Unit 8 Reveal Grade 5

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

Unit overview

UNIT 8 PLANNER
Divide Decimals

PACING: 10 days

LESSON		MATH OBJECTIVE	LANGUAGE OBJECTIVE	SOCIAL AND EMOTIONAL LEARNING OBJECTIVE	LESSON	KEY VOCABULARY
Unit Opener	*Lemonade Stand* Explore division of whole numbers by decimals using informal strategies.					
						Math Terms
8-1	Division Patterns with Decimals and Powers of 10	Students use place-value patterns to determine the quotient of a decimal divided by a power of 10. Students use the relationship between place-value positions to explain patterns when dividing decimals by powers of 10.	Students talk about place-value patterns when dividing decimals by powers of 10 while answering *Wh-* questions and using the term *shift*.	Students determine the strategies and analyses necessary to make informed decisions when engaging in mathematical practices.	8-1	power of 10
8-2	Estimate Quotients of Decimals	Students estimate quotients of decimals using the same strategies used to estimate quotients of whole numbers. Students use estimated quotients to make predictions about a calculated solution. Students use estimated quotients to assess the reasonableness of a calculated solution.	Students discuss estimating the quotients of decimals while answering *Wh-* and Yes/No questions and using terms such as *could* and *would*.	Students practice strategies for persisting at a mathematical task, such as setting a small goal or setting timers for remaining focused.	8-2	dividend divisor estimate quotient
8-3	Represent Division of Decimals by a Whole Number	Students represent division of decimals with equal sharing or equal grouping.	Students discuss how to divide decimals by whole numbers while answering *Wh-* questions and using the modal *might*.	Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.	8-3	decimal dividend divisor
8-4	Divide Decimals by Whole Numbers	Students use place-value understanding and equivalent representations to divide a decimal by a whole number.	Students explain how to divide a decimal by a whole number by answering multiple *How* questions using *can*.	Students identify and discuss the emotions experienced during math learning.	8-4	dividend divisor place value quotient
8-5	Divide Whole Numbers by Decimals	Students use decimal grids to represent and solve a division equation. Students multiply by a power of 10 to write an equivalent expression with a whole-number divisor to solve a division equation.	Students discuss finding quotients of whole numbers using division grids and powers of 10, answering *How* and *Why*.	Students recognize and work to understand the emotions of others and practice empathetic responses.	8-5	dividend divisor power of 10 quotient
8-6	Divide Decimals by Decimals	Students multiply the dividend and the divisor by a power of 10 to write an equivalent equation contining whole numbers to solve a division equation.	Students discuss multiple strategies to find quotients of decimals while answering *Wh-* questions.	Students set learning goals and initiate work on tasks to accomplish their goals.	8-6	dividend divisor partial quotients power of 10 quotient
Math Probe	***Decimal Division*** Select the correct quotient for division with a decimal dividend and divisor.					
Fluency Practice **Unit Review**						
Unit Assessment **Performance Task**						

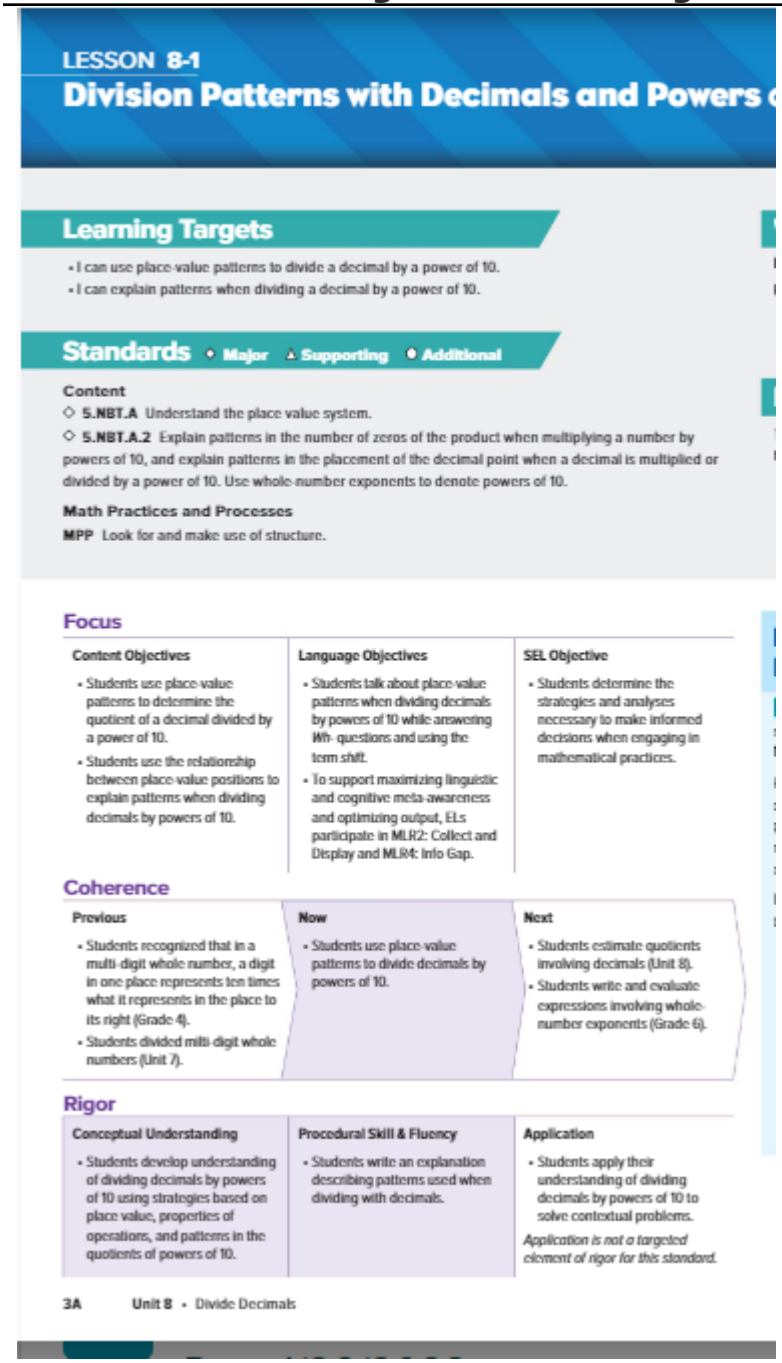
Enduring Understandings

See Above.

Essential Questions

See Above.

Instructional Strategies and Learning Activities



LESSON 8-1

Division Patterns with Decimals and Powers

Learning Targets

- I can use place-value patterns to divide a decimal by a power of 10.
- I can explain patterns when dividing 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 Look for and make use of structure.

Focus

Content Objectives

- Students use place-value patterns to determine the quotient of a decimal divided by a power of 10.
- Students use the relationship between place-value positions to explain patterns when dividing decimals by powers of 10.

Language Objectives

- Students talk about place-value patterns when dividing decimals by powers of 10 while answering *Wh-* questions and using the term *shift*.
- To support maximizing linguistic and cognitive meta-awareness and optimizing output, ELs participate in MLR2: Collect and Display and MLR4: Info Gap.

SEL Objective

- Students determine the strategies and analyses necessary to make informed decisions when engaging in mathematical practices.

Coherence

Previous

- Students recognized that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right (Grade 4).
- Students divided multi-digit whole numbers (Unit 7).

Now

- Students use place-value patterns to divide decimals by powers of 10.

Next

- Students estimate quotients involving decimals (Unit 8).
- Students write and evaluate expressions involving whole-number exponents (Grade 6).

Rigor

Conceptual Understanding

- Students develop understanding of dividing decimals by powers of 10 using strategies based on place value, properties of operations, and patterns in the quotients of powers of 10.

Procedural Skill & Fluency

- Students write an explanation describing patterns used when dividing with decimals.

Application

- Students apply their understanding of dividing decimals by powers of 10 to solve contextual problems.

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

LESSON 8-2

Estimate Quotients of Decimals

Learning Targets

- I can explain how to estimate quotients of decimals.
- I can estimate quotients of decimals to determine if calculations are reasonable.
- I can use an estimated quotient to make predictions about a calculated solution.

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 quotients of decimals using the same strategies used to estimate quotients of whole numbers. • Students use estimated quotients to make predictions about and assess the reasonableness of a calculated solution.	• Students discuss estimating the quotients of decimals while answering *Wh-* and Yes/No questions and using terms such as *could* and *would*. • To support sense making, ELs participate in 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 found whole-number quotients and remainders (Grade 4). • Students used place-value patterns to divide decimals by powers of 10 (Unit 8).	• Students estimate quotients involving decimals.	• Students represent division of decimals by a whole number (Unit 8). • Students add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students gain an understanding of estimation as a method to help determine the reasonableness of calculations involving decimal quotients.	• Students build their proficiency with division with decimals as they use estimation to develop skill in evaluating the reasonableness of quotients.	• Students estimate decimal division using measurement in real-world contexts. *Application is not a specific element of rigor for this standard.*

LESSON 8-3

Represent Division of Decimals by a Whole Number

Learning Target

- I can represent division of decimals by whole numbers using equal sharing or equal grouping.

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 Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students represent division of decimals with equal sharing or equal grouping.	• Students discuss how to divide decimals by whole numbers while answering *Wh-* questions and using the modal *might*. • To support maximizing linguistic and cognitive meta-awareness and optimize output, ELs participate in MLR7: Compare and Connect.	• Students engage in active listening and work collaboratively with a partner to complete mathematical tasks.

Coherence

Previous	Now	Next
• Students found whole-number quotients and remainders (Grade 4). • Students estimated quotients involving decimals (Unit 8).	• Students represent division of decimals by a whole number.	• Students use place value understanding and modeling to divide decimals by whole numbers (Unit 8). • Students add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students use representations and the relationship between multiplication and division to better understand division of decimals by whole numbers.	• Students build their proficiency with division as they expand their skills to include division of decimals by whole numbers.	• Students divide decimals by whole numbers in problems with real-world contexts. *Application is not a specific element of rigor for this standard.*

LESSON 8-4

Divide Decimals by Whole Numbers

Learning Target

- I can use place-value understanding and equivalent representations to divide a decimal by a whole number.

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 Use appropriate tools strategically.

MPP Look for and express regularity in repeated reasoning.

Focus

Content Objective	Language Objectives	SEL Objective
• Students use place-value understanding and equivalent representations to divide a decimal by a whole number.	• Students explain how to divide a decimal by a whole number by answering multiple *How* questions using *can*. • To support optimizing output, ELs participate in MLR1: Stronger and Clearer Each Time.	• Students identify and discuss the emotions experienced during math learning.

Coherence

Previous	Now	Next
• Students found whole-number quotients and remainders (Grade 4). • Students represented division of decimals by a whole number (Unit 8).	• Students use place-value understanding and equivalent representations to divide decimals by whole numbers.	• Students divide whole numbers by decimals using decimal grids and equivalent equations (Unit 8). • Students add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of dividing decimals as they begin to notice generalizable patterns through visual representations.	• Students build their proficiency for decimal place value, basic facts, and division strategies by expanding their skills to include division of decimals by whole numbers.	• Students apply their understanding of dividing decimals by whole numbers to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*

LESSON 8-5

Divide Whole Numbers by Decimals

Learning Targets

- I can use decimal grids to represent and solve a division equation.
- I can write an equivalent equation with a whole-number divisor to solve a division equation.

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 Look for and make use of structure.

Focus

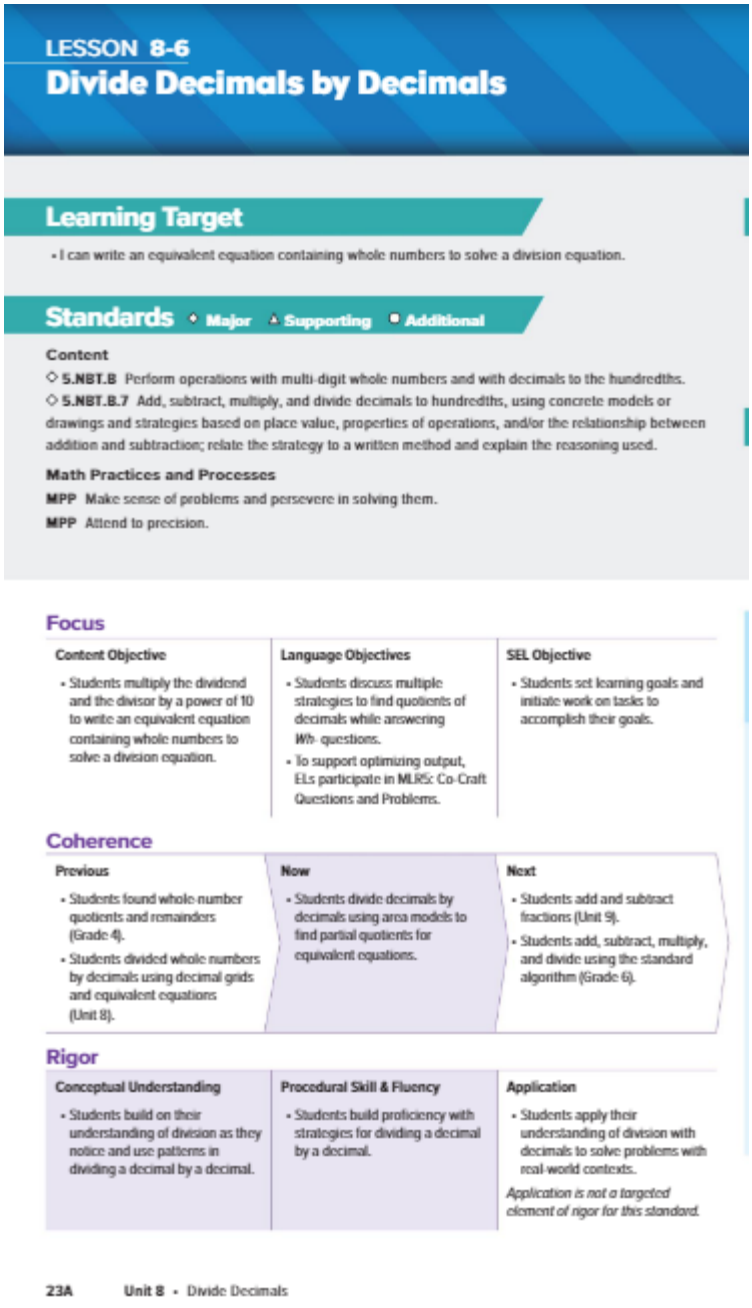
Content Objectives	Language Objectives	SEL Objective
• Students use decimal grids to represent and solve a division equation. • Students multiply by a power of 10 to write an equivalent equation with a whole-number divisor to solve a division equation.	• Students discuss finding quotients of whole numbers using division grids and powers of 10, answering *How* and *Why*. • To support cultivating conversation and maximizing linguistic and cognitive meta-awareness, ELs participate in MLR7: Compare and Connect.	• Students recognize and work to understand the emotions of others and practice empathetic responses.

Coherence

Previous	Now	Next
• Students found whole-number quotients and remainders (Grade 4). • Students used place-value understanding and equivalent representations to divide decimals by whole numbers (Unit 8).	• Students divide whole numbers by decimals using decimal grids and equivalent equations.	• Students divide decimals by decimals using area models to find partial quotients for equivalent equations (Unit 8). • Students add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of place value as they relate different strategies to dividing whole numbers by decimals.	• Students build proficiency with dividing whole numbers by decimals.	• Students apply their understanding of dividing whole numbers by decimals to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*



LESSON 8-6

Divide Decimals by Decimals

Learning Target

- I can write an equivalent equation containing whole numbers to solve a division equation.

Standards ◆ Major ▲ Supporting ● Additional

Content

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

Focus

Content Objective	Language Objectives	SEL Objective
• Students multiply the dividend and the divisor by a power of 10 to write an equivalent equation containing whole numbers to solve a division equation.	• Students discuss multiple strategies to find quotients of decimals while answering *Wh-* questions. • To support optimizing output, ELs participate in MLR5: Co-Craft Questions and Problems.	• Students set learning goals and initiate work on tasks to accomplish their goals.

Coherence

Previous	Now	Next
• Students found whole-number quotients and remainders (Grade 4). • Students divided whole numbers by decimals using decimal grids and equivalent equations (Unit 8).	• Students divide decimals by decimals using area models to find partial quotients for equivalent equations.	• Students add and subtract fractions (Unit 9). • Students add, subtract, multiply, and divide using the standard algorithm (Grade 6).

Rigor

Conceptual Understanding	Procedural Skill & Fluency	Application
• Students build on their understanding of division as they notice and use patterns in dividing a decimal by a decimal.	• Students build proficiency with strategies for dividing a decimal by a decimal.	• Students apply their understanding of division with decimals to solve problems with real-world contexts. *Application is not a targeted element of rigor for this standard.*

23A Unit 8 • Divide Decimals

Integration of Career Readiness, Life Literacies and Key Skills

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).
9.2.5.CAP.1	Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
9.2.5.CAP.2	Identify how you might like to earn an income.
9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.

9.4.8.CI.4	Explore the role of creativity and innovation in career pathways and industries.
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.
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).
9.4.8.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).
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.
9.4.8.DC.2	Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).
9.1.2.PB.2	Explain why an individual would choose to save money.
9.4.8.DC.4	Explain how information shared digitally is public and can be searched, copied, and potentially seen by public audiences.
9.4.8.DC.5	Manage digital identity and practice positive online behavior to avoid inappropriate forms of self-disclosure.
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).
9.4.8.GCA.1	Model how to navigate cultural differences with sensitivity and respect (e.g., 1.5.8.C1a).
9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
9.4.8.IML.2	Identify specific examples of distortion, exaggeration, or misrepresentation of information.
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).
9.4.8.IML.4	Ask insightful questions to organize different types of data and create meaningful visualizations.
9.4.8.IML.5	Analyze and interpret local or public data sets to summarize and effectively communicate the data.
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).
9.4.8.IML.12	Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience.
9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
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).
9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
9.4.8.TL.5	Compare the process and effectiveness of synchronous collaboration and asynchronous collaboration.
9.4.8.TL.6	Collaborate to develop and publish work that provides perspectives on a real-world problem.

Technology and Design Thinking

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

Interdisciplinary Connections

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.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.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.
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.

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

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.
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.