Unit 5 Reveal Grade 3

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

Unit Overview

UNIT 5 PLANNER

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

PACING: 12 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener	IGNITE! Pattern Puzzles	Students discover patterns and use repeated addition or multiplication as a tool to solve more complex problems.				
5-1	Understand the Distributive Property	Students demonstrate understanding of the Distributive Property.	Students reply to *How can you...?* questions and commands such as *Decompose* and *Draw*.	Students recognize personal strengths through thoughtful self-reflection.	5-1	Math Terms array decompose multiplication product
5-2	Use Properties to Multiply by 3	Students apply properties of multiplication to recall 3s facts.	Students explain a two-step strategy using the transitional term *Then*.	Students set learning goals and initiate work on tasks to accomplish their goals.	5-2	array decompose product
5-3	Use Properties to Multiply by 4	Students apply the properties of multiplication to recall 4s facts.	Students articulate an idea about solving a problem using the modal form *could*.	Students discuss the value of hearing different viewpoints and approaches to problem solving.	5-3	array decompose product
5-4	Use Properties to Multiply by 6	Students apply the properties of multiplication to recall 6s facts.	Students justify their answers to *How* and *Why* questions using *because*.	Students actively listen without interruption as peers describe how they approached a complex mathematical task.	5-4	array decompose product
5-5	Use Properties to Multiply by 8	Students apply the properties of multiplication to recall 8s facts.	Students explain strategies they have used before using the past tense.	Students identify personal traits that make them good students, peers, and math learners.	5-5	decompose product
5-6	Use Properties to Multiply by 7 and 9	Students apply the properties of multiplication to recall 7s and 9s facts.	Students communicate ways of decomposing using the conjunction *and*.	Students employ techniques that can be used to help maintain focus and manage reactions to potentially frustrating situations.	5-6	array decompose product
Math Probe	Multiply by 7 and 9	Students choose equivalent expressions that provide a correct strategy when multiplying by 7 or 9.				
5-7	Solve Problems Involving Arrays	Students represent the problem with arrays and an equation. Students use arrays and properties of multiplication to solve the equation.	Students explain a reason for an action using the infinitive form of a verb.	Students break down a situation to identify the problem at hand.	5-7	array decompose product unknown
Unit Review **Fluency Practice**						
Performance Task **Unit Assessment**						

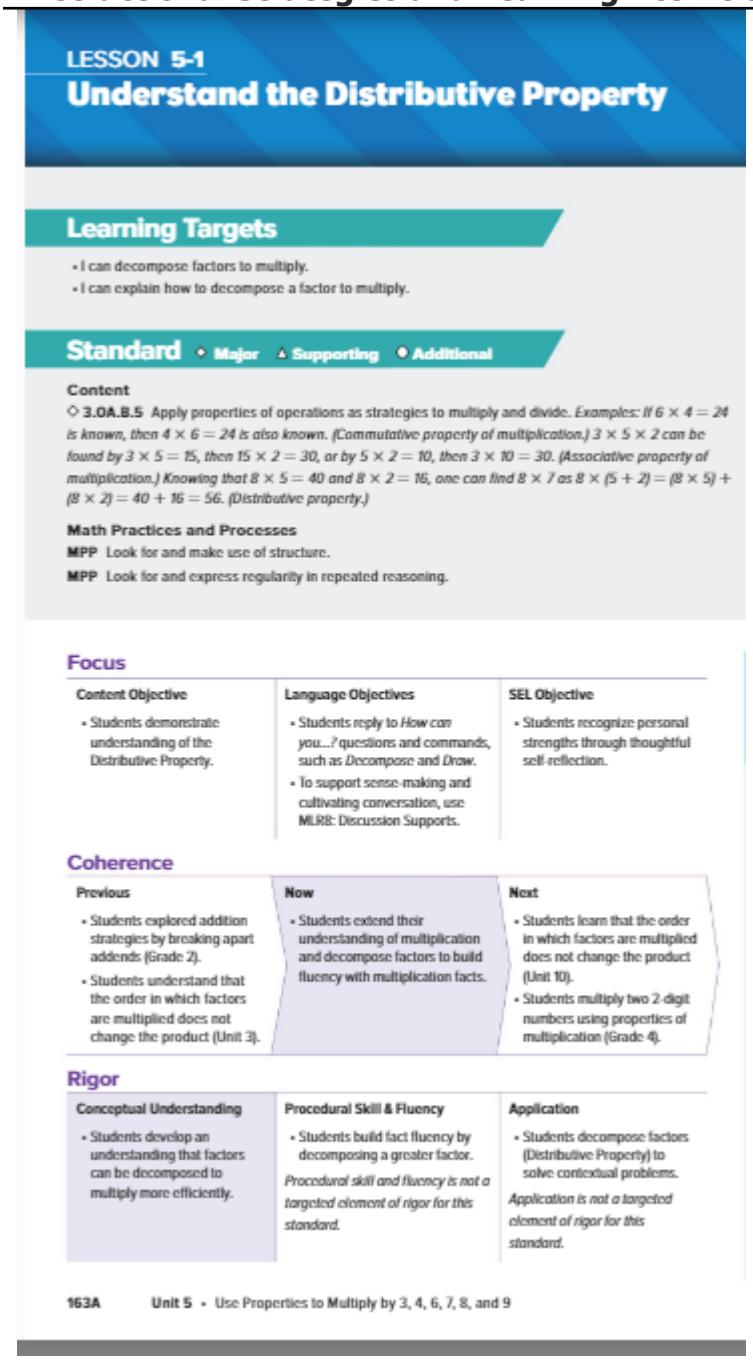
Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities



LESSON 5-1

Understand the Distributive Property

Learning Targets

- I can decompose factors to multiply.
- I can explain how to decompose a factor to multiply.

Standard ◇ Major △ Supporting ○ Additional

Content

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

Math Practices and Processes

MPP Look for and make use of structure.

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students demonstrate understanding of the Distributive Property.	• Students reply to *How can you...?* questions and commands, such as *Decompose* and *Draw*. • To support sense-making and cultivating conversation, use MLR8: Discussion Supports.	• Students recognize personal strengths through thoughtful self-reflection.

Coherence

Previous	Now	Next
• Students explored addition strategies by breaking apart addends (Grade 2). • Students understand that the order in which factors are multiplied does not change the product (Unit 3).	• Students extend their understanding of multiplication and decompose factors to build fluency with multiplication facts.	• Students learn that the order in which factors are multiplied does not change the product (Unit 10). • Students multiply two 2-digit numbers using properties of multiplication (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding that factors can be decomposed to multiply more efficiently.	• Students build fact fluency by decomposing a greater factor. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students decompose factors (Distributive Property) to solve contextual problems. *Application is not a targeted element of rigor for this standard.*

LESSON 5-2

Use Properties to Multiply by 3

Learning Targets

- I can use properties to recall multiplication facts with 3.
- I can describe properties used to recall multiplication facts with 3.

Standard ◆ Major ▲ Supporting ● Additional

Content

◇ **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Math Practices and Processes

MPP Use appropriate tools strategically.

MPP Look for and make use of structure.

Focus

Content Objective

- Students apply properties of multiplication to recall 3s facts.

Language Objectives

- Students explain a two-step strategy by using the transitional term *Then*.
- To maximize linguistic and cognitive meta-awareness, use MLR2: Collect and Display.

SEL Objective

- Students set learning goals and initiate work on tasks to accomplish their goals.

Coherence

Previous

- Students developed an understanding of multiplication as equal groups of objects (Unit 3).
- Students identified and used patterns when multiplying with 2, 5, and 10 (Unit 4).

Now

- Students connect representations to multiplication equations.
- Students develop an understanding of multiplying with 3 by using strategies such as doubling and adding a group.

Next

- Students use their knowledge of multiplication facts with 3 to solve division facts with 3 (Unit 9).
- Students solve problems involving multiplicative comparison (Grade 4).

Rigor

Conceptual Understanding

- Students develop an understanding of multiplication facts with 3.

Conceptual understanding is not a targeted element of rigor for this standard.

Procedural Skill & Fluency

- Students develop fluency with basic fact sets as they represent equal groups of 3 objects, and use strategies such as adding a group.

Application

- Students apply their understanding of multiplication facts with 3 to solve real-world problems.

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

LESSON 5-3

Use Properties to Multiply by 4

Learning Targets

- I can use properties to recall multiplication facts with 4.
- I can describe properties used to recall multiplication facts with 4.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Math Practices and Processes

MPP Look for and make use of structure.

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students apply the properties of multiplication to recall 4s facts.	• Students articulate an idea about solving a problem by using the modal form *could*. • To support cognitive meta-awareness, use MLR3: Critique, Correct, and Clarify.	• Students discuss the value of hearing different viewpoints and approaches to problem solving.

Coherence

Previous	Now	Next
• Students represented multiplication as equal groups of objects (Unit 3). • Students developed an understanding of multiplication facts with 2 (Unit 4).	• Students use strategies to recall multiplication facts with 4.	• Students use their knowledge of multiplication facts with 4 to solve division facts with 4 (Unit 9). • Students find all factors pairs for a whole in the range 0–100 (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build an understanding of multiplication facts with 4 using the relationship between the products of 2 and 4. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop fluency with multiplication facts with 4 by using strategies such as doubling.	• Students apply their understanding of multiplication facts with 4 to represent and solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 5-4

Use Properties to Multiply by 6

Learning Targets

- I can use properties to recall multiplication facts with 6.
- I can describe properties used to recall multiplication facts with 6.

Standard ◇ Major △ Supporting ○ Additional

Content

◇ **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Math Practices and Processes

MPP Look for and make use of structure.

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students apply the properties of multiplication to recall 6s facts.	• Students justify their answers to *How* and *Why* questions by using *because*. • To support sense-making, use MLR4: Information Gap.	• Students actively listen without interruption as peers describe how they approached a complex mathematical task.

Coherence

Previous	Now	Next
• Students developed an understanding of multiplying with 5 (Unit 4). • Students developed an understanding of multiplying with 3 (Unit 5).	• Students connect representations to multiplication equations. • Students develop an understanding of multiplying with 6 using strategies such as doubling and adding a group.	• Students use their knowledge of multiplication facts with 6 to divide with 6 (Unit 9). • Students solve problems involving multiplicative comparison (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students understand multiplying by 6 using representations, decomposing into known facts, and adding a group. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop fluency with multiplication facts with 6 by using strategies such as doubling, decomposing into known facts, and adding a group.	• Students apply their knowledge of multiplication with 6 to solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 5-5

Use Properties to Multiply by 8

Learning Targets

- I can use properties to recall multiplication facts with 8.
- I can describe properties used to recall multiplication facts with 8.

Standard ◇ Major △ Supporting ○ Additional

Content

◇ **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Math Practices and Processes

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students apply the properties of multiplication to recall 8s facts.	• Students explain strategies they have used before by using the past tense. • To support optimizing output, use MLR5: Co-Craft Questions.	• Students identify personal traits that make them good students, peers, and math learners.

Coherence

Previous	Now	Next
• Students developed an understanding of multiplying with 2 (Unit 4). • Students developed an understanding of multiplying with 4 (Unit 5).	• Students develop an understanding of multiplying with 8 by using strategies such as doubling and using known facts.	• Students use their knowledge of multiplication facts with 8 to divide with 8 (Unit 9). • Students solve problems involving multiplicative comparison (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding of multiplying by 8 by using visual representations, decomposing into known facts, and doubling 4s facts. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop fluency with multiplication facts with 8 by using strategies such as doubling and using known facts.	• Students apply their knowledge of multiplication with 8 to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 5-6

Use Properties to Multiply by 7 and 9

Learning Targets

- I can use properties to recall multiplication facts with 7 and 9.
- I can describe properties used to recall multiplication facts with 7 and 9.

Standard ◆ Major ▲ Supporting ● Additional

Content

◇ **3.OA.C.7** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

Math Practices and Processes

MPP Look for and make use of structure.

Focus

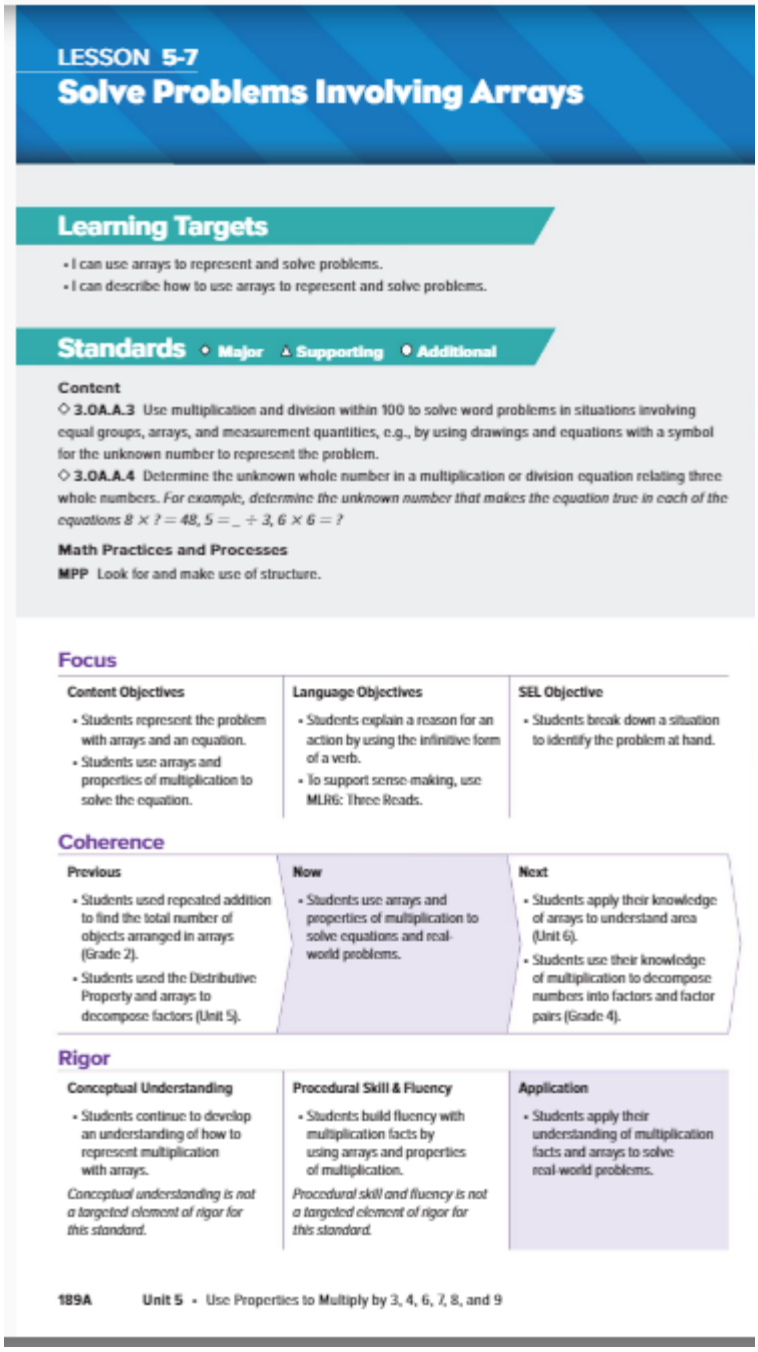
Content Objective	Language Objectives	SEL Objective
• Students apply the properties of multiplication to recall 7s and 9s facts.	• Students communicate ways of decomposing by using the conjunction *and*. • To support sense-making and optimizing output, use MLR1: Stronger and Clearer Each Time.	• Students employ techniques that can be used to help maintain focus and manage reactions to potentially frustrating situations.

Coherence

Previous	Now	Next
• Students used repeated addition to find the total number of objects arranged in arrays with equal rows and columns (Grade 2). • Students used the Distributive Property to decompose factors (Unit 5).	• Students use strategies and properties of multiplication to recall facts with 7 and 9.	• Students use their knowledge of the Distributive Property to find area (Unit 6). • Students use their knowledge of multiplication to decompose numbers into factors and factor pairs (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop an understanding of multiplication facts with 7 and 9 by decomposing into known facts. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students build fluency with 7s and 9s multiplication facts by using strategies and properties of multiplication.	• Students apply their understanding of multiplying with 7 or 9 to solve problems. *Application is not a targeted element of rigor for this standard.*



LESSON 5-7

Solve Problems Involving Arrays

Learning Targets

- I can use arrays to represent and solve problems.
- I can describe how to use arrays to represent and solve problems.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **3.OA.A.3** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

◇ **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 Look for and make use of structure.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students represent the problem with arrays and an equation. • Students use arrays and properties of multiplication to solve the equation.	• Students explain a reason for an action by using the infinitive form of a verb. • To support sense-making, use MLR6: Three Reads.	• Students break down a situation to identify the problem at hand.

Coherence

Previous	Now	Next
• Students used repeated addition to find the total number of objects arranged in arrays (Grade 2). • Students used the Distributive Property and arrays to decompose factors (Unit 5).	• Students use arrays and properties of multiplication to solve equations and real-world problems.	• Students apply their knowledge of arrays to understand area (Unit 6). • Students use their knowledge of multiplication to decompose numbers into factors and factor pairs (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students continue to develop an understanding of how to represent multiplication with arrays. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students build fluency with multiplication facts by using arrays and properties of multiplication. *Procedural skill and fluency is not a targeted element of rigor for this standard.*	• Students apply their understanding of multiplication facts and arrays to solve real-world problems.

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Integration of Career Readiness, Life Literacies and Key Skills

PFL.9.1.2.CR.1	Recognize ways to volunteer in the classroom, school and community.
PFL.9.1.2.CR.2	List ways to give back, including making donations, volunteering, and starting a business.
PFL.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).
PFL.9.1.2.FP.1	Explain how emotions influence whether a person spends or saves.
PFL.9.1.2.FP.3	Identify the factors that influence people to spend or save (e.g., commercials, family,

	culture, society).
PFL.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.
PFL.9.1.2.PB.2	Explain why an individual would choose to save money.
TECH.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).
TECH.9.4.2.CI.2	Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a).
TECH.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).
TECH.9.4.2.CT.3	Use a variety of types of thinking to solve problems (e.g., inductive, deductive).
TECH.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).
TECH.9.4.2.DC.6	Identify respectful and responsible ways to communicate in digital environments.
TECH.9.4.2.DC.7	Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).
TECH.9.4.2.TL.2	Create a document using a word processing application.
TECH.9.4.2.TL.5	Describe the difference between real and virtual experiences.
TECH.9.4.2.TL.6	Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).
TECH.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

CS.K-2.8.1.2.AP.4	Break down a task into a sequence of steps.
CS.K-2.8.1.2.AP.5	Describe a program's sequence of events, goals, and expected outcomes.
CS.K-2.8.1.2.CS.1	Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences.
CS.K-2.8.1.2.DA.1	Collect and present data, including climate change data, in various visual formats.
CS.K-2.8.1.2.DA.3	Identify and describe patterns in data visualizations.
CS.K-2.8.1.2.DA.4	Make predictions based on data using charts or graphs.
CS.K-2.8.2.2.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:

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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

MATH.3.OA.A.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
MATH.3.OA.A.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
MATH.3.OA.B.5	Apply properties of operations as strategies to multiply and divide.
MATH.3.OA.C.7	With accuracy and efficiency, multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.