

Grade 5 Mathematics
Unit 1: Place Value, Multiplication, and Expressions

September
2022

Marking Period	Unit Title	Recommended Instructional Days
1	Place Value, Multiplication, and Expressions	17 - 20 days
Domain		
<i>Strand:</i>  5.OA.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.  5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.  5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.  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.5 Fluently multiply multi-digit whole numbers using the standard algorithm.  5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. Key:  Major Cluster  Supporting Cluster  Additional Cluster		

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Progress Indicator: ♦ Tests ♦ Homework / Classwork ♦ Projects ♦ Formative assessments ♦ Summative assessments

Mathematical Practices:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reason of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Questions:

Lesson 1.1 How can you describe the relationship between two place-value positions?

Lesson 1.2 How do you read, write, and represent whole numbers through hundred millions?

Lesson 1.3 How can you use properties of operations to solve problems?

Lesson 1.4 How can you use an exponent to show powers of 10?

Lesson 1.5 How can you use a basic fact and a number pattern to multiply a 2-digit number?

Lesson 1.6 How do you multiply by 1-digit numbers?

Lesson 1.7 How do you multiply by multi-digit numbers?

Lesson 1.8 How is multiplication used to solve a division problem?

Lesson 1.9 How can you use the strategy, *solve a simpler problem*, to help you solve a division problem?

Lesson 1.10 How can you use a numerical expression to describe a situation?

Lesson 1.11 In what order must operations be evaluated to find the solution to a problem?

Lesson 1.12 In what order must operations be evaluated to find the solution when there are parentheses within parentheses?

Essential Understandings:

Lesson 1.1 Recognize the 10 to 1 relationship among place-value positions.

Lesson 1.2 Read and write whole numbers through hundred millions.

Lesson 1.3 Use properties of operations to solve problems.

Lesson 1.4 Write and evaluate repeated factors in exponent form.

Lesson 1.5 Use a basic fact and a pattern to multiply mentally by multiples of 10, 100, and 1,000.

Lesson 1.6 Multiply by 1-digit numbers.

Lesson 1.7 Multiply by multi-digit numbers.

Lesson 1.8 Use multiplication to solve a division problem.

Lesson 1.9 Use the strategy, *solve a simpler problem*, to help you solve problems.

Lesson 1.10 Write numerical expressions.

Lesson 1.11 Use the order of operations to evaluate numerical expressions.

Lesson 1.12 Evaluate numerical expressions with parentheses, brackets, and braces.

Vocabulary:

- Base
- Distributive Property
- Evaluate
- Exponent
- Inverse
- Operations
- Numerical Expressions
- Order of Operations
- Period

Suggested Activity Description(s):

Show what you know, Problem of the Day, Fluency Builders, Personal Math Trainer, Math on the Spot Videos, Real World Videos, Vocabulary Preview Activity, Reteach and Enrichment Activities, Interactive Student Edition Textbook, RtI Activities, Grab and Go Differentiated Centers, Journal Writing, Advanced Learners Activities, Assessments, Standards Focus Packets for the related NJSLs, Success for English Learners Activities, Performance Task

Interdisciplinary Connections:

STEM Activity: In Chapter 1, students extend their understanding of place value, multiplication, and expressions, such as multiplication by multi-digit numbers. These same topics are used often in the development of various science concepts and process skills. Help students make the connection between math and science through the S.T.E.M. activities and activity worksheets found at www.thinkcentral.com.

In Chapter 1, students connect math and science with the S.T.E.M. Activity The Sun-Earth-Moon System and the accompanying worksheets (pages 133 and 134). Through this S.T.E.M. Activity, students will connect to the GO Math! Chapter 1 concepts and skills with various properties of the planet Earth, including finding the planet's circumference based on its rotational speed at the equator. It is recommended that this S.T.E.M. Activity will be used after Lesson 1.7.

Science:

1. The largest body of water on our planet is the Pacific Ocean. It covers an area of 64,186,300 square miles. What is the value of the digit 8 in 64,186,300? Write the number 64,186,300 in expanded form. The Gulf of Mexico covers 582,100 square miles. What is the value of the digit 1 in 582,100? Write the number 582,100 word form.

2. Bromothymol blue is a chemical that can be used to indicate the amount of carbon dioxide in a solution being tested. If carbon dioxide is present in a solution, bromothymol blue will turn from blue to yellow. A science class is going to do an experiment to see how much carbon dioxide the water plants in their aquarium produce. The total amount of bromothymol blue needed for each science class is 135 milliliters. If there are 8 science classes, how much bromothymol blue is needed? If 2 more science classes are added to the existing 8 classes, how much bromothymol blue is needed?

Social Studies:

1. The Louisiana Territory was bought from France in 1803. The territory extended from the Mississippi River to the Rocky Mountains and from the Gulf of Mexico to what is now Canada. The purchase price was \$15 million. Write the price in expanded form. With interest payments included, the final price was \$27,267,662. What are the values of the digit 7 in the final price? What is the final price written in expanded form and in word form?

2. Yellowstone National Park was established in 1872, and is located mostly in Wyoming, but extends into Montana and Idaho. It is known for its abundance of wildlife and Old Faithful Geyser. The park spans an area of 2,200,000 acres and has over 1,100 miles in hiking trails. If 3 hikers walked 115 miles of trail, how many total miles would the group hike? If 7 hikers hiked on this same section of trail, how many total miles would they hike?

Language Arts:

1. Vocabulary Preview Activity, Go Math pg. 4
2. Vocabulary Game, Go Math pgs. 4A-4C
3. The Write Way, Go Math pg. 4D
4. Grab and Go Reader - A Drive Through History

Spot Light On: *Use multiple ways of assessing student understanding.*

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Social and Emotional Learning: <i>Competencies</i>		Social and Emotional Learning: <i>Sub-Competencies</i>	
SEL Competencies: • Self- awareness • Social Awareness • Self- Management • Relationship Skills • Responsible Decision-Making		• Recognizing the importance of self-confidence in handling daily tasks and challenges. • Demonstrate an awareness of the expectations for social interactions in a variety of ways. • Demonstrate an understanding of the need for mutual respect when viewpoints differ. • Identify and apply ways to persevere through alternative methods to achieve goals. • Utilize positive communication and social skills to interact effectively with others. •Develop, implement, and model effective problem solving and critical thinking skills.	
Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>	
<u>Formative Assessments:</u> • Teacher Observations • Exit Tickets • Quizzes • Self Assessments • Math Journals • Homework/Classwork • Teacher created assessments		<u>Benchmarks & Summative Assessments:</u> Chapter/Unit Assessments • Standardized Tests • District Assessments • Project-based Assessments	
Differentiated Student Access to Content: Teaching and Learning <i><u>Resources/Materials</u></i>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core Resources
Go Math Workbook, IXL, Personal Math Trainer, Math on the Spot Videos, My HRW, Khan Academy, Illustrative Mathematics, Learn360, TeacherTube, BrainPOP, Freckle, LearnZillion, MobyMax, 60 minutes of weekly ST Math, Edulastic, Achieve the Core, Desmos	Reteaching worksheets, Skill building workbook, Math manipulatives, Leveled practice worksheets	Dictionary for native language, Video tutorial in native language, Success for English Learners worksheets, Go Math Leveled Strategies for English Learners, Go Math Linguistic Support	ST Math Challenge Objectives, G&T tasks, Enrichment worksheets, Art of Problem Solving, Leveled assessments, Go Math Teaching for Depth

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Supplemental Resources			
Technology: • Chromebooks • Online math manipulatives Other: • Google Classroom, Google Meets, Schoology, Interactive Workbooks • Illustrative Mathematics • insidemathematics.org • National Library of Virtual Manipulatives			
Differentiated Student Access to Content: Recommended <i>Strategies & Techniques</i>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics.	Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.	Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric.	Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect students to related content.

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	Disciplinary Concept(s): Critical Thinking and Problem Solving	
	Core Ideas:	With a growth mindset, failure is an important part of success.
	Performance Expectation/s:	9.4.12.CI.1: Demonstrate the ability to reflect, analyze, and use creative skills and ideas.

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	Career Readiness, Life Literacies, & Key Skills Practices
	Act as a responsible and contributing community member and employee. Attend to financial well-being. Consider the environmental, social and economic impacts of decisions. Demonstrate creativity and innovation. Utilize critical thinking to make sense of problems and persevere in solving them. Model integrity, ethical leadership and effective management. Plan education and career paths aligned to personal goals. Use technology to enhance productivity, increase collaboration and communicate effectively. Work productively in teams while using cultural/global competence.

New Jersey Legislative Statutes and Administrative Code (place an “X” before each law/statute if/when present within the curriculum map)									
	Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>		LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	x	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	x	Standards in Action: <i>Climate Change</i>