Describe Quadrilaterals

Lesson 3: Classify Quadrilaterals

Math Probe: Classifying Shapes

Lesson 4: Draw Quadrilaterals with Specific Attributes

Oklahoma Lessons

OK Lesson 1: Place Value Patterns

OK Lesson 2: Compare 4-Digit Numbers

OK Lesson 3: Order 4-Digit Numbers

OK Lesson 4: Compare and Order Multi-Digit Numbers

OK Lesson 5: Select and Use Metric Tools

OK Lesson 6: Solve Money Problems Involving Dollar Bills and Coins

OK Lesson 7: Use Tools to Measure Temperature

OK Lesson 8: Classify Angles in Polygons

OK Lesson 9: Recognize 3-Dimensional Shapes from Their Attributes

OK Lesson 10: Build 3-Dimensional Shapes

Oklahoma Lesson 11: Volume

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Lesson 6: Math Is Ours

Unit 2: Generalize Place-Value Structure

Lesson 1: Understand the Structure of Multi-Digit Numbers

Lesson 2: Read and Write Numbers to One Million

Lesson 3: Compare Multi-Digit Numbers

Lesson 4: Round Multi-Digit Numbers

Math Probe: Rounding Numbers

Unit 3: Addition and Subtraction Strategies and Algorithms

Lesson 1: Estimate Sums or Differences

Math Probe: Estimation

Lesson 2: Strategies to Add Multi-Digit Numbers

Lesson 3: Understand an Addition Algorithm

Lesson 4: Understand an Addition Algorithm Involving Regrouping

Lesson 5: Strategies to Subtract Multi-Digit Numbers

Lesson 6: Understand a Subtraction Algorithm

Lesson 7: Understand a Subtraction Algorithm Involving Regrouping

Lesson 8: Represent and Solve Multi-Step Problems

Lesson 9: Solve Multi-Step Problems Involving Addition and Subtraction

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Lesson 1: Understand Comparing with Multiplication

Lesson 2: Represent Comparison Problems

Lesson 3: Solve Comparison Problems Using Multiplication

Lesson 4: Solve Comparison Problems Using Division

Math Probe: Comparison Problems

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Lesson 1: Understand Factors of a Number

Math Probe: Factors

Lesson 2: Understand Prime and Composite Numbers

Lesson 3: Understand Multiples

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Lesson 5: Generate a Pattern

Lesson 6: Analyze Features of a Pattern

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Lesson 2: Estimate Products

Lesson 3: Use the Distributive Property to Multiply

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Lesson 6: Multiple Two Multiples of 10

Lesson 7: Multiply Two 2-Digit Factors

Math Probe: Estimate Products

Lesson 8: Solve Multi-Step Problems Involving Multiplication

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Lesson 3: Find Equal Shares

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Math Probe: Interpreting Remainders

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Math Probe: Comparing Fractions

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Math Probe: Fraction Sums and Differences

Lesson 6: Solve Problems Involving Fractions

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Lesson 5: Subtract Mixed Numbers

Lesson 6: Solve Problems Involving Mixed Numbers

Math Probe: Word Problems with Mixed Numbers

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Math Probe: Which is Greater?

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Math Probe: Decimal and Fraction Comparison

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Math Probe: Measuring Length in Inches

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Lesson 6: Solve Problems Involving Unknown Angle Measures

Lesson 7: Classify Polygons

Math Probe: Classifying Shapes

Lesson 8: Classify Triangles

Lesson 9: Understand Line Symmetry

Lesson 10: Draw Lines of Symmetry

Oklahoma Lessons

OK Lesson 1: Generate Numerical Patterns

OK Lesson 2: Generate More Numerical Patterns

OK Lesson 3: Frequency Tables

OK Lesson 4: Bar Graphs

OK Lesson 5: Timelines

OK Lesson 6: Venn Diagrams

OK Lesson 7: Properties of Quadrilaterals

OK Lesson 8: Classify Quadrilaterals by Properties

OK Lesson 9: Determine the Area of a Composite Figure

OK Lesson 10: Understand Volume

OK Lesson 11: Use Unit Cubes to Determine Volume

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Lesson 3: Use Formulas to Determine Volume

Math Probe: Volume of Rectangular Prisms

Lesson 4: Determine Volume of Composite Figures

Lesson 5: Solve Problems Involving Volume

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Lesson 3: Read and Write Decimals

Lesson 4: Compare Decimals

Math Probe: Comparing Decimals

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Math Probe: Estimating Decimal Sums and Differences

Lesson 2: Represent Addition of Decimals

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Lesson 4: Use Area Models to Multiply Multi-Digit Factors

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Lesson 6: Relate Partial Products to an Algorithm

Math Probe: Multiplication of 2-Digit Numbers

Lesson 7: Multiply Multi-Digit Factors Fluently

Unit 6: Multiply Decimals

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Math Probe: Decimal Multiplication

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Lesson 6: Explain Strategies to Multiply Decimals

Unit 7: Divide Whole Numbers

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Lesson 2: Estimate Quotients

Lesson 3: Relate Multiplication and Division of Multi-Digit Numbers

Lesson 4: Represent Division of 2-Digit Divisors

Lesson 5: Use Partial Quotients to Divide

Lesson 6: Divide Multi-Digit Whole Numbers

Lesson 7: Solve Problems Involving Division

Math Probe: Solving Division Word Problems

Unit 8: Divide Decimals

Lesson 1: Division Patterns with Decimals and Powers of 10

Lesson 2: Estimate Quotients of Decimals

Lesson 3: Represent Division of Decimals by a Whole Number

Lesson 4: Divide Decimals by Whole Numbers

Lesson 5: Divide Whole Numbers by Decimals

Lesson 6: Divide Decimals by Decimals

Math Probe: Decimal Division

GRADE 5

Unit 9: Add and Subtract Fractions

Lesson 1: Estimate Sums and Differences of Fractions

Math Probe: Make an Estimate of the Sum

Lesson 2: Represent Addition of Fractions with Unlike Denominators

Lesson 3: Add Fractions with Unlike Denominators

Lesson 4: Represent Subtraction of Fractions with Unlike Denominators

Lesson 5: Subtract Fractions with Unlike Denominators

Lesson 6: Add Mixed Numbers with Unlike Denominators

Lesson 7: Subtract Mixed Numbers with Unlike Denominators

Lesson 8: Add and Subtract Mixed Numbers with Regrouping

Lesson 9: Solve Problems Involving Fractions and Mixed Numbers

Unit 10: Multiply Fractions

Lesson 1: Represent Multiplication of a Whole Number by a Fraction

Lesson 2: Multiply a Whole Number by a Fraction

Math Probe: Fraction Problems

Lesson 3: Represent Multiplication of a Fraction by a Fraction

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Lesson 5: Determine the Area of Rectangles with Fractional Side Lengths

Lesson 6: Represent Multiplication of Mixed Numbers

Lesson 7: Multiply Mixed Numbers

Lesson 8: Multiplication as Scaling

Lesson 9: Solve Problems Inolving Fractions

Unit 11: Divide Fractions

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Lesson 6: Divide Unit Fractions by Non-Zero Whole Numbers

Math Probe: Which Expressions Represent the Situation?

Lesson 7: Solve Problems Involving Fractions

Unit 12: Measurement and Data

Lesson 1: Convert Customary Units

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Lesson 3: Solve Multi-Step Problems Involving Measurement Units

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Math Probe: Line Plots

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Lesson 1: Understand the Coordinate Plane

Lesson 2: Plot Ordered Pairs on the Coordinate Plane

Lesson 3: Represent Problems on a Coordinate Plane

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Math Probe: Ordered Pairs

Lesson 6: Classify Quadrilaterals by Properties

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Lesson 1: Write Numerical Expressions

Lesson 2: Interpret Numerical Expressions

Lesson 3: Evaluate Numerical Expressions

Math Probe: Order of Operations

Lesson 4: Numerical Patterns

Lesson 5: Relate Numerical Patterns

Lesson 6: Graphs of Numerical Patterns

Oklahoma Lessons

OK Lesson 1: Equivalent Terminating Decimals, Fractions, and Mixed Numbers

OK Lesson 2: Measure with a Ruler

OK Lesson 3: Measure with Metric Rulers

OK Lesson 4: Estimate Lengths and Geometric Measurements

OK Lesson 5: Solve Problems Involving Perimeter

OK Lesson 6: Determine Mode, Median, and Range of a Data Set

OK Lesson 7: Determine the Mean of a Data Set

OK Lesson 8: Angles

OK Lesson 9: Identify Three-Dimensional Figures

OK Lesson 10: Classify Three-Dimensional Figures

OK Lesson 11: Build Three-Dimensional Figures

OK Lesson 12: Variables

OK Lesson 13: Line Graphs

OK Lesson 14: Analyze Line Graphs

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Lesson Walkthrough

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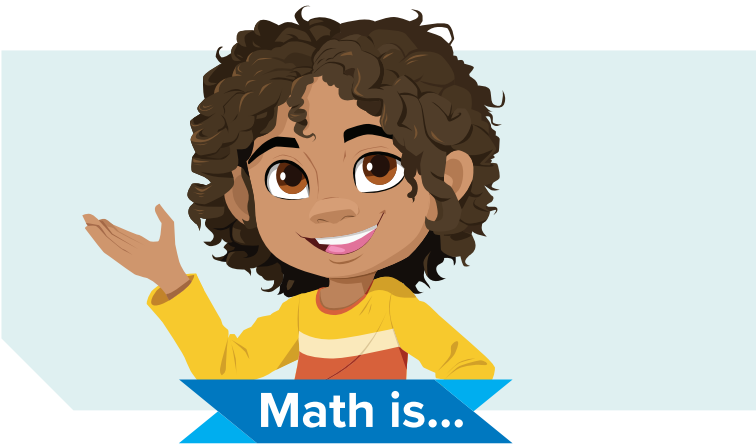
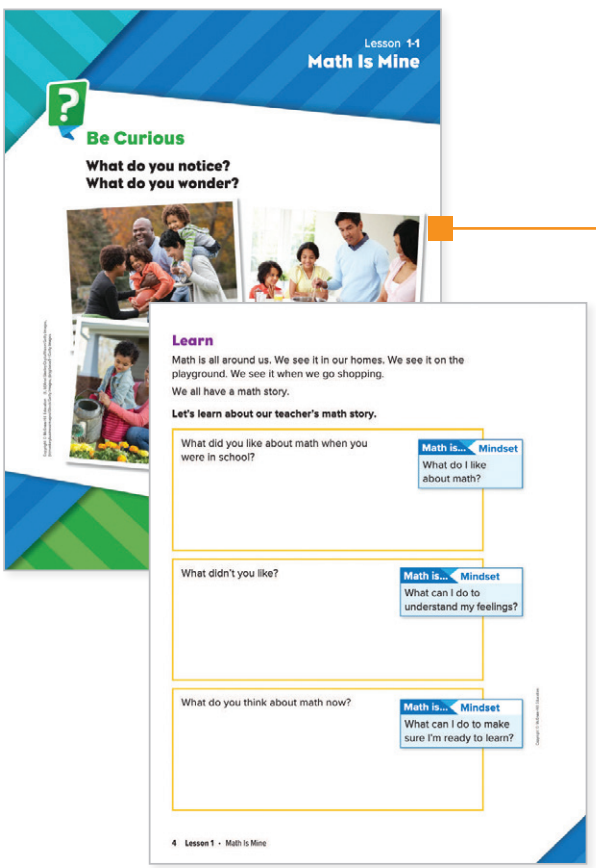
Math Is...

The **Math is...Unit**, the first unit of every grade level, helps students understand math as a set of problem-solving strategies instead of an end result. The unit establishes a productive classroom where all students can share ideas and collaborate freely.

- Find success in math and become doers of mathematics.
- Apply mathematical actions and processes to problem-solving.
- Take ownership of their personal learning journey.
- Become the creative problem solvers of tomorrow.




Lesson 1-1
Math Is Mine

Be Curious

What do you notice?
What do you wonder?

Learn

Math is all around us. We see it in our homes. We see it on the playground. We see it when we go shopping.
We all have a math story.

Let's learn about our teacher's math story.

What did you like about math when you were in school?

Math is... Mindset
What do I like about math?

What didn't you like?

Math is... Mindset
What can I do to understand my feelings?

What do you think about math now?

Math is... Mindset
What can I do to make sure I'm ready to learn?

4 Lesson 1 • Math Is Mine

Understand that their math story is ongoing

The first lesson aims to help **all students see themselves as doers of mathematics** and take ownership of their learning within the math classroom.

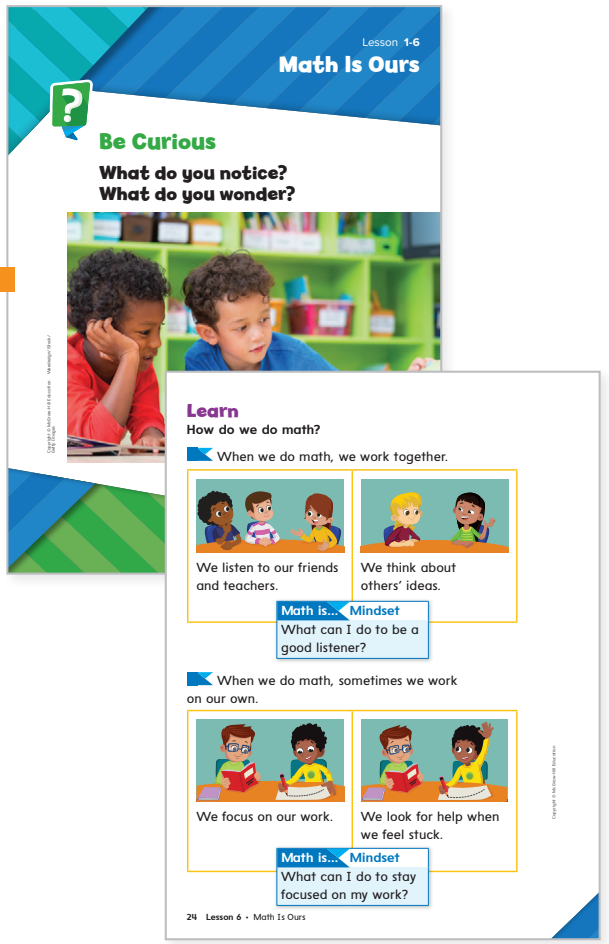
In this first lesson, students will:

- Learn about the teacher's personal math story.
- Craft their personal math story.

Develop mathematical thinking habits

Lessons 2 through 5 focus on the **Mathematical Actions and Processes**. Each lesson unpacks the thinking actions of one or two standards. Throughout these lessons, students will:

- Develop their mathematical thinking and reasoning skills.
- Communicate about and apply these skills to the problem-solving process.



Math is... Mindset

What can you do to work together with your classmates?

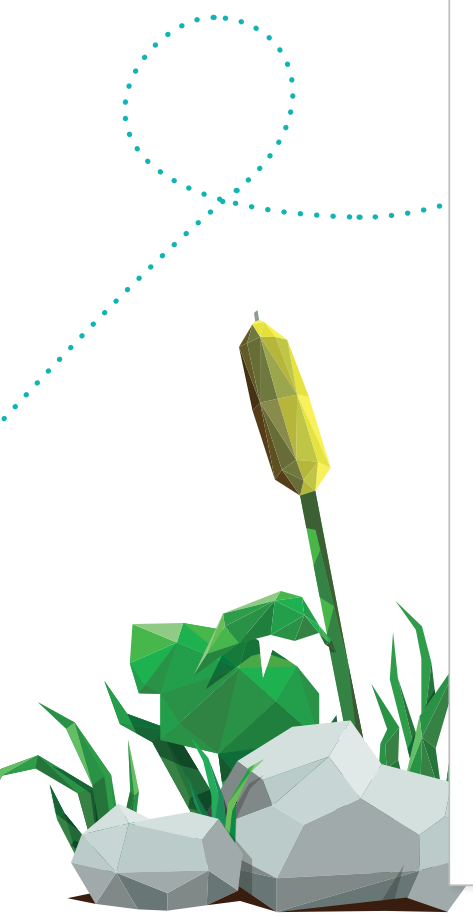
Math is...Prompts

Math is...prompts are embedded throughout the Student Edition to remind students of classroom expectations and support the ownership of their learning journey throughout the year.

The Unit Planner

Unit Planner provides essential information to help teachers plan for the unit, such as:

- Pacing
- Materials
- Objectives
- Key Vocabulary
- Materials List
- Elements of Rigor Focus



UNIT 2 PLANNER
Use Place Value to Fluently Add and Subtract within 1,000

PACING: 18 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	MATH MINDSET OBJECTIVE
Unit Opener	IGNITE! Penny Estimation	Students use strategies to estimate the number of pennies that will fit in a rectangular region.		
2-1	Represent 4-Digit Numbers	Students represent 4-digit numbers in expanded form, word form, and standard form using an understanding of place value.	Students describe 4-digit numbers using place value.	Students identify and discuss the emotions experienced during math learning.
2-2	Round Multi-Digit Numbers	Students round numbers to the nearest 10 or nearest 100.	Students will use the superlative *nearest* to explain rounding numbers.	Students collaborate with peers to complete a mathematical task and offer constructive feedback to the mathematical ideas posed by others.
Math Probe	Rounding Numbers	Gather data on students' understandings of rounding to the nearest 10 and nearest 100.		
2-3	Estimate Sums and Differences	Students use compatible numbers to estimate a sum or difference.	Students make numerical estimations using *about*.	Students recognize and work to understand the emotions of others and practice empathetic responses.
2-4	Use Addition Properties to Add	Students apply the properties of addition when adding two or more addends.	Students justify multiple ways to solve an addition problem using *and the sum will be the same.*	Students employ techniques that can be used to help maintain focus and manage reactions to potentially frustrating situations.
2-5	Addition Patterns	Students identify addition patterns and use the patterns to help determine sums of 3-digit numbers and check their accuracy.	Students read conditional sentences with *when* that express patterns.	Students develop and execute a plan, including selecting tools for mathematical problem solving.
2-6	Use Partial Sums to Add	Students use partial sums to add 3-digit numbers.	Students use *can* to explain the steps of an addition strategy.	Students recognize personal strengths through thoughtful self-reflection.
2-7	Decompose to Subtract	Students decompose one number in different ways to subtract.	Students compare ways to decompose a number using terms such as *one way* and *another*.	Students identify a problem, use creativity to execute problem-solving steps, and identify multiple solutions.
2-8	Adjust Numbers to Add or Subtract	Students adjust numbers to help them add or subtract.	Students express an opinion with support using language such as *I think* and *because*.	Students collaborate with peers and contribute to group effort to achieve a collective mathematical goal.
2-9	Use Addition to Subtract	Students use related addition equations to find the difference.	Students describe a bar diagram using precise measurements for distance.	Students recognize and work to understand the emotions of others and practice empathetic responses.
2-10	Fluently Add within 1,000	Students explain different strategies to add 3-digit numbers.	Students use the transitional word *then* to articulate a strategy with more than one step.	Students demonstrate self-awareness of personal strengths and areas of challenge in mathematics.
2-11	Fluently Subtract within 1,000	Students explain different strategies to subtract 3-digit numbers.	Students use command verbs to explain the steps of a strategy.	Students set a focused mathematical goal and make a plan for achieving that goal.
2-12	Solve Two-Step Problems Involving Addition and Subtraction	Students write and solve equations to represent a two-step problem. Students use letters for the unknowns.	Students describe the amount they need to find in a word problem using the verb *need*.	Students reflect on and describe the logic and reasoning used to make a mathematical decision or conclusion.
Unit Review				
Fluency Practice				
Performance Task				
Unit Assessment				

Highlighted words denote which **Key Vocabulary** words are introduced in the lesson.

FOCUS QUESTION:
How can I use strategies to add and subtract fluently?

LESSON	KEY VOCABULARY		MATERIALS TO GATHER		RIGOR FOCUS	STANDARD
	Math Terms	Academic Terms				
2-1	expanded form standard form word form	determine represent	• base-ten blocks • blank number cubes	• deck of playing cards • *Place-Value Charts to 1,000s* Teaching Resource	Conceptual Understanding	3.N.1.1, 3.N.1.2
2-2	round	discuss identify	• base-ten blocks • counters	• index cards • *Number Chart 401–500* Teaching Resource	Conceptual Understanding	
2-3	estimate compatible number	comparison reason	• blank number cubes	• *Number Cards 0–10* Teaching Resource	Procedural Skill & Fluency	3.N.1.5, 3.N.2.3
2-4	addend	justify strategy	• base-ten blocks • blank number cubes	• numbered spinner	Procedural Skill & Fluency	3.N.2.5, 3.A.2.2
2-5	even number odd number	analyze identify	• base-ten blocks • blank number cubes		Conceptual Understanding	3.N.2.5, 3.A.1.1
2-6	decompose partial sum	strategy support	• base-ten blocks • grid paper	• paper money ($1 bills, $10 bills, and $100 bills)	Procedural Skill & Fluency	3.N.2.5
2-7	decompose	defend strategy	• base-ten blocks	• *Number Cards 0–10* Teaching Resource	Procedural Skill & Fluency	3.N.2.5
2-8	difference sum	adjust process	• *Number Cards 0–10* Teaching Resource		Procedural Skill & Fluency	3.N.2.5
2-9	bar diagram	comparison conclude	• base-ten blocks • blank number cubes	• *Number Cards 0–10* Teaching Resource	Procedural Skill & Fluency	3.N.2.5
2-10	partial sum	justify process	• blank number cubes		Procedural Skill & Fluency	3.N.2.3, 3.N.2.5
2-11	decompose	justify response	• blank number cubes • transparent spinner		Procedural Skill & Fluency	3.N.2.3, 3.N.2.5
2-12	bar diagram unknown	identify process	• *Problem-Solving Tool* Teaching Resource		Conceptual Understanding, Application	

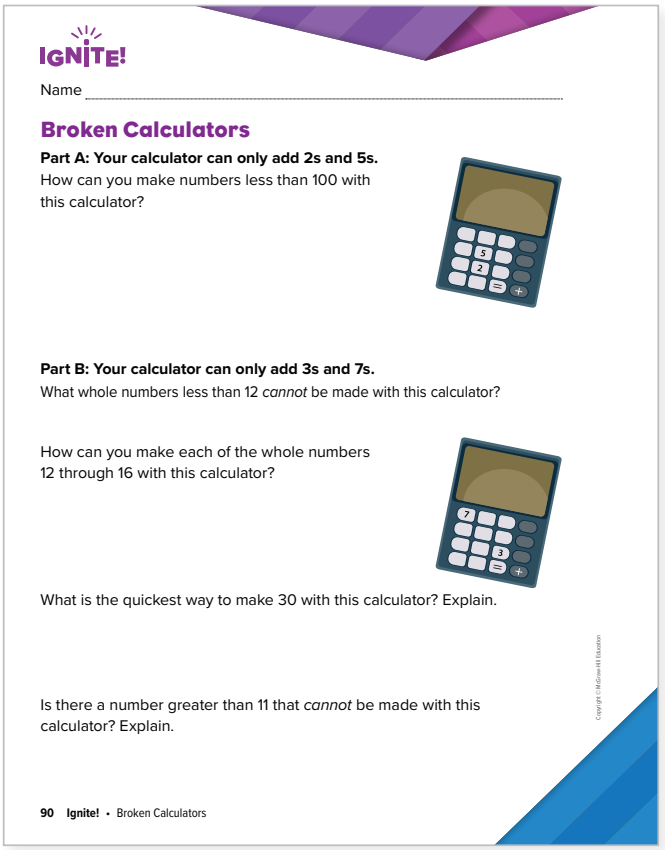
Math Probe within the unit helps teachers identify and address students' misconceptions.

Spark Curiosity

IGNITE!

Each unit opens with an **Ignite! activity,** an interesting problem or puzzle that:

- Sparks students' interest and curiosity.
- Provides only enough information to open up students' thinking.
- Motivates them to persevere through challenges involved in problem-solving.



IGNITE!

Name _____

Broken Calculators

Part A: Your calculator can only add 2s and 5s.
How can you make numbers less than 100 with this calculator?

Part B: Your calculator can only add 3s and 7s.
What whole numbers less than 12 *cannot* be made with this calculator?

How can you make each of the whole numbers 12 through 16 with this calculator?

What is the quickest way to make 30 with this calculator? Explain.

Is there a number greater than 11 that *cannot* be made with this calculator? Explain.

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Math Real-World Connections

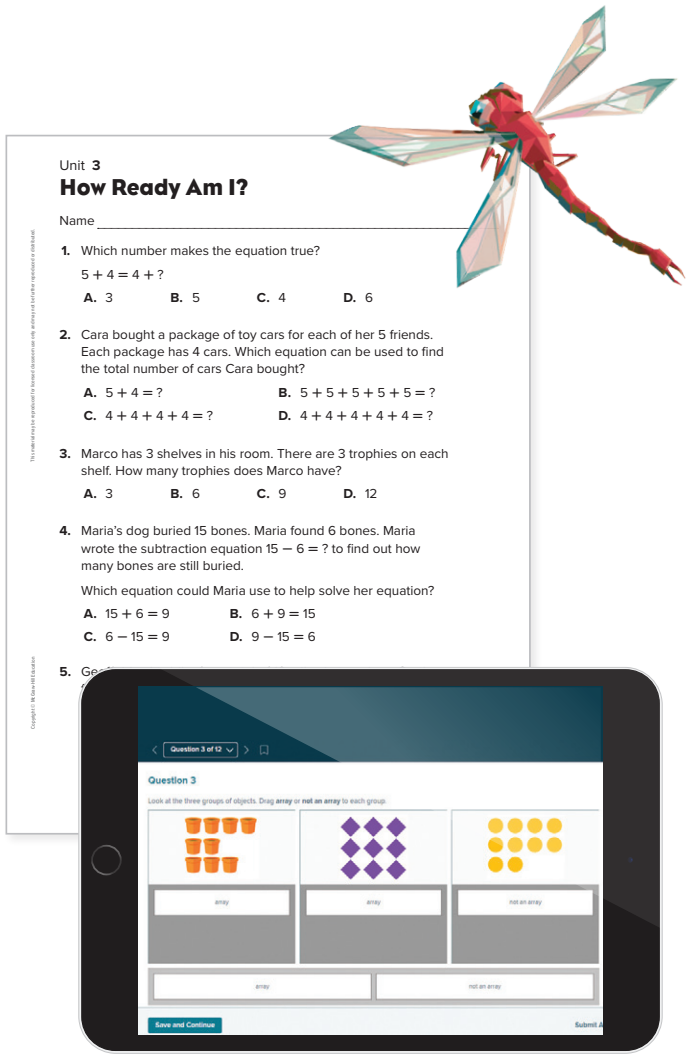
Each unit highlights a STEM career and shows real-world applications of math to help students see math as a tool to explore the world around them.

The **STEM Career Kid video** introduces a STEM Career, and the **Math in Action video** applies the math content of the unit to real-world situations.

Ensure Student Readiness for Each Unit

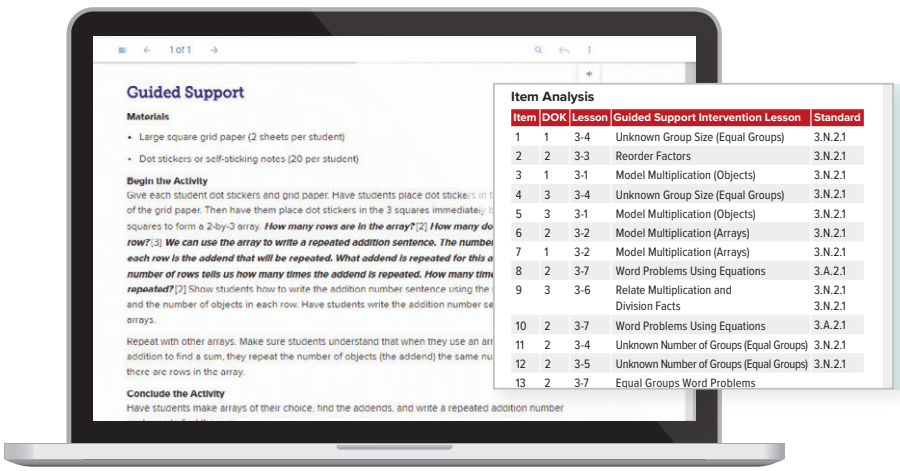
Identify Learning Gaps Early

The unit begins with a **Readiness Diagnostic** to assess each student's knowledge of essential pre-requisite skills for the unit. Teachers can utilize the targeted intervention resources to address the learning gaps and ensure students can access the grade-level unit content.



Targeted Intervention

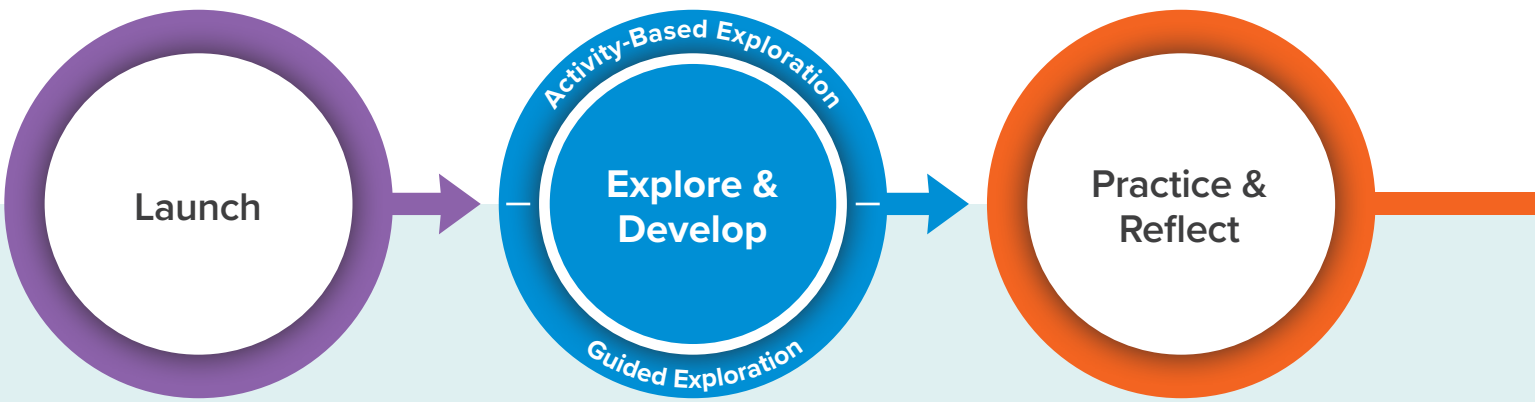
Intervention resources, including **Guided Supports** and **Skills Support Sheets,** align to the beginning- and end-of-unit assessment items. Resources are available at point-of-use to address misunderstanding and prior learning gaps.



Item Analysis charts in the Teacher Edition provide recommended intervention resources.

Flexible Lesson Model

Every lesson of ***Oklahoma Reveal Math*** provides two instructional options to develop the math content and tailor the lesson to the needs and structure of the classroom.



Teachers facilitate student conversations with the **Be Curious** activity to spark mathematical thinking and curiosity.

Teachers encourage student exploration through either the **Guided Exploration** or **Activity-Based Exploration** to foster student understanding.

(Two ways to teach every lesson!)

Students practice key concepts and skills in **On My Own** and reflect on their learning.

Routines

Instructional routines are embedded within every *Oklahoma Reveal Math* lesson to help students become proficient doers of mathematics.

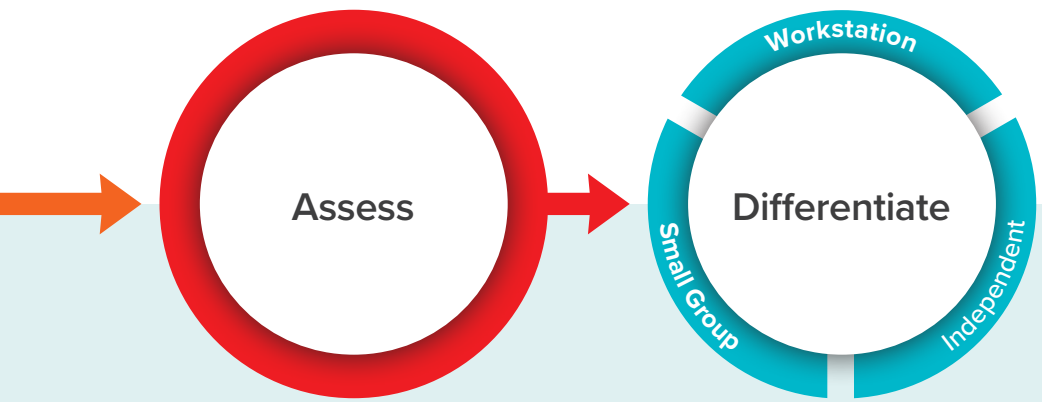
Build Fluency

Number Routines
Support the development of flexibility with numbers and fluency with operations at the start of every lesson.

MLR

Math Language Routines
Promote mathematical language use and development as part of math instruction.

Sense-Making Routines
Build sense-making as a foundation for problem-solving and mathematical modeling.



Teachers have students complete the **Exit Ticket** to inform instruction, and students communicate their confidence level with the teacher.

Teachers choose from a variety of **Daily Differentiation** activities to support every student in their path to understanding, pulling small groups as needed to reinforce understanding.

Launch

Lesson Overview

1. Oklahoma Academic Standards for Mathematics

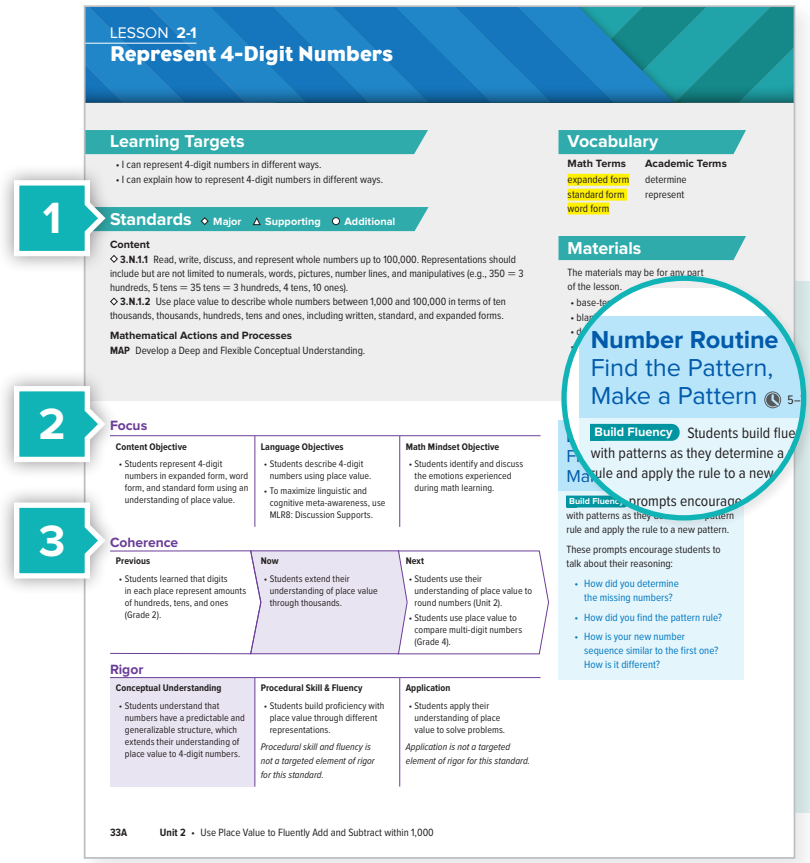
Learning Targets, Oklahoma Standards, and Math Actions and Processes are clearly labeled for each lesson.

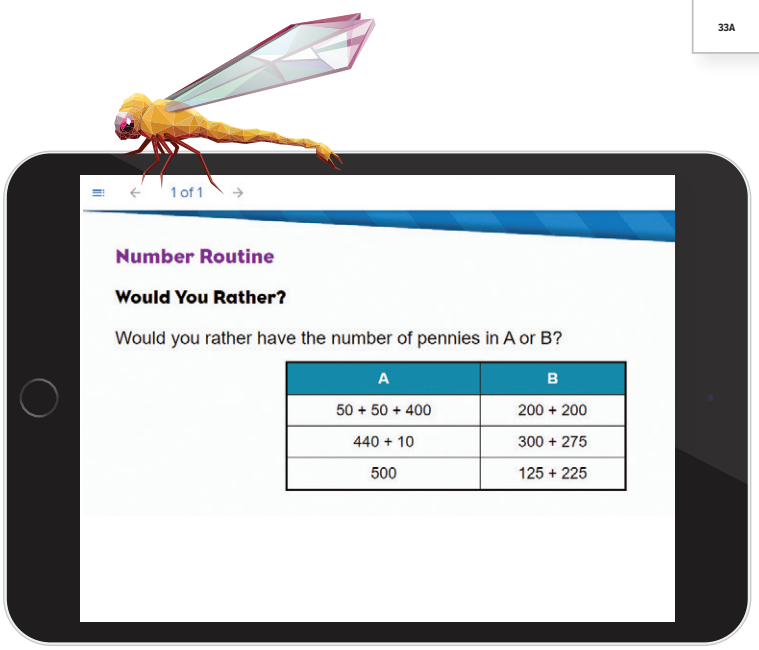
2. Lesson Focus

Each lesson establishes clear and concise lesson objectives.

3. Coherence

Horizontal and vertical progressions demonstrate connection of mathematical topics.



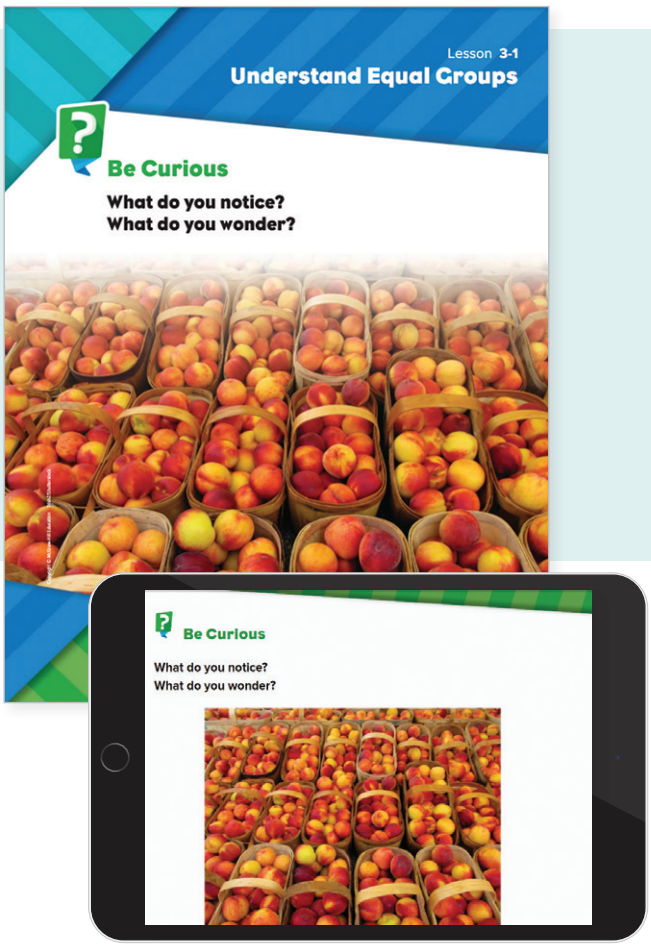


Daily Focus on Number Sense and Fluency

The **Number Routine** provides a daily focus on developing number sense and fluency with different methods. The Number Routine can be completed at any point in the day.

Notice and Wonder

Sense-making routines launch every lesson, creating an equitable classroom culture where all ideas are welcome and respected. Student curiosity and ideas shared in **Be Curious** become the base for the day's lesson.



"All students have ideas about math that are valid and worth talking about."

–Annie Fetter
Contributing Author

Accessible to All Students

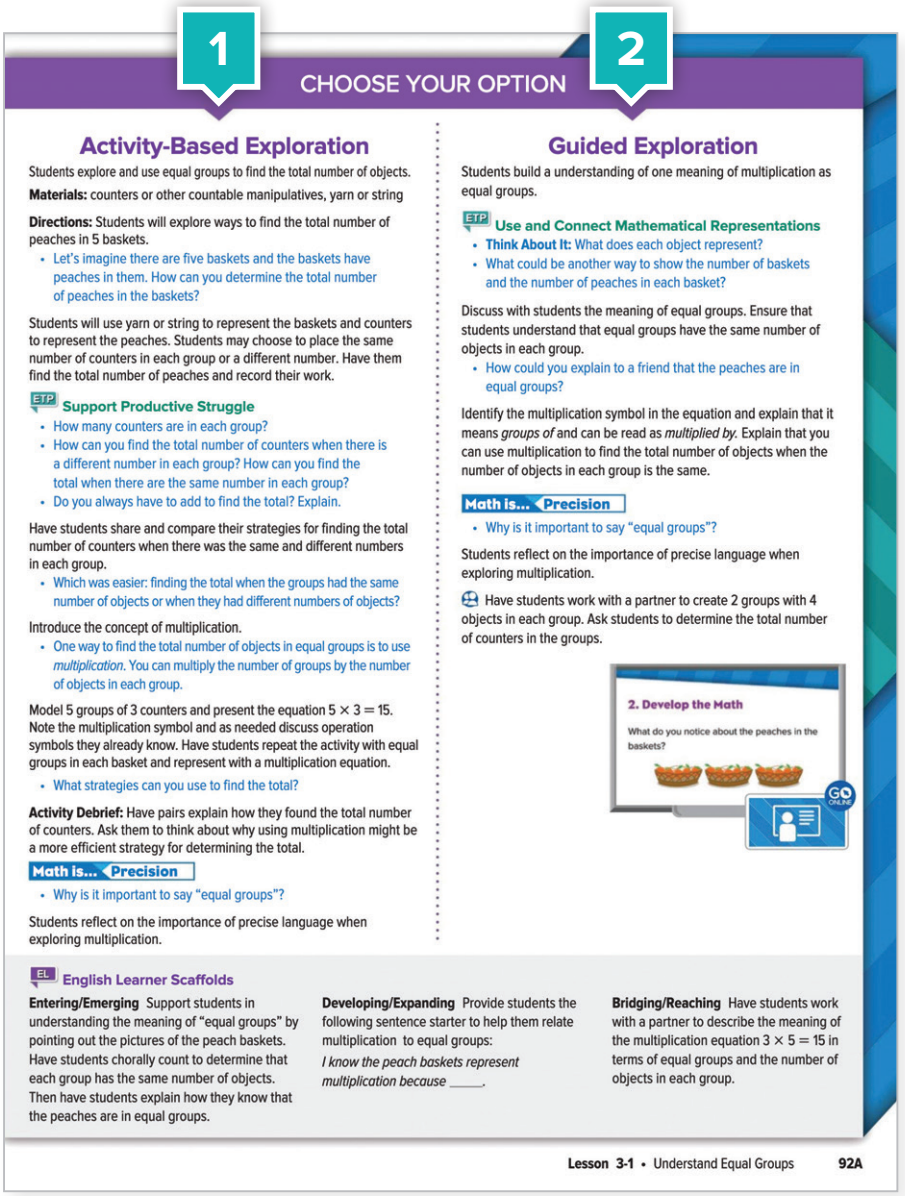
Be Curious offers a low floor, high ceiling routine that allows every student to explore and discuss their ideas with multiple entry points and approaches to problem-solving.

Explore & Develop

Build Understanding Through Exploration

Teachers have their **choice of two instructional strategies** to facilitate student exploration within Explore & Develop:

1. **Activity-Based Exploration** allows students to explore concepts, develop and test hypotheses, and—most importantly—engage in productive struggle as they use mathematical modeling to gain understanding.
2. **Guided Exploration** follows a teacher-facilitated exploration with a question-and-answer format and collaboration to promote rich discourse.



1

2

CHOOSE YOUR OPTION

Activity-Based Exploration

Students explore and use equal groups to find the total number of objects.

Materials: counters or other countable manipulatives, yarn or string

Directions: Students will explore ways to find the total number of peaches in 5 baskets.

- Let's imagine there are five baskets and the baskets have peaches in them. How can you determine the total number of peaches in the baskets?

Students will use yarn or string to represent the baskets and counters to represent the peaches. Students may choose to place the same number of counters in each group or a different number. Have them find the total number of peaches and record their work.

ETP **Support Productive Struggle**

- How many counters are in each group?
- How can you find the total number of counters when there is a different number in each group? How can you find the total when there are the same number in each group?
- Do you always have to add to find the total? Explain.

Have students share and compare their strategies for finding the total number of counters when there was the same and different numbers in each group.

- Which was easier: finding the total when the groups had the same number of objects or when they had different numbers of objects?

Introduce the concept of multiplication.

- One way to find the total number of objects in equal groups is to use *multiplication*. You can multiply the number of groups by the number of objects in each group.

Model 5 groups of 3 counters and present the equation $5 \times 3 = 15$. Note the multiplication symbol and as needed discuss operation symbols they already know. Have students repeat the activity with equal groups in each basket and represent with a multiplication equation.

- What strategies can you use to find the total?

Activity Debrief: Have pairs explain how they found the total number of counters. Ask them to think about why using multiplication might be a more efficient strategy for determining the total.

Math is... Precision

- Why is it important to say "equal groups"?

Students reflect on the importance of precise language when exploring multiplication.

Guided Exploration

Students build a understanding of one meaning of multiplication as equal groups.

ETP **Use and Connect Mathematical Representations**

- **Think About It:** What does each object represent?
- What could be another way to show the number of baskets and the number of peaches in each basket?

Discuss with students the meaning of equal groups. Ensure that students understand that equal groups have the same number of objects in each group.

- How could you explain to a friend that the peaches are in equal groups?

Identify the multiplication symbol in the equation and explain that it means *groups of* and can be read as *multiplied by*. Explain that you can use multiplication to find the total number of objects when the number of objects in each group is the same.

Math is... Precision

- Why is it important to say "equal groups"?

Students reflect on the importance of precise language when exploring multiplication.

Have students work with a partner to create 2 groups with 4 objects in each group. Ask students to determine the total number of counters in the groups.

EL **English Learner Scaffolds**

Entering/Emerging Support students in understanding the meaning of "equal groups" by pointing out the pictures of the peach baskets. Have students chorally count to determine that each group has the same number of objects. Then have students explain how they know that the peaches are in equal groups.

Developing/Expanding Provide students the following sentence starter to help them relate multiplication to equal groups:
I know the peach baskets represent multiplication because ____.

Bridging/Reaching Have students work with a partner to describe the meaning of the multiplication equation $3 \times 5 = 15$ in terms of equal groups and the number of objects in each group.

Lesson 3-1 • Understand Equal Groups 92A

Math is... Precision

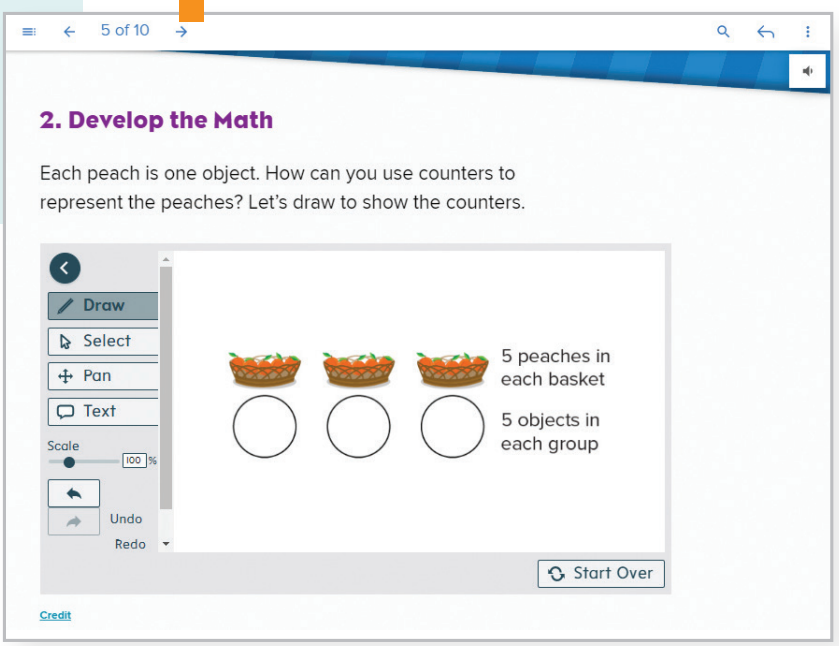
Encourage Mathematical Thinking Habits

To think like mathematicians, students must employ **mathematical processes and proficiency skills** to develop a problem-solving frame of mind.

Oklahoma Reveal Math helps students build proficiency through the **Math is... prompts**. These prompts are found in the Learn stage of every lesson and model the kinds of questions students can ask themselves to become proficient problem solvers and doers of math.

Explore & Develop also offers resources for teachers, like:

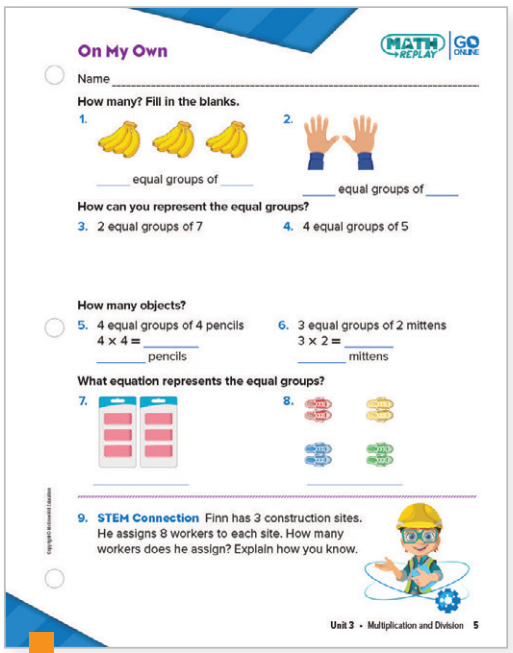
- **Integrated Effective Teaching Practices** guide instruction and discourse, keeping the student at the center of the learning.
- **Lesson Presentations** are available in an interactive format to demonstrate lesson concepts.



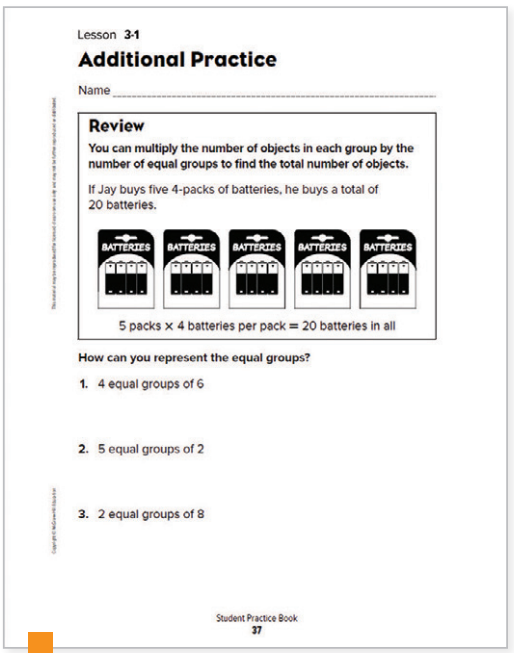
Practice & Reflect

Purposeful Practice

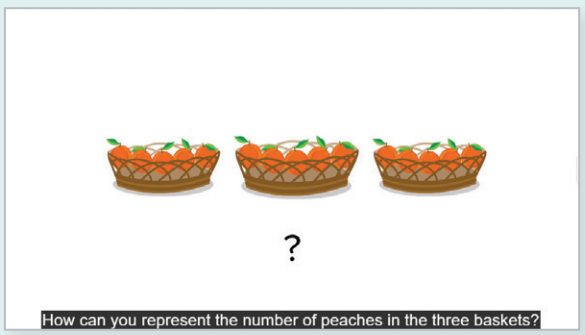
Practice & Reflect includes exercises that help students build conceptual understanding along with procedural reliability and fluency.



On My Own activities can be completed in the print or interactive Student Edition and are available in **Spanish**.



Additional practice can be found online and can be downloaded or printed.



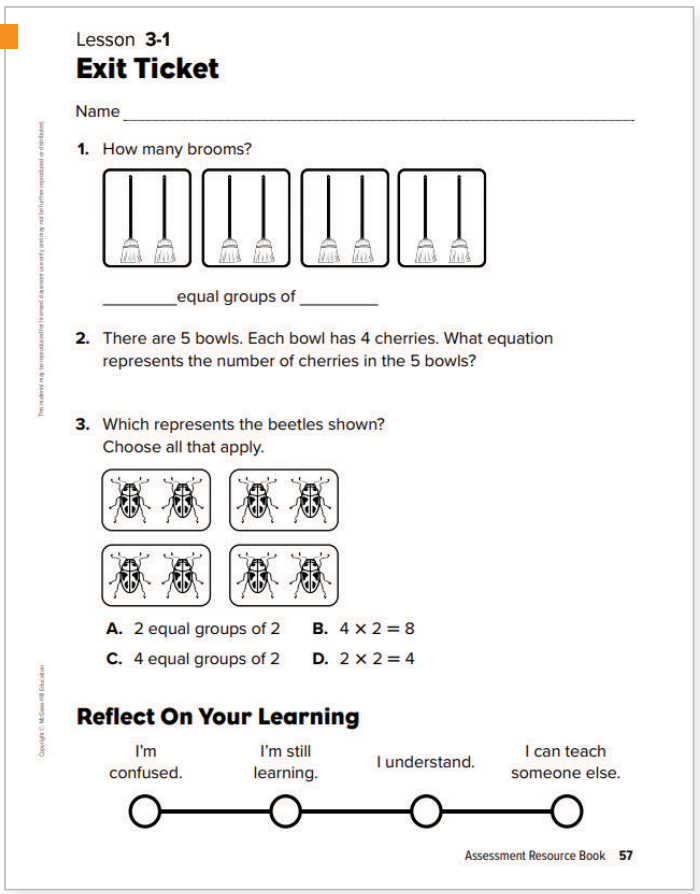
MATH REPLAY

Every lesson contains a one- to two-minute video explanation of the lesson concept for students to reference as they complete independent work.

Data Driven Learning

Exit Tickets are daily, quick formative assessments that take the guessing out of planning meaningful differentiation.

Teachers use students' scores on the Exit Ticket to decide on differentiated assignments from the robust differentiation resources available. When students complete the Exit Ticket in the digital environment, their work is auto-scored, and mastery reports are generated.



Lesson 3-1

Exit Ticket

Name _____

1. How many brooms?

_____equal groups of _____

2. There are 5 bowls. Each bowl has 4 cherries. What equation represents the number of cherries in the 5 bowls?

3. Which represents the beetles shown? Choose all that apply.

A. 2 equal groups of 2
B. $4 \times 2 = 8$
C. 4 equal groups of 2
D. $2 \times 2 = 4$

Reflect On Your Learning

I'm confused. | I'm still learning. | I understand. | I can teach someone else.

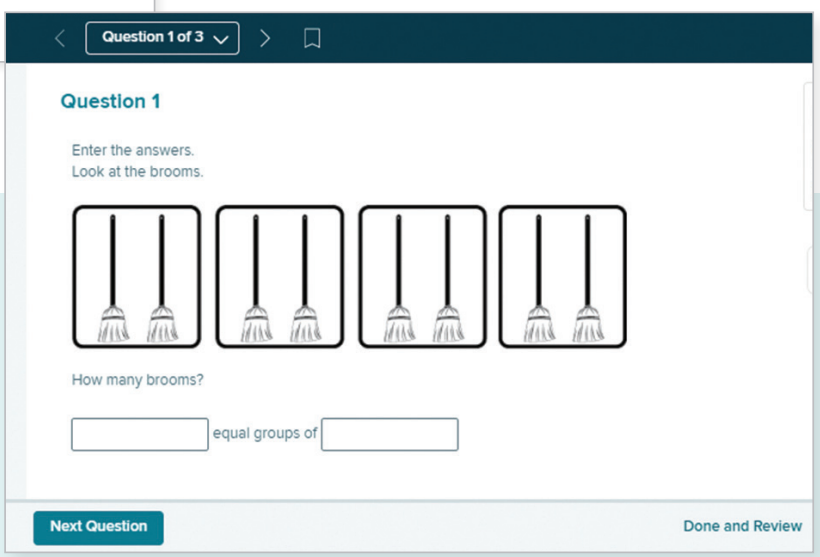
Assessment Resource Book 57

Exit Ticket Recommendations

If students score	Then have students do
4 of 4	Additional Practice or any of the ◌ or ◌ activities
3 of 4	*Take Another Look* or any of the ◌ activities
2 or fewer of 4	Small Group Intervention or any of the ◌ activities

Key for Differentiation

- ◌ Reinforce Understanding
- ◌ Build Proficiency
- ◌ Extend Thinking



Question 1 of 3

Question 1

Enter the answers.
Look at the brooms.

How many brooms?

_____ equal groups of _____

Next Question

Done and Review

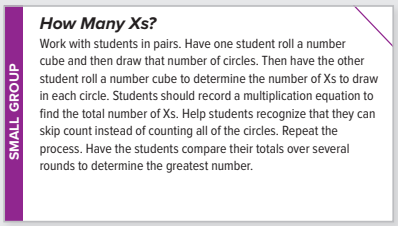
Differentiate

Flexible Differentiation Options

Workstations

Online Practice

Reinforce Understanding

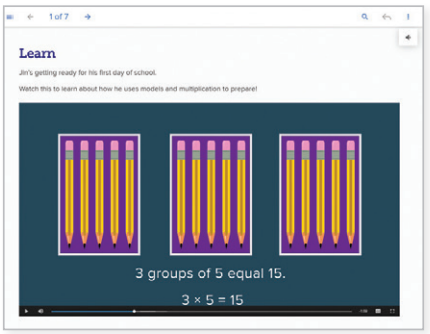

SMALL GROUP

How Many Xs?

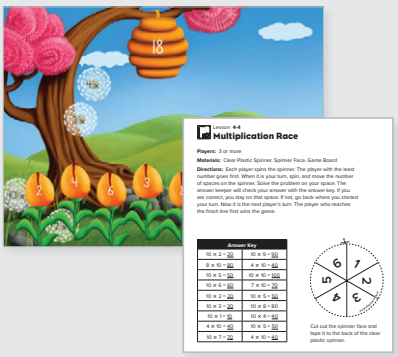
Work with students in pairs. Have one student roll a number cube and then draw that number of circles. Then have the other student roll a number cube to determine the number of Xs to draw in each circle. Students should record a multiplication equation to find the total number of Xs. Help students recognize that they can skip count instead of counting all of the circles. Repeat the process. Have the students compare their totals over several rounds to determine the greatest number.

Small-Group Instruction

Teacher-facilitated small group mini-lessons use concrete modeling and discussion to reteach and build conceptual understanding.



Build Proficiency


Lesson 4-4
Multiplication Race

Players: 3 or more

Materials: Clear Plastic Spinner, Spinner Face, Game Board

Directions: Each player spins the spinner. The player with the least number goes first. When it is your turn, spin, and move the number of spaces on the spinner. Solve the problem on your space. The answer keeper will check your answer with the answer key. If you are correct, you stay on that space. If not, go back where you started your turn. Now it is the next player's turn. The player who reaches the finish line first wins the game.

Answer Key	
10 × 2 = 20	10 × 9 = 90
8 × 10 = 80	4 × 10 = 40
10 × 5 = 50	10 × 10 = 100
10 × 6 = 60	7 × 10 = 70
10 × 2 = 20	10 × 5 = 50
10 × 3 = 30	10 × 8 = 80
10 × 1 = 10	10 × 4 = 40
4 × 10 = 40	10 × 5 = 50
10 × 7 = 70	4 × 10 = 40

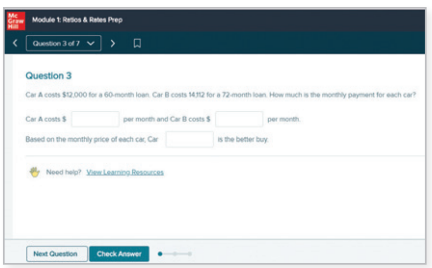
Cut out the spinner face and tape it to the back of the clear plastic spinner.

Digital Station

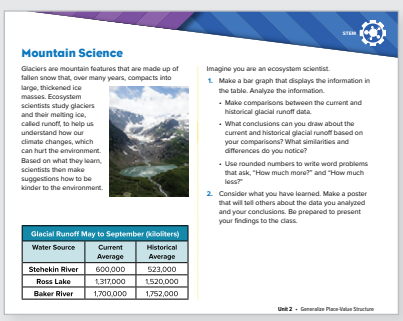
Digital games encourage proficiency through a fun and engaging practice environment.

Manipulatives

A fun way to engage with the lesson content and collaborate with classmates.



Extended Thinking


STEM

Mountain Science

Glaciers are mountain features that are made up of fallen snow that, over many years, compacts into large, thickened ice masses. Ecosystem scientists study glaciers and their melting ice, called runoff, to help us understand how our climate changes, which can hurt the environment. Based on what they learn, scientists then make suggestions how to be kinder to the environment.

Imagine you are an ecosystem scientist.

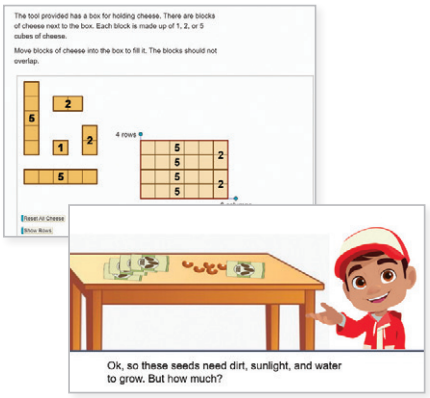
1. Make a bar graph that displays the information in the table. Analyze the information.
   - Make comparisons between the current and historical glacial runoff data.
   - What conclusions can you draw about the current and historical glacial runoff based on your comparisons? What similarities and differences do you notice?
   - Use rounded numbers to write word problems that ask, "How much more?" and "How much less?"
2. Consider what you have learned. Make a poster that will tell others about the data you analyzed and your conclusions. Be prepared to present your findings to the class.

Glacial Runoff May to September (kiloliters)		
Water Source	Current Average	Historical Average
Stehekin River	600,000	523,000
Ross Lake	1,317,000	1,520,000
Baker River	1,700,000	1,752,000

Unit 2 • Generalize Place-Value Structure

Application Station

Students apply concepts to solve non-routine problems through one of three categories of application cards: STEM Projects, Cross-Curricular Connections, or Real-World Problem-Solving cards.



Online Practice	Independent Practice
Reinforce Understanding	
Take Another Look Assignable mini-lessons provide actionable data to help inform instruction while supporting each student with a three-part, gradual-release activity.	**Reinforce Understanding Activity Practice Sheet** Students revisit the lesson concepts to reinforce their understanding.
Build Proficiency	
Spiral Review Grade-level concepts and skills practice prepare students for end-of-year testing.	**Additional Practice** Students can complete additional practice of the lesson concepts online to build proficiency.
Extended Thinking	
WebSketch Exploration Students explore a concept within an open-ended environment. **STEM Adventures** STEM Adventures are rich digital simulations that allow students to apply skills and concepts to solve real-world problems.	**Extend Thinking Practice Sheet** Students complete an enrichment or extension activity.

Math Probes

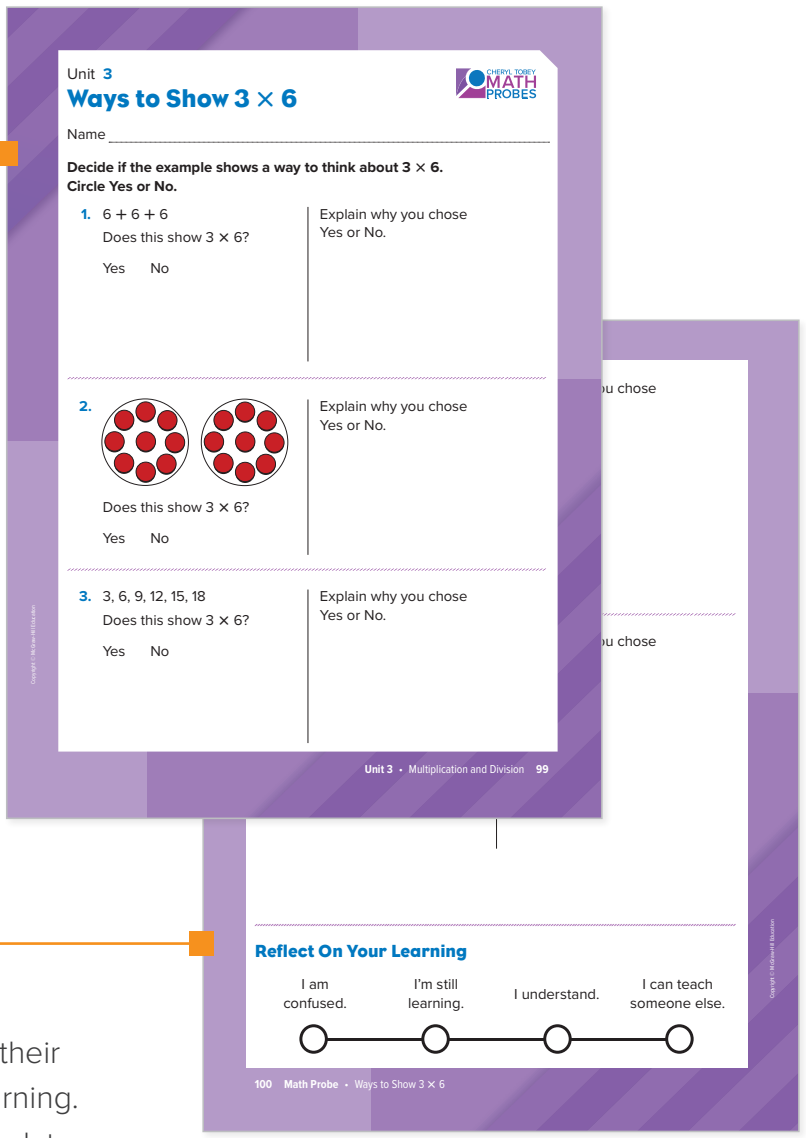
Target Common Misconceptions

Math Probes, written by Cheryl Tobey, are designed to uncover students' misconceptions within every unit. These probes, placed at the point of use, allow teachers to make sound instructional choices targeting specific mathematics concepts.

Short, Formative Assessment

Each Math Probe has three to four 2-part items:

- **Part One** assesses students' understanding of concepts.
- **Part Two** asks students to share their thinking about the concepts.



Reflect on your learning

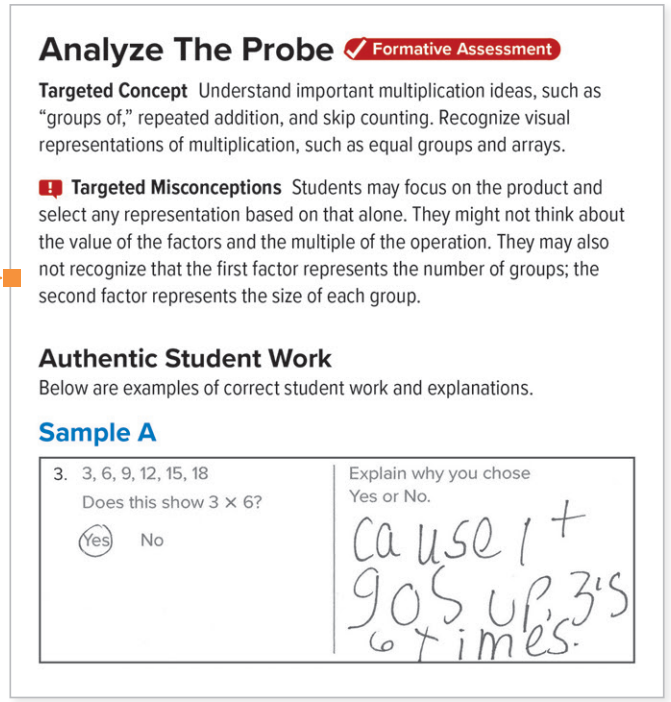
At the end of the Probe, students evaluate their understanding of the concepts they are learning. This self-evaluation offers teachers another data point of students' understanding.

Designed to ACT

Math Probes are accompanied by teacher support materials that are built around a three-part ACT cycle:

Analyze the Probe

Prior to administering the Math Probe, the teacher completes the Math Probe items and anticipates student difficulties.



Analyze The Probe

Formative Assessment

Targeted Concept Understand important multiplication ideas, such as "groups of," repeated addition, and skip counting. Recognize visual representations of multiplication, such as equal groups and arrays.

Targeted Misconceptions Students may focus on the product and select any representation based on that alone. They might not think about the value of the factors and the multiple of the operation. They may also not recognize that the first factor represents the number of groups; the second factor represents the size of each group.

Authentic Student Work

Below are examples of correct student work and explanations.

Sample A

3. 3, 6, 9, 12, 15, 18

Does this show 3 × 6?

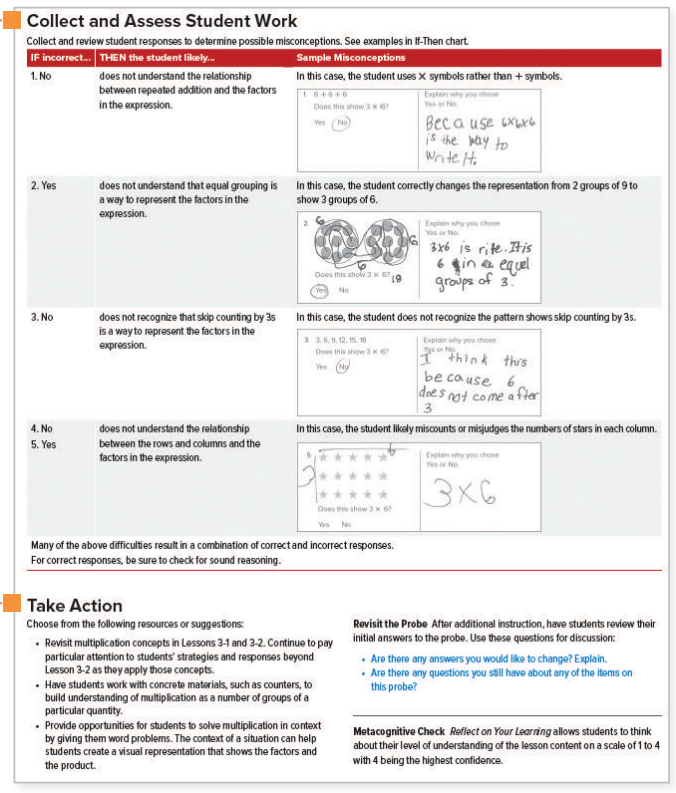
(Yes) No

Explain why you chose Yes or No.

Cause 1 + goes up 3's 6 times.

Collect and Assess Student Work

After administering the Math Probe, the teacher reviews students' responses and explanations to look for patterns of understanding and misunderstandings.



Collect and Assess Student Work

Collect and review student responses to determine possible misconceptions. See examples in If-Then chart.

IF incorrect...	THEN the student likely...	Sample Misconceptions
1. No	does not understand the relationship between repeated addition and the factors in the expression.	In this case, the student uses × symbols rather than + symbols.
2. Yes	does not understand that equal grouping is a way to represent the factors in the expression.	In this case, the student correctly changes the representation from 2 groups of 9 to show 3 groups of 6.
3. No	does not recognize that skip counting by 3s is a way to represent the factors in the expression.	In this case, the student does not recognize the pattern shows skip counting by 3s.
4. No 5. Yes	does not understand the relationship between the rows and columns and the factors in the expression.	In this case, the student likely miscounts or misjudges the numbers of stars in each column.

Many of the above difficulties result in a combination of correct and incorrect responses. For correct responses, be sure to check for sound reasoning.

Take Action

Choose from the following resources or suggestions:

- Revisit multiplication concepts in Lessons 3-1 and 3-2. Continue to pay particular attention to students' strategies and responses beyond Lesson 3-2 as they apply those concepts.
- Have students work with concrete materials, such as counters, to build understanding of multiplication as a number of groups of a particular quantity.
- Provide opportunities for students to solve multiplication in context by giving them word problems. The context of a situation can help students create a visual representation that shows the factors and the product.

Revisit the Probe After additional instruction, have students review their initial answers to the probe. Use these questions for discussion:

- Are there any answers you would like to change? Explain.
- Are there any questions you still have about any of the items on this probe?

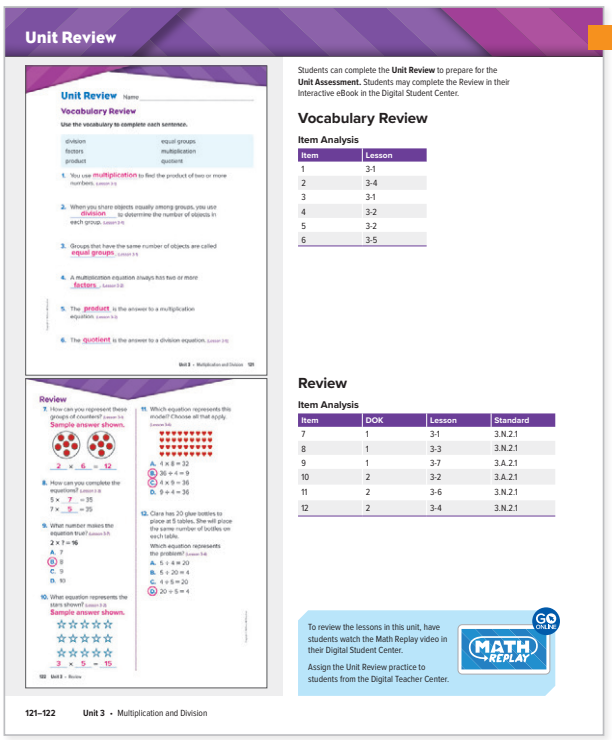
Metacognitive Check *Reflect on Your Learning* allows students to think about their level of understanding of the lesson content on a scale of 1 to 4 with 4 being the highest confidence.

Take Action

Remedies are provided tied to specific misconceptions, allowing students to identify and correct them efficiently.

Unit Review

The Unit Review includes a vocabulary review, content review, and a practice performance task to get students ready for the unit assessment.



Vocabulary Review

Item analysis tables include lesson references.

Content Review

Item analysis tables include depth of knowledge (DOK) level and lesson and standard correlation for each item.

Practice Performance Task

Scoring rubric includes DOK levels.

Reflect

Students reflect on their learning in the unit.

Performance Task

Standards: 3.N.2.1, 3.N.2.1, 3.A.2.1

Rubric (4 points)

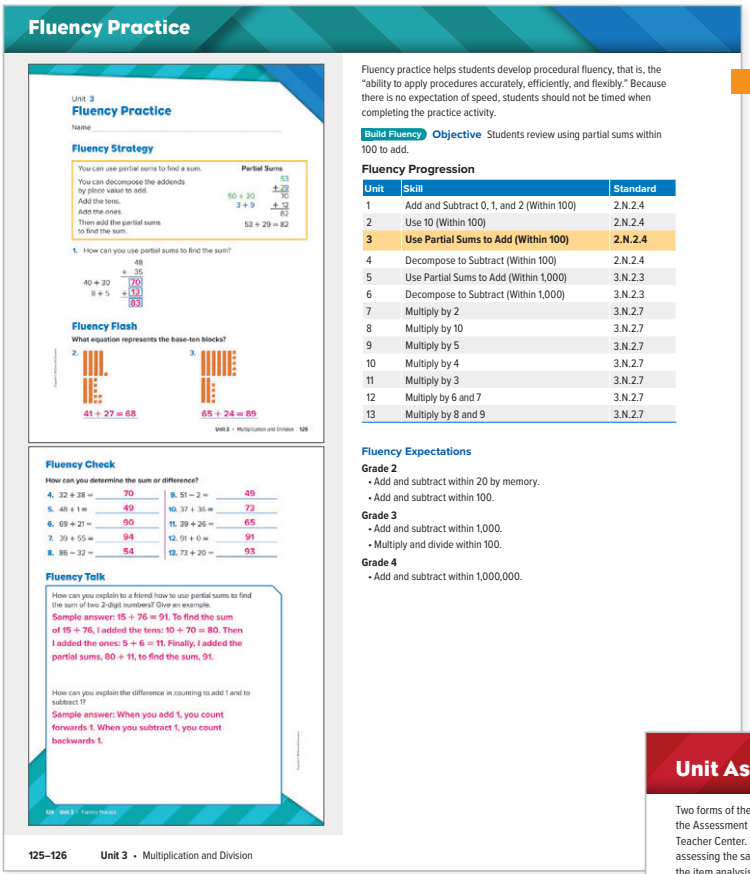
Part A (DOK 3) – 2 points	
2 POINTS	Student's work reflects proficiency solving a multiplication word problem. The student's solution is correct.
1 POINT	Student's work reflects developing proficiency solving a multiplication word problem. The solution to the problem is correct.
0 POINTS	Student's work reflects a poor understading of how to solve a multiplication word problem. The student's solution is incorrect.

Part B (DOK 3) – 2 points	
2 POINTS	Student's work reflects proficiency solving a division word problem. The student's solution is correct.
1 POINT	Student's work reflects developing proficiency solving a division word problem. The solution to the problem is correct.
0 POINTS	Student's work reflects a poor understading of how to solve a division word problem. The student's solution is incorrect.

Reflect

The Reflect question provides an opportunity for students to express their understanding of the unit level focus question.

Fluency Practice



Unit 3
Fluency Practice
Name

Fluency Strategy

You can use partial sums to find a sum.

You can decompose the addends by place value to add.
Add the tens.
Add the ones.
Then add the partial sums to find the sum.

Partial Sums
53 + 29
50 + 20 = 70
3 + 9 = 12
70 + 12 = 82

1. How can you use partial sums to find the sum?

48 + 35
40 + 30 = 70
8 + 5 = 13
70 + 13 = 83

Fluency Flash
What equation represents the base-ten blocks?
2. 41 + 27 = 68
3. 65 + 24 = 89

Fluency Check
How can you determine the sum or difference?
4. 32 + 38 = 70
5. 48 + 1 = 49
6. 69 + 21 = 90
7. 39 + 55 = 94
8. 86 − 32 = 54
9. 51 − 2 = 49
10. 37 + 36 = 73
11. 39 + 26 = 65
12. 91 + 0 = 91
13. 73 + 20 = 93

Fluency Talk
How can you explain to a friend how to use partial sums to find the sum of two 2-digit numbers? Give an example.
Sample answer: 15 + 76 = 91. To find the sum of 15 + 76, I added the tens: 10 + 70 = 80. Then I added the ones: 5 + 6 = 11. Finally, I added the partial sums, 80 + 11, to find the sum, 91.

How can you explain the difference in counting to add 1 and to subtract 1?
Sample answer: When you add 1, you count forwards 1. When you subtract 1, you count backwards 1.

126 Unit 3 • Fluency Practice

Fluency practice helps students develop procedural fluency, that is, the "ability to apply procedures accurately, efficiently, and flexibly." Because there is no expectation of speed, students should not be timed when completing the practice activity.

Build Fluency **Objective** Students review using partial sums within 100 to add.

Fluency Progression

Unit	Skill	Standard
1	Add and Subtract 0, 1, and 2 (Within 100)	2.N.2.4
2	Use 10 (Within 100)	2.N.2.4
3	**Use Partial Sums to Add (Within 100)**	**2.N.2.4**
4	Decompose to Subtract (Within 100)	2.N.2.4
5	Use Partial Sums to Add (Within 1,000)	3.N.2.3
6	Decompose to Subtract (Within 1,000)	3.N.2.3
7	Multiply by 2	3.N.2.7
8	Multiply by 10	3.N.2.7
9	Multiply by 5	3.N.2.7
10	Multiply by 4	3.N.2.7
11	Multiply by 3	3.N.2.7
12	Multiply by 6 and 7	3.N.2.7
13	Multiply by 8 and 9	3.N.2.7

Fluency Expectations

Grade 2
- Add and subtract within 20 by memory.
- Add and subtract within 100.

Grade 3
- Add and subtract within 1,000.
- Multiply and divide within 100.

Grade 4
- Add and subtract within 1,000,000.

125–126 Unit 3 • Multiplication and Division

Fluency Practice

- Includes fluency progression for each unit in the grade.
- Fluency expectations highlight expectations for current grade and previous grade.

Fluency Progressions are built into the program design to help teachers easily identify the objective and sequence of fluency activities.

Unit Assessments

- Includes scoring and rubric DOK levels for the performance task.
- Item analysis tables feature lesson and standard alignment with Guided Support Intervention for remediation.

Unit Assessment

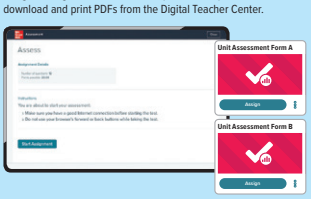
Two forms of the Unit Assessment, Form A and Form B, are available in the Assessment Resource Book or as downloadable files from the Digital Teacher Center. The items on the two assessments are parallel items, assessing the same concept and standard. The table below provides the item analysis for both forms.

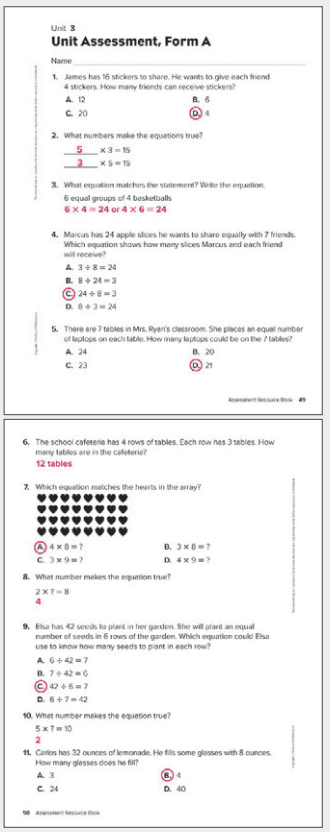
Data When students complete the Unit Assessment in the Digital Student Center, their responses are auto-scored.

Item Analysis

Item	DOK	Lesson	Guided Support Intervention Lesson	Standard
1	1	3-4	Unknown Group Size (Equal Groups)	3.N.2.1
2	2	3-3	Reorder Factors	3.N.2.1
3	1	3-1	Model Multiplication (Objects)	3.N.2.1
4	3	3-4	Unknown Group Size (Equal Groups)	3.N.2.1
5	3	3-1	Model Multiplication (Objects)	3.N.2.1
6	2	3-2	Model Multiplication (Arrays)	3.N.2.1
7	1	3-2	Model Multiplication (Arrays)	3.N.2.1
8	2	3-7	Word Problems Using Equations	3.A.2.1
9	3	3-6	Relate Multiplication and Division Facts	3.N.2.1 3.N.2.1
10	2	3-7	Word Problems Using Equations	3.A.2.1
11	2	3-4	Unknown Number of Groups (Equal Groups)	3.N.2.1
12	2	3-5	Unknown Number of Groups (Equal Groups)	3.N.2.1
13	2	3-7	Equal Groups Word Problems (Equations)	3.N.2.1
14	1	3-2	Unknown Number of Groups (Equal Groups)	3.N.2.1
15	3	3-6	Relate Multiplication and Division Facts	3.N.2.1
16	2	3-2	Model Multiplication (Arrays)	3.N.2.1
17	1	3-6	Relate Multiplication and Division Facts	3.N.2.1
18	2	3-2	Model Multiplication (Arrays)	3.N.2.1
19	3	3-3	Reorder Factors	3.N.2.1
20	2	3-6	Relate Multiplication and Division Facts	3.N.2.1, 3.N.2.1

Assign the digital Unit Assessment (Form A or B) to students or download and print PDFs from the Digital Teacher Center.





Unit 3
Unit Assessment, Form A
Name

1. James has 16 stickers to share. He wants to give each friend 4 stickers. How many friends can receive stickers?
A. 12 B. 6
C. 20 D. 4

2. What numbers make the equations true?
5 × 3 = 15
3 × 5 = 15

3. What equation matches the statement? Write the equation.
6 equal groups of 4 basketballs
6 × 4 = 24 or 4 × 6 = 24

4. Marcus has 24 apple slices he wants to share equally with 7 friends. Which equation shows how many slices Marcus and each friend will receive?
A. 3 ÷ 8 = 24
B. 8 ÷ 24 = 3
C. 24 ÷ 8 = 3
D. 8 ÷ 3 = 24

5. There are 7 tables in Mrs. Ryan's classroom. She places an equal number of laptops on each table. How many laptops could be on the 7 tables?
A. 24 B. 20
C. 23 D. 21

Assessment Resource Book 49

6. The school cafeteria has 4 rows of tables. Each row has 3 tables. How many tables are in the cafeteria?
12 tables

7. Which equation matches the hearts in the array?
A. 4 × 8 = ?
B. 3 × 8 = ?
C. 3 × 9 = ?
D. 4 × 9 = ?

8. What number makes the equation true?
2 × ? = 8
4

9. Elsa has 42 seeds to plant in her garden. She will plant an equal number of seeds in 6 rows of the garden. Which equation could Elsa use to know how many seeds to plant in each row?
A. 6 ÷ 42 = 7
B. 7 ÷ 42 = 6
C. 42 ÷ 6 = 7
D. 6 × 7 = 42

10. What number makes the equation true?
5 × 7 = 10
2

11. Carlos has 32 ounces of lemonade. He fills some glasses with 8 ounces. How many glasses does he fill?
A. 3 B. 4
C. 24 D. 40

50 Assessment Resource Book

126B Unit 3 • Multiplication and Division

Notes

Digital Quick Start

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Oklahoma Reveal Math®
The Digital Experience

Oklahoma Reveal Math develops the problem solvers of tomorrow with a blend of purposeful print and digital resources. Featuring integrated technology and plentiful opportunities for students to explore, collaborate, practice, and reflect, *Oklahoma Reveal Math* increases both student engagement and confidence.

Oklahoma Reveal Math currently integrates with the following Federated Standards: SAML 2.0 IDP, LTI 1.0, and Clever. Integration is possible with most learning management systems. Grade Passback and Assignment Sync are available with Canvas, Schoology, and Google Classroom; new integration required.

Use this Quick Start to review the Digital Teacher Center

- Teacher Dashboard
- Program Resources and Professional Development
- Unit Resources
- Lesson Resources for Teacher and Students
- Differentiation Resources
- Class Management Tools
- Assessments
- Reporting

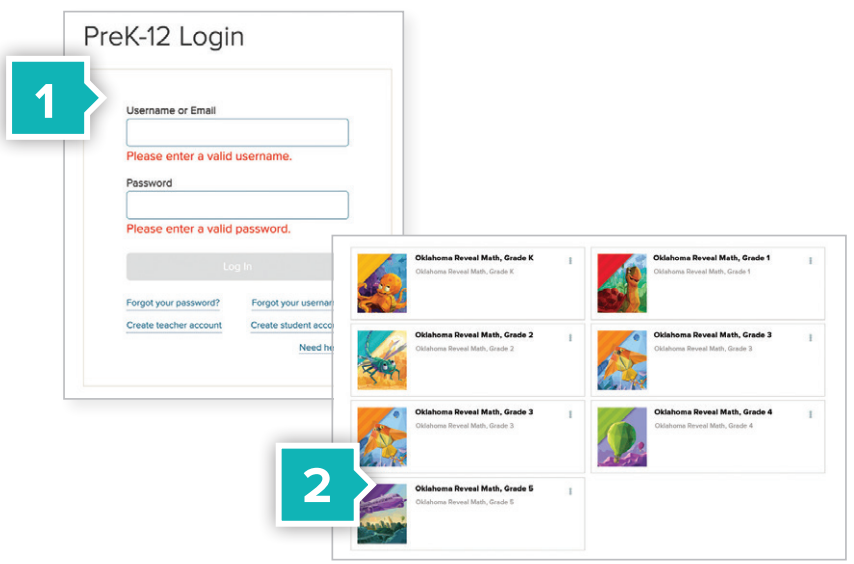
Get Started

1. Visit **my.mheducation.com** and enter your username and password.

   Username: K-5OKRevealMath

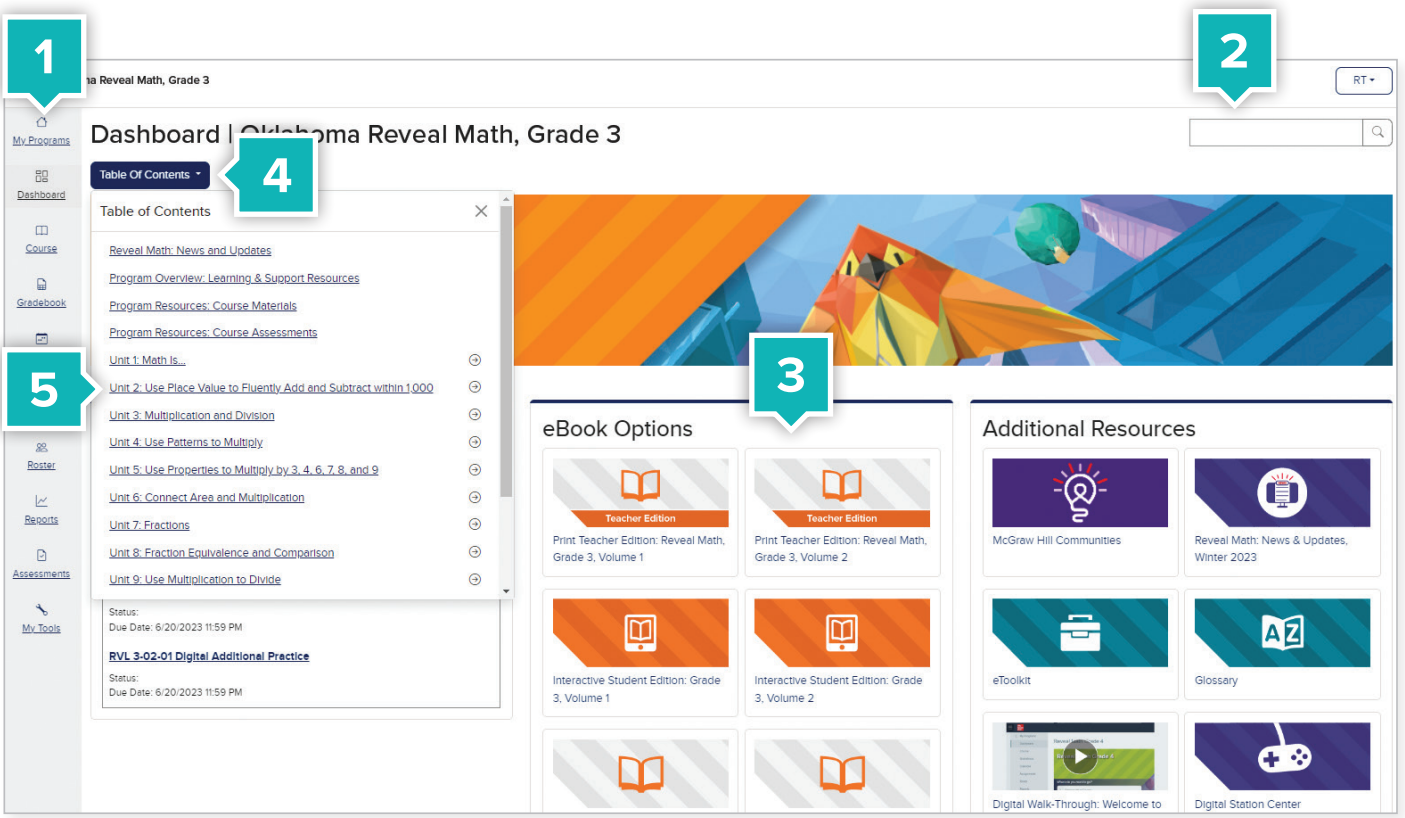
   Password: OKmath!!2023

2. Select desired grade-level class.



Teacher Dashboard

Use the Teacher Dashboard as a central location to navigate the Digital Teacher Center.



1. **Use side menu to locate:**
   - Dashboard
   - Course
   - Gradebook
   - Calendar
   - Assignments
   - Roster
   - Reports
   - Assessments
2. **Search content by keyword or standard.**
3. **Access eBooks** including Teacher Editions and Interactive Student Editions.
4. Click on **Table of Contents** to quickly navigate the course.
5. From the **Table of Contents**, click on the unit or lesson name to access the instructional resources.

Program Resources and Professional Development

Locate Program Resources from the Teacher Dashboard:

- Click **Table of Contents**.
- **Program Resources and Professional Developmental Materials** are located at the top of the **Table of Contents**.
- Click on the name of the resource you would like to review.

Program Overview: Learning & Support Resources

Teachers and administrators have access to self-paced, on-demand **Learning and Support Resources**, including:

- A Quick Start Course
- Digital Walkthrough Support
- Instructional Videos
- Workshop Modules

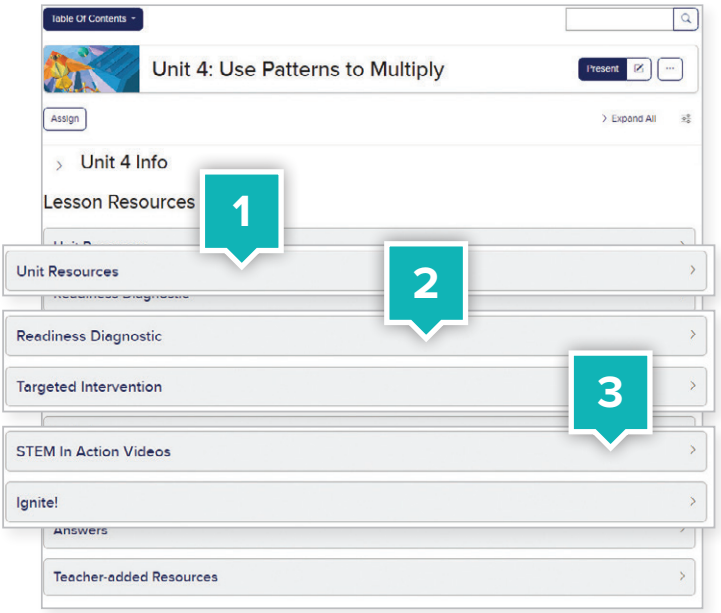
Program Resources: Course Materials

The following resources are available under **Course Materials**:

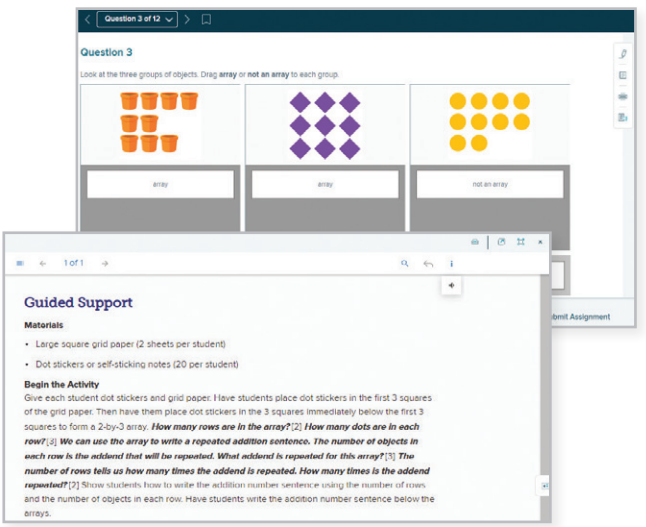
- Teacher and Student eBooks
- Teacher Planning Resources
- eToolkit
- Digital Game Library
- STEM Career Kid Video Library
- Math In Action Video Library
- Glossary

Unit Resources

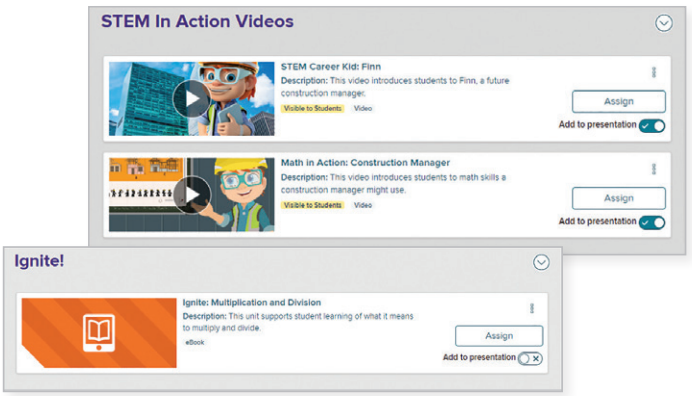
Click the **Table of Contents** and select a unit. Once you've reached your unit landing page, click **Expand All** to see the resources within each menu.



1. **Easily Plan with Point-of-Use Resources**
   - Expert Insight Videos
   - Teacher and Student eBooks
   - Family Letters (English and Spanish)
   - Vocabulary Cards
   - Foldables
   - Application Station Cards
   - And more!



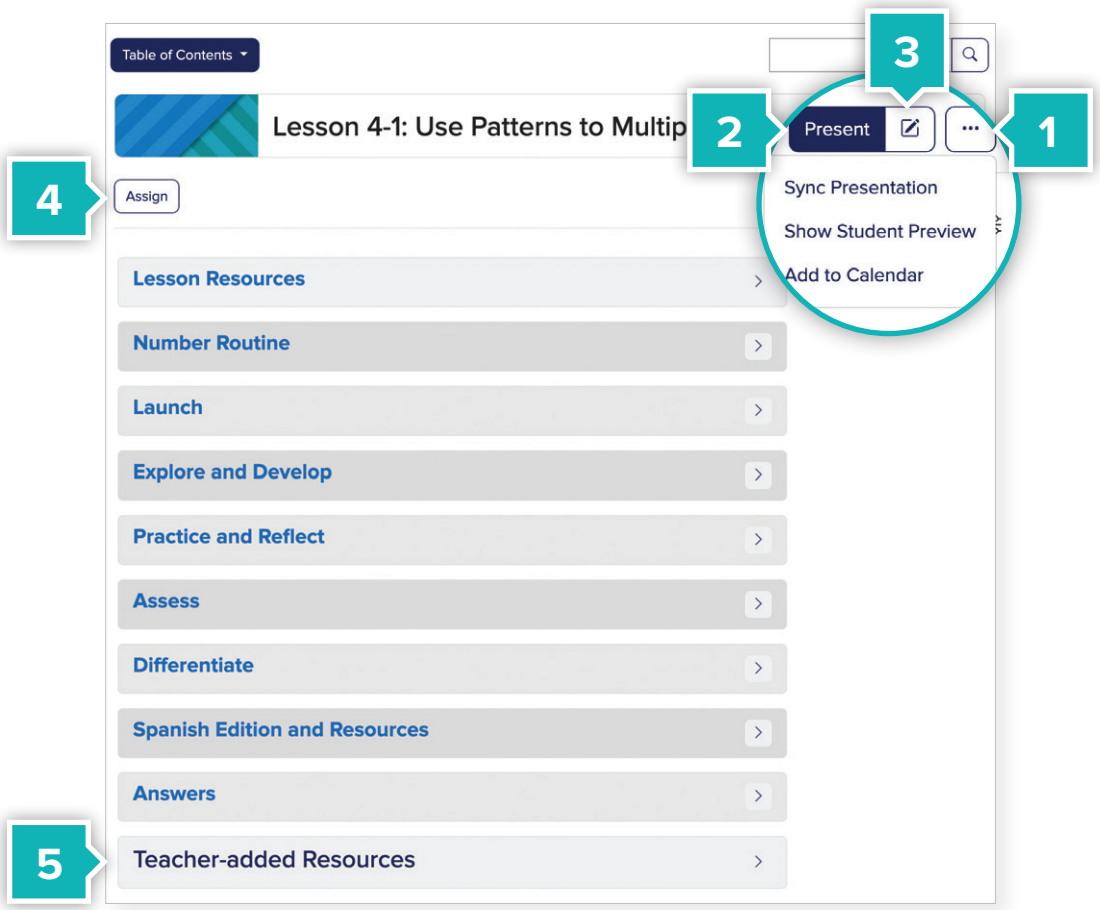
2. **Ensure Student Readiness**
   - **Readiness Diagnostic Assessment** to uncover any gaps in prerequisite knowledge needed to access the unit.
   - **Targeted Intervention** resources, including Guided Supports and Skills Support Sheets, align to the beginning- and end-of-unit assessment items.



3. **Spark Curiosity and Make Real-World Connections**
   - The STEM Career Kid video introduces the unit's STEM Career, and the Math in Action video applies the math content of the unit to real-world situations.
   - Each unit opens with an Ignite! activity, an interesting problem or puzzle that sparks students' interest and curiosity.

Lesson Resources for Teachers

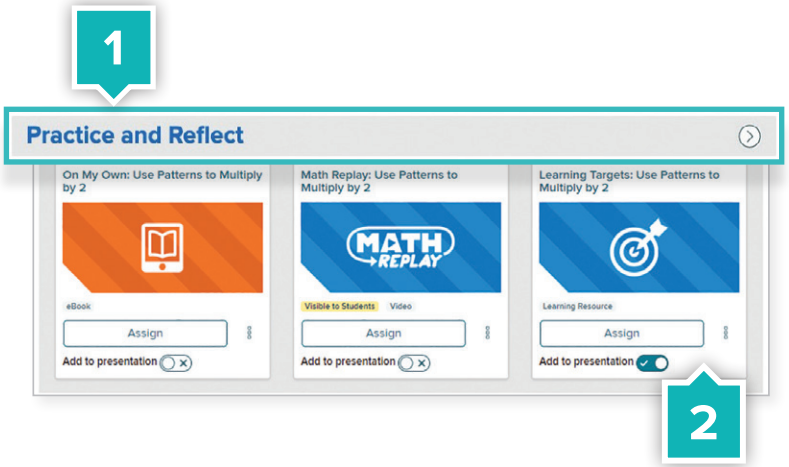
Click the **Table of Contents** and select a lesson. Once you've reached your lesson landing page, click **Expand All** to see the resources within each menu.



1. Add a lesson to your class calendar.
2. **Launch** your lesson presentation here.
3. You can also rearrange or edit the presentation by clicking the edit button.
4. **Assign** activities or assessments to an individual or a whole class.
5. Add your own resources to include in presentations or to assign to your students from the **Teacher-added Resources** menu.

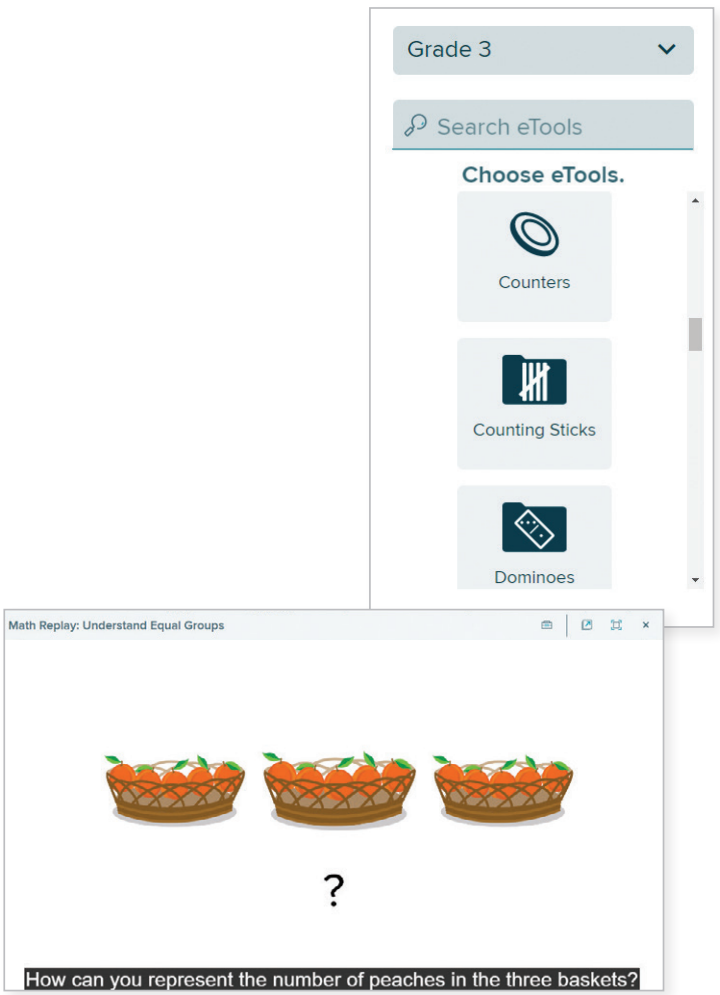
   You can easily plan and prepare using the simple layout organization that aligns with your print Teacher Edition.

Lesson Resources for Students



Teachers can assign students access to several instructional resources, including their **Interactive Student Edition**, and **Math Replay Videos**.

1. Click the section titled **Practice and Reflect**.
2. Click on the tile images to view the instructional resources.



Interactive Student Edition

When using their **Interactive Student Edition**, students can digitally take notes and answer questions, while accessing multimedia resources and **virtual manipulatives**.

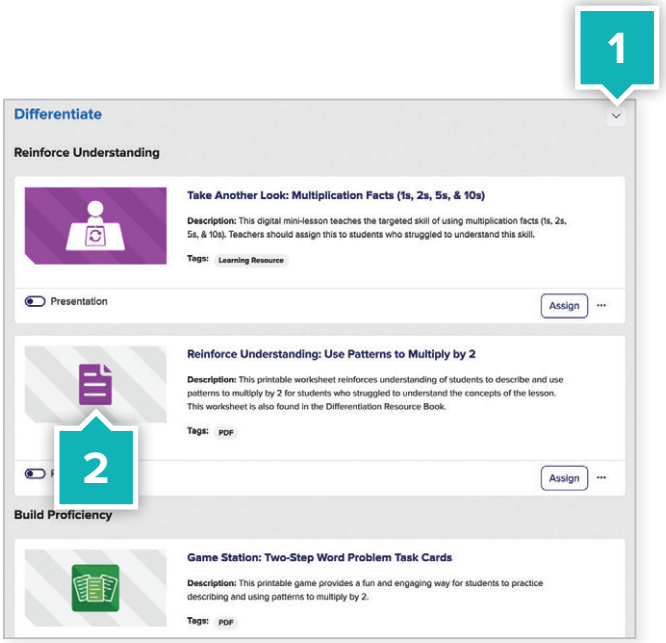
- Access **virtual manipulatives** using the **eToolkit** located on the top right corner of their **Interactive Student Edition**.

Math Replay

Math Replay Videos review the lesson concept for students and parents and can be referenced while completing independent work.

Differentiation Resources

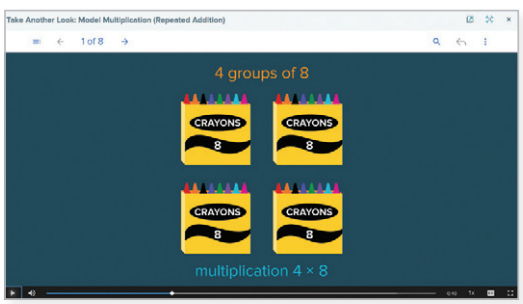
1. Review digital differentiation resources by clicking the section titled **Differentiate** within the lesson.
2. Click on the tile images to view the instructional resources.



Assignable Differentiated Activities

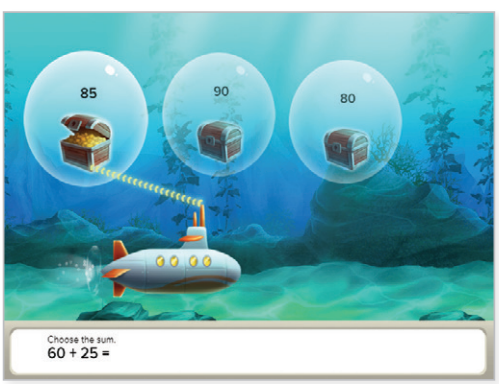
Following the Exit Ticket, teachers can deploy a variety of differentiated digital activities in addition to the purposeful practice provided with hands-on workstations and practice sheets.

Reinforce Understanding



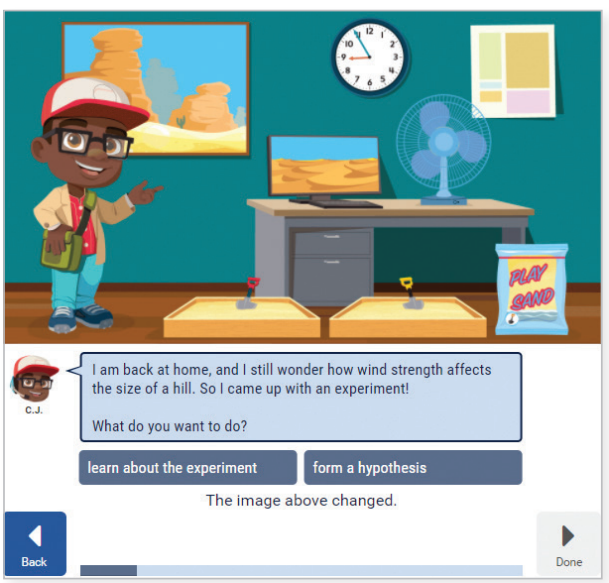
Take Another Look: Mini-Lesson

Build Proficiency



Digital Game

Extend Thinking



STEM Adventure

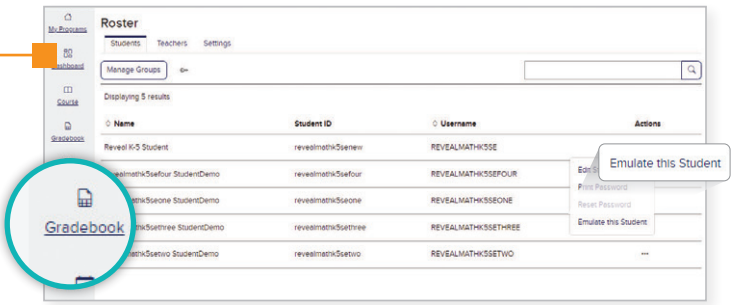
Each unit has either an embedded STEM Adventure or Websketch Exploration to provide application and/or extended thinking opportunities.

Classroom Management Tools

From the **Main Menu** on the left of the screen, click **Roster** to view some of the tools that make planning easier.

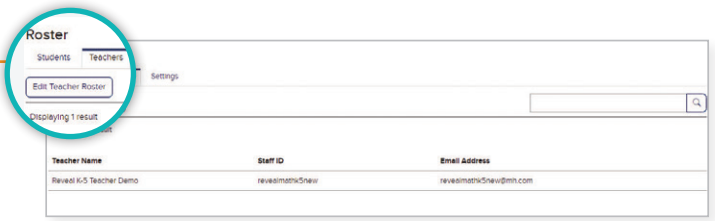
Preview Student Experience

Emulate this Student allows teachers to view which resources students will see and have access to in their Digital Student Center.



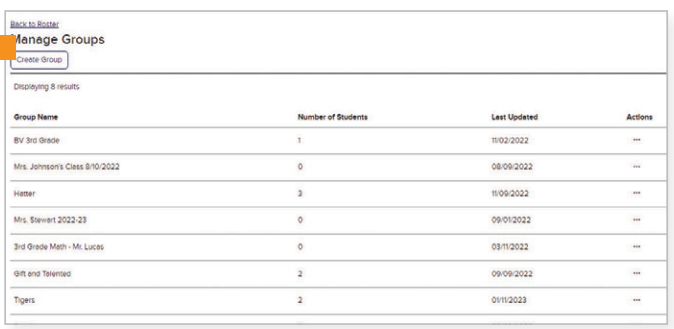
Share Your Class

Teachers can share class rosters, groupings, reports, assignments, lesson plans, and more with colleagues for the purpose of co-teaching, intervention, or instructional planning.



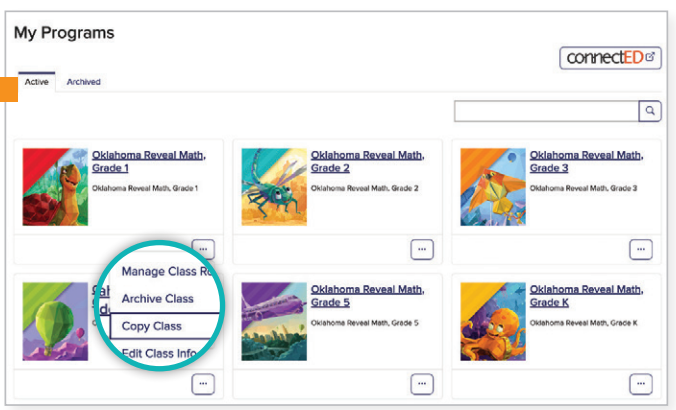
Group Your Students

Groups can be defined and used to differentiate assignments or assessments.



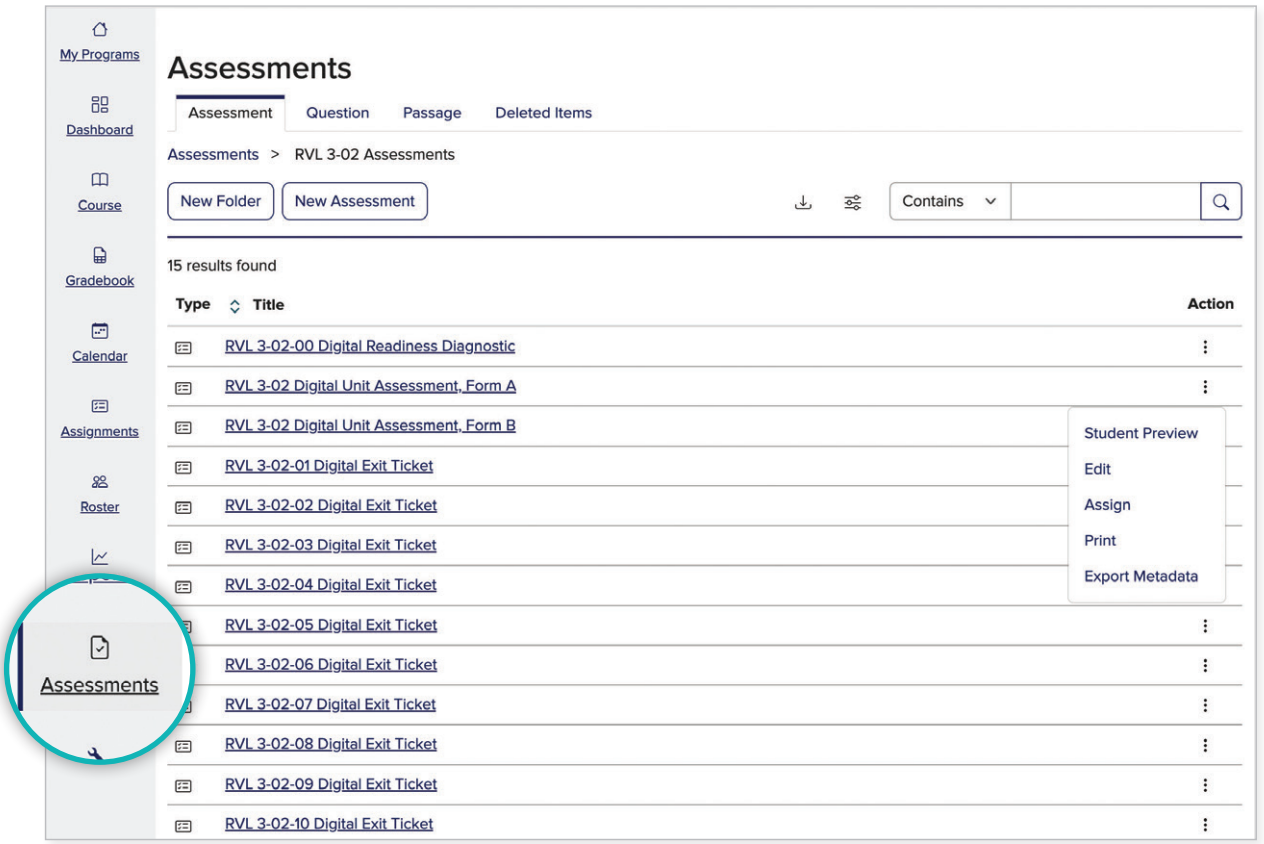
Copy Class

Copy Class feature lives on the **My Programs** page and allows enables to copy all course assignments and customizations to another class.



Digital Assessment Resources

From the **Main Menu** on the left of the screen, click **Assessments** to view all assessment items. Click into any folder.



Oklahoma Reveal Math offers a comprehensive set of assessment tools. Assessments can be assigned from Unit and Lesson landing pages. All digital assessments have a PDF alternative. Digital assessments include:

- Course Diagnostic
- Course Benchmark Assessments
- Unit Readiness Diagnostic
- Unit Assessment Form A
- Unit Assessment Form B
- End-of-Year Assessment
- Lesson Exit Tickets

Customize for Classroom Needs

You can assign assessments to an individual student, group, or whole class and customize the assessment experience settings and support tools to meet student needs. You can also share customized assessments with other teachers.

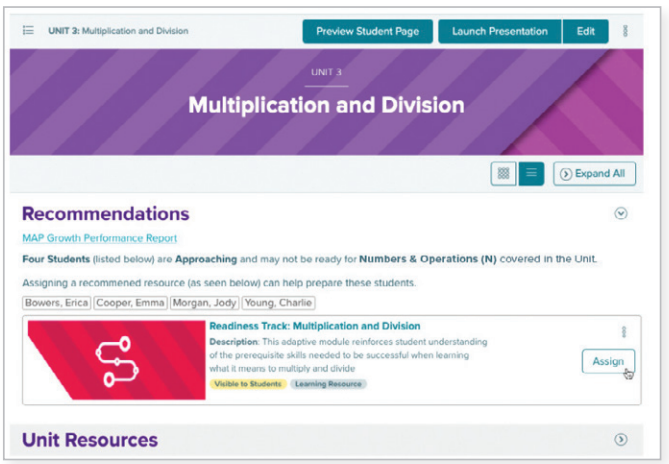
Easily edit existing assessments or create your own using question banks and authoring tools that offer the following question types:

- Multiple Choice
- Fill-in-the-Blank
- True/False
- Multiple Choice, Multi-Select
- Equation Entry
- Matching
- Bucketing
- Ordering
- Choice Matrix
- Grid-In
- Audio Recording
- Number Line and more!

MAP Growth Integration*

MAP® Growth™, the market's most trusted and accurate interim assessment, integrates its data with the *Oklahoma Reveal Math* platform for *MAP Growth* users.

The integration of *MAP Growth* data can save teachers time by identifying students who may need additional support to access grade level content. Auto-grouping and Recommended Targeted Skill Paths provide support and review of critical pre-requisite skills.



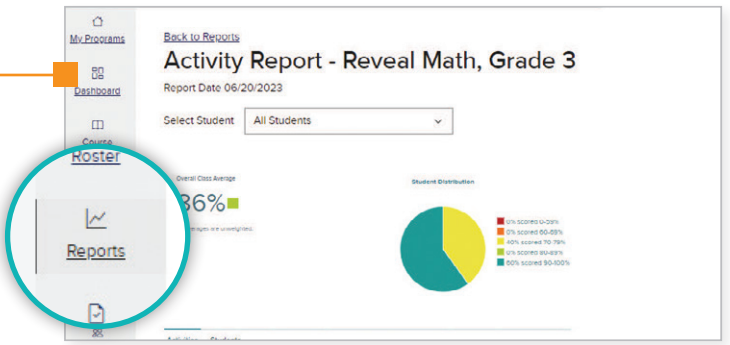
** For districts that use Map Growth Data*

Dynamic Reporting

From the **Main Menu** on the left of the screen, click **Reports**. *Oklahoma Reveal Math's* interactive performance reports provide immediate feedback that allows teachers to make data-driven instructional decisions.

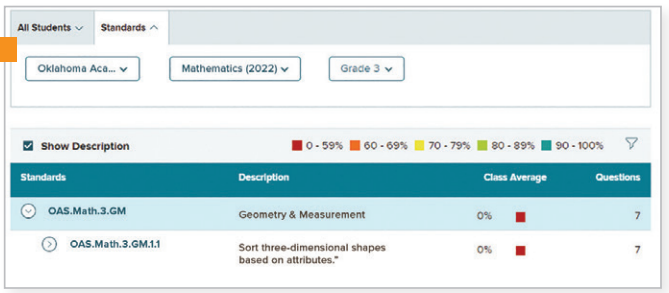
Activity Performance Report

You can review useful data points for class activities, including item analysis by student and class.



Standards Performance Report

You can access information on class performance by standard, including a cumulative score by class and student.

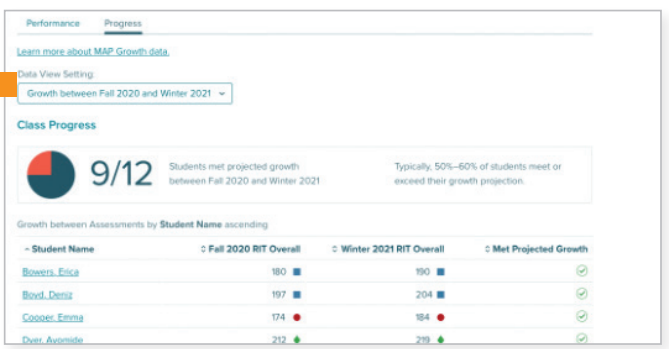


MAP Growth Performance Report*

Displays McGraw Hill's interpretation of *MAP Growth* data and indicates which students in the class are performing below, on, or above grade level.

MAP Growth Progress Report

Shows which students have met their personalized projected growth expectations in between *MAP Growth* assessments.



** For districts that use Map Growth Data*

Notes

Oklahoma Reveal

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Mc Graw Hill

K4.1048924