Unit 3 Reveal Grade 3

Content Area: **Math**
Course(s):
Time Period: **October**
Length: **2 weeks**
Status: **Published**

Unit Overview

UNIT 3 PLANNER

Multiplication and Division

PACING: 12 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener	IntoMath Broken Calculators	Explore adding combinations of 2s and 5s to obtain a particular number.				
3-1	Understand Equal Groups	Students explain one meaning of multiplication: equal groups.	Students describe multiplication equations using the term *equal groups*.	Students actively listen without interruption as peers describe how they approached a complex mathematical task.	3-1	Math Terms equal groups multiplication
3-2	Use Arrays to Multiply	Students use arrays to represent multiplication.	Students read and understand a word problem with an *If* clause.	Students set learning goals and initiate work on tasks to accomplish their goals.	3-2	array factor product
Math Probe	Ways to Show 3 × 6	Gather data on students' understandings of representations used for multiplication.				
3-3	Understand the Commutative Property	Students demonstrate understanding of the Commutative Property of Multiplication.	Students describe the components of an array using the verb *has*.	Students exchange ideas for completing a mathematical task with a peer and reflect on the value of their similarities and differences.	3-3	array factor product
3-4	Understand Equal Sharing	Students represent division with equal sharing.	Students understand questions about possibility.	Students discuss how a rule or routine can help develop mathematical skills and knowledge and be responsible contributors.	3-4	division
3-5	Understand Equal Grouping	Students represent division with equal grouping.	Students use *There are* to articulate the number of groups.	Students use prior knowledge and new understanding of mathematical concepts to complete a task, building stronger self-efficacy.	3-5	dividend divisor quotient
3-6	Relate Multiplication and Division	Students use equal groups and arrays to represent the relationship between multiplication and division.	Students use *both...and* to explain more than one way to solve a problem.	Students develop and execute a plan for mathematical problem solving.	3-6	array division equal groups multiplication
3-7	Find the Unknown	Students use representations to determine the unknown in a multiplication or division equation.	Students explain possible ways to solve a problem with the phrase *You can use*.	Students determine the strategies and analyses necessary to make informed decisions when engaging in mathematical practices.	3-7	unknown
Unit Review Fluency Practice						
Performance Task Unit Assessment						

89A Unit 3 • Multiplication and Division

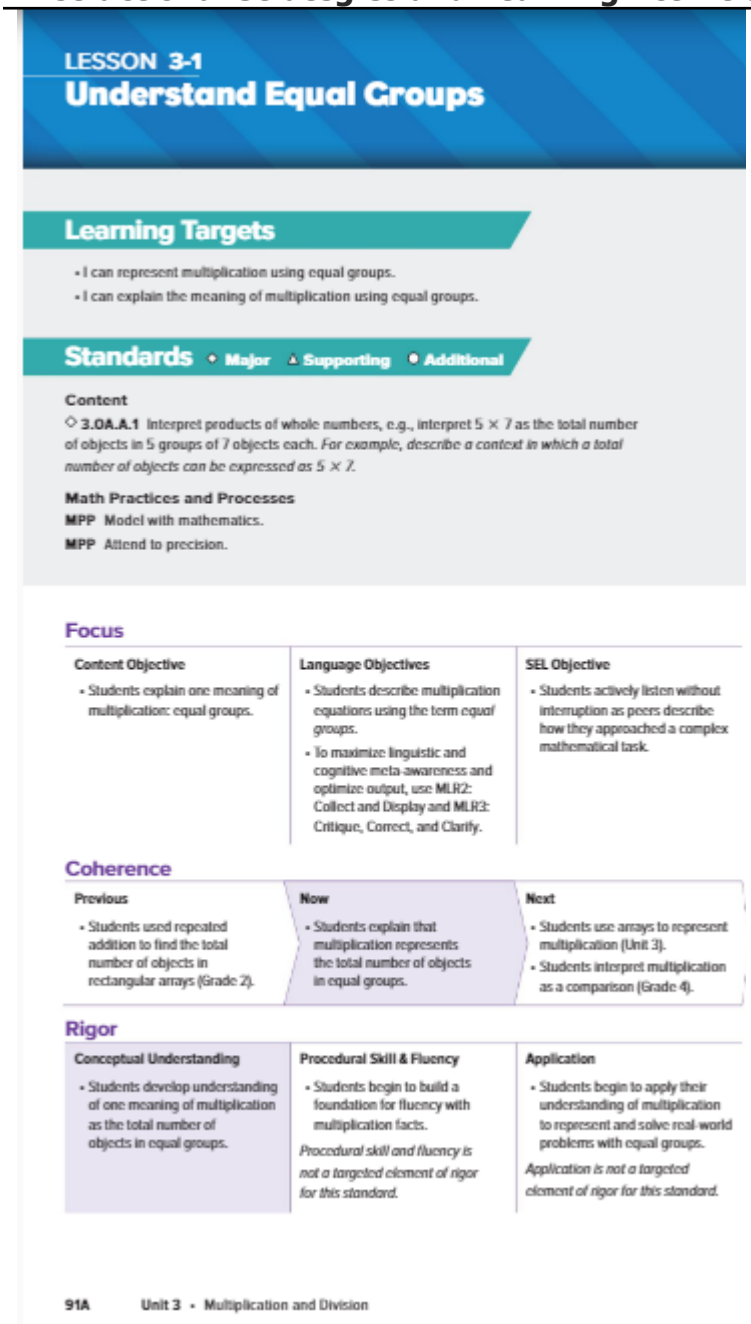
Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities



LESSON 3-1

Understand Equal Groups

Learning Targets

- I can represent multiplication using equal groups.
- I can explain the meaning of multiplication using equal groups.

Standards ◆ Major ▲ Supporting ○ Additional

Content

◇ **3.OA.A.1** Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5×7.*

Math Practices and Processes

MPP Model with mathematics.

MPP Attend to precision.

Focus

Content Objective	Language Objectives	SEL Objective
• Students explain one meaning of multiplication: equal groups.	• 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.	• Students actively listen without interruption as peers describe how they approached a complex mathematical task.

Coherence

Previous	Now	Next
• Students used repeated addition to find the total number of objects in rectangular arrays (Grade 2).	• Students explain that multiplication represents the total number of objects in equal groups.	• Students use arrays to represent multiplication (Unit 3). • Students interpret multiplication as a comparison (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop understanding of one meaning of multiplication as the total number of objects in equal groups.	• Students begin to build a foundation for fluency with multiplication facts. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students begin to apply their understanding of multiplication to represent and solve real-world problems with equal groups. *Application is not a targeted element of rigor for this standard.*

LESSON 3-2

Use Arrays to Multiply

Learning Targets

- I can represent multiplication using arrays.
- I can explain and demonstrate one of the meanings of multiplication as the total number of objects in an array.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **3.OA.A.1** Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5×7.*

Math Practices and Processes

MPP Model with mathematics.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use arrays to represent multiplication.	• Students read and understand a word problem with an *If* clause. • To optimize output, use MLR1: Stronger and Clearer Each Time.	• Students set learning goals and initiate work on tasks to accomplish their goals.

Coherence

Previous	Now	Next
• Students used repeated addition to find the total number of objects arranged in an array (Grade 2).	• Students understand that multiplication represents the total number of objects arranged in an array.	• Students learn the Commutative Property of Multiplication (Unit 3). • Students interpret multiplication as a comparison (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding of another meaning of multiplication as the total number of objects in an array.	• Students continue to build a foundation for fluency with multiplication facts. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students begin to apply their understanding of arrays to represent and solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 3-3

Understand the Commutative Property

Learning Targets

- I can show that the order of two factors in a multiplication equation does not change the product.
- I can explain why the order of two factors in a multiplication equation does not change the product.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.OA.B.5** Apply properties of operations as strategies to multiply and divide. *Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative Property of Multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)*

Math Practices and Processes

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students demonstrate understanding of the Commutative Property of Multiplication.	• Students describe the components of an array using the verb *has*. • To support sense-making and cultivate conversation, use MLR8: Discussion Supports.	• Students exchange ideas for completing a mathematical task with a peer and reflect on the value of their similarities and differences.

Coherence

Previous	Now	Next
• Students used addition to find the total number of objects in rectangular arrays (Grade 2). • Students developed an understanding of the meaning of multiplication (Unit 3).	• Students explain why the order in which two factors are multiplied does not change the product.	• Students use representations and the Commutative Property of Multiplication to determine unknown factors in equal groups and array situations (Unit 3). • Students use properties of operations to multiply two 2-digit numbers (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build understanding of the Commutative Property to multiplication.	• Students build fluency with multiplication facts. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of the Commutative Property of Multiplication to solve problems. *Application is not a targeted element of rigor for this standard.*

LESSON 3-4

Understand Equal Sharing

Learning Targets

- I can represent division using equal sharing.
- I can demonstrate one of the meanings of division as the total number of objects shared equally among groups.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.*

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Model with mathematics.

Focus

Content Objective

- Students represent division with equal sharing.

Language Objectives

- Students understand questions about possibility.
- To maximize linguistic and cognitive meta-awareness, use MLR2: Collect and Display.

SEL Objective

- Students discuss how a rule or routine can help develop mathematical skills and knowledge and be responsible contributors.

Coherence

Previous

- Students determined whether a group of objects was odd or even by pairing objects into two equal groups (Grade 2).
- Students developed an understanding of multiplication as equal groups (Unit 3).

Now

- Students understand division represents the number of objects in each group when equal-sized groups are created from a total number of objects.

Next

- Students represent division as equal grouping (Unit 3).
- Students use multiplication and division to solve word problems (Unit 3).

Rigor

Conceptual Understanding

- Students develop an understanding of one meaning of division as the number of objects in each group when sharing a total number of objects equally among groups.

Procedural Skill & Fluency

- Students build a foundation for fluency with division facts.

Procedural skill and fluency is not a targeted element of rigor for this standard.

Application

- Students apply their understanding of division to represent and solve real-world problems with equal sharing.

Application is not a targeted element of rigor for this standard.

LESSON 3-5

Understand Equal Grouping

Learning Targets

- I can show division using equal grouping.
- I can demonstrate one of the meanings of division as grouping the total number of objects into groups of equal size.

Standards ◆ Major △ Supporting ○ Additional

Content

◇ **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.*

Math Practices and Processes

MPP Model with mathematics.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students represent division with equal grouping.	• Students use *There are* to articulate the number of groups. • To optimize output, use MLR5: Co-Craft Questions.	• Students use prior knowledge and new understanding of mathematical concepts to complete a task, building stronger self-efficacy.

Coherence

Previous	Now	Next
• Students determined whether a group of objects was odd or even by pairing objects (Grade 2). • Students determined the number of objects in each group when groups of equal size are created from a total number of objects (Unit 3).	• Students understand division represents the number of groups created by dividing a total number of objects into equal groups of a given size.	• Students use multiplication and division to solve word problems (Unit 3). • Students understand division as an unknown factor problem (Unit 9).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding of another meaning of division as the number groups when a total number of objects is divided into equal groups of a given size.	• Students build a foundation for fluency with division facts. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of division to solve problems in real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 3-6

Relate Multiplication and Division

Learning Targets

- I can use arrays and equal groups to identify the relationship between multiplication and division.
- I can explain the relationship between multiplication and division using different representations.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.OA.A.1** Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as* 5×7.

◇ **3.OA.A.2** Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as* $56 \div 8$.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use equal groups and arrays to represent the relationship between multiplication and division.	• Students use *both...and* to explain more than one way to solve a problem. • To cultivate conversation, use MLR7: Compare and Connect.	• Students develop and execute a plan, including selecting tools for mathematical problem solving.

Coherence

Previous	Now	Next
• Students developed an understanding of the meaning of multiplication and division (Unit 3).	• Students use representations to understand the relationship between multiplication and division.	• Students solve word problems using multiplication and division (Unit 4). • Students find whole number quotients by using properties of operations (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding of the relationship between multiplication and division.	• Students build fluency with multiplication and division facts. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of multiplication and division to solve problems in real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 3-7

Find the Unknown

Learning Targets

- I can use a representation to identify an unknown in a multiplication or division equation.
- I can explain how to use a representation to identify an unknown in a multiplication or division equation.

Standards ◆ Major ▲ Supporting ● Additional

Content

◆ **3.OA.A.4** Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations* $8 \times ? = 48$, $5 = _ \div 3$, $6 \times 6 = ?$

Math Practices and Processes

MPP Construct viable arguments and critique the reasoning of others.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use representations to determine the unknown in a multiplication or division equation.	• Students explain possible ways to solve a problem with the phrase, *You can use.* • To maximize linguistic and cognitive meta-awareness and optimize output, use MLR2: Collect and Display.	• Students determine the strategies and analyses necessary to make informed decisions when engaging in mathematical practices.

Coherence

Previous	Now	Next
• Students used representations to show multiplication and division as equal groups (Unit 3).	• Students extend their understanding of multiplication and division by identifying an unknown in an equation.	• Students find the unknown length or width of a rectangle by viewing the area formula as a multiplication equation with an unknown factor (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of multiplication and division by using a representation to identify an unknown.	• Students build a foundation for fluency with multiplication and division facts. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of multiplication and division to solve for an unknown in real-world contexts. *Application is not a targeted element of rigor for this standard.*

Integration of Career Readiness, Life Literacies and Key Skills

9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
9.4.2.CI.1	Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2).
9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
9.1.2. FI.1	Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards).
9.4.2.CT.2	Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3).

9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
9.1.2.FP.1	Explain how emotions influence whether a person spends or saves.
9.1.2.FP.3	Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society).
9.4.2.DC.3	Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4).
9.1.2.PB.1	Determine various ways to save and places in the local community that help people save and accumulate money over time.
9.1.2.PB.2	Explain why an individual would choose to save money.
9.4.2.DC.6	Identify respectful and responsible ways to communicate in digital environments.
9.4.2.DC.7	Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).
9.4.2.TL.2	Create a document using a word processing application.
9.4.2.TL.5	Describe the difference between real and virtual experiences.
9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).
9.4.2.TL.7	Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2).

Technology and Design Integration

8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
8.1.2.DA.3	Identify and describe patterns in data visualizations.
8.1.2.DA.4	Make predictions based on data using charts or graphs.
8.1.2.AP.4	Break down a task into a sequence of steps.
8.1.2.AP.5	Describe a program's sequence of events, goals, and expected outcomes.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.

Interdisciplinary Connections

LA.RI.3.1	Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
LA.RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
LA.RI.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
LA.RI.3.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.
LA.RI.3.5	Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
LA.RI.3.6	Distinguish their own point of view from that of the author of a text.
LA.RI.3.8	Describe the logical connection between particular sentences and paragraphs in a text

	(e.g., comparison, cause/effect, first/second/third in a sequence) to support specific points the author makes in a text.
LA.RI.3.9	Compare, contrast and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) the most important points and key details presented in two texts on the same topic.
LA.RI.3.10	By the end of the year, read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed.
LA.W.3.4	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
LA.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
LA.L.3.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

Differentiation

- Understand that gifted students, just like all students, come to school to learn and be challenged.
- Pre-assess your students. Find out their areas of strength as well as those areas you may need to address before students move on.
- Consider grouping gifted students together for at least part of the school day.
- Plan for differentiation. Consider pre-assessments, extension activities, and compacting the curriculum.
- Use phrases like "You've shown you don't need more practice" or "You need more practice" instead of words like "qualify" or "eligible" when referring to extension work.
- Encourage high-ability students to take on challenges. Because they're often used to getting good grades, gifted students may be risk averse.

- **Definitions of Differentiation Components**:

    - Content – the specific information that is to be taught in the lesson/unit/course of instruction.
    - Process – how the student will acquire the content information.
    - Product – how the student will demonstrate understanding of the content.
    - Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:



-

Modifications and Accommodations

Refer to QSAC EXCEL SMALL SPED ACCOMMOCATIONS spreadsheet in this discipline.

Modifications and Accommodations used in this unit:

Benchmark Assessments

Benchmark Assessments are given periodically (e.g., at the end of every quarter or as frequently as once per month) throughout a school year to establish baseline achievement data and measure progress toward a standard or set of academic standards and goals.

Schoolwide Benchmark assessments:

Aimsweb benchmarks 3X a year

Linkit Benchmarks 3X a year

DRA

Additional Benchmarks used in this unit:

Reveal Unit assessments

Formative Assessments

Assessment allows both instructor and student to monitor progress towards achieving learning objectives, and can be approached in a variety of ways. **Formative assessment** refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

Formative Assessments used in this unit:

Teacher observation

Checklists

Questioning and Discussion

Quizzes

Summative Assessments

summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches.

Summative assessments for this unit:

End of Unit assessments

Instructional Materials

See above

Standards

MA.3.OA.A.1	Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.
MA.3.OA.A.2	Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each.
MA.3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
MA.3.OA.B.5	Apply properties of operations as strategies to multiply and divide.