Unit 4 Reveal Grade 3

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

Unit Overview

UNIT 4 PLANNER

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

PACING: 10 days

LESSON	MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener Skip Counting into Shapes Connect numbers while skip counting to create shapes in circles.					
4-1 Use Patterns to Multiply by 2	Students describe and use patterns to multiply by 2.	Students explain similarities using the expression *the same as*.	Students demonstrate self-awareness of personal strengths and areas of challenge in mathematics.	4-1	Math Terms multiple multiplication fact table pattern product
4-2 Use Patterns to Multiply by 5	Students describe and use patterns to multiply by 5.	Students articulate a numerical result to a word problem using *There are . . . .*	Students practice strategies for persisting at a mathematical task, such as setting a small goal or setting timers for remaining focused.	4-2	multiplication fact table pattern product skip count
Math Probe Multiply by 2 and 5 Identify representations that can be used to illustrate multiplying by 2 and by 5.					
4-3 Use Patterns to Multiply by 10	Students describe and use patterns to multiply by 10.	Students use the preposition *by* before a number to show what factor is being multiplied.	Students demonstrate thoughtful reflection through identifying the causes of challenges and successes while completing a mathematical task.	4-3	multiplication fact table pattern product skip count
4-4 Use Patterns to Multiply by 1 and 0	Students describe and use patterns to multiply with 0 and 1.	Students use *to* when explaining the reasoning for a pattern.	Students explore taking different perspectives on approaches to problem solving.	4-4	multiplication pattern product
4-5 Multiply Fluently by 0, 1, 2, 5, and 10	Students use known patterns to solve unknown facts.	Students use a *When . . .* clause to describe a mathematical pattern.	Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.	4-5	pattern product
4-6 Solve Problems Involving Equal Groups	Students represent the problem with equal groups and an equation. Students use equal groups to solve the equation.	Students start a sentence with *Drawing a . . .* to describe a visual representation.	Students identify a problem, use creativity to execute problem-solving steps, and identify multiple solutions.	4-6	equal groups unknown
Unit Review **Fluency Practice**					
Performance Task **Unit Assessment**					

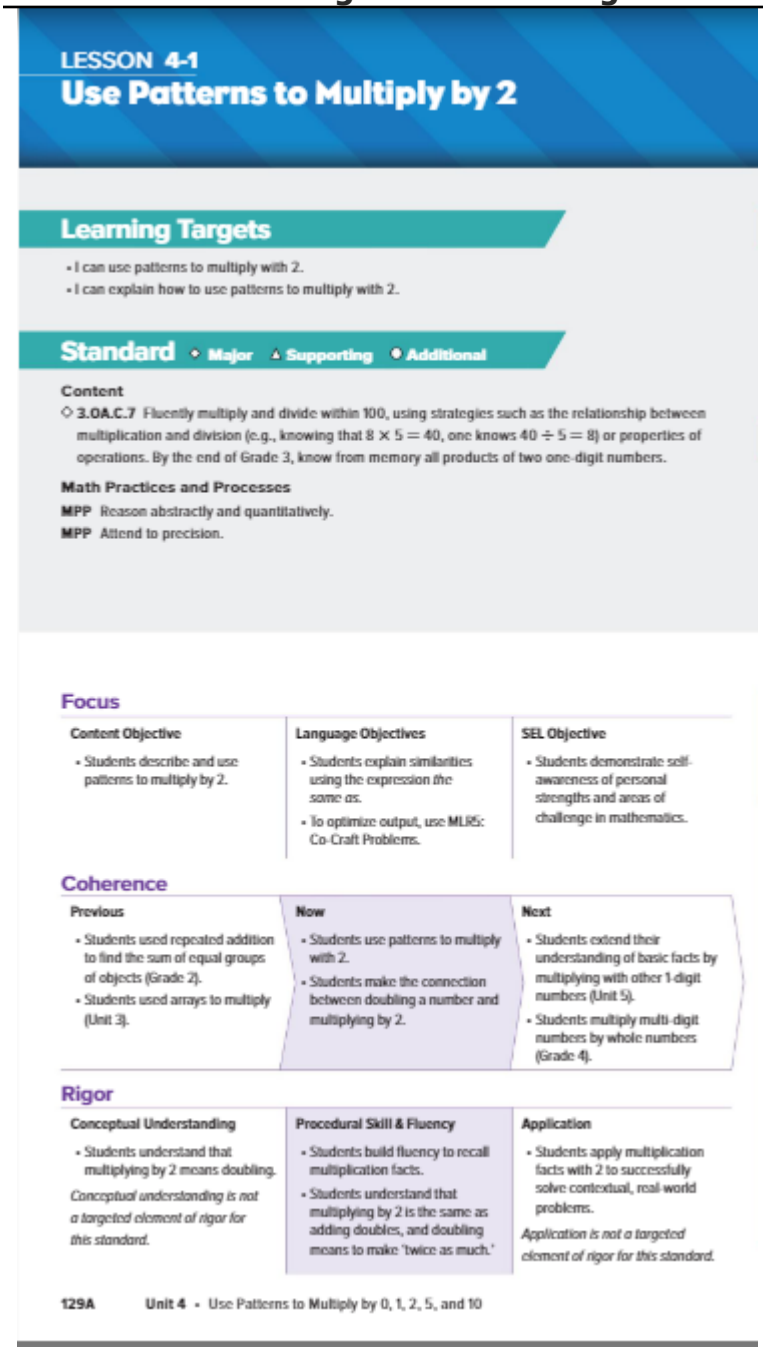
Enduring Understandings

See Above

Essential Questions

See Above

Instructional Strategies and Learning Activities



LESSON 4-1

Use Patterns to Multiply by 2

Learning Targets

- I can use patterns to multiply with 2.
- I can explain how to use patterns to multiply with 2.

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 Reason abstractly and quantitatively.

MPP Attend to precision.

Focus

Content Objective	Language Objectives	SEL Objective
• Students describe and use patterns to multiply by 2.	• Students explain similarities using the expression *the same as*. • To optimize output, use MLR5: Co-Craft Problems.	• Students demonstrate self-awareness of personal strengths and areas of challenge in mathematics.

Coherence

Previous	Now	Next
• Students used repeated addition to find the sum of equal groups of objects (Grade 2). • Students used arrays to multiply (Unit 3).	• Students use patterns to multiply with 2. • Students make the connection between doubling a number and multiplying by 2.	• Students extend their understanding of basic facts by multiplying with other 1-digit numbers (Unit 5). • Students multiply multi-digit numbers by whole numbers (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students understand that multiplying by 2 means doubling. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students build fluency to recall multiplication facts. • Students understand that multiplying by 2 is the same as adding doubles, and doubling means to make 'twice as much.'	• Students apply multiplication facts with 2 to successfully solve contextual, real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 4-2

Use Patterns to Multiply by 5

Learning Targets

- I can use patterns to multiply with 5.
- I can explain how to use patterns to multiply with 5.

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 Reason abstractly and quantitatively.

MPP Model with mathematics.

Focus

Content Objective	Language Objectives	SEL Objective
• Students describe and use patterns to multiply by 5.	• Students articulate a numerical result to a word problem using *There are . . .* • To support sense-making, use MLR6: Three Reads.	• Students practice strategies for persisting at a mathematical task, such as setting a small goal or setting timers for remaining focused.

Coherence

Previous	Now	Next
• Students used repeated addition to find the sum of equal groups of objects (Grade 2). • Students developed an understanding of equal groups to multiply (Unit 3).	• Students use patterns to multiply with 5. • Students develop fluency with multiplying 1-digit numbers by 5.	• Students use properties of multiplication to multiply with other 1-digit factors (Unit 5). • Students multiply multi-digit numbers by whole numbers (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use patterns to multiply by 5. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students build fluency to recall multiplication facts. • Students understand skip counting can be used to find products of 5.	• Students apply multiplication facts with 5 to successfully solve contextual, real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 4-3

Use Patterns to Multiply by 10

Learning Targets

- I can use patterns to multiply with 10.
- I can explain how to use patterns to multiply with 10.

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 Reason abstractly and quantitatively.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students describe and use patterns to multiply by 10.	• Students use the preposition *by* before a number to show what factor is being multiplied. • To optimize output, use MLR1: Stronger and Clearer Each Time.	• Students demonstrate thoughtful reflection through identifying the causes of challenges and successes while completing a mathematical task.

Coherence

Previous	Now	Next
• Students interpreted products as a number of equal groups (Unit 3). • Students used arrays to multiply (Unit 3).	• Students use patterns to multiply with 10.	• Students extend their understanding of basic facts by multiplying with other 1-digit numbers (Unit 4). • Students multiply multi-digit numbers by whole numbers (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use patterns to multiply by 10. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students build fluency to recall multiplication facts. • Students understand that multiplying by 10 results in a product with the other factor in the tens place and zero in the ones place.	• Students apply multiplication facts with 10 to successfully solve contextual, real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 4-4

Use Patterns to Multiply by 1 and 0

Learning Targets

- I can use patterns to multiply with 1 and 0.
- I can explain how to use patterns to multiply with 1 and 0.

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.

◇ **3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*

Math Practices and Processes

MPP Construct viable arguments and critique the reasoning of others.

MPP Look for and make use of structure.

Focus

Content Objective	Language Objectives	SEL Objective
• Students describe and use patterns to multiply with 0 and 1.	• Students use *to* when explaining the reasoning for a pattern. • To maximize linguistic and cognitive meta-awareness, use MLR8: Discussion Supports.	• Students explore taking different perspectives on approaches to problem solving.

Coherence

Previous	Now	Next
• Students learned about the Commutative Property of Multiplication (Unit 3). • Students learned to represent products of whole numbers as equal groups of objects (Unit 3).	• Students develop fluency with multiplication facts and recall basic fact sets with 1 and 0. • Students develop an understanding of multiplication facts with 1 and 0.	• Students multiply other 1-digit factors (Unit 5). • Students multiply multi-digit whole numbers (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use patterns to multiply with 1 and 0. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students build fluency with multiplication involving 1 and 0 as they learn ways to remember these facts.	• Students apply their understanding of multiplication to represent and solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 4-5

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

Learning Targets

- I can use patterns to help me multiply.
- I can describe how patterns can help me recall multiplication facts.

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 Model with mathematics.

MPP Look for and make use of structure.

Focus

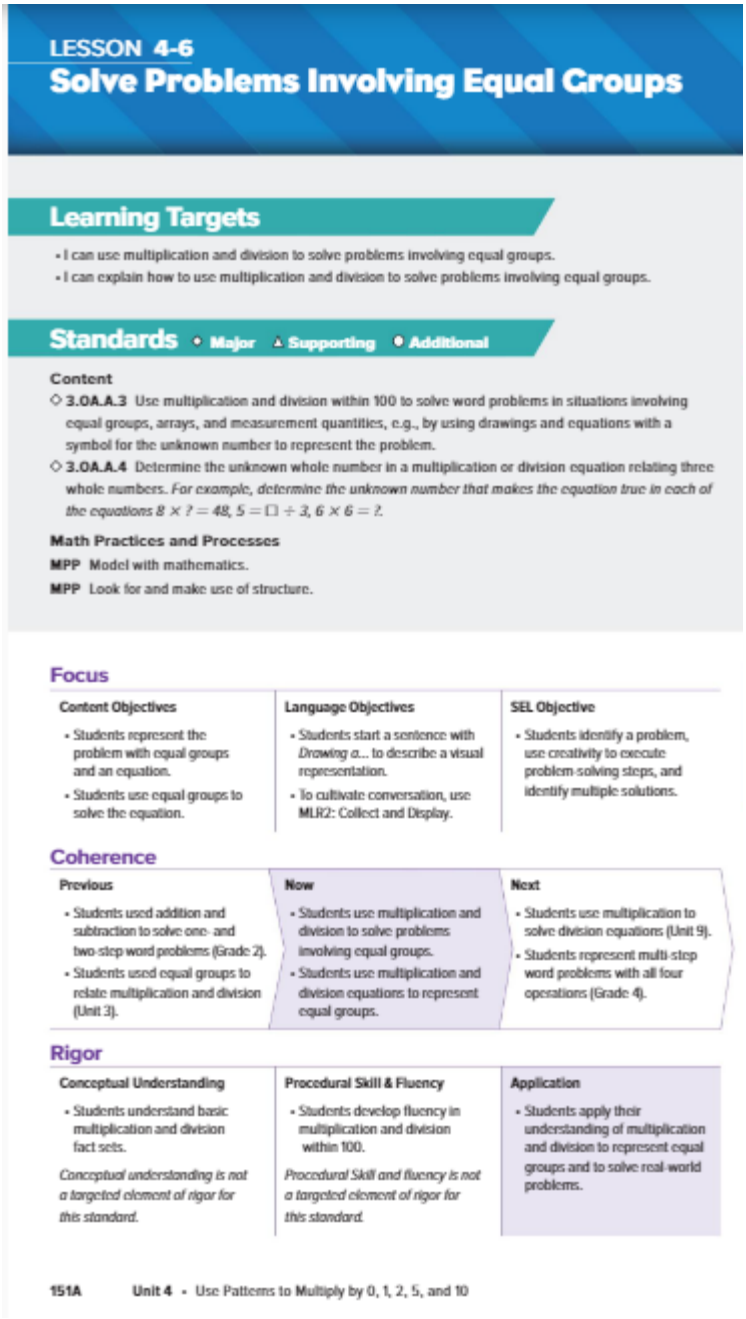
Content Objective	Language Objectives	SEL Objective
• Students use known patterns to solve unknown facts.	• Students use a *When...* clause to describe a mathematical pattern. • To maximize linguistic and cognitive meta-awareness, use MLR2: Collect and Display.	• Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.

Coherence

Previous	Now	Next
• Students recognized patterns in skip counting by 2s, 5s, and 10s (Grade 2). • Students used patterns to multiply (Unit 4).	• Students use their understanding of multiplication patterns to find products of 0, 1, 2, 5, and 10.	• Students multiply other 1-digit factors (Unit 5). • Students create and describe patterns from a given rule (Grade 4).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of the patterns in products of 0, 1, 2, 5, and 10. *Conceptual understanding is not a targeted element of rigor for this standard.*	• Students develop fluency in the multiplicative relationships among numbers by using predictable patterns that exist in products of 0, 1, 2, 5, and 10.	• Students use patterns in products of 0, 1, 2, 5, and 10 to represent and solve real-world problems. *Application is not a targeted element of rigor for this standard.*



LESSON 4-6

Solve Problems Involving Equal Groups

Learning Targets

- I can use multiplication and division to solve problems involving equal groups.
- I can explain how to use multiplication and division to solve problems involving equal groups.

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* $8 \times ? = 48$, $5 = \square \div 3$, $6 \times 6 = ?$.

Math Practices and Processes

MPP Model with mathematics.

MPP Look for and make use of structure.

Focus

Content Objectives

- Students represent the problem with equal groups and an equation.
- Students use equal groups to solve the equation.

Language Objectives

- Students start a sentence with *Drawing a...* to describe a visual representation.
- To cultivate conversation, use MLR2: Collect and Display.

SEL Objective

- Students identify a problem, use creativity to execute problem-solving steps, and identify multiple solutions.

Coherence

Previous

- Students used addition and subtraction to solve one- and two-step word problems (Grade 2).
- Students used equal groups to relate multiplication and division (Unit 3).

Now

- Students use multiplication and division to solve problems involving equal groups.
- Students use multiplication and division equations to represent equal groups.

Next

- Students use multiplication to solve division equations (Unit 9).
- Students represent multi-step word problems with all four operations (Grade 4).

Rigor

Conceptual Understanding

- Students understand basic multiplication and division fact sets.

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

Procedural Skill & Fluency

- Students develop fluency in multiplication and division within 100.

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

Application

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

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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:



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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

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.
3.OA.B.5	Apply properties of operations as strategies to multiply and divide.
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.
3.OA.D.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.