Unit 6 Reveal Grade 5

Content Area: **Math**
Course(s): **Math**
Time Period: **January**
Length: **42weeks**
Status: **Published**

Unit overview

UNIT 6 PLANNER
Multiply Decimals

PACING: 10 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener	IntelliTel *Area and Decimal Multiplication* Explore area of rectangles on a grid to learn to place a decimal point in decimal multiplication.					
6-1	Patterns When Multiplying Decimals by Powers of 10	Students use patterns to multiply a decimal by a power of 10. Students explain patterns when multiplying a decimal by a power of 10.	Students explain how to use patterns to multiply a decimal by a power of 10 with the gerund using.	Students recognize and work to understand the emotions of others and practice empathetic responses.	6-1	Math Terms exponent factor product
6-2	Estimate Products of Decimals	Students estimate products of decimals. Students use estimated products to make predictions about a calculated solution. Students use estimated products to assess the reasonableness of a calculated solution.	Students discuss how to estimate products of two decimals using *by* + gerund.	Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.	6-2	estimate range round
6-3	Represent Multiplication Involving Decimals	Students use decimal grids to represent and solve multiplication equations involving decimals.	Students discuss how to solve multiplication equations using decimal grids while answering *Wh-* and Yes/No questions.	Students identify personal traits that make them good students, peers, and math learners.	6-3	decimal grid partition
Math Probe	***Decimal Multiplication*** Estimate products of decimal numbers.					
6-4	Use an Area Model to Multiply Decimals	Students use an area model to determine partial products and add partial products to calculate the product of two decimals.	Students discuss using area models to solve multiplication problems while answering *Wh-* and Yes/No questions and using the term *decompose*.	Students discuss and practice strategies for managing stressful situations.	6-4	area area model decompose partial product
6-5	Generalizations about Multiplying Decimals	Students use patterns based on place value concepts and properties of operations to determine the placement of the digits in a product.	Students explain how to use patterns in calculations to multiply decimals by making generalizations.	Students reflect on and describe the logic and reasoning used to make a mathematical decision or conclusion.	6-5	area model digit partial product
6-6	Explain Strategies to Multiply Decimals	Students can explain their reasoning for using different strategies to solve. Students explain different strategies to multiply decimals.	Students explain their reasoning for using particular strategies to multiply decimals while answering *Wh-* questions.	Students discuss the value of hearing different viewpoints and approaches to problem solving.	6-6	area model decimal grid decomposition partial product unknown
Unit Review Fluency Practice						
Unit Assessment Performance Task						

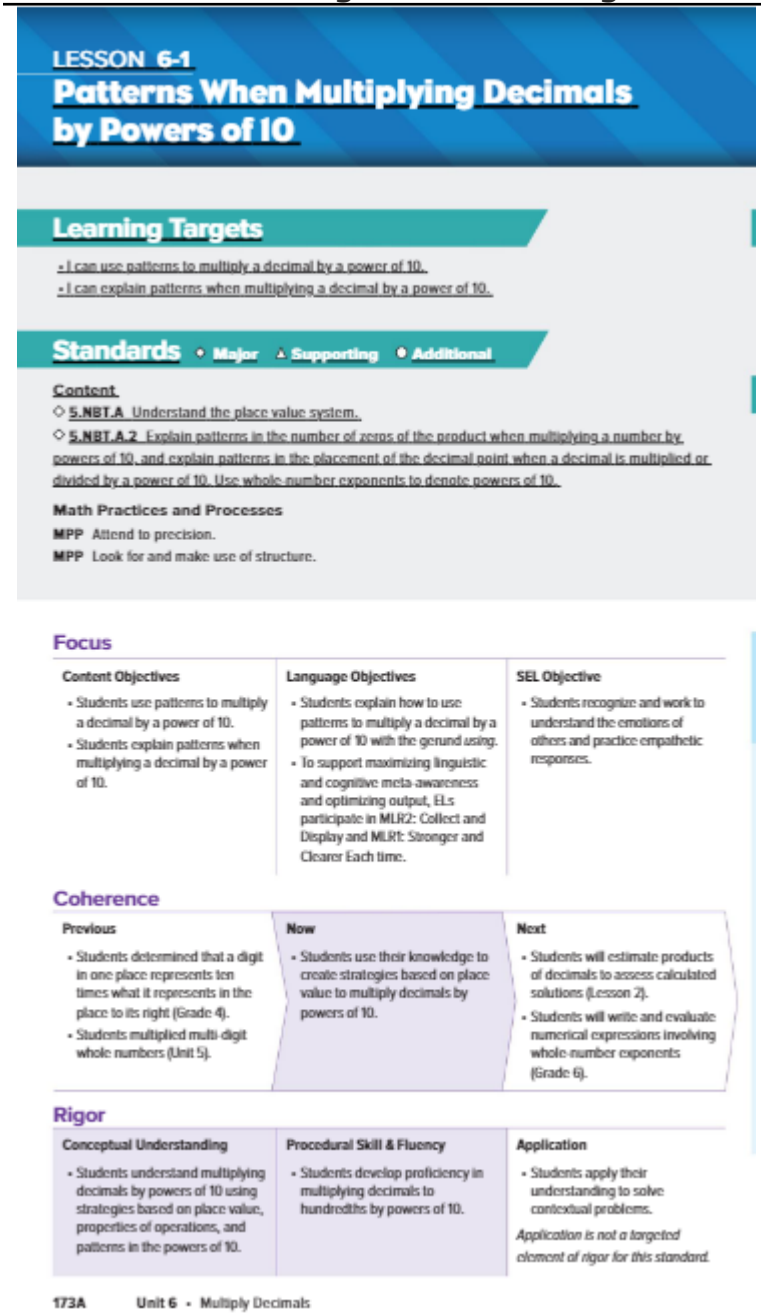
Enduring Understandings

See Above.

Essential Questions

See Above.

Instructional Strategies and Learning Activities



LESSON 6-1

Patterns When Multiplying Decimals by Powers of 10

Learning Targets

- I can use patterns to multiply a decimal by a power of 10.
- I can explain patterns when multiplying a decimal by a power of 10.

Standards ◇ Major ▲ Supporting ○ Additional

Content

◇ **5.NBT.A** Understand the place value system.

◇ **5.NBT.A.2** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

Math Practices and Processes

MPP Attend to precision.

MPP Look for and make use of structure.

Focus

Content Objectives

- Students use patterns to multiply a decimal by a power of 10.
- Students explain patterns when multiplying a decimal by a power of 10.

Language Objectives

- Students explain how to use patterns to multiply a decimal by a power of 10 with the gerund *using*.
- To support maximizing linguistic and cognitive meta-awareness and optimizing output, ELs participate in MLR2: Collect and Display and MLR1: Stronger and Clearer Each time.

SEL Objective

- Students recognize and work to understand the emotions of others and practice empathetic responses.

Coherence

Previous

- Students determined that a digit in one place represents ten times what it represents in the place to its right (Grade 4).
- Students multiplied multi-digit whole numbers (Unit 5).

Now

- Students use their knowledge to create strategies based on place value to multiply decimals by powers of 10.

Next

- Students will estimate products of decimals to assess calculated solutions (Lesson 2).
- Students will write and evaluate numerical expressions involving whole-number exponents (Grade 6).

Rigor

Conceptual Understanding

- Students understand multiplying decimals by powers of 10 using strategies based on place value, properties of operations, and patterns in the powers of 10.

Procedural Skill & Fluency

- Students develop proficiency in multiplying decimals to hundredths by powers of 10.

Application

- Students apply their understanding to solve contextual problems.

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

LESSON 6-2

Estimate Products of Decimals

Learning Targets

- I can explain how to estimate products of two decimals.
- I can use an estimated product to make predictions about a calculated solution.
- I can estimate products of decimals to assess if calculations are reasonable.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **5.NBT.B** Perform operations with multi-digit whole numbers and with decimals to hundredths.

◇ **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Math Practices and Processes

MPP Reason abstractly and quantitatively.

MPP Use appropriate tools strategically.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students estimate products of decimals. • Students use estimated products to make predictions about a calculated solution. • Students use estimated products to assess the reasonableness of a calculated solution.	• Students discuss how to estimate products of two decimals using *by* + gerund. • To support optimizing output, ELs participate in MLR5: Co-Craft Questions and Problems.	• Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.

Coherence

Previous	Now	Next
• Students added and subtracted multi-digit whole numbers (Grade 4). • Students created place-value strategies to multiply decimals by powers of 10 (Lesson 1).	• Students estimate products of decimals to assess if calculated solutions are reasonable.	• Students will represent multiplication of decimals using decimal grids (Lesson 3). • Students will add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students extend their understanding of estimation as a strategy for determining whether products are reasonable.	• Students build proficiency estimating products of decimals.	• Students find products to solve real-world problems. *Application is not a targeted element of rigor for this standard.*

LESSON 6-3

Represent Multiplication of Decimals

Learning Target

- I can use decimal grids to help me represent and solve multiplication equations involving decimals.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **5.NBT.B** Perform operations with multi-digit whole numbers and with decimals to hundredths.

◇ **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Math Practices and Processes

MPP Model with mathematics.

MPP Use appropriate tools strategically.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use decimal grids to represent and solve multiplication equations involving decimals.	• Students discuss how to solve multiplication equations using decimal grids while answering Why and Yes/No questions. • To support cultivating conversation and sense-making, ELs participate in MLR8: Discussion Supports and MLR6: Three Reads.	• Students identify personal traits that make them good students, peers, and math learners.

Coherence

Previous	Now	Next
• Students added and subtracted multi-digit whole numbers (Grade 4). • Students estimated products of decimals (Lesson 2).	• Students represent multiplication of decimals using decimal grids.	• Students will use multiplication strategies to multiply decimals to hundredths (Lesson 4). • Students will add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students develop understanding of multiplication of decimals by representing multiplication using equations and decimal grids.	• Students develop proficiency in multiplying with decimals by using decimal grids.	• Students multiply with decimals to solve problems involving real-world contexts. *Application is not a targeted element of rigor for this standard.*

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LESSON 6-4

Use an Area Model to Multiply Decimals

Learning Targets

- I can use an area model to determine partial products.
- I can add partial products to calculate the product of two decimals.

Standards ◆ Major ▲ Supporting ● Additional

Content

◇ **5.NBT.B** Perform operations with multi-digit whole numbers and with decimals to hundredths.

◇ **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Math Practices and Processes

MPP Model with mathematics.

MPP Use appropriate tools strategically.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use an area model to determine partial products and add partial products to calculate the product of two decimals.	• Students discuss using area models to solve multiplication problems while answering *Wh-* and Yes/No questions and using the academic term *decompose*. • To support optimizing output, ELs participate in MLR7: Compare and Connect.	• Students discuss and practice strategies for managing stressful situations.

Coherence

Previous	Now	Next
• Students added and subtracted multi-digit whole numbers (Grade 4). • Students represented multiplication of decimals using decimal grids (Lesson 3).	• Students use multiplication strategies to multiply decimals to hundredths.	• Students will use place-value patterns to multiply decimals (Lesson 5). • Students will add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of partial products and area models to multiply decimals.	• Students use strategies for multiplying whole numbers to proficiently multiply decimals.	• Students multiply decimals to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 6-5

Generalizations about Multiplying Decimals

Learning Targets

- I can use patterns based on place value concepts and properties of operations to make generalizations about multiplying decimals.
- I can use those generalizations to determine the placement of digits in a product.

Standards ◆ Major △ Supporting ○ Additional

Content

◇ **5.NBT.B** Perform operations with multi-digit whole numbers and with decimals to hundredths.

◇ **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Math Practices and Processes

MPP Look for and make use of structure.

MPP Look for and express regularity in repeated reasoning.

Focus

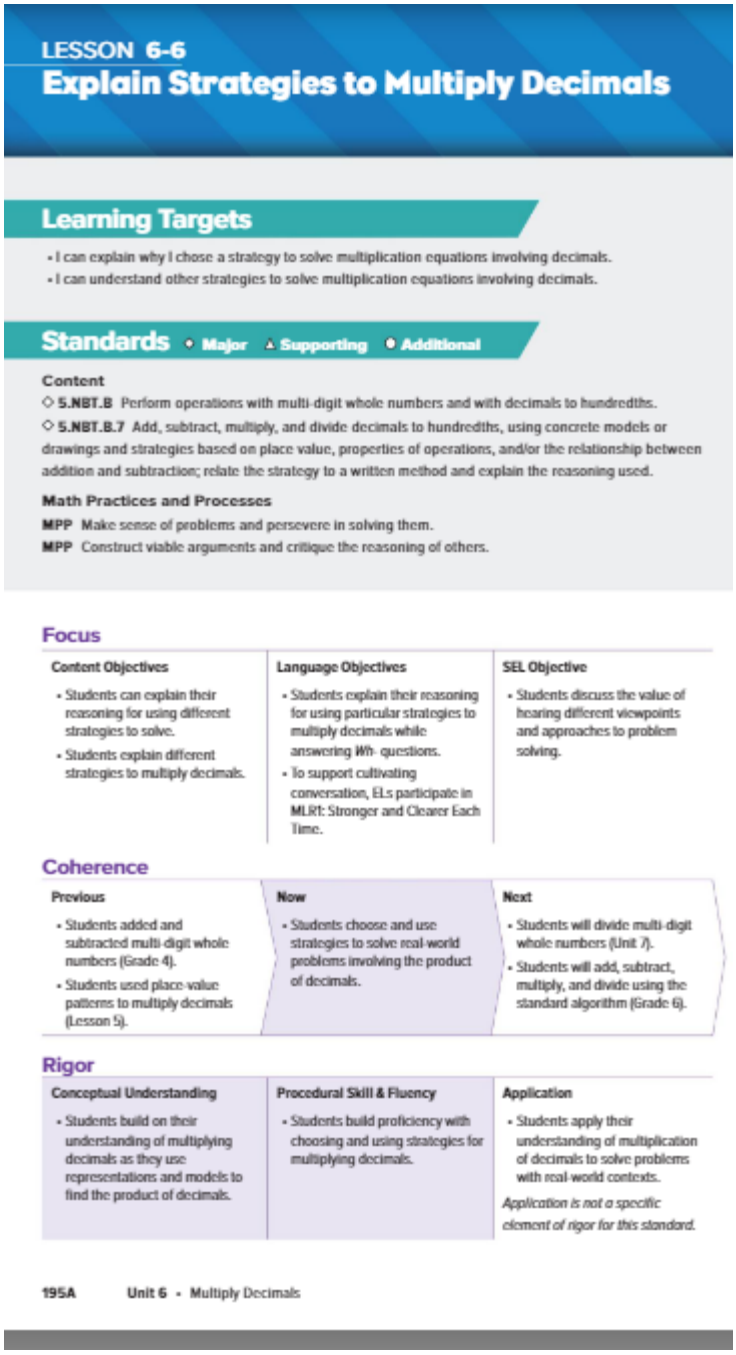
Content Objective	Language Objectives	SEL Objective
• Students use patterns based on place-value concepts and properties of operations to determine the placement of digits in a product.	• Students explain how to use patterns in calculations to multiply decimals by making generalizations. • To support sense-making and maximizing meta-awareness, ELs participate in MLR8: Discussion Supports and MLR7: Compare and Connect.	• Students reflect on and describe the logic and reasoning used to make a mathematical decision or conclusion.

Coherence

Previous	Now	Next
• Students added and subtracted multi-digit whole numbers (Grade 4) • Students used multiplication strategies to multiply decimals to hundredths (Lesson 4).	• Students use place-value patterns to multiply decimals.	• Students will choose and use strategies to multiply decimals (Lesson 6). • Students will add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students extend their understanding of place value to determine the product of two decimal factors.	• Students increase proficiency with multiplying decimals by making generalizations about the products of decimal factors.	• Students apply generalizations to solve real-world problems. *Application is not a targeted element of rigor for this standard.*



LESSON 6-6

Explain Strategies to Multiply Decimals

Learning Targets

- I can explain why I chose a strategy to solve multiplication equations involving decimals.
- I can understand other strategies to solve multiplication equations involving decimals.

Standards ◇ Major △ Supporting ○ Additional

Content

◇ **5.NBT.B** Perform operations with multi-digit whole numbers and with decimals to hundredths.

◇ **5.NBT.B.7** Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

Math Practices and Processes

MPP Make sense of problems and persevere in solving them.

MPP Construct viable arguments and critique the reasoning of others.

Focus

Content Objectives	Language Objectives	SEL Objective
• Students can explain their reasoning for using different strategies to solve. • Students explain different strategies to multiply decimals.	• Students explain their reasoning for using particular strategies to multiply decimals while answering *Wh-* questions. • To support cultivating conversation, ELs participate in MLR1: Stronger and Clearer Each Time.	• Students discuss the value of hearing different viewpoints and approaches to problem solving.

Coherence

Previous	Now	Next
• Students added and subtracted multi-digit whole numbers (Grade 4). • Students used place-value patterns to multiply decimals (Lesson 5).	• Students choose and use strategies to solve real-world problems involving the product of decimals.	• Students will divide multi-digit whole numbers (Unit 7). • Students will add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of multiplying decimals as they use representations and models to find the product of decimals.	• Students build proficiency with choosing and using strategies for multiplying decimals.	• Students apply their understanding of multiplication of decimals to solve problems with real-world contexts. *Application is not a specific element of rigor for this standard.*

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Integration of Career Readiness, Life Literacies and Key Skills

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.PB.2	Explain why an individual would choose to save money.
WRK.9.2.5.CAP.1	Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
WRK.9.2.5.CAP.2	Identify how you might like to earn an income.
WRK.9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and

	occupations.
WRK.9.2.5.CAP.4	Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
TECH.9.4.8.CI.1	Assess data gathered on varying perspectives on causes of climate change (e.g., cross-cultural, gender-specific, generational), and determine how the data can best be used to design multiple potential solutions (e.g., RI.7.9, 6.SP.B.5, 7.1.NH.IPERS.6, 8.2.8.ETW.4).
TECH.9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries.
TECH.9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1).
TECH.9.4.8.CT.3	Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome.
TECH.9.4.8.DC.2	Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).
TECH.9.4.8.DC.4	Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences.
TECH.9.4.8.DC.5	Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
TECH.9.4.8.DC.8	Explain how communities use data and technology to develop measures to respond to effects of climate change (e.g., smart cities).
TECH.9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
TECH.9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).
TECH.9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
TECH.9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.
TECH.9.4.8.TL.6	Collaborate to develop and publish work that provides perspectives on a real-world problem.
TECH.9.4.8.GCA.1	Model how to navigate cultural differences with sensitivity and respect (e.g., 1.5.8.C1a).
TECH.9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
TECH.9.4.8.IML.2	Identify specific examples of distortion, exaggeration, or misrepresentation of information.
TECH.9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
TECH.9.4.8.IML.4	Ask insightful questions to organize different types of data and create meaningful visualizations.
TECH.9.4.8.IML.5	Analyze and interpret local or public data sets to summarize and effectively communicate the data.
TECH.9.4.8.IML.7	Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose (e.g., 1.2.8.C2a, 1.4.8.CR2a, 2.1.8.CHSS/IV.8.AI.1, W.5.8, 6.1.8.GeoSV.3.a, 6.1.8.CivicsDP.4.b, 7.1.NH. IPRET.8).
TECH.9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.

Technology and Design Thinking

CS.3-5.8.1.5.CS.3	Identify potential solutions for simple hardware and software problems using common troubleshooting strategies.
CS.3-5.8.1.5.DA.1	Collect, organize, and display data in order to highlight relationships or support a claim.
CS.3-5.8.1.5.DA.3	Organize and present collected data visually to communicate insights gained from different views of the data.
CS.3-5.8.1.5.DA.4	Organize and present climate change data visually to highlight relationships or support a claim.
	Data can be organized, displayed, and presented to highlight relationships.

Interdisciplinary Connections

LA.L.5.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
LA.L.5.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
LA.W.5.4	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
LA.RI.5.1	Quote accurately from a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
LA.RI.5.2	Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
LA.RI.5.3	Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
LA.RI.5.4	Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
LA.RI.5.5	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
LA.RI.5.6	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.
LA.RI.5.7	Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
LA.RI.5.8	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
LA.RI.5.9	Integrate and reflect on (e.g., practical knowledge, historical/cultural context, and background knowledge) information from several texts on the same topic in order to write or speak about the subject knowledgeably.
LA.RI.5.10	By the end of year, read and comprehend literary nonfiction at grade level text-complexity or above, with scaffolding as needed.
LA.SL.5.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

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:

Use Differentiation guide in Teacher's manual for each 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:

End of 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 Observations

Checklists

Questions and Discussions

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.5.NBT.A.2	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
MATH.5.NBT.B.7	Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.